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Methods: A community-based cross-sectional study was conducted at the Tharu community of Gadi rural municipality, Sunsari, Nepal, from February to August 2015, using a purposive sampling method. A face-to-face interview was used to collect data. Descriptive statistics were performed using the IBM-SPSS 17.0.

Results: Females were predominant (57.9%) in this study. About 86.8% of the participants used a toothbrush with toothpaste as a method of cleaning their teeth; 81.76% brushed once a day; 84.3% brushed in the morning. Almost 80% of the participants brushed their teeth using fluoridated toothpaste. The majority (75%) of the participants replied that they change their toothbrush for at least 6 months.

Keywords: *oral hygiene, tobacco, indigenous people, tharu, food habits.*

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Study on Oral Hygiene Practices, Tobacco use, and Food Habits among Tharu Community of Gadi Rural Municipality, Nepal

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Conclusions: Our study suggested that oral hygiene practices are satisfactory among the Tharu community. Tobacco use and food habit that affects oral health was also prevalent among them.

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I. Introduction

Oral diseases are a major public health concern due to their increased prevalence and their effects on people's quality of life.[1] They affect people throughout their lifetime, causing pain, discomfort, disfigurement, and even death. As per the estimation to the World Health Organization (WHO), oral disease affects nearly 3.5 billion people worldwide.[2] Tooth decay (untreated dental caries), severe periodontal (gum) disease, and oral cancer are the most prevalent dental diseases affecting the global population. An unhealthy diet with high sugar content, use of tobacco, high consumption of alcohol, and poor oral hygiene are the common factors affecting the oral health of people.[2, 3] Dental caries results when plaque (a sticky film of bacteria and food) formed on the surface of a tooth converts the free sugars into acids, which when not removed on a daily basis, slowly destroys the enamel surface of the teeth, causing cavities. Continued high consumption of free sugar and tobacco and inadequate exposure to fluoride leads to increased cavities, pain, bad breath, gum irritation resulting in gingivitis, periodontal disease, and tooth loss.[4] tobacco use is a major risk factor of non-communicable diseases such cancer (NCDs), making it one of the biggest public health threats the world has ever faced [5]. Similarly, accessibility of treatment service for an oral health condition, education, and socio-demographic environment also influence oral hygiene practices[6]. Treatment services for oral health conditions are rarely available in rural areas and mostly confined to urban areas but is expensive, not all the population of low-income countries like Nepal can afford. Promotion of oral health is the only cost-effective approach that can address the overall population to maintain oral health, prevent the burden of oral disease, and promote an individual's quality of life. A large ratio of oral diseases can be prevented by providing education on oral hygiene, which includes a consequence of tobacco smoking, high consumption of sugar-containing diets along with the importance of brushing teeth with a fluoride-containing toothpaste and flossing, which eventually enforces the general population to improve their attitude towards oral health and hence apply in their daily life.[5, 7] There have been very few studies in Nepal that have addressed this issue. Keeping this background in mind, the present study was conducted to assess oral hygiene practices, tobacco use, and food habits of people among the Tharu community of Gadi rural municipality, Sunsari, Nepal.

II. Methods

This community-based cross-sectional study was conducted at the Tharu community of Gadi rural

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municipality, Sunsari, Nepal, from February to August 2015. Participants aged≥18 years of either gender or willingness to participate in the study were included in the study. A sample size of 159 was taken to explore oral hygiene practices, tobacco use, and food habits among the people of Tharu community using a purposive sampling method. Since the sampling frame was unknown, the recent population census of 2011 (34852) provided by the Gadi Rural Municipality was used to determine the required sample from each ward. A face-to-face interview was conducted to collect data. The data collection sheet consisted of questions on demography (age, gender, education, marital status, occupation, type of family, and number of family members). The oral hygiene practice was assessed using seven questions that covered brushing habits, dentifrices used, time of brushing, methods of brushing teeth, use of toothpick, and changing brush interval. Types of tobacco use, their quantity, and food habits of participants were reported in the data collection form. The English language questionnaire was translated into Nepali for an easy understanding of the study population. Collected data were checked for completeness, entered in Microsoft Excel, and then analyzed using IBM-SPSS 17 (IBM Corporation, Armonk, NY, USA). Descriptive statistics were used. Ethical approval for this study was obtained from the Ethical Review Board (ERB) of the concerned authority. Written permission for conducting the study was taken from the administrative section of the Gadi Rural Municipality, Sunsari, Nepal. Written informed consent was obtained from the participants before enrolling them in the study. Participants were fully informed about the nature and purpose of the study in the Nepali language. Personal details provided by the participants were kept confidential and anonymity was maintained.

