

## Knowledge, Attitude and Practice of Mothers towards Canine Tooth Bud Removal and Associated Factors among Mothers Visiting Dental Clinic of Gondar University Hospital, Ethiopia

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### Abstract

**Background:** Canine tooth bud removal is a process of gouging out an infant's healthy baby canine tooth buds embedded underneath the gums, using unsterile tools without anesthesia. This practice is against children's right with many serious consequences in physical, psychological, mental and aesthetical makeup of the children. Therefore, studying the knowledge, attitude and practice of mothers towards to canine tooth bud removal will help to make recommendations for the concerned body for the intervention of this harmful traditional practice.

**Methods:** An Institution based cross-sectional study was conducted from June-November 2015 among mothers visiting the dental clinic of Gondar university Hospital. Four dental surgeons were involved in data collection process using structured questionnaire and doing a physical examination on their under 10 years old child. For testing of significance, categorical data was compared using a chi-squared test and bivariate and multivariate logistic regression analysis was done to assess the association of different independent variables with the dependent variable.

**Results:** A total of 554 mothers within the age range of 19-54 years old with a mean age of  $27.5 \pm 4.65$  (SD) were involved in the study. The prevalence of canine tooth bud removal was 81.9% in the study. The majority of the study participants have a misconception on the cause of diarrhea during teething and one-third of the participants have the intention to continue the practice in the future. The removal of canine tooth bud was done mainly by traditional healers using razor blade during 5-8 months of their life. Maternal age (AOR=0.378, 95%CI: 0.226-0.633) and educational level have (AOR=3.811, 95%CI: 2.323-6.246) strong association with the attitude of mothers towards to the practice of canine tooth bud removal.

**Conclusion and recommendation:** The prevalence of canine tooth bud removal is high. These findings show an urgent need to have community-based campaign, to build their knowledge on the complications and effect of canine tooth bud removal on the quality of life in children. A culturally sensitive training should be given to change the social belief of the practice.

**Keywords:** Canine tooth bud removal; KAP; Prevalence; Mothers

### Abbreviations:

AOR: Adjusted Odd Ratio, COR: Crude Odd Ratio, KAP: Knowledge, Attitude, and Practice; SPSS: Statistical Package for Social Science; FGM: Female Genital Mutilation

### Introduction

Canine tooth bud removal is a process of gouging out an infant's healthy baby canine tooth buds embedded underneath the gums, using unsterile tools and without anesthesia by traditional healers [1,2]. The community has a strong belief that this milk canine tooth bud causes diarrhea, vomiting, and fever [3-5]. The practice of canine tooth bud removal is done between 4 to 18 months [6].

Canine tooth bud removal damages the very delicate permanent teeth growing underneath. This may also lead to subsequent negative

effects like malocclusion and psychological or social embarrassment due to poor aesthetics. Psychologically affected children are embarrassed and are uncomfortable to smile or talk freely in public leading to low self-esteem [7]. Enamel defects and loss of teeth are the major complications of oral mutilation followed by small mandibular size, infection, decreased growth. Incomplete removal of the tooth bud results in enamel defects on the adjacent deciduous and permanent tooth. Sometimes retention of deciduous lateral incisors along with impacted or displaced permanent canine was observed [8-10].

The practice of traditional harmful practice, which has a long-term devastating effect, is practiced throughout the globe [11]. It's most common in Africa especially east African countries [1,3,4,7,12,13]. The prevalence of deciduous canine extirpation varies from country to country. A research done in rural Kenya by Hassanali in 1995 showed that 87% infants had one or more deciduous canines follicles removed [12] and a study done in Addis Ababa, Ethiopia showed that 72% of the children had the practice [14].

A baseline survey on FGM and other harmful traditional practice in North West Ethiopia showed that the prevalence of milk tooth extraction was 82.0%. According to this survey low-level of knowledge and attitude was observed on deciduous teeth extraction. Only 41.1% of the participants promised not to perform milk tooth extraction and 63.8% of the study subjects support the eradication of deciduous teeth extraction [15]. A similar study done on SNNP showed that the overall prevalence of canine tooth bud removal is 26.7% and 59.4% of respondents consider this practice as harmful, 58% support eradication and 56% promised not to do it in the future [16].

A cross-sectional study done in the communities in North West Ethiopia showed that the prevalence of canine tooth bud removal was 70% and 84.5% of mothers prefer canine tooth bud removal for the treatment of diarrhea [13]. Another KAP study done in Dembia, North West Ethiopia, showed that deciduous teeth extraction was 95.6% in the community and 82.4% of the participants prefer the continuation of the practice [17].

