



## Knowledge, Attitude and Practice of Mothers/caregivers on Infant and Young Child Feeding in Shabelle Zone, Somali Region, Eastern Ethiopia: A Cross Sectional Study

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### Abstract

Knowledge, attitude and practice (KAP) of mothers/caregivers on infant and young child feeding are key factors for optimal nutritional status, health and growth of the children. Hence, this study aims to assess the knowledge, attitude and practice of the mothers/caregivers on infant and young child feeding. A cross sectional study was carried out among 415 mothers/caregivers from Gode and Adadle Districts in Shabelle Zone of Somali Region, Eastern Ethiopia, by using semi structured interviewer administered questionnaire. The principal component analysis was carried out to generate KAP indices. Multivariable logistic regression analyses were performed to isolate independent predictors for good knowledge, good practice and favourable attitude of the mothers/caregivers related to child feeding. Out of 415 study participants, 87.5%, and 69.4% were illiterate, and from rural residence, respectively. The majority (96.1 %) of the participants knew the importance of colostrums, time initiation, exclusive and duration of the breastfeeding, and, 82% believed that a newborn should be given butter, sugar and water for the first six months. Furthermore, 50% of the mothers started breastfeeding within one hour after delivery, 66% of the participants started additional food items before the age of the six months, and 69.2% continued breastfeeding for 24 months and above. On multivariable logistic regression, after adjusting for other predictors, being in Gode District ( $P < 0.001$ ), and not being housewife ( $P = 0.014$ ) were significantly associated with having good Knowledge about optimal infant and young child feeding (IYCF), and wealth index ( $P = 0.001$ ) are positively associated with favourable attitude, and being literate ( $P = 0.01$ ) is positively associated with good practice. Conversely, good knowledge about optimal IYCF were negatively associated with favourable attitude ( $P < 0.001$ ), and urban and semi urban residence was negatively associated with good knowledge ( $P < 0.001$ ). In conclusion, the findings showed that despite the high knowledge of the participants on IYCF; a large proportion of mothers/caregivers had negative attitude and poor practice on proper IYCF leading to high rate of suboptimal feeding practices. Behavior change communication interventions using strategies appropriate for the pastoralist and agro pastoralist community. That is, targeting on culture, beliefs and practices related to IYCF, need to be performed using religious leaders, teachers, students, youth associations, female associations, health professionals, frontline health actors, and developmental armies to bridge the gap between knowledge and practice.

**Keyword:** Child feeding, Knowledge, Attitude, Practice, wealth

### Abstrak

Pengetahuan, sikap dan amalan (KAP) ibu / penjaga tentang bayi dan pemakanan kanak-kanak kecil adalah faktor utama untuk optimum pemakanan status, kesihatan dan pertumbuhan kanak-kanak. Oleh itu, kajian ini bertujuan untuk menilai pengetahuan, sikap dan amalan ibu-ibu / penjaga tentang bayi dan pemakanan kanak-kanak kecil. Satu kajian keratan rentas telah dijalankan di kalangan 415 ibu / penjaga dari Gode dan Daerah Adadle dalam Shabelle Zon Somali Region, Eastern Ethiopia, dan menggunakan semi penemuduga berstruktur soal selidik. analisis komponen utama yang telah dijalankan untuk menjana indeks KAP.

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Pembolehubah analisis regresi logistik telah dilakukan untuk mengasingkan peramal bebas untuk pengetahuan yang baik, amalan yang baik dan sikap yang menggalakkan daripada ibu / penjaga yang berkaitan dengan pemakanan kanak-kanak. Daripada 415 peserta kajian, 87.5%, dan 69.4% buta huruf, dan dari kediaman luar bandar, masing-masing. Majoriti (96.1%) daripada peserta tahu kepentingan kolostrum, permulaan masa, eksklusif dan tempoh penyusuan, dan, 82% percaya bahawa bayi yang baru lahir perlu diberi mentega, gula dan air untuk tempoh enam bulan pertama. Tambahan pula, 50% daripada ibu-ibu memulakan penyusuan ibu dalam masa satu jam selepas penghantaran, 66% daripada peserta memulakan makanan tambahan sebelum usia enam bulan, dan 69.2% terus menyusukan anak selama 24 bulan dan ke atas. Pada regresi logistik pembolehubah, selepas pelarasan bagi peramal lain, yang di Daerah Gode ( $P < 0.001$ ), dan tidak menjadi suri rumah ( $P = 0.014$ ) dikaitkan dengan ketara dengan mempunyai pengetahuan yang baik tentang bayi yang optimum dan kanak-kanak kecil makan (IYCF), dan kekayaan indeks ( $P = 0.001$ ) adalah positif dengan sikap yang baik, dan yang celik ( $P = 0.01$ ) adalah positif yang berkaitan dengan amalan yang baik. Sebaliknya, pengetahuan yang baik tentang IYCF optimum telah negatif yang berkaitan dengan sikap yang baik ( $P < 0.001$ ), dan kediaman bandar bandar dan separa telah negatif yang berkaitan dengan pengetahuan yang baik ( $P < 0.001$ ). Kesimpulannya, hasil kajian menunjukkan bahawa walaupun, pengetahuan yang tinggi peserta mengenai IYCF; sebahagian besar daripada ibu / penjaga mempunyai sikap negatif dan amalan miskin di IYCF betul membawa kepada kadar yang tinggi amalan pemakanan suboptimal. campur tangan tingkah laku perubahan komunikasi dengan menggunakan strategi yang sesuai untuk masyarakat gembala gembala dan pertanian. Iaitu, mensasarkan kepada budaya, percaya dan amalan yang berkaitan dengan IYCF, perlu dilakukan dengan menggunakan, pemimpin agama, guru-guru, pelajar, persatuan belia, persatuan wanita, profesional kesihatan, pelakon kesihatan di barisan hadapan, dan tentera pembangunan untuk bata jurang antara pengetahuan dan amalan.

