Bereket Atnafu Worku, Mekonen Eshete. *Ethiop Med J, 2021, Vol. 59, No. 1*

**ORIGINAL ARTICLE**

# BREAST MILK FEEDING PATTERN AMONG OROFACIAL CLEFT CHILDREN AT CLEFT CARE CENTER IN ETHIOPIA

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## ABSTRACT

***Introduction****: Orofacial clefts (OFCs) are the commonest congenital anomalies in the head and neck region. Feeding difficulty is a major problem in children born with these problems.*

***Objective****: To assess the pattern of breast milk feeding among children born with orofacial clefts at the main multidisciplinary cleft care providing center in Ethiopia.*

***Methods****: Parents of children born with Cleft Lip and/or Palate (CL/P), treated and on follow up at Yekatit 12 Hospital Cleft Treatment center were interviewed using structured questionnaire. They were asked about their institutional delivery status, cleft diagnosis, regrading feeding practices and counseling they received and related questions. The data collection was done from August 1-to December 30, 2018.*

***Results****: We retrieved data from 61 parents of children born with orofacial clefts. In this study, 56(92%) of the participants had institutional delivery. In spite of this, only 33(55%) of the parents received feeding counselling. This study found out low breast milk feeding rate, 29(47.5%) among cleft babies. We also found that very few parents used supportive feeding devices.*

***Conclusion****: We assessed the practice of breast milk feeding in patients born with orofacial clefts for the first time in Ethiopia and found out that it is much lower than expected. We recommend cleft feeding counseling in the training of midwifes and nurses providing delivery service. We also recommend to make supportive feeding devices available for parents with cleft babies.*

***Key words****: breast milk feeding, orofacial clefts, cleft lip and palate, feeding counseling, Ethiopia*

## INTRODUCTION

Orofacial clefts (OFCs) are the commonest congenital anomalies in the head and neck region and one of the commonest anomalies in human beings with a worldwide prevalence of 1/700. It varies from 1/2500 to 1/500 births depending on geographic location, race, and socioeconomic status(1). Early in life, OFCs are associated with complications, such as feeding problems and recurrent ear infections, which can result in increased risks of morbidity and mortality. This is more common in developing countries where early systematic pediatric care may not be commonly accessible(2).

Breast-feeding is recognized as the optimum form of nutrition for infants(3). It also has a range of benefits that are important for infant health, growth, immunity, and development. Breast milk provides the infant with immune protection, a lower risk of infections, and minimizes allergies. It is believed to be protective for neonatal sepsis, otitis media, and infectious diseases of the respiratory or gastrointestinal tracts as well as a contributor to cognitive development(3). The act of breast feeding creates a good mother and baby bonding.

Due to its perceived benefits, the World Health Organization recommends exclusive breastfeeding for 6 months. (3-4) Patients with OFCs have lower rates of breastfeeding success than normal. Normally during feeding, the soft palate contacts the pharyngeal walls to seal the oral cavity posteriorly. Clefts of the palate prevent adequate separation of the nasal and oral cavities during feeding. As such, patients with a cleft palate have less efficient sucking patterns than their non-cleft peers. In contrast, patients with an isolated cleft lip can often breast feed successfully even though these infants may have a problem to grip the nipple. Psychosocial beliefs and thoughts also compound the difficulty of successfully breast feeding cleft babies. So they may not get adequate nutrition and gain the appropriate weight (3-6).

There are special devices available to overcome these obstacles. In a study conducted in North American Craniofacial Center 86% of the interviewed parents use cleft specialty bottles(4). Unfortunately, this cleft specialty bottles are not readily available in our country. A very minor modification can resolve these feeding problems.

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For instance, children with CL/P can be fed using bottle that needs less pressure to squeeze the milk into the oral cavity. They can also be fed with a soft plastic bottle with one crosscut to widen the nipple, thereby easing the feeding process(3).

There are no studies which evaluated breast feeding and associated factors in cleft lip and palate patients in Ethiopia. The only study that tried to assess the overall experience of mothers raising a child with cleft lip and palate in Ethiopia was a case series study on six mothers which revealed the frustration of mothers to breast feed their children as expected and the inadequacy or total lack of professional support they needed for proper breast feeding of their children(3).