In order to develop appropriate and effective preventive measures towards canine tooth bud removal practice, the knowledge, attitude and practice of mothers should be investigated. Therefore, the aim of this study is to assess the knowledge, attitude and practice of mothers towards canine tooth buds removal.

## Methodology and Materials

### Study area and period

The study was conducted in Gondar university hospital dental clinic from June-November 2015. Gondar university hospital is a tertiary

teaching hospital in Ethiopia. Ethiopia is one of the developing countries found in east Africa. Its total population is 94 million. Gondar is 745 km from the capital city, Addis Ababa.

### Approaching of the study participants

During data collection, females visiting the dental clinic of Gondar University of Hospital were approached. All females above 18 years were considered to be included in the study. Allowing for a required confidence of 95% and 5% precision, the required sample size was estimated to be 554 women. The women who meet the inclusion criteria were randomly selected. A woman who is uncooperative and has no under ten years old child was excluded from the study.

### Data collection tools

A structured questionnaire was designed and it included basic Sociodemographic characteristics and knowledge, attitude and practice of mothers towards canine tooth bud removal. The questionnaire was pretested to check the validity of the instrument. Both forward and backward translation was carried out into English and Amharic language and consistency was checked. The data was checked in the field to make sure that for all the information has been properly collected, for its appropriateness, consistency, and completeness that recognize before and during data processing for the overall data quality assurance.

Variables			Frequency	Percentage
Maternal Sociodemographic Characteristics	Age of mother	19-29	250	45.1
		30-39	220	39.7
		>40	84	15.2
	Religion	Orthodox	470	84.8
		Muslim	69	12.45
		Protestant	15	2.75
	Marital status	Married	491	88.6
		Divorced	24	4.3
		Widowed	39	7
	Educational background	<Grade 8	248	44.8
		>Grade 8	306	55.2
	Occupation	House wife	254	45.8
		Business woman	112	20.2
		Farmer	12	2.2
Governmental employee		164	29.6	
NGO employee		12	2.2	
Family income *	<1000 birr	192	34.7	

		>1000 birr	362	65.3
*Ethiopian birr				

**Table 1:** Socio-demographic characteristics of women visited dental clinic of Gondar University Hospital, 2015 (n=554).

### Oral examination

Oral examination of children less than ten years old was done by four dental surgeons via using natural lighting, disposable latex glove, wooden spatula, and mouth mirror. The teeth were recorded as; unerupted, malformed or normal depending on its appearance. The teeth were recorded unerupted if the child had the previous history of oral mutilation and unerupted in the expected eruption period. The tooth is malformed if the child had previously oral mutilated and malformed after the eruption.

### Data analysis

After coding and editing, data were entered and analyzed using version 20. Descriptive data were given in percentages depending on the variable type. Logistic regression analysis was performed to test the association between dependent and independent variables. A P-value less than 0.05 was considered statistically significant.

### Data quality control

The questionnaire was pretested in 5% of the participants at randomly selected mothers visiting dental clinic to ensure the quality of data. Training was given for the data collectors and supervisors before the actual data collection time. During the data collection, process questionnaires were reviewed and checked for completeness, accuracy and clarity by the supervisors and principal investigator.

### Ethical clearance

Prior to the commencement of data collection, ethical clearance was obtained from the university of Gondar ethical review committee. The study participants were briefed for the aim of the study and asked for consent. A written informed consent/assent was also sought from mothers of the child to do oral examination.

### Result

#### Sociodemographic distribution of respondents

A total of 554 mothers were asked to their knowledge, attitude and practice towards canine tooth bud removal. The age of the study participants ranged from 19 to 54 years old with a mean age of 27.5±4.65 (SD). The majority of the respondents were orthodox (84.8), married (88.6), completed grade 8(55.2%) and are house wife (45.8%) (Table 1).

#### Knowledge of mothers towards oral mutilation

All of the respondents ever heard about oral mutilation. The majority (75.3%) of them heard it from their families and traditional healers (20.1%). Diarrhea was the leading (68.72%) symptom observed that pressures parents for canine tooth bud removal and the majority of the participants consider the diarrhea is due to maggots inside the tooth bud (55.07%) (Table 2).