**Kata kunci:** *Pemakanan kanak-kanak, pengetahuan, sikap, amalan, kekayaan*

## **Introduction**

The early stages of a child's life, when all parts of the infant are growing physically, mentally and socially, are very important, which requires an optimal supply of energy and nutrients to the body (Kumar et al., 2014; Salama, Elhawary, & El-Nmer, 2014; United Nations Children's Fund, 2013). Therefore, adequate and balanced supply of nutrients is highly required to prevent malnutrition (Sawaya, 2006), which can affect the health and development of the child, and impairs the intelligence, educability and productivity of the baby. It also leads to a heightened risk of chronic non-communicable diseases in the later life (Burns, Brady, & Dunn, 2000; Sawaya, 2006). Therefore, knowledge, attitude and practice (KAP) of mothers/caregivers on infant and young child feeding in this curtail time are very important for the child health, growth and development (Kliegman, Bonita, Stanton, Geme, Schor & Behrman, 2011; United Nations Children's Fund, 2010; World Food Program, 2009; World Health Organization, 2014; WHO & UNICEF, 2003).

WHO/UNICEF recommended exclusive breastfeeding for the first six months, complementary feeding at six months onwards and continuation of breastfeeding at least up to two years, to improve the health and nutritional status of the children (Dachew & Biftu, 2014; Latterra, Ayoya, Beaulière, & Pachón, 2014; UNICEF, 2011, 2014, WHO, 2013, 2014) This is the early stage of the child life, when all parts of the infant are growing physically, mentally and socially, which require an optimal supply of energy and other

nutrients to the body (Kumar et al., 2015; Salama et al., 2014; UNICEF, 2013) Therefore, adequate and balanced supply of nutrients is highly required to prevent malnutrition (Sawaya, 2006). Malnutrition that occurs during this early phases not only leads to damage of health and brain development, but also diminishes the intelligence, educability and productivity of the children. It also leads to a heightened risk of chronic non-communicable diseases in the later life (Burns et al., 2000; Sawaya, 2006).

Globally, severe acute malnutrition is the leading cause of death in under-five children. The greatest risk of undernutrition occurs during intrauterine life, infancy and early childhood which makes the first 1000 days a window of opportunity to address malnutrition (Sawaya, 2006). The main predisposing factors of malnutrition among under five years old children include household food insecurity, inadequate health and sanitation services, limited knowledge of the mothers/caregivers on proper feeding practices such as exclusive breastfeeding, complimentary feeding, appropriate food type, and mix, and also limited time for mothers available for their care during pregnancy, care or feeding for infants, and children. Hence, good knowledge, and positive attitude of the mothers/caregivers on proper infant, and young child feeding practice is very crucial to maintain, promote the health and nutritional status of the children (Kliegman et al., 2011; UNICEF, 2010; WFP, 2009; WHO, 2014; WHO & UNICEF, 2003).

In developing countries, including sub-Saharan Africa, knowledge of mothers/caregivers on the importance of colostrums for the newborn were reported in between 48.6% to 90% (Engebretsen et al., 2014; Kumar et al., 2015; Kumar et al., 2014; Mohammed, Ghazawy, & Hassan, 2014; Patel et al., 2015; Chudasama, Patel & Kavishwar, 2009; Sriram, Soni, Thanvi, Prajapati, & Mehariya, 2013). However, initiation of breastfeeding within one hour after delivery ranges from 30% to 86.2% (Chudasama et al., 2009; Kumar et al., 2014; Mohammed et al., 2014; Patel et al., 2015; Sriram et al., 2013), while knowledge of exclusive breastfeeding (EBF) was reported higher between 70% to 96% (Kumar et al., 2015; Onah et al., 2014; Patel et al., 2015; Tan, 2011) and actual EBF practice for the first six months varies from 17% to 68.7% (Chudasama et al., 2009; Mohd. Shafee & Rana Firdous, 2013; Motee et al., 2013; Patel et al., 2015; Tan, 2011; Tan, 2009; UNICEF, 2014; Yalew & Abitew, 2014). Mothers living in rural area, and being a housewife were more likely to EBF (Motee et al., 2013). Mother's education is also associated with exclusive breastfeeding (Engebretsen et al., 2014).

In some developing countries, 62% of the mothers know the time to start additional food items at the age of 4 to 6 months (Agedew, Demissie, Misker, & Haftu, 2014), whereas 33% and two third (65%) to be on the age of 6 months (Agedew et al., 2014; Sinshaw, Ketema, & Tesfa, 2015). Thirty five percent had positive attitude to the initiation of additional food items on 6 months (Agedew et al., 2014). The actual practice of starting additional food items on the age of six months varied from 29% to 80% (Agedew et al., 2014; Dachew, & Bifftu, 2014; Chudasama et al., 2009; Mohammed et al., 2014; Patel et al., 2015). Twenty five percent (Dachew, & Bifftu, 2014) and 83.3% (Mohammed et al., 2014) of the mothers knew that breastfeeding should not be stopped before the age of two years, while only 4% (Patel et al., 2015) continued breastfeeding up the age of two years. The main reasons for starting additional food items were breast milk insufficient (Agedew et al., 2014; Mohd. Shafee & Rana Firdous, 2013; Yalew & Abitew, 2014). On the contrary, the main reasons for stopping breastfeeding were 16% child refusal to take breast milk and 54.7% in sufficient breast milk (Patel et al., 2015). The average duration for stopping breastfeeding were 18 to 24 months (Sinshaw et al., 2015), mother's education was associated with time initiation of complementary feeding practices (Agedew et al., 2014).

