



# Assessment of KAP Towards Oral Health of Under Five Children Among Mothers Visiting Federal Defense Force “Torhayiloch” Hospital, Maternal and Child Health Clinic, Addis Ababa, Ethiopia, 2017.



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## Objectives

**Background:** Oral health is defined by the World Health Organization as “a state of being free from any pain originated from mouth and face, oral and throat cancer, oral infection and sores, periodontal disease, tooth decay, tooth loss, and other diseases and disorders that limit an individual’s capacity in biting, chewing, smiling, speaking, and psychosocial wellbeing”

**Objective:** To assess mother’s knowledge, attitude and practice regarding children’s oral health among mothers; who has children below the age of five years, attending maternal, and child health care of the study hospital.

**Methods:** Institutional based descriptive cross-sectional study was conducted among a sample of 287 mothers. Interview method was used to collect data. Study subjects were selected by no probability purposive sampling method. Data was analyzed by using SPSS version 23 through descriptive statistics

**Result:** About 71.3% of mothers found to have optimum level of knowledge on Childhood Oral Health. There were misconceptions regarding regular utilization of toothpastes, about 65.5% of mothers believed that use of toothpastes could cause bad breath and gum bleeding while this proportion was found to be lower among mothers with higher level of education 47.4%, 30.7% respectively. Regular child oral health practice was good among mothers who attend higher education.

**Conclusion:** Oral health, Childhood, Awareness of mother, Under five children, Misconception, Ethiopian army hospital

**Keywords:** Oral health; Childhood; Dental caries; Attitude; Knowledge; Parents and practice; KAP

**Abbreviations:** COH: Child Oral Health; MCH: Maternal and Child Health; SD: Standard Deviation; SPSS: Statistical Package for Social Sciences; WHO: World Health Organization; TH: Torhayiloch Hospital

## Introduction

Oral health is defined by World Health Organization (WHO), as “a state of being free from any pain originated from mouth and face, oral and throat cancer, oral infection and sores, periodontal disease, tooth decay, tooth loss, and other diseases and disorders that limit an individual’s capacity in biting, chewing, smiling, speaking, and psychosocial wellbeing” [1]. Children how lack access to dental health care and good preventive home care are at increased risk to developing caries [1,2]. Children under the age of 5 years generally spend most of their time with their parents and

guardians, especially mothers. These early years are important cornerstones for overall health of children including oral health, because this is the time during which the earliest childhood routines and habits are acquired [3].

Mother’s knowledge on oral health affects the oral health of their children, as oral health related habits such as those related to oral hygiene and diet are established during infancy and maintained throughout early childhood [4]. Furthermore, poor attitude of parents toward oral health of infants and young children are

associated with poor oral health status such as increased caries prevalence [5]. Improper feeding practices increase the risk for the development of early childhood caries in infants and toddlers [6]. Several studies reported a positive association between favorable mother's attitude and good children oral health practice as well as risk reduction [7-9]. Mothers who have good oral health practice to themselves are found to do the same to their children as well [10]. Meanwhile, the more positive is the parents' attitudes toward dentistry; the better will be the oral health of their children [11].

In general, children's oral health maintenance and outcomes are influenced by their parent's knowledge, beliefs, and practices, as these affect oral hygiene and healthy eating habits. Parent's knowledge and positive attitude toward good dental care are very important in the preventive cycle. Without understanding of mother's knowledge about oral health risk factors, importance of preventive oral health care and oral health maintenance measures, it is difficult to employ effective disease preventive strategies [12]. Hence documentation of current evidence regarding mother's knowledge, attitude, and practice toward children's oral health is crucial and this study will supplement important data to the evidence based oral health care provision programs.

Knowledge is a major vehicle for improving the health of the poor; in particular, as mothers comply better with child oral health care regimens when they are well informed and positively reinforced, and lack of information is among the reasons for non-adherence to preventive oral hygiene practices [13]. In Ethiopia, almost half (47%) of household members are children under age 15 and under five children constitutes about 20% of the total, furthermore, women in urban areas have 2.6 children on average [14]. Most children below age 5 years are not self-sufficient to exercise oral health care and for this reason they are dependent on someone else; mostly on their mothers for routine oral health care.

The burden of oral diseases among this age group is alarmingly high in Ethiopia. In a community-based cross-sectional study conducted on a sample of 658 children in Addis Ababa, a 35.4% prevalence of periodontal disease was reported. It is revealed that oral health care practice is also poor where, 48% of children did not brush their teeth and 43% brushed only once daily [15]. Most children consumed sweet food and 78% did not clean between teeth and were more likely to consume sugary food [16]. Meanwhile, improper practices of mothers could increase the risk for the development of early childhood oral health problems [16]. On the other hand, a positive association between favorable mother's attitude and good children oral health practice is quoted. Most of the studies in this respect support that positive attitude of parents towards dental health, increases the likelihood of their children tooth brushing frequency [7,8]. While, parental attitudes and practice have a significant impact on the establishment of habits favorable to children's oral health like controlling sweet snacks [9,17].