Knowledge question		Frequency	Percentage
Have you heard infantile oral mutilation	Yes	554	100
	No	0	0
IOM is the practice of removal of the deciduous tooth bud from the child	Yes	256	46.21
	No	298	53.79
What was the symptom that lead a child for canine tooth bud removal	Diarrhea	312	68.72
	Fever	80	17.62
	Vomiting	32	7.05
	Retarded growth	30	6.61
What is the cause of diarrhea in children	Maggot inside the tooth	250	55.07
	Bacterial/parasitic	106	23.35
	Others	98	21.58
What happen if a child will not be oral mutilated	Will die	172	31
	Retarded growth	102	18.4

	Develop infection	180	32.5
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**Table 2:** Knowledge of women about the ill health effects of canine tooth bud removal practice in University of Gondar Hospital Dental Clinic, North West Ethiopia, 2015.

**Attitude of mothers towards to canine tooth bud removal**

Among total respondents, 256(46.2%) consider canine tooth bud removal as a harmful traditional practice but 184(33.2%) have the

intention to continue in the future. Most of mothers 189 (41.6%) believe that unless their child tooth bud is removed he/she will die (Table 3).

Attitudes	Frequency (yes)	Percentage
Do you think that the practice of canine tooth bud removal should continue?	184	33.2
A child will die if canine tooth bud removal is not done	172	31.0
Do you support canine tooth bud removal	184	33.2
Canine tooth bud removal is harmful	256	46.2
The practice should be totally eradicated	176	31.8

**Table 3:** Attitude of mothers towards canine tooth bud removal visiting dental clinic of Gondar university Hospital, 2015.

**Mothers Practice to canine tooth bud removal**

Almost all (96.7%) of the study participants know the practice is still practiced in the community and 81.9% of mothers had, at least, one child oral mutilated. The commonest (64.8%) period for tooth bud removal was between 5-8 months. The practice of tooth bud removal

was performed by different groups of people; traditional healers (77.1%), community health workers (13.2%), Childs parent (5.3%) and traditional birth attendants (4.4) were reported as canine tooth bud removal practitioners (Table 4).

Practice question		Frequency	Percentage
Is there oral mutilation practice in the community	Yes	536	96.7
	No	18	3.3
Is your child oral mutilated	Yes	454	81.9
	No	100	18.1
Will you perform in the future	Yes	184	33.2
	No	370	66.8
Age at which oral mutilation is done?	0-4 months	116	25.6
	5-8 months	294	64.8
	9-12 months	40	8.8
	>1 year	4	0.9
Decision makers to perform IOM?	Mother/self	176	38.8
	Mother in law	76	16.7
	father	96	21.1
	Both (Father and mother)	106	23.3
IOM performers the procedure	Traditional birth attendants	20	4.4
	Child's parent	24	5.3
	Traditional healers	350	77.1

	Community health workers	60	13.2
From whom did you learn the practice	Mother in law	198	43.6
	Friends	156	34.4
	Spouse	48	10.6
	Traditional birth attendants	20	4.4
	Community health workers	32	7.0
Material for oral mutilation	Razor blade	211	46.5
	Wire	77	16.9
	"Worento"	119	26.2
	Garlic	47	10.4
"Worento" - Traditionally used needle-like material			

**Table 4:** Maternal practice of oral mutilation visited dental clinic of University of Gondar Hospital, North West Ethiopia, 2015.

### Logistic regression analysis

The following factors were found to be significantly associated with the attitude of mothers towards canine tooth bud removal in bivariate analysis: respondent's age, religion, educational background and

maternal occupation. In multivariate analysis respondents' age (AOR=0.378, 95%CI: 0.226-0.633) and educational background (AOR=3.811, 95%CI: 2.323-6.246) were significantly associated with their attitudes to the practice of canine tooth bud removal (Table 5).

Sociodemographic characteristics of the participants		Supports canine tooth bud removal		AOR(95% CI)
		Yes	No	
Age of mothers	19-29 years	64	186	0.378(0.226-0.633)
	30-39 years	80	140	0.420(0.229-0.769)
	>40 years	40	44	1
Religion	Orthodox	168	302	2.23 (0.619-7.99)
	Muslim	13	56	0.929(0.229-3.77)
	Protestant	3	12	1
Marital status	Married	160	331	1.421(0.418-4.833)
	Widowed	20	19	2.070(0.520-8.247)
	Divorced	4	20	1
Educational background	<8	124	124	3.811(2.323-6.246)
	>8	60	246	1
Maternal occupation	House wife	100	154	1.277(0.375-4.355)
	Business woman	32	80	0.765(0.215-2.725)
	Farmer	6	6	2.00(0.384-10.409)
	Governmental employee	42	122	0.733(0.210-2.557)
	Nongovernmental employee	4	8	1
Family income/month	<1000 birr	84	108	1.202(0.722-2.00)

	>1000 birr	100	262	1
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**Table 5:** Impact of sociodemographic characteristics on the attitudes of participants towards canine tooth bud removal, university of Gondar dental clinic, North West Ethiopia, 2015.