In Ethiopia, although interventions on optimal child feeding practices have been rolling out since the development of national infant and young child feeding guideline in 2004 (Federal Ministry of Health,

2004), optimal feeding practices are not practiced as much as expected. Evidences show that breastfeeding initiation within the first hour of life was reported in between 53.8% to 74.2% (Egata, Berhane, & Worku et al., 2014; Mohd. Shafee & Rana Firdous, 2013; Sonko & Worku, 2015; Tamiru & Mohammed, 2013; UNICEF, 2014), and the knowledge of mothers/caregivers on the importance of colostrum for the baby were reported as more than 90% (Egata et al., 2014; UNICEF, 2014). Exclusive breastfeeding for the first six months of life varied from 35.9% to 70.5% from region to region of the country (Egata et al., 2014; Mohd. Shafee & Rana Firdous, 2013; Mohsin, Shaikh, Shaikh, Haider, & Parkash, 2014; Sonko & Worku, 2015; Tamiru & Mohammed, 2013; UNICEF, 2014). In other study 78.7% of the mothers knew the time, and the advantage of EBF, while 79.7% knew that breast milk alone is enough for the first 6 months (UNICEF, 2014).

Factors such as older age mothers, rural residence (UNICEF, 2014), being a housewife, having other infants (Motee et al., 2013; Tan, 2011), and low economic status of the mothers were more likely to affect exclusive breastfeeding (Sriram et al., 2013). Low maternal knowledge on infants and young child feeding was other predictors of non-exclusive breastfeeding (Dandekar, Shafee, & Kumar, 2014). In Ethiopia, 66.3% of the mothers/caregivers knew that they should breastfeed for at least two or more years (UNICEF, 2014). Although, studies have documented the behavior of the mothers/caregivers in the other regions of Ethiopia, such studies are scanty on pastoralist community and in this specific area no such study has been conducted. Therefore, this study was designed to document the KAP of mothers/caregivers towards optimal infants and young child feeding practices in Shabelle Zone of Somali Regional State Eastern, Ethiopia.

## **Method and Scope**

### **Study Area and Design**

A community-based cross-sectional study was conducted in August 2014 in Shabelle Zone, Somali Regional State. The majority (86.1%) of the population of the region is pastoralist and agro-pastoralist; their life depends mainly on livestock and agriculture. Shabelle zone is one of the nine administrative zones of the Somali Region. The zone is located in the southern part of the region, 525 kilometer from Jijiga, the capital city of the region. Based on 2007 population census, the projected total population of the zone is 550,000, with 55.7% male and 44.3% female (Central Statistical Authority, 2008). There are two rainy seasons locally known as "Gu", (the long

rain season) and “Deyr” (the short rainy season). The zone is characterized by semi-arid with an average rain fall of 500 mm per year, and high temperature ranging 19 °C to 37 °C, sometimes reaches 40 °C with relative low humidity.

Data were collected from 415 mothers/caregivers; a multistage sampling technique was used to identify study participants. Two districts were randomly selected and then kebeles (the second smallest administrative unit in Ethiopia) were stratified into urban and rural. From each district, one urban and two rural kebeles were randomly selected. A total of six kebeles were included in the study. In each kebele, households with at least one under-five child were randomly selected and the mothers/caregivers who fulfill the inclusion criteria were interviewed. The inclusion criterion was mothers who had one or more under five children and permanently residing in the selected kebele/sub kebele, and were willing to participate in the study. The sample size was calculated using a formula for estimation of single population proportion, considering 50% prevalence of KAP of child feeding practice, to get the largest and representative sample size at 95% confidence level and 5% margin of error (Bluman, 2009) and 20% none response rate were considered.

A pre-tested semi structured Somali language questionnaire was used. The questionnaire was prepared in English and translated into Somali language and again back to English to ensure its consistency. The questionnaire included socio-demographic characteristics and KAP on child feeding of the mothers/caregivers and was adapted from similar studies conducted elsewhere and standard guidelines (CSA, 2014; UNICEF, 2012). Data were collected by nurses with degree and diploma qualifications, after two days of training using face-to-face interview with the mothers/caregivers. The questionnaire was pre-tested in a kebele that was not included in the actual study areas. Modification was made to the questions depending on the findings of the pre-test. During data collection, the completeness and consistency of the responses in the study questionnaire were checked daily by principal investigator.

### **Data Analysis**

The data were coded, entered in double, checked for missing values and outliers, and analyzed using SPSS (SPSS Inc. version 20). First, a descriptive statistical analysis was done, and mean, standard deviation (SD) was used to describe the socio-demographic characteristics and prevalence of KAP on child

feeding. Principal component analysis (PCA) was used to generate knowledge, attitude and practice indices and, and wealth index. Bivariate analysis was employed to identify the candidate variables for multivariable analysis, using Pearson’s Chi-square tests after checking the assumptions. Then multivariable logistic regression models were used to determine independent associations between feeding behaviors (knowledge, attitude and practice) and predictor variables.

Ethical clearance was obtained from the International Islamic University Research Ethical Committee (IREC) Malaysia. A written approval letter was also obtained from Somali Regional Health Bureau and Shabelle Zone administrative office. The informal verbal consent was obtained from the mothers/caregivers, prior to the data collection, this type of consent were presented, discussed with ethical and supervisory committees, and agreed upon, because majority of the mothers/caregivers in the study area were illiterate (cannot read and write). The interviewers/data collectors were given a written statement to read and sign after the acceptance of the participants. This was clearly reported in the proposal and agreed upon by all the concerned body. Since, our data collection method has no evidence to cause any harm to the participants, it was only interview to the mothers/caregivers. The participants were encouraged to be honest as much as possible, since the information given by them is useful and very important to the district, the region and to the country. Confidentiality was assured by keeping all information in a proper place.

### **Results**

A total of 415 mothers/caregivers were interviewed with a response rate of 90%. Half of them were from Gode district, and the remaining was from Adadle district. More than two third (69.4%) was from rural residence. The mean age of the mothers/caregivers was 28.70 ( $\pm$  7.88) years. The majority (87.5% and 85%) of the mothers/caregivers were illiterate and housewife, respectively. The mean family size was 5.76 ( $\pm$  2.1). The main sources of drinking water (87.7%) were unprotected either from river water, rain water and wells. Sixty five percent of the mothers/caregivers started additional food items before the age of 6 months; the main reason was inadequate breast milk. Furthermore, 85% of the participants reported to have started complementary feeding before or after 6 months of age (Table 1).