III. Results

The demographic characteristics of the participants have been depicted in Table 1. More than half of the participants were in the age group of 18-35 years (53.45%). Females were predominant (57.9%) in this study. The majority of the participants were married (133, 83.6%), while 7(4.4%) were widows/widowers. Among the total participants, 33 (20.8%) of them had never gone to school and the majority of patients 68 (42.8%) had received a secondary level of education. Similarly, 111(69.81%) of them were unemployed, and more than half (52.2%) belonged to a nuclear family. The majority (50.9%) of the participants had 5-8 members in their family.

Table 1: Sociodemographic characteristics of the participants (n=159)

Variables	Frequency	Percentage (%)
Age		
18-35	85	53.45
36-55	42	26.41
≥56	34	21,38
Gender		
Male	67	42.1
Female	92	57.9
Marital Status		
Married	133	83.6
Unmarried	19	11.9
Widow	7	4.4
Education		
Never went	33	20.8
Informal	24	15.1
Primary	18	11.3
Secondary	68	42.8
Certificate level	13	8.2
Bachelor level and above	3	1.9
Occupation		
Unemployed	111	69.81
Non- government employee	19	11.9
Self-employed	14	8.8
Student	13	8.2
Government employee	2	1.3

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Types of Family		
Joint	76	47.8
Nuclear	83	52.2
Family Member		
1-4	62	39
5-8	81	50.9
≥ 9	16	10.1

All participants acknowledged brushing their teeth. The majority of the participants used fluoridated dentifrices (115, 80%), while 15 (10.5%) of the participants did not know about their dentifrices. Most of the participants (84.3%) cleaned their teeth in the morning, and 2 (1.3%) of them responded that they have no any fix time for cleaning their teeth. Almost 3/4th (73%) of the participants used toothpicks as an oral hygiene aid for cleaning their teeth. No other cleaning equipment's like dental floss and interdental brush was used in the community. Approximately 4/5th (81.76%) of the participants cleaned their teeth once daily, while 15% cleaned them twice daily. The majority of the participants (86.8%) used toothbrush and toothpaste, whereas a few (6.3%) of them used Datiwan (historic plants like neem and babool twigs used for brushing) as a means for cleaning their teeth. one hundred and nineteen (75%) participants disclosed that they change their toothbrush twice a year, as shown in Table 2.

Table 2: Oral hygiene practices of the participants (n=159)

Variables	Frequency	Percentage (%)
Brush their teeth		
Yes	159	100
Dentifrices used		
Fluoridated	115	79.9
Non fluoridated	14	9.7
Can't say	15	10.4
Time of brushing teeth		
Morning	134	84.3
Bedtime	20	12.6
Morning +bedtime	3	1.9
Anytime	2	1.3
Use of toothpicks		
Yes	143	73.0
No	27	27.0
Frequency of Brushing /day		
Less than Once	5	3.144
Once	130	81.76
Twice	24	15
Method of brushing teeth		
Brush and toothpaste	138	86.8
Brush and tooth powder	6	3.8
Karchi	5	3.1
Datiwan	10	6.3

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Changing the interval of brush		
1-3 months	31	19.4
4-6 months	9	5.6
More than 6 month	119	75

Of the total 159 participants, one-third (29.6%) of them used any type of tobacco substance followed by tobacco leaf (22, 46.8%), cigarette (21, 44.5%), Chilim/Hookah (2, 4.2%), and Gootka (2, 4.2%), respectively, as illustrated in Table 3.

Table 3: Use of tobacco substances among the participants (n= 47)

Types of tobacco	Frequency	Percentage (%)
Cigarette smoking		
1-5 sticks/day	14	29.7
6-10 sticks/day	5	10.6
11 and more sticks/ day	2	4.2
Tobacco leaf		
1 packet/day	18	38.3
More than one packet/day	4	8.5
Chilim/Hookah		
20 times/day	2	4.2
Gootka		
1-6 packet/day	2	4.2

The food habits of the participants has been unveiled in Tables 4a and 4b. Of the 159 participants interviewed, the majority (50.9%) of the participants eat fresh fruits several times a month followed by several times a week (18.2%) and once a week (5.7%), respectively, while very few 1.3% of the participants never eat fresh fruit. One-third of the participants (32.1%) eat junk food several times a month while only 10.1% of participants never used junk food. The majority (54.7%) of participants drink soft drinks (Lemonade, Coca Cola, and Fanta) several times a month, and 21.4 % never had the habit of consuming soft drinks. Most of the participants (90%) had no habit of consuming food items like jam/honey, while 10% of them have a habit of consuming jam/honey several times a month. Most of the participants (42.1%) eat sweets and candy several times a month, followed by once a week (17%), while 27.7% of participants never had the habit of consuming such items. About half (46.5%) of the participants had no habit of drinking milk with sugar. Participants who drank milk with sugar once a day were 17.6% , followed by several times a week (13.2%), several times a month (13.2%), and very few (1.3%) of them had the habit of drinking milk with sugar several times a day. More than one-third (35%) of the participants drink tea with sugar once a day followed by several times a day (26.4%), several times a week (10.7%), whereas 18.2% of them had no habit of taking tea with sugar. Tea and coffee drinking habit was also less among Tharu i.e. 1.3% takes coffee several times a month.