As understanding the knowledge, attitude and practice of mothers about children's oral health care will contribute useful information for the planning and implementation of preventive programs. For countries; like Ethiopia, with a health policy aiming largely on disease prevention, and where the field of dentistry is at its infancy, such studies are essential. This study was designed as an attempt to explore maternal knowledge, attitude, and practice towards under five children dental health among mothers who visited mothers and child health care department in Torhayiloch hospital, Addis Ababa, Ethiopia.

### Global burden of oral disease among children

Poor oral health in children is a major public health problem all over the world [1]. Despite the considerable progress in pediatric oral health care achieved in recent years, tooth decay remains one of the most preventable common chronic diseases of childhood [3,4,18]. Tooth decay affects more children than any other chronic infectious disease in developed countries, where about 60 to 90% of schoolchildren have dental caries and most of the diseases remained untreated [1]. Oral diseases among children can result in a broad range of functional impairments that have far-reaching implications for growth, development, school performance, and peer relationships, children with poor oral health are more likely to experience dental pain, miss school and perform poorly in school [19,20].

Dental carries, though less common and less severe in most African countries, it is expected that the incidence of dental caries among children will increase soon in many countries of Africa, due to changes in lifestyles [13]. The prevalence of early childhood caries was reported to range from 47.4% to 74% in two separate studies done in Addis Ababa, Ethiopia [15,16].

### Factors affecting access to child oral health care

Children wherever they are, face additional health disparities than adults, which can potentially affect their ability to access dental care [21,22]. Many low-income and minority children face significant challenges, in association to several factors.

Internal factors include parental belief systems, practices, low parental literacy; an inability to adequately understand current educational materials [23]; uncertainty about prevention; home oral care activities perceived as time consuming [24], financial difficulties which make it challenge to prioritize dental care [25]; as well as dental anxiety and phobias [26]. External factors include inability to schedule appointments that do not conflict with workplace demands and other parental responsibilities [27]; and socioeconomic or cultural discrimination [28], and a combination of barriers that interfere with home care compliance [29].

### Mothers' knowledge, attitude, and practice towards children's oral health care

Health awareness is the capacity to obtain, communicate, process, and understand basic health information and services to make appropriate health decisions [30]. Parents can be educated about home oral hygiene measures like optimum frequency

of tooth brushing, type and amount of tooth paste to be used by children and timings of tooth brushing, eating habits, and seeking help in occasions when professional dental care is needed. An early first dental visit serves as a preventive measure.

The results of several studies showed that small proportion of mothers think that first dental visit of child should be within first year of life. Studies done by Nainar and Straffon also showed that in the United States only 32% of children aged 2-4 years had a dental visit in the past 12 months [31]. Likewise, another survey by American Association of Pediatric Dentistry found that 97 % of mothers didn't know that their children needed to visit a pediatric dentist in the first year of life [32].

Several study findings indicated that significant proportion of parents support an opinion that children only needed to see a dentist in the case of a serious health problems. In India, study done by Huma and colleagues, reported that as large as 53.6% of mothers were thinking that first dental visit should be at the time of a dental problem [16]. Similarly, Al Shan and colleagues in their study showed that only 23.8% of Saudi parents were found to have the opinion of having first dental visit in first year of life [16]. In another study by Al-Shalan TA et al, majority of parents in Saudi Riyadh, independently thought ages 3 or 6 years were the best ages for first dental visit [33].

It is said that learning begins at home and mothers as the first and best teachers, children will have better oral hygiene if their mothers' practice oral hygiene maintenance regularly and motivated to adopt positive oral health behavior [34,35]. Slayton and colleagues in their cohort study about dental visit and professional fluoride application in Iowa reported that only 2% of parents had taken their children for dental visit by one year of age, 11% by two years of age, and 31% by three years of age [36]. Literatures also examined the association between mother's knowledge, attitude, practice, and children's oral health outcomes [7,10,16,17]. Though, Koerber et al. [37] in their study concluded that oral health knowledge and parental influence were not significant factors associated with tooth brushing frequency in metropolitan African American pre-adolescent children.

Significant proportion of mothers ignored risky habits of their children. Studies done by Kalyvas and colleagues, Huma and colleagues reported that 31% -44.9% of parents know that their children ate sweets more than once per day between meals, [10,38] while in study done by MG Gussy and colleagues, large proportion of parents although brushed teeth; they lacked confidence related to the frequency of cleaning, and most parents believed fluoride toothpaste reduced the risk of early childhood caries but did not know whether it should be used with children [39]. Studies done in India to assess the mother's knowledge about the oral health of their pre-school children showed that about 73 % mothers were found to have a poor knowledge about the importance of children's oral hygiene practices [40]. Another study which involved 900 mothers showed that 72% mothers don't supervise their children's oral hygiene practice [34]. Moreover, mother's knowledge

about fluoride was not satisfactory, and majority of the mothers had inadequate knowledge about certain risk factors which can cause caries in children [40].