## Discussion

Canine tooth bud removal damages the very delicate permanent teeth growing underneath. This may also lead to subsequent negative effects like malocclusion and psychological or social embarrassment due to poor aesthetics. Psychologically affected children are embarrassed and are uncomfortable to smile or talk freely in public leading to low self-esteem [7].

In the present study, the majorities (55.07%) of the study participants know diarrhea the child faced was due to the worm inside the tooth, and only (23.35%) knows it's due to bacterial/parasitic infection. This result has similar finding with a study done in Maasai community in Kenya where maggots in the tooth were the major cause of the child illness [12,18]. This is due to their low-level of knowledge and attitude to milk tooth extraction practice [15].

This study revealed that diarrhea (68.7%) was the major cause of canine tooth bud removal among the study participants which supports the study done in Dembia where 84.5% of mothers reported deciduous teeth extraction as a useful treatment for diarrhea [18] and other studies were done in Tanzania [5,19] and Sudan [3]. These studies showed a common misconception and myths about teething among mothers.

One-third (31.0%) of the mothers believe the child will die if the child doesn't undergo canine tooth bud removal during childhood and 33.1% of them have the intention to continue the malpractice. This result is low when compared with a study done in Dembia where 82.4% of the participants prefer the continuation of the practice [17]. This difference may be due to the variation in knowledge of mothers towards canine tooth bud removal and the time duration of the two studies.

Almost all (96.7%) of the study participants know the practice is still practiced in the community and 81.9% of mothers had, at least, one child oral mutilated, which is similar to the results found on a baseline survey of FGM and other harmful traditional practice in North West Ethiopia (82.0%) and relatively comparable with the study was done in Kenya [12] and Addis Ababa, Ethiopia [14]. But the prevalence is high when compared with the study was done in Tanzania [5,19], Ethiopian Jewish children [4], Uganda [1]. This may be due to cultural and educational level variation between the countries.

The practice of oral mutilation is commonly done while the child was 5-8 months (64.8%) after birth by traditional healers (77.1%), using mostly unsterile razor (blade) (46.5%) followed by 'Worento' (26.2%). This result coincides with the study done in Uganda where the practice is done by traditional healers (95.7%) using crude and unsterile materials such as; sharp-pointed chisels, bicycle spokes, razor blades and locally made clippers [1]. This is due to the attitude of the respondents to this healers is high due to their easily accessibility and affordability as well as they are mostly respected community elder.

The present study showed that 46.2% of the participants consider canine tooth bud removal as harmful practice and one-third of the respondents (31.8%) had supported total eradication of this

malpractice which is low when compared with a baseline survey in SNNP where 59.4% of respondents consider canine tooth bud removal as harmful and 58% support eradication [16] and similar study on north-west Ethiopia found 63.8% of the study subjects support the eradication of deciduous extraction [15]. This may be due to the cultural and knowledge difference between these studies.

In the present study, maternal age (AOR=0.378, 95%CI: 0.226-0.633) and educational level (AOR=3.811, 95%CI: 2.323-6.246), were strongly associated with a negative attitude (supports canine tooth bud removal) to canine tooth bud removal. The maternal educational level of less than grade 8 has 3.8 times intention to continue the practice of canine tooth bud than those who are grade 8 or above. This result is supported by the study done in Dembia, Ethiopia, where educational status has a strong association with the attitude of the participants to the future use of the malpractice(AOR=0.353, 95%CI: 0.280-0.447) [17]. Education has a great influence on the eradication of this malpractice.

## Conclusion and Recommendation

There was a lack of knowledge on the causes of diarrhea during teething in the community. It's also worth noting that some respondents claimed that the cause of diarrhea among children was the canine tooth bud and oral mutilation had to be done. The parents/guardians should take the child to dentist or pediatricians during diarrhea or swelling of the gums which is mistakenly thought to indicate the presence of maggots in the tooth. In addition to this, these findings demonstrate an urgent need to have community-based campaign, to build their knowledge on the complications and effect of oral mutilation on the quality of life in children.

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## Authors' Contribution

Amare Teshome: conception and design of the study, data collection, data analysis and wrote the first draft and final of the manuscript. Getaneh Andualem: data collection and analysis. Samuel Seifu: proposal writing, data collection, and analysis, wrote the first draft of the manuscript. Rediet Tsegie: participated in proposal writing, data collection and analysis. All authors agree on the results of the study and approved the final manuscript for publication.

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