Table 4a: Food habits of the participants (n=159)

Variable	Frequency	Percentage (%)
Fresh Fruit		
Several time a day	9	5.7
One time a day	9	5.7
Several times a week	9	5.7
Once a week	29	18.2
Several times a month	81	50.9
Never	2	1.3

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Junk foods		
One time a day	26	16.4
Several times a week	33	20.8
Once a week	32	20.1
Several times a month	51	32.1
Never	10	10.1
Soft Drinks		
Several times a week	19	11.9
Once a week	17	10.7
Several times a month	87	54.7
Never	34	21.4
Jam/Honey		
Several times a month	15	10
Never	144	90

Table 4b: Food habits of the participants

Variables		Frequency	Percentage (%)
Sweets/candy	Several times a day	3	1.9
	One time a day	2	1.3
	Several times a week	16	10.1
	Once a week	27	17.0
	Several times a month	67	42.1
	Never	44	27.7
Milk with sugar	Several times a day	2	1.3
	One time a day	28	17.6
	Several times a week	21	13.2
	Once a week	13	8.2
	Several times a month	21	13.2
	Never	74	46.5
Tea with sugar	Several times a day	42	26.4
	One time a day	56	35
	Several times a week	17	10.7
	Once a week	5	3.1
	Several times a month	10	6.3
	Never	29	18.2
Coffee with sugar	Several times a month	2	1.3
	Never	157	98.7

IV. Discussion

Our study studied the oral hygiene practices, tobacco use and food habits in the Tharu community of Gadi rural municipality over a period of seven months among 159 participants. Most of the participants were female with an average age of 39 years. Our study showed that more than four-fifth (81.6%) of the Tharu people (the indigenous people) brush their teeth once a day and 15% of participants brush their teeth twice daily to maintain dental health. Most of the participants (86.8%) used a brush and toothpaste for brushing their teeth. Our findings were in contrast with the findings of indigenous people of Australia, where culturally and timely appropriate dental care was deficient among the Indigenous people.[5] Datiwan (historic plant-like neem and babool twigs used for brushing) was used by 6.3% and 3.1% of the participants used Karchi (bamboo twigs) to brush their teeth, which was similar to the findings of indigenous people of Assam India where datiwan and bamboo twigs were used for brushing teeth, but the species of plants used for brushing teeth was found more in number among the indigenous people of Assam, where 83 different plant species belonging to 37 angiosperm families were used for brushing teeth to maintain oral health and hygiene among the indigenous communities.[8] Our study found that almost one- third (29.6%) of the Tharu (Indigenous people of Nepal) people used any type of tobacco substance, which is less than Tobacco used among Australian indigenous people, where 39% of the indigenous people used tobacco.[4] Tobacco consumption was shown less in our study, which might

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be due to a lower income level of indigenous people, uneasy availability, and increased tax on tobacco products by the government of Nepal.

It is well-known truth that fresh fruits promote oral health. In several studies, fresh fruit consumption was significantly associated with a reduced risk of oral health problems.[9, 10] Higher consumption of fresh fruits had an independent strong positive association with oral health-related quality of life.[11] In our study, the majority (50.9%) of the Tharu people eat fresh fruits several times a month. Excess amount of sugar consumption is harmful to both general and oral health.[2, 5] This study revealed that Tharu people also had the habit of consuming sugar-containing items like sweet and candy, milk with sugar, and tea/coffee with sugar. More than 4 in 10 Tharu participants eat sweets and candy several times a month followed by once a week (17%), several times a week (10.1%), several times a day (1.9 %), once a day (1.3%), and 27.7 % participants never had the habit of consuming sugar-containing items like sweets and candy. About half (46.5%) of the participants had no habit of drinking milk with sugar. Participants who drank milk with sugar once a day were 17.6 %, followed by several times a week (13.2%), several times a month (13.2%), once a week (8.2%), and very few (1.3%) had the habit of drinking milk with sugar several times a day. More than one-third (35%) of the participants drank tea with sugar once a day followed by several times a day (26.4%), several times a week (10.7%), several times a month (6.3%), once a week (3.1%), whereas 18.2 % of the participants had no habit of taking tea with sugar. Substantial numbers of people were there who had never taken jams, sweets, candy, and chewing gums. Tea and coffee drinking habits were also less among Tharu people i.e. only 1.3 % had the habit of taking coffee several times a month.

V. Conclusion

Our study suggested that oral hygiene practices are satisfactory among the Tharu community. Tobacco use and food habit that affects oral health was also prevalent among them. Thus, community-based oral health promotion would be beneficial to sustain oral hygiene practices, reduce use of tobacco and food habit that affects oral health.

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None declared

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