Regarding oral hygiene maintenance, in another study do by Saima and colleagues, 81.0% of mothers preferred tooth brush and tooth paste to clean their child's teeth, 57.8% reported that only once they ask their children to brush their teeth, 60.8% considered dental problem as less important than other health problems, and none of the participants were aware about timing of the child's first dental visit [41].

These findings suggest that there is a gap in awareness, attitude and practice on child oral health among mothers which can affect oral health outcome among under five children. The negative effects of pediatric dental disease are especially alarming since there are cost effective methods to prevent dental diseases in this at-risk population. Informing caregivers of the existence of affordable and applicable prevention methods is the most important task of every health professionals.

The American Dental Association advises parents to teach children the importance of oral hygiene at an early age, so when they grow up, they will continue good habits that will contribute to their overall health. Oral hygiene, just like diet and exercise, should be factored together when teaching children how to keep themselves. Key messages in oral health education programs should include, exposure to fluoride, healthy food and regular check-ups for oral diseases [42]. Routine oral care of children should be initiated as early as 6 months of age [43,44].

Therefore, this study was conducted to generate information regarding knowledge; attitude and practice of mothers about their children's oral health among mothers visiting mothers and child health (MCH) service at Federal Defense Force ("Torhayiloch") hospital, Addis Ababa, Ethiopia.

## Methods and Materials

### Study area and design

Federal Defense Force / "Torhayiloch" / Hospital is one of the military-based hospitals organized and administered under Ethiopian ministry defense force. The hospital is located at Kolfe-keraniyo sub-city, Addis Ababa, around "Torhayloch" area. It offers several types of health care services primarily for military members and their family and recently, to the civil society in its private wing.

According to physical report of the hospital, in 2016 about 12, 303 mothers were visited the maternal and child health care department.

A cross-sectional-institutional based descriptive study was conducted among mothers who visited maternal and child health care department during study period in this Hospital.

a. Study Period: The study was conducted from August to September 2017.

b. Source Population: The source population was all mothers who visited “Torhayiloch” Hospital during data collection period.

c. Study Population: The study population was all mothers who visited maternal and child health care department at “Torhayiloch” Hospital from August 15 to September 15, 2017.

d. Sample Size Determination: The required sample size was determined using single proportion formula, taking 74.4 % the proportion of high school students in government schools who had poor oral hygiene status from the study conducted by Dereje T. [45] among government high school students in Addis Ababa, assuming 5% marginal error, 95% confidence interval and adding 10% non-response rate.

$$n = \frac{\left(\frac{Z\alpha}{2}\right)^2 * p(1-p)}{d^2}$$

where, “n” is sample size; “Z” is standard normal distribution which is 1.96. “p” is population proportion (which is 74.4 % or 0.744) and “d” is the margin of error which is 5% (0.05).

The estimated sample size was computed as follows:

$$n = \left[ \frac{(1.96)^2 \times (0.744 \times 0.256)}{(0.05)^2} \right]$$

$$n = (3.8416 \times 0.2475) / 0.0025$$

$$n = 0.951 / 0.0025$$

$$n = 293$$

By adding 10 % contingency; the total sample size was (293+29) = 322.

e. Sampling technique: Study subjects were selected by purposive no probability sampling method among mothers who attend maternal and child health care services in “Torhayiloch” Hospital during data collection period Volunteer mothers was involved in the study until the required sample size was achieved.

### Study variables

1. Independent Variables
  - a. Sex
  - b. Age
  - c. Marital status
  - d. Religion
  - e. Ethnicity
  - f. Educational level
  - g. Occupation
  - h. Income
  - i. Number of alive children in the family

2. Dependent variables

- a. Mothers Knowledge about children’s oral health care
- b. Mothers Attitude towards children’s oral health care
- c. Mothers practice towards children’s oral health care

5.3. Data collection

**Instrument and process:** A standardized questionnaire prepared by World Health Organization was adopted [46]; after moderate modification was made in accordance with our research objectives. The questionnaire written in English was translated into Amharic language and then re-translated back to English to judge its consistency. Finally, the Amharic (local study language) version was distributed to study participants during data collection time.

The questionnaire contained introductory statement describing the purpose of the study, and various questions which helped to generate the intended data about socio demographic characteristics of the participants, the knowledge, attitude, and practice about children’s oral health care.

Prior to the actual data collection, the questionnaires were pre-tested; to assess the consistency and clarity of questions among target groups, by distributing to 5% of sample size, which were 17 individuals. The feedback from the pretest was incorporated to the actual tool before data collection is effectuated.

During data collection, the data collector provided appropriate introductory information to the study participants.

**Data quality control:** The data was collected by using pre-tested, structured, interviewed questioner. Throughout data collection period, the necessary assistance and probing was offered to the participants, while interviewing the study questioner, and the filled questioners was checked in-situ, for completeness by supervisor.