Table 1: Background characteristics of the study population in pastoralist and agro pastoralist communities of Gode and Adadle districts of Shabelle Zone, Somali Region, Eastern Ethiopia

| Variables (n = 415)                         | Variable description   | Number (%) |
|---|------------------------|------------|
| District                                    | Adadle                 | 205(49.4)  |
|   | Gode                   | 210 (50.6) |
| Residence                                   | Urban & Semi-urban     | 127(30.6)  |
|   | Rural                  | 288 (69.4) |
| Family size                                 | 1-3                    | 57 (13.7)  |
|   | 4-6                    | 223 (53.7) |
|   | ≥7                     | 135 (32.5) |
|   | Mean family size       | 5.76 ± 2.1 |
| Number of under five children in the family | 1                      | 101 (24.3) |
|   | 2                      | 234 (56.4) |
|   | ≥3                     | 80 (19.3)  |
|   | Mean <5 number (±)     | 2.0± 0.7   |
| Mothers/caregiver's age                     | ≤18                    | 20 (4.8)   |
|   | 19 – 35                | 334 (80.5) |
|   | >35                    | 61(14.7)   |
|   | Mean age (±)           | 28.7 ±7.9  |
| caregiver's education                       | Illiterate             | 363 (87.5) |
|   | Literate               | 52 (12.5)  |
| caregiver's occupation                      | House wife             | 351(84.6)  |
|   | Farmer                 | 64 (15.4)  |
| Wealth index (tertile)                      | Poor                   | 139 (33.5) |
|   | Middle                 | 142 (34.2) |
|   | High                   | 134 (32.3) |
| Source of drinking water                    | Protected              | 51 (12.3)  |
|   | Unprotected            | 364 (87.7) |
| Reason for starting CF before 6 months      | Inadequate breast milk | 237 (64.6) |
|   | Others*                | 130 (35.4) |
| Time Start complimentary feeding (CF)       | Correct time           | 63 (15.2)  |
|   | Incorrect time         | 352 (84.8) |

\*Maternal illness, pregnancy, child refusal

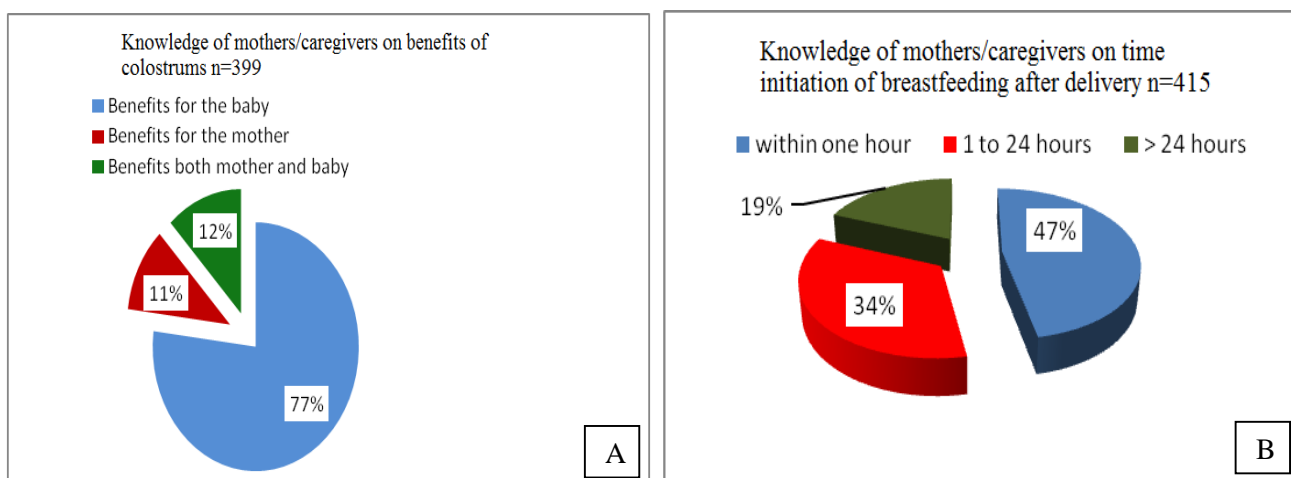


Figure 1: A & B. Knowledge of mothers/caregivers on benefits of colostrums, and time initiation of breastfeeding after delivery in Gode and Adadle districts, respectively

Out of the 415 mothers/caregivers, the majority (96.1%) knew the advantages of the first breast milk (colostrum) after delivery, out of which 77% of the participants said only newborn will benefit from the colostrum feeding. The majority, (94%) of the participants knew the initiation of breastfeeding, out of which only 47% knew the correct time (within one hour). Similarly, 92% knew the time for exclusive breastfeeding, out of which 85% of the mothers/caregivers knew the correct time for exclusive

breastfeeding that is for the first 6 months of life, the majority, 96.9% knew the duration of the breastfeeding, of which, 91% knew the correct time of duration of breastfeeding ( $\geq 24$  months of age).