## PATIENTS AND METHODS

***Study Setting and Design***

We performed a hospital-based descriptive cross-sectional study and assessed breast milk feeding practice in children born with Cleft Lip and/or Palate at Yekatit 12 Hospital Medical College Plastic and Reconstructive surgery unit cleft center in Addis Ababa, Ethiopia. The cleft center at this hospital is the only center in the country that provides multidisciplinary cleft care for patients with Cleft Lip and/or Palate. The unit receives children born with Cleft Lip and/or Palate from all over the country.

We interviewed 61 parents of children born with orofacial clefts using structured questionnaire. All parents of children born with Cleft Lip and/or Palate who brought their children to Yekatit 12 Hospital Medical College Cleft Center and who agree for the interview during the study period were included in this study. We trained two nurses and used as data collectors. The interview was a face to face interview at outpatient clinics during their preoperative or postoperative follow up or at the inpatient wards if they were admitted for surgery.

The structured questionnaire included demographic data, institutional delivery status, professional counselling given, breast feeding practices, cleft diagnosis and related questions. The collected data were cleaned, prepared and exported to SPSS version 23 and analyzed. Descriptive statistical analysis was done to calculate the rate of breast milk feeding and related descriptive data among the studied patients. Association between variables was tested using Chi Square Test with 95% confidence interval and 5% Precision and considered significant when less than 0.05. Graphical descriptions and tabulations used to present the data and comparative discussion with literatures and local, regional and international data was made. Appropriate recommendations were drawn based on the findings of the study.

***Ethical clearance***

Ethical clearance for this study was obtained from the Ethics Review Committee of the Surgical Department, School of Medicine, College of Health Sciences, Addis Ababa University and after that from IRB of College of Health Sciences, Addis Ababa University. Written informed consent was obtained from the participants.

## RESULTS

Data were obtained from a total of 61 participants of whom 45(73.8%) were mothers of children born with orofacial clefts while 13 (21.3%) were fathers. The mean age of the participants was 29.4 years . We found out that 42 (70%) of participants were Amaras and Oromos and 18 (30%) were from different other ethnicities. Of the participants, 39 (63.9%) were Christians and 21 (34.4%) were Muslims. Fifty-one percent of the cleft children were males, while 47.5% were females. Only 35% (21) of the participants were from Addis Ababa, while the rest were from other urban areas (31, 51.7%) and rural areas (8, 13.3%). The mean age of children was 26 months. The majority, i.e., 56 (93.3%) of the children were born in health institutions but only 33 (55%) received counseling on breast milk feeding (Table1).

**Table 1:** Demographic characteristics of interviewed cleft patients and parents in Yekatit 12 Hospital Cleft Treatment Unit

| **Participant** | **Frequency** | **Valid Percent** |
|---|---|---|
| Mother | 45 | 73.8 |
| Father | 13 | 21.3 |
| Others | 3 | 4.9 |
| Total | 61 | 100.0 |
| **Child Sex** | **Frequency** | **Valid Percent** |
| Male | 31 | 51.7 |
| Female | 29 | 48.3 |
| Total | 60 | 100.0 |
| **Place of Delivery** | **Frequency** | **Valid Percent** |
| Health institution | 56 | 93.3 |
| Home | 4 | 6.7 |
| Total | 60 | 100.0 |
| **Current Residency** | **Frequency** | **Valid Percent** |
| Addis Ababa | 21 | 35.0 |
| Urban area out of Addis | 31 | 51.7 |
| Rural area | 8 | 13.3 |
| Total | 60 | 100.0 |

Most of the children in this study were born with unilateral cleft lip and palate 30 (49.2%) followed by bilateral cleft lip and palate 11 (18%), the remaining were with isolated cleft palate 8(13.1%), unilateral cleft lip only 10 (16.4%) and bilateral cleft lip only 2 (3.3%). In general, cleft palate was found in 49 (80.3%) of the patients (Table 2). There was no clinically detectable associated congenital anomaly in 59 (96.7%) of the children. Almost all cleft diagnosis was made at birth except six which were all isolated cleft palate cases.