### Data analysis

**Knowledge test:** To assess the level of actual knowledge, a series of eleven knowledge questions (Five questions on general oral health and six questions on oral health risk and signs of oral disease) were included in the questionnaire. To generate the summarized level of knowledge, the response on each question was first scored and tallied and then the total of each respondent was scored out of 100%. A cumulative/total score was calculated and then the respondents were classified as low, or good with respect to their level of knowledge about oral health. Hence, respondents who scored below 50% were classified as ‘low knowledge’; and those who scored more than 50% as ‘good knowledge’.

**Attitude test:** Mothers were questioned about their attitudes toward child oral health. A set of five statements pertaining to general oral health, toothpastes, and child oral health and disease severity perception attitudinal items were included in the questionnaire. Two positive and three negative items were included in order to maintain the balance of responses. The five items were





**Result**

**Socio-demographic characteristics of the study participants**

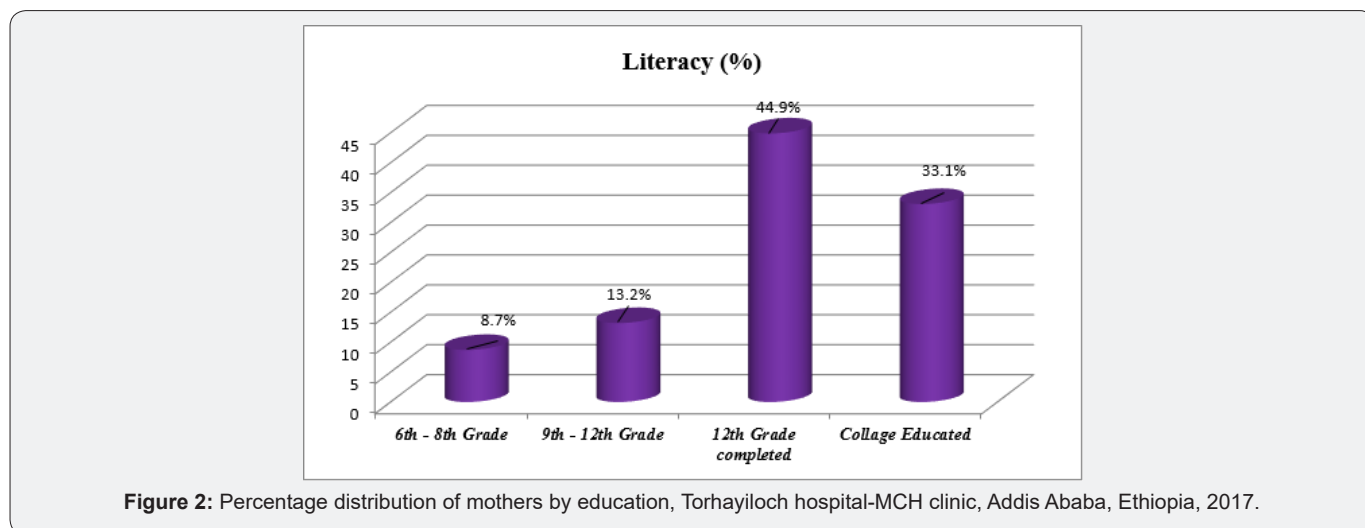
Two hundred-and eighty-seven mothers were participated in the study, which makes the response rate to be 89.1%. The mean age of the participants was 31.4 years (SD±5.2 years). The minimum age was 18 years and the maximum age was 45 years. All

participant mothers in this study had at least one child in the age range 1-5 years. About 72.1% mothers (n=207) have one child and 22.6% of mothers (n=65) have 2 children while the remaining 15(5.2%) have three children. By religion; 169(58.9%) of the respondents were Orthodox Christians, 80(27.9%) were Muslims, and 38(13.2%) were protestants, while 104(36.2%) were Amhara, 107(37.3%) of the respondents were Oromo, 49(17.1%) were Tigrea and 27(9.4%) were others by ethnicity (Table 1).

**Table 1:** Socio (demographic characteristics of mothers attending MCH clinic at Torhayiloch hospital, Addis Ababa, Ethiopia, 2017.

Socio (Demographic Variables)		Frequency (f)	Percent (%)
Age group (Years)	18 - 23	38	13.2
	24 - 29	67	23.4
	30 - 35	97	33.8
	36 - 41	53	18.5
	42 - 47	32	11.1
Number of children	One	207	72.1
	Two	65	22.6
	Three	15	5.2
Religion	Orthodox	169	58.9
	Muslim	80	27.9
	Protestant	38	13.2
Ethnicity	Amhara	104	36.2
	Oromo	107	37.3
	Tigrea	49	17.1
	Others	27	9.4

Regarding educational status of study participants, about 33.1% (n=95) of the participants were collage graduate. High school graduates constitute about 129 (44.9%) of all mothers; while those with secondary and high school level; respectively, represent 25(8.7%), and 38(13.2%) of the total (Figure 2).