On the contrary, only 25% knew the correct time to start complementary feeding, and about 84.5% participants fed only carbohydrate/starchy foods when giving snacks to their children (Table 2, Figure 1, Figure 2, and Figure 3)

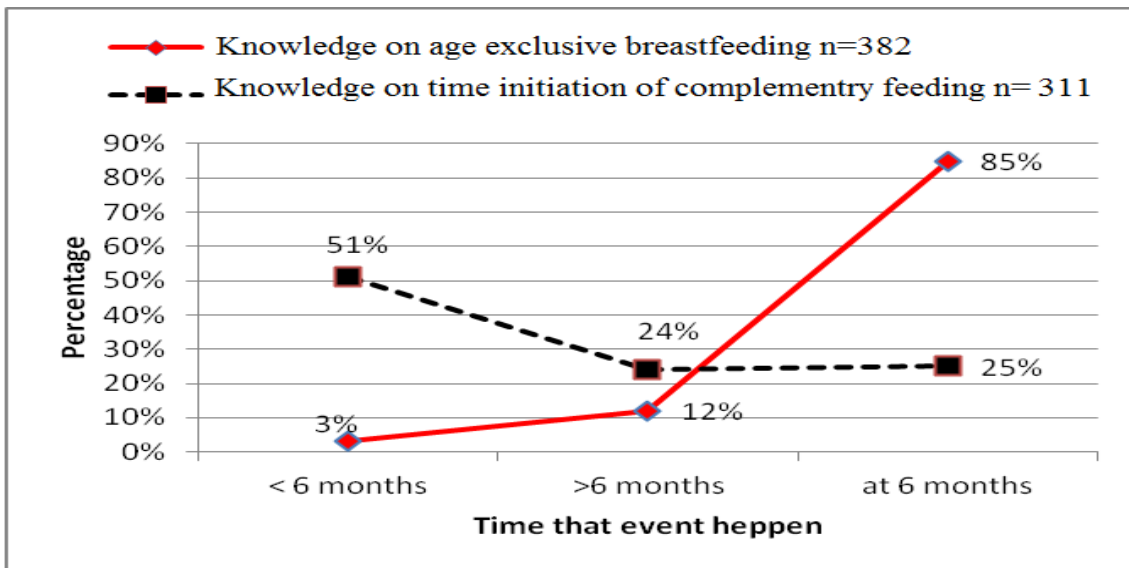


Figure 2: Knowledge of age of exclusive breastfeeding and time initiation of complementary feeding among mothers/caregivers in Gode and Adadle districts

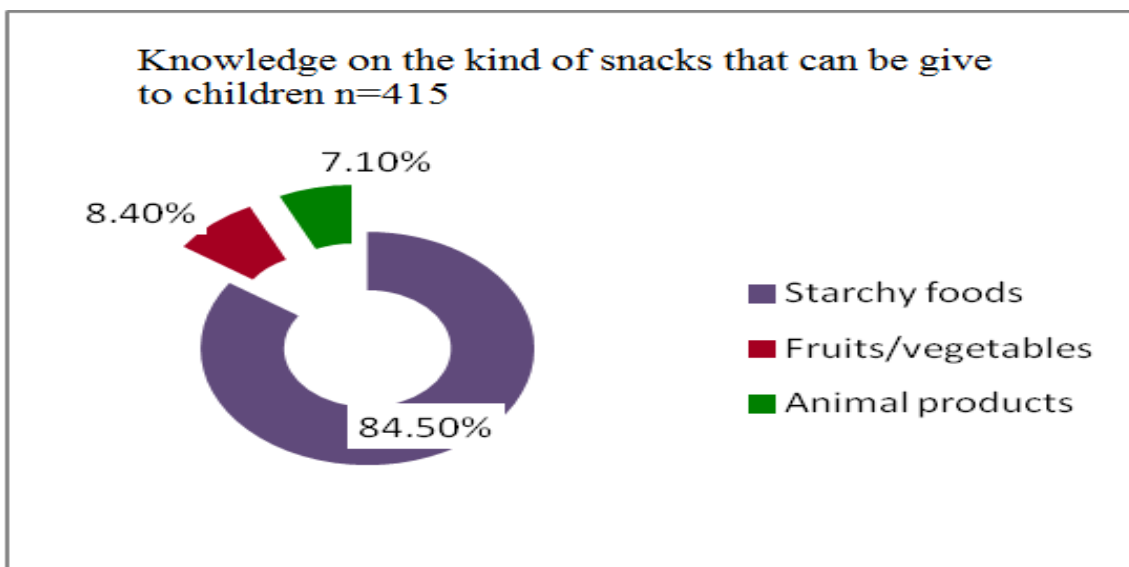


Figure 3: Knowledge of mothers/caregivers about kind of snacks that the child can be given in Gode and Adadle districts

More than half (57.3%) of the participants had negative attitude towards early initiation of breastfeeding (within one hour after delivery). Additionally, majority had negative attitude toward giving additional food items to the infant after birth to six months, of which, 82% of the mothers reported giving their newborn either butter, sugar and/or water. Ninety one percent of the study participants believed malnutrition can be caused by diseases. Furthermore, 60%, 82.4%, 79%, and 82.2% of the respondents had positive attitude towards exclusive breastfeeding for the first six months of life, complementary feeding after six months, providing balanced diet to prevent malnutrition, and continuation of breastfeeding up to two years or more, respectively. On the contrary, 83% believed eating only starchy food can prevent malnutrition (Table 2).

Almost half (49.9%) of the participants started breastfeeding immediately after birth and breastfeed more or equal to 8 times per day, and only 15.2% of the participants started complementary feeding at appropriate time (at six months). On contrary, the majority (92%) of the caregivers gave additional food items to their infants, on top of breast milk in the first 6 months of life. In addition, half of the participants stopped breastfeeding before 24 months of age due to pregnancy. Almost all (95.5%) of the children ate three or more times per day (Table 2).

Regarding the correct child feeding practices, participants from Adadle district, and rural residences were less knowledgeable compared to Gode district ( $P < 0.001$ ) and rural residing participants ( $P = 0.003$ ). On the other hand, participants from Adadle districts ( $P < 0.001$ ) and rural residences ( $P = 0.021$ ), being housewives ( $P < 0.001$ ), and participants with low and/or middle knowledge index ( $P < 0.001$ ) had favorable attitude compared to their counterparts. Similarly, mothers/caregivers from rural were reported good practice ( $P < 0.001$ ). Interestingly, the higher the wealth index of the participants the lower the good child feeding practice ( $P < 0.001$ ) (Table 3).