**Table 2:** Types of Cleft Diagnosis in the study population in Yekatit 12 Hospital Cleft Treatment Unit

| **Cleft Diagnosis** | **Frequency** | **Valid Percent** |
|---|---|---|
| Unilateral cleft lip and palate | 30 | 49.2 |
| Bilateral cleft lip and palate | 11 | 18.0 |
| Isolated cleft palate only | 8 | 13.1 |
| Unilateral cleft lip only | 10 | 16.4 |
| Bilateral cleft lip only | 2 | 3.3 |
| Total | 61 | 100.0 |
| **Cleft Palate vs Cleft Lip Only** | **Frequency** | **Valid Percent** |
| cleft palate | 49 | 80.3 |
| cleft lip only | 12 | 19.7 |
| Total | 61 | 100.0 |

Only 29 (47.5%) of the children were ever fed with breast milk. Around 80% (23) of these were through direct breast feeding, while the rest were through bottle feeding. More than 85% (52) had no access to cleft feeding bottles. Four (6.6%) of the studied cleft babies were fed using nasogastric tubes at birth and shortly afterwards. None of the patients received NAM or any other molding treatment prior to surgical repair.

The mean duration of breast milk feeding was 12.8 months. Breast feeding was initiated within one hour of birth in 19 (60%), and in 8 (25%) patients with in six hours of birth. Only ten(32.3%) were exclusively breast fed in the first 6 months of birth, while by parents estimation breast milk makes only 25%, 50% and 75% of their diet in the first 6 months of delivery in 6 (19.4%), 6 (19.4%) and 9 (29%) of children. Formula milk was the most common alternative used to replace breast milk in 25 (64.1%), while the rest 14 (35.9%) used cow milk. The most common reasons given for not breast milk feeding were not children able to suck and mothers don't know any other way to feed breast milk 29 (87.9%) (Table 3).

**Table 3:** Feeding Practices and Counselling in the study population in Yekatit 12 Hospital Cleft Treatment Unit

| **Ways of Breast Milk Feeding** | **Frequency** | **Valid Percent** |
|---|---|---|
| Direct breast feeding | 23 | 79.3 |
| Normal bottle feeding | 3 | 10.3 |
| Modified bottle feeding | 3 | 10.3 |
| Total | 29 | 100.0 |
| Counselling | Frequency | Valid Percent |
| yes | 33 | 55.0 |
| no | 27 | 45.0 |
| Total | 60 | 100.0 |
| Proportion of breast milk from total diet in 1st 6 months of birth | Frequency | Valid Percent |
| 100 percent / Exclusive Breast Milk Feeding | 10 | 32.3 |
| 75 percent | 9 | 29.0 |
| 50 percent | 6 | 19.4 |
| 25 percent | 6 | 19.4 |
| Total | 31 | 100.0 |
| Reason for not breast milk feeding | Frequency | Valid Percent |
| baby not able to suck | 29 | 87.9 |
| mother can't produce milk | 3 | 9.1 |
| other | 1 | 3.0 |
| Total | 33 | 100.0 |
| Alternative Feeding | Frequency | Valid Percent |
| formula milk | 25 | 64.1 |
| cow milk | 14 | 35.9 |
| Total | 39 | 100.0 |

The rate of breast milk feeding was much less in patients who were born with cleft lip and palate (unilateral and bilateral) and isolated cleft palate compared with those children born with cleft lip only (unilateral and bilateral) p-value 0.007, OR 18.944, 95% CI 2.256-159.083 (Table 4).

**Table 4:** Association between the Type of Cleft diagnosis and Breast Milk Feeding in the study population in Yekatit 12 Hospital Cleft Treatment Unit

| | Cleft Lip & Palate + Isolated Cleft Palate | Cleft Lip only (Unilateral & Bilateral) | OR | 95% CI | P-value |
|---|---|---|---|---|---|
| Ever breast Milk feeding | | | | | |
| No | 31 (96.9%) | 1 (3.1%) | 1.00 | | |
| Yes | 18 (62.1%) | 11(37.9%) | 18.944 | 2.256-159.083 | 0.007 |

The first surgery was already done for 36% (22) study population, the rest were on the waiting list. We found out that the mean age for cleft lip surgery was 17.2 months, while for cleft palate surgery was 43.4 months. The main reason for relatively late surgery was reported to be underweight. The study participants for whom surgery was done reported that feeding was improved after surgery.

## DISCUSSIONS

The rate of ever breast milk feeding among cleft lip and palate patients found in this study (47.3%) was significantly lower than our national rate which is 97%(8). This was also significantly lower than the rate among cleft patients in a recent study conducted at North American craniofacial center where two third or 67.3% of their patients were breast milk fed for some time(4). It is also lower than a rate of 54% among cleft patients in similar study in the west of Scotland (7).

The mean duration of breast milk feeding (12.8 months) was also lower than the national value of 23.9 months. Exclusively breast milk fed was 32.3% which is also lower than the national value of 58%(8). The mean duration of breast milk feeding among cleft patients in the American study was 5.3 months which is lower than the finding in this study but breast milk was the major diet consisting of 75% or more of their diet in that period in their study, while only 32.3% and 29% of responders in our study answered breast milk makes 100 percent and 75 percent of their diet, respectively in the first 6 months after birth(4).

This low level of breast milk feeding in our cleft patient population could be attributed to very low professional support and counseling given to mothers and care givers as only 55% of parents received counseling on breast milk feeding.

The most common reason for not breast milk feeding mentioned by the parents was related to lack of information that a cleft child can and should be breast milk fed for proper growth and weight gain for the much needed surgery later on. This indicates the lack of proper counseling on how to feed a neonate who was born with cleft lip and palate. This is consistent with the six case series study conducted in Ethiopia which showed inadequacy or lack of counselling(3). In contrast, in the North American study, 84% of parents of children born with cleft lip and palate reported that they received counseling on feeding methods for their children. Those parents who received counseling were significantly more likely to breast feed their children compared to parents who did not receive any (72% versus 44%, P 0.02)(4).

The participants in the Scotland study rated the help and support given by the cleft team, especially by the Specialist Cleft Nurses (SCNs), as positive in over 95% of the cases. They rated less positively the support provided by the non-cleft health care professionals. The Parents who participated in this study reported that it was difficult for them to find the right feeding method for their baby until they received support from the specialist cleft nurses (7). The fact that there is no statistically significant association between counseling on breast milk feeding and ever breast milk feeding in our study implies that even the counseling that was provided by the health professionals was not successful or inadequate to help mothers breast milk feed their cleft children.

The other reason for low breast milk feeding found in this study could be related to the non-availability of special cleft breast milk feeding bottles. In our study, only 13% of the study populations were able to use special cleft feeding bottles. These bottles were donated bottles to the study site. In the North American study, 86% of those interviewed used cleft specialty bottles(4).

We observed statistically significant association between cleft diagnosis and ever breast milk feeding, cleft palate is more related to never breast milk feeding. This is similar to studies done at different parts of the world (3-6). Cleft palate is mainly associated with feeding difficulty and the degree of palatal clefting is directly proportional to the difficulty of feeding. This is because in cleft palate, the oral and nasal cavities are not separated and the child cannot create negative pressure, which is important for sucking, whereas patients with cleft lip only can create negative pressure and do not have sucking problem.(3-6)

Our study participants reported that feeding was significantly improved after surgery. But the mean age of surgery reported in this study was 17.2 months which was lower than the current international standards of three months and above(3, 9). One of the reasons for this delay could be difficulty of feeding due to lack of proper counselling and cleft feeding bottles which led to poor weight gain. This makes the child unfit for surgery and anesthesia. The other contributing factor for the late surgery could be the existence of single multidisciplinary cleft care providing unit for the whole country. During our study we found out that there are children who are fit for surgery but did not receive surgery because the center had waiting list.

***Limitations***

This is a single hospital-based study and may not be representative but could be used as a base line study to conduct another study.

The information in some of the participants was collected retrospectively and prone to recall bias. The number of participants in this study was only 61 and the study period was 5 months and this is also another limitation of the study.

***Conclusion***

In conclusion, this study found the rate of breast milk feeding in cleft lip and/or palate patients in our center to be significantly low. Almost half of the parents of cleft children did not get proper counseling on breast milk feeding and even those who got the counseling were not successful in establishing adequate breast milk feeding. Hence, we recommend that every professional who is providing delivery service should receive training on counseling of parents and be able to demonstrate how to breast feed children born with orofacial clefts. We also found out that cleft specialty bottles were not available in the country therefore it is important to make these supportive feeding devices available in the country at affordable prices.

## ACKNOWLEDGMENT

We thank Addis Ababa University, department of surgery research committee and IRB for giving us a chance to undertake this research. We also thank Yekatit 12 Hospital management and staffs for collaborating during the period of patient interview and data collection.

***Conflict of Interest***

There is no conflict of interest.

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