**Figure 2:** Percentage distribution of mothers by education, Torhayiloch hospital-MCH clinic, Addis Ababa, Ethiopia, 2017.

Majority (85%, n=244) of participating mothers heard about oral health before. Regarding the primary source for their information, about 51 (20.9%) of them mentioned dentist, 81 (33.2%) from other health professionals as the source of information

while, 54 (22.1 %) and 34 (13.9 %) respectively, got oral health information from mass media and school sessions. About 9.8% of participants mentioned informal source, friends (Figure 3).

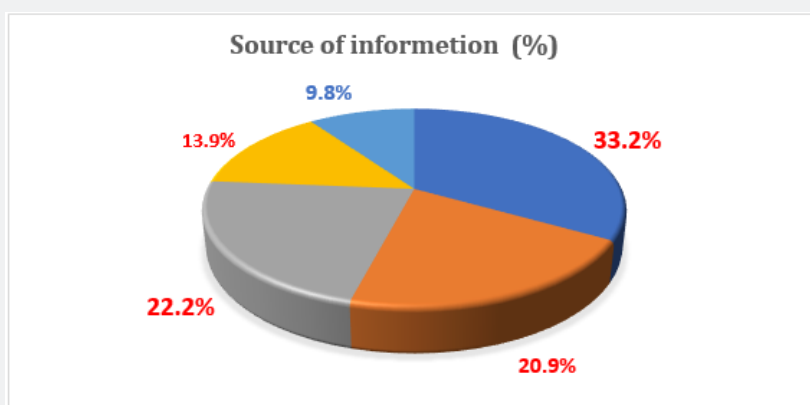


Figure 3: Source of oral health information among mothers attending MCH clinic at TH, Addis Ababa, 2017 (N=244).

**Knowledge test score result**

Proportion of study participants who responded correctly to knowledge assessment tooth pest and Related Question revealed that 219 (77.3%), 183 (63.7) the duration teeth brushing should be two minute or more, 174 (60.6%) reveled teeth brushing was

very important, 220 (76.6%) sated that fluoride I tooth pest it prevent dental caries, 97 (43%) of mother the correct teeth brushing position that is vertical, 259 (90) reveled avoidance of sweet meals as its important action for oral health, 228 (78) reveled that bad breathing is the good indicator of oral health problem (Table 2).

Table 2: Proportion of study participants who responded correctly to Self(Assessment knowledge questions toward tooth pest and oral health among mothers who attending MCH clinic at TH, Addis Ababa, Ethiopia, 2017.

S. No:	Knowledge Assessment	Frequency (f)	Percentage (%)	
1	How many times should someone need to brush your teeth?	Less than once a day	29	10.1
		Once a day	40	14
		Three times a day	21	7.3
		Twice a day	198	70
2	The minimum duration (time spent) for teeth brushing should be?	Half a minute or less	22	7.7
		1 minute	37	12.9
		1(2 minutes	45	15.67
		2 minutes or more	183	63.7
3	Is tooth brushing with toothpaste important?	Yes, very important	174	60.6
		Not important	113	39.4
4	What is the effect of fluoride in toothpastes? (multiple answers are possible)	Make teeth whiter	228	79.4
		Prevent dental caries	220	76.6
		Make mouth fresh	75	26.1
5	How would you brush your or your child teeth?	Horizontal motion	167	58
		Vertical motion	97	34
		Circular motion	10	3.48
		45(degree oblique	12	4.1
6	Which of the following actions are important for oral health? (multiple answers are possible)	Cleaning tongue surface regularly.	54	18.8
		Using interdental brush or dental floss on regular basis	67	23.34
		Rinsing mouth with water after meal/after brushing	198	70
		Tooth brushing by using toothpaste.	112	39.2
		Avoidance of sweat meals	259	90

7	Indicate Oral health problems (multiple answer is possible)	Dental caries/cavities	215	75
		Bad breathing	223	78
		Gum bleeding	195	68
		Malaligned teeth	201	70
		Mouth ulcers	37	13

Based on source of oral health information; 92.1% of those who got oral health information from dentist have correctly answered about the frequency of brushing; while only 39.5% of participants with no previous oral health information reported the correct answer. Most of others who have previous information from different sources also answered correctly. Hence prior

information on oral health is important for current awareness and mothers if thought health education by dentists they will more likely to remember oral health recommendations. Table 3 summarizes proportion of respondents according to source of prior oral health information.

**Table 3:** Source of oral Health Information and proportion of mothers who correctly answered about daily frequency of tooth brushing, TH Addis Ababa, 2017.