Practice index of the mothers/caregivers showed that urban & semi-urban residing participants and being a housewife had poor practice toward children feeding ( $P < 0.001$ ). Similarly as the wealth index is raised the infant feeding practice decreases ( $P < 0.001$ ). The two districts, number of under five children in a family, and knowledge index had not reported significant difference ( $P > 0.05$ ) (table 3).

Multivariable logistic regression models after adjusting all other predictors, knowledge of optimal child feeding practices; Gode district participants (AOR = 10.1, 95% CI = 6.1, 16.7) were ten times more knowledgeable on child feeding, compared to those in Adadle District. On the other hand, family size, occupation and educational level of the

mothers/caregivers, and wealth index did not show any significant association (Table 4).

Concerning the attitude to the mothers/caregivers towards proper child feeding practices, after adjusting for the effect of all other covariates, the urban and semi urban participants (AOR = 2.05, 95% CI = 1.22, 3.47), wealth index increase (AOR = 1.5, 95% CI = 1.2, 1.9) of mothers/caregivers was almost twice more likely to develop favourable attitude toward optimal child feeding practice. On the contrary, not being housewife (AOR = 0.26, 95% CI = 0.11, 0.58), and as knowledge index increases (AOR = 0.52, 95% CI = 0.36, 0.70) were 26%, and 52%, less likely to have positive attitude toward optimal feeding practices of the children 6-59 months, respectively. While districts, number of under-five children in the family, and family size did not show any statistical significant association (Table 4). Regarding the optimal child feeding practices, isolating the independent effect of the different explanatory variables on optimal child feeding practices, the urban and semi urban residences (AOR = 2.1, 95% CI = 1.2, 3.6) and not being housewife (AOR = 2.2, 95% CI = 1.2, 3.9), being Literate (AOR = 2.2, 95% CI = 1.2, 4.1) were two times more likely to have good optimal child feeding practice. Whereas, wealth index (AOR = 0.54, 95% CI = 0.42, 0.69) of the mothers/caregivers were 54% less likely to develop good optimal child feeding practices compared to low wealth index participants (Table 4).

## **Discussion**

This study showed that more than 95% of the participants knew the advantage of the colostrum for newly born babies, which is consistent with the findings of other studies (Egata et al., 2014; Patel et al., 2015; UNICEF, 2014). However, most had incorrect assumption of its advantage; they understood only newborn will benefit from colostrum feeding and not mothers. Nearly 94% of the mothers/caregivers knew the correct time of early breast milk initiation (within one hour after birth). While, in actual practice, the colostrums feeding is about 49.9%, indicating a huge gap between knowledge and practice. A similar pattern was also reported by other studies (Patel et al., 2015; Sonko & Worku, 2015; Sriram et al., 2013) Studies in some African countries, including Ethiopia, showed that, a higher rate of the mothers/caregivers colostrum feeding (Dachew et al., 2014; Chudasama et al., 2009; Patel et al., 2015; Sriram et al., 2013; UNICEF, 2014), much better than our findings, which could be the educational level differences of mothers/caregivers.

The majority (85%) of study population knew the importance of exclusive breastfeeding for the first six months of life. This is similar with the studies carried out in developing countries including Ethiopia, where

higher proportions of the participants knew the 2015; Motee et al., 2013; Onah et al., 2014; Patel et al., importance of exclusive breastfeeding (Kumar et al., 2015; UNICEF, 2014).

Table 2: Knowledge, attitude and practices of mothers/caregivers about optimal child feeding in pastoralist and agro pastoralist communities in Gode and Adadle districts of Eastern Ethiopia

| Knowledge  | Yes        | No        |            |
|--|------------|-----------|------------|
|  | No.(%)     | No.(%)    |            |
| <b>The Care givers Knew</b>  |            |           |            |
| The importance of colostrums   | 399 (96.1) | 16 (3.9)  |            |
| The time of initiation of breastfeeding after delivery   | 390 (94.0) | 25 (6.0)  |            |
| Duration for exclusively breastfeeding   | 382 (92.0) | 33 (8.0)  |            |
| Time to start complementary feeding  | 311 (74.9) | 104 (25)  |            |
| Total recommended duration of breastfeeding  | 402 (96.9) | 13 (3.1)  |            |
| The need for giving snacks to be given to children   | 309 (74.5) | 106 (26)  |            |
| Attitude   | Agree      | Neutral   | Disagree   |
| Breastfeeding should start immediately after delivery (within 1 hour)  | 160 (38.6) | 17 (4.1)  | 238 (57.3) |
| Babies should not be given anything except breast milk up to 6 months  | 252 (60.7) | 44 (10.6) | 119 (28.7) |
| A child can be given butter, sugar, water & others from birth to 6 months  | 340 (81.9) | 59 (14.2) | 16 (3.9)   |
| Complementary feeding should be started after six months   | 342 (82.4) | 50 (12.1) | 23 (5.5)   |
| Breastfeeding should continue up to 2 years of age or more   | 341 (82.2) | 50 (12.0) | 24 (5.8)   |
| A child should be breastfed 8 times/24 hours   | 314 (75.7) | 84 (20.2) | 17 (4.1)   |
| Food the child eats at one time (plates) should include: Starchy, protein, vegetables, fruits, sugar, salt, and fat. | 306 (73.7) | 74 (17.8) | 35 (4.5)   |
| Snacks should be given to the children between meals   | 314 (75.7) | 64 (15.4) | 37 (8.9)   |
| A child should eat fruits & vegetables more than 3 times a week  | 307 (74.0) | 74 (17.8) | 34 (8.2)   |
| Serving balanced foods prevents malnutrition   | 328 (79.0) | 56 (13.5) | 31 (7.5)   |
| Serving only starchy foods prevents malnutrition   | 343 (82.7) | 40 (9.6)  | 32 (7.7)   |
| Serving indigenous fruits/vegetables can keep children healthy   | 329 (79.3) | 65 (15.7) | 21 (5.1)   |
| Malnutrition can be caused by disease like diarrhea and malaria  | 379 (91.3) | 30(7.2)   | 6 (1.4)    |
| Practice   | No. (%)    |           |            |
| Time usually started breastfeeding after birth   |            |           |            |
| Within one hour  | 207 (49.9) |           |            |
| After one hour   | 208 (50.1) |           |            |
| Frequency of breastfeeding in 24 hours during the first month  |            |           |            |
| <8times  | 141 (34)   |           |            |
| 8times and above   | 274 (66.0) |           |            |
| Started any additional food other than breast milk in the 1 <sup>st</sup> 6 months                                   |            |           |            |
| Yes  | 382 (92)   |           |            |
| No   | 33 (8.0)   |           |            |
| Duration of breastfeeding  |            |           |            |
| <24 months   | 128 (30.8) |           |            |
| ≥24 months   | 287 (69.2) |           |            |
| Reason for stopping breast milk before 24 months   |            |           |            |
| Pregnancy  | 64 (50.0)  |           |            |
| Inadequate breast milk   | 49 (38.3)  |           |            |
| Mother sickness/child refusal  | 15 (11.7)  |           |            |
| Time usually started complementary feeding   |            |           |            |
| <6 months  | 316 (76.1) |           |            |
| At 6 months  | 63 (15.2)  |           |            |
| >6 months  | 36 (8.7)   |           |            |
| Number of times a child should ate in a day  |            |           |            |
| Once   | 9 (2.2)    |           |            |
| Twice  | 10 (2.4)   |           |            |
| ≥Three   | 396 (95.4) |           |            |
| Snacks given to the child  |            |           |            |
| Yes  | 271 (65.3) |           |            |
| No   | 144 (34.7) |           |            |



Table 3: Predictors of knowledge, attitude, and practice on optimal feeding practices for children 6-59 months by background characteristics among mothers/caregivers in Gode and Adadle Districts of Shabelle Zone, Somali region, Eastern Ethiopia

| Variables (n = 415)                  |                  | Knowledge index of mothers/caregivers* |      |        | P    | Attitude index of mothers/caregivers* |             |      | P    | Practice index of mothers/caregivers* |      |  | P |
|--------------------------------------|------------------|--|------|--------|------|---------------------------------------|-------------|------|------|---------------------------------------|------|--|---|
|                                      |                  | Good                                   | Poor |        |      | Favorable                             | Unfavorable |      |      | Good                                  | Poor |  |   |
|                                      |                  | (%)                                    | (%)  |        |      | (%)                                   | (%)         |      |      | (%)                                   | (%)  |  |   |
| <b>District</b>                      | Adadle           | 15.6                                   | 84.4 | <0.001 | 42.4 | 57.6                                  | <0.001      | 29.8 | 70.2 | 0.496                                 |      |  |   |
|                                      | Gode             | 62.9                                   | 37.1 |        | 24.3 | 75.7                                  |             | 32.9 | 67.1 |                                       |      |  |   |
| <b>Residence</b>                     | Urban/Semi-urban | 50.4                                   | 49.6 | 0.003  | 25.2 | 74.8                                  | 0.021       | 18.9 | 81.1 | <0.001                                |      |  |   |
|                                      | Rural            | 34.7                                   | 65.3 |        | 36.8 | 63.2                                  |             | 36.8 | 63.2 |                                       |      |  |   |
| <b>Family size</b>                   | 1-3              | 43.9                                   | 56.1 | 0.047  | 19.3 | 80.7                                  | 0.05        | 38.6 | 61.4 | 0.443                                 |      |  |   |
|                                      | 4-6              | 34.2                                   | 65.9 |        | 36.3 | 63.7                                  |             | 30.0 | 70.0 |                                       |      |  |   |
|                                      | ≥7               | 46.7                                   | 53.3 |        | 34.1 | 65.9                                  |             | 30.4 | 69.6 |                                       |      |  |   |
| <b>No of under five children</b>     | 1                | 42.6                                   | 57.4 | 0.301  | 25.7 | 74.3                                  | 0.168       | 39.6 | 60.4 | 0.030                                 |      |  |   |
|                                      | 2                | 36.3                                   | 63.7 |        | 36.3 | 63.7                                  |             | 31.2 | 68.8 |                                       |      |  |   |
|                                      | ≥3               | 45.0                                   | 55.0 |        | 33.8 | 66.3                                  |             | 21.3 | 78.8 |                                       |      |  |   |
| <b>mothers/caregivers age</b>        | ≤18              | 35.0                                   | 65.0 | 0.368  | 20.0 | 80.0                                  | 0.325       | 55.0 | 45.0 | 0.068                                 |      |  |   |
|                                      | 19 – 25          | 39.7                                   | 60.3 |        | 29.8 | 70.2                                  |             | 34.0 | 66.0 |                                       |      |  |   |
|                                      | 26 – 35          | 26.8                                   | 63.2 |        | 36.8 | 63.2                                  |             | 27.5 | 72.5 |                                       |      |  |   |
|                                      | > 35             | 49.2                                   | 50.8 |        | 24.4 | 65.6                                  |             | 29.5 | 70.5 |                                       |      |  |   |
| <b>Mothers/caregivers education</b>  | Illiterate       | 40.8                                   | 59.2 | 0.168  | 34.2 | 65.8                                  | 0.30        | 31.1 | 68.9 | 0.82                                  |      |  |   |
|                                      | Literate         | 30.8                                   | 69.2 |        | 26.9 | 73.1                                  |             | 32.7 | 67.3 |                                       |      |  |   |
| <b>Mothers/caregivers occupation</b> | House wife       | 37.9                                   | 62.1 | 0.113  | 37.0 | 63.0                                  | <0.001      | 27.1 | 72.9 | <0.001                                |      |  |   |
|                                      | Others           | 48.4                                   | 51.6 |        | 12.5 | 87.5                                  |             | 54.7 | 45.3 |                                       |      |  |   |
| <b>Wealth (Tertile)</b>              | Low              | 38.8                                   | 61.2 | 0.159  | 20.9 | 79.1                                  | <0.001      | 50.4 | 49.6 | <0.001                                |      |  |   |
|                                      | Middle           | 40.8                                   | 59.2 |        | 33.8 | 66.2                                  |             | 26.1 | 73.9 |                                       |      |  |   |
|                                      | High             | 38.8                                   | 61.2 |        | 45.5 | 54.5                                  |             | 17.2 | 82.8 |                                       |      |  |   |
| <b>Knowledge index (tertile)</b>     | Highest          |  |      | <0.001 | 18.3 | 81.7                                  | <0.001      | 33.5 | 66.5 | 0.432                                 |      |  |   |
|                                      | Middle & lower   |  |      |        | 43.0 | 57.0                                  |             | 29.9 | 70.1 |                                       |      |  |   |
| <b>Attitude (Tertile)</b>            | Highest          |  |      | 0.065  |      |                                       | 0.065       | 25.4 | 74.6 | 0.065                                 |      |  |   |
|                                      | Middle & lower   |  |      |        |      |                                       |             | 34.3 | 65.7 |                                       |      |  |   |

\*Principal component analysis (PCA) were used to develop Knowledge, Attitude, Practice, and Wealth index

Table 4: Multivariable logistic regression predicting the odds of good knowledge, favorable attitude and good practice of mothers/caregivers on optimal feeding practices among children 6-59 months in Gode and Adadle Districts of Shabelle Zone, Somali region, Eastern Ethiopia

| Predictor variables(n = 415)                | Good Knowledge*   |   |              | Favorable Attitude* |  |              | Good Practice*    |  |                 |                   |
|---|-------------------|---|--------------|---------------------|--|--------------|-------------------|--|-----------------|-------------------|
|   | B                 | P   | AOR (95% CI) | B                   | P  | AOR (95% CI) | β                 | P  | AOR (95% CI)    |                   |
| <b>District♣</b>                            |                   |   |              |                     |  |              |                   |  |                 |                   |
|   | Adadle (Ref)      |   | 1            |                     |  | 1            |                   |  |                 |                   |
|   | Gode              | 2.31  | <0.001       | 10.1(6.1, 16.7)     | -0.02  | 0.95         | 0.98(0.57, 1.7)   |  |                 |                   |
| <b>Residence</b>                            | Rural (Ref)       |   | 1            |                     |  | 1            |                   |  | 1               |                   |
|   | Urban/Semi urban  | -0.69   | 0.009        | 0.5(0.3, 0.84)      | 0.72   | 0.007        | 2.05(1.22, 3.47)  | 0.73   | 0.01            | 2.1(1.19, 3.59)   |
| <b>Mothers/caregivers Occupation</b>        | Housewife         |   | 1            |                     |  | 1            |                   |  | 1               |                   |
|   | Others*           | 0.845   | 0.014        | 2.33(1.18, 4.58)    | -1.36  | 0.001        | 0.26(0.11, 0.58)  | 0.77   | 0.012           | 2.2(1.18, 3.94)   |
| <b>Education of the mothers/caregivers♣</b> | Illiterate (Ref.) |   | 1            |                     |  |              |                   |  | 1               |                   |
|   | Literate          | -0.01   | 0.97         | 0.99(0.47, 2.1)     |  |              |                   | 0.8  | 0.01            | 2.22(1.21, 4.06)  |
| <b>Age of the mothers/caregivers</b>        |                   |   |              |                     |  |              | 0.005             | 0.76   | 1.0(0.98, 1.03) |                   |
| <b>Family size</b>                          |                   | 0.058   | 0.30         | 1.1(0.95, 1.18)     | 0.12   | 0.058        | 1.13(0.996, 1.27) |  |                 |                   |
| <b>Number of under five children♣</b>       |                   |   |              |                     | -0.008   | 0.91         | 1.02 (0.71, 1.46) | -0.32  | 0.065           | 0.73(0.52, 1.02)  |
| <b>Wealth index*</b>                        |                   | 0.15  | 0.23         | 1.16(0.91, 1.49)    | 0.42   | 0.001        | 1.5(1.2, 1.9)     | -0.63  | <0.001          | 0.54(0.42, 0.69)  |
| <b>Knowledge index*</b>                     |                   |   |              |                     | -0.66  | <0.001       | 0.52(0.39, 0.70)  | 0.17   | 0.76            | 1.19(0.93, 1.53)  |
| <b>Attitude index*</b>                      |                   |   |              |                     |  |              |                   | -0.073   | 0.6             | 0.93 (0.71, 1.22) |
|   |                   | Cox & Snell Pseudo R <sup>2</sup> = 0.247<br>Hosmer & Lemeshow test = 0.91. |              |                     | Cox & Snell Pseudo R <sup>2</sup> = 0.17<br>Hosmer & Lemeshow test = 0.14. |              |                   | Cox & Snell Pseudo R <sup>2</sup> = 0.14<br>Hosmer & Lemeshow test = 0.76. |                 |                   |

Ref: indicates the reference category, CI = confidence interval

\*KAP and Wealth index were generated using principal component analysis.

♣ All variables having p-value >0.2 were not included in multivariable analysis model, as indicated with highlight

Our result is in line with the target set by Ethiopia 2015, 70% of the infants less than six months to exclusively breastfeed (United Nations, 2015), and WHO/UNICEF recommendation of exclusive breastfeeding for this period (WHO, 2013). This will enable the country to accomplish sustainable development goal (SDG) three, target two (United Nations, 2015), if this high knowledge of the mothers/caregivers is converted to practice.

Regarding infant and young child feeding practices, this study showed that half (50.1%) of the participants started breastfeeding after the recommended time (within one hour of delivery), and the majority (92%) started additional food, (water, milk or/and