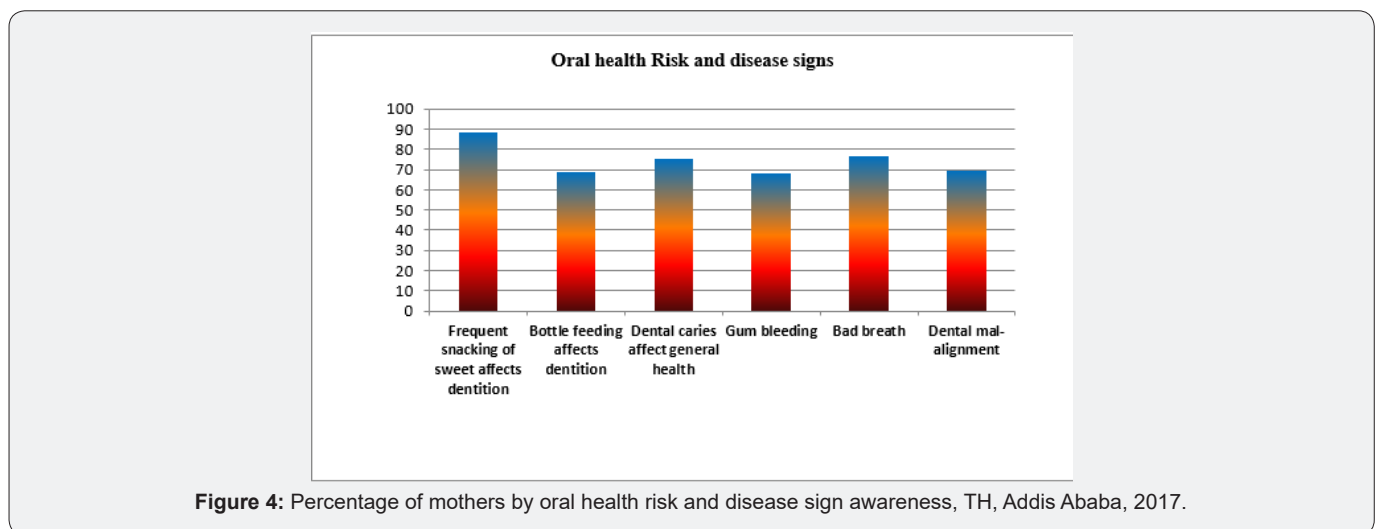
Source of Prior Oral Health Information	How many times should Brush				Total
	Less than two times		Two or more times		
	(f)	(%)	(f)	(%)	
Dentist	4	7.90%	47	(92.10%)	51
School	5	14.70%	29	(85.30%)	34
Other Health Professionals	22	27.20%	59	(72.80%)	81
Mass media	8	14.80%	46	(85.20%)	54
Friends	3	12.50%	21	(87.50%)	24
No information before	26	60.50%	17	(39.50%)	43
Total	68	23.70%	219	(76.30%)	287

About 72.8 % mothers heard about fluoride in toothpastes. From the lists of teeth paste benefits, whitening effect was recognized by 76.6%, the role of toothpastes in prevention of dental caries by 79.4%, while 26.1% of mothers knew breath freshening effect of toothpastes.

children, only 25.1% of the participants were aware of the correct timing, at 12 months of age. Overall 76% of mothers found to have good child oral health knowledge. Of these, relatively large proportion (76.3%) of participants showed high knowledge on regular tooth brushing, (two or more times) (Table 4).

About 85% of mothers supported that tooth decay can cause general health problems. On the other hands, in relation to parent’s awareness about the timing of the first dental visit for chil-

Awareness of signs of oral health problems with corresponding percentage of correctly answered respondents is depicted in Figure 4.



**Figure 4:** Percentage of mothers by oral health risk and disease sign awareness, TH, Addis Ababa, 2017.



**Table 4:** Proportion of study participants who responded correctly to knowledge assessment questions among mothers attending MCH clinic at TH, Addis Ababa, Ethiopia, 2017.

Awareness Variables	Frequency(f)	Percent (%)
Heard about oral health	244	85
Knew regular brushing frequency	219	76.3
Heard about fluoride in toothpastes	209	72.8
Prevent caries	228	79.4
Makes teeth white	220	76.6
Makes breath fresh	75	26.1
Tooth decay can cause general health problems	244	85
Awareness about the timing of the first dental visit for children	72	25.1

**Attitude test score**

The summarized attitudinal index in Table 5 indicates that 66.0% of the total mothers had a favorable attitude toward children’s oral health. Five attitudinal items were analyzed by group-

ing in to general oral health (regular visit to dentist), attitude towards utilization of toothpastes (Regular use of toothpastes to children, perceived negative effect of toothpastes, and role of tooth paste for primary teeth) and at last, attitude towards child oral health (perceived severity).

**Table 5:** Attitude towards regular use of toothpastes by level of education among mothers attending MCH clinic at TH, Addis Ababa, 2017.

“Daily Teeth Brushing with use of Toothpastes can cause Bad Breath and Gum Bleeding” Number		Total Disagreed		Total Agreed		Total
		Percent	Number	Percent	Number	
Level of Education	6-8 grade	7	28	18	72	25
	9-12 grade	9	25	29	75	38
	12 <sup>th</sup> grade completed	51	39.5	78	60.5	129
	Collage/University	50	52.6	45	47.4	95

While attitude towards use of toothpastes for children was found to be un-favorable among 65.5% of mothers. Attitude towards child’s oral diseases was relatively favorable among 55.1% of mothers. Attitude towards regular dental visit was found to be favorable, about (75%) of mothers supported attitude statement that everyone should have regular dental visit. On the other hand, attitude towards perceived side effect of toothpastes was found to be un-favorable, as most (59.2%) mothers believed that regular use of toothpastes causes bad breath and gum bleeding. children’s oral diseases. Meanwhile, attitude towards anti caries effect of

toothpastes to milk teeth was unfavorable among 66.9% of mothers.

On the other hands, proportion of participants who disagree with the attitude statement: “Daily teeth brushing with use of toothpastes can cause bad breath and gum bleeding” was found to be higher (52.6%) among college educated than others with lower level of education; (39.6%) among high school completed, (25%) among 9th - 12th grade, and (28%) among secondary school educated. Hence misconceptions regarding toothpaste use were lower among mothers with higher educational levels (Table 4-6).

**Table 6:** Attitude test score among mothers attending MCH clinic at TH, Addis Ababa, 2017.

Attitude Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Everyone should have regular visit to dentist for dental health care.	10 (3.5%)	14 (4.9%)	40 (13.9%)	130 (45.3%)	93 (32.4%)
Regular use of toothpastes is important to children	82 (15.9%)	106 (31%)	55 (13.2%)	31	13 (4.5%)
There is no advantage to use anti-caries toothpastes for milk teeth, because they are replaceable?	25(8.7%)	50 (17.4%)	20 (7%)	114 (39.7%)	78 (27.2%)
Daily teeth brushing with use of toothpastes can cause bad breath and gum bleeding	17 (5.9%)	82 (28.6%)	18 (6.3%)	130 (45.3%)	40 (13.9%)
Children’s Dental problems can get cured by them selves	74 (25.8%)	95 (33.1%)	16 (5.6%)	85 (29.6%)	17 (5.9%)

**Child oral health practice**

For frequency of brushing, almost one third of mothers (35.5%) reported that they brush their children’s teeth occasionally and (33.8%) once per day, while 88(30.7%) mothers said that

they brush their children’s teeth twice. Only 103 (35.9%) of the study participants reported spending enough time for thorough tooth cleaning; (2 or more minutes per cleaning), whereas, majority (64.1%) of the total respondents spent less than 2 minutes for tooth cleaning. The usual time when participants clean their

children's teeth includes, morning time 110(38.3%), morning and evening times 88 (30.7%) and the remaining 89(17.9%) had no regular time for tooth cleaning. Table 4 summarizes child oral health practice among mothers.

Regarding oral hygiene maintenance, (81.0%) of mothers preferred toothbrush and tooth paste to clean their child's teeth (Table 7).

**Table 7:** Child oral health practice among mothers attending MCH clinic at TH, Addis Ababa, 2017.

Variables	Frequency	Percent (%)
<b>How frequently do you brush your child's teeth</b>		
Occasionally (Not daily)	102	35.5
Once a day	97	33.8
Two or more times	88	30.7
<b>How long do you brush your child's teeth with toothpaste</b>		
Uses toothbrush and toothpaste	232	81
Toothbrush alone	55	19
<b>How long do you brush your child's teeth with toothpaste</b>		
Less than 2 minutes	184	64.1
More than 2 minutes	103	35.9
<b>At what time do you brush your child's tooth</b>		
Morning	110	38.3
Morning and Night	88	30.7
Night	89	30
<b>Snacking frequency with sugared foods</b>		
Dentist visit within last one year	101	35.2
Due to Toothache	101	35.2
Not visited, because no "dental pain"	186	64.8
<b>Snacking frequency with sugared foods</b>		
Daily	256	89.1
Less often	31	10.9

About 35.2% of all mothers take their children to dentist within the last one year. The reasons for all dental visits were toothache. None of them reported preventive dental visit. The reason for not taking to dentist was "because the child had no pain" (64.8%).

Regarding child feeding habits, majority (89.1%) of mothers reported that they gave sugary snacks to their children once per day while 31(10.9%) of mothers gave occasionally.

Cross tabulated findings regarding tooth brushing habit by number of children and maternal education revealed that regular tooth brushing as recommended was practiced among mothers with higher level of education, but number of children do not affect frequency of tooth brushing as long as the mother is well educated (Table 8).

**Table 8:** Regular tooth brushing practice by number of children and level of education among mothers attending MCH clinic at TH, Addis Ababa, 2017.

Regular Tooth Brushing Habit by Number of Children and Level of Education Less than 2 times		Frequency of Tooth Brushing		Total
		Two or more times		
Number of children	One child	148 (72.5%)	59 (27.5%)	207
	Two children	41 (63.1%)	24 (36.9%)	65
	Three children	10 (66.7%)	5 (33.3%)	15
Educational level	6-8	23 (92.0%)	2 (8.0%)	25
	9 <sup>th</sup> -12 <sup>th</sup>	37 (93.4)	1 (2.6%)	38
	12 <sup>th</sup> completed	101 (78.3%)	28 (21.7%)	129
	Collage/ University	38 (40.0%)	57 (60.0%)	95

Regarding the correlation between oral health knowledge and oral health practice; mothers with high oral health knowledge was

found to have more frequent tooth brushing practice than their counterparts (Table 9).

**Table 9:** Knowledge test score versus Regular tooth brushing practice.

Occasionally		How Frequently do you Brush your Child's Teeth per Day			Total
		Once a Day	Two or More Times		
Knowledge test score	Low knowledge	30 (44.5%)	25 (36.2%)	14 (20.3%)	69
	High knowledge	72 (33.0%)	72 (33.0%)	74 (34%)	218
Total		102	97	88	287

### Discussion

The extent of access to oral health among mothers in this study (85%) is less in comparison to earlier studies conducted in some countries such as Tanzania, and Sudan; where 99.1%, and 99.7 %; respectively, aware of oral health [47,48] this disparity may be due to difference in recall time among participants.

The finding of this study; regarding the most accessible sources of information for oral health, is comparable with the findings of various studies done in Africa and Asia with little difference on the proportion of participants referring a source. In this study, the formal sources of information (Dentist, other health professionals and mass media) constitutes most of the primary sources for oral health information, likewise other studies; done in different regions of Africa and Asia, had showed comparable findings [49,50].

The finding, overall 71.3% of mothers found to have good child oral health knowledge is consistent with study reported in Sudan, where most of mothers had good knowledge, while it is lower when compared to 81.0% awareness of oral health among mothers in India, although awareness like oral health risk awareness was lower among Indian mothers [41]. Such disparities may be explained by differences in data collection methods.

On the other hand, the finding, one third (25.1%) of the mothers being aware about the correct time for first dental visit for a child (ought to 12 months of age) is better than 12.4% report among Sudanese mothers, [48] while it is less than the finding (31.1%) reported in Belarus, Russia [50]. This disparity in awareness among the study groups may be due to geographic difference.

The finding of this study, 55.1% of mothers showed favorable attitude by disagreeing to the statement "children's dental problems can get cured by themselves", this was less (39.2%) in India [34]. On the other hands, most (55.2%) of all mothers showed un-favorable attitude towards use of toothpastes, which was lower (35% - 38.5%) in other studies reported in Sudan and India [41,48]. This discrepancy in attitude may be due to socio-cultural difference among the study participants. The result of the present study is comparable with the study done earlier in Addis Ababa which showed relatively large proportion of study participants found to have negative attitude towards toothpastes utilization [51].

Regarding practice, the findings on preventive oral health: daily brushing (30.7%), regular dental visit (none) and regular snack-

ing of sweet meals (89.1%) are almost similar with the result of study conducted in 2016 in Sudan [48]. Similarly, frequent snacking is also reported in previous study conducted in Addis Ababa [16]. This finding supports the general consensus that oral health ignored aspect of health care in developing countries [42,52-54].

### Conclusion

1. The study revealed that there is disparity on the awareness of oral health among study participants with the overall awareness test score about 71.3% of mothers found to have optimum level of knowledge on Children Oral Health. Awareness of mothers is more likely to be higher when they are thought by dentist.
2. Most participants found to have negative attitude towards regular utilization of toothpastes. But misconceptions regarding toothpaste use were lower among mothers with higher educational levels.
3. On the other hand, majority of participants showed a positive attitude towards importance of preventive dental visit. However, actual practice of taking children for regular dental check-up was not common among study participants. The child oral health practice in terms of regular tooth brushing was good among mothers with college/university education. Mothers with high oral health knowledge was found to have more frequent tooth brushing practice than their counterparts

### Recommendation

Dentists should use each opportunity to teach oral health education to their patients. And attention need to be given on topics like; overall health importance of regular tooth cleaning, anti caries effect of fluoride-based toothpastes with demonstration of the correct tooth brushing technique, and advocacy of having regular visit to dentist for dental check-up in association with the overall health benefit.

Country level efforts to improve maternal literacy also contribute a lot to child's oral health in terms of oral health awareness, service utilization, and decreasing of misconceptions associated with toothpastes.

### Strength of the Study

Some of the strengths in this research includes; having relatively higher response rate which allowed collection of enough

amounts of data from the targeted mothers. The other strength of this study emerges from the study design which allowed assessing the subject matter among homogeneous groups hence the confounding effect of gender is limited.

### Limitations of the Study

As any research of its kind, this research has certain limitations particularly due to the inherent characteristics of the sampling method used; as it being a convenience sampling, it might have introduced volunteers' bias and does not allow generalization of the study findings to other group of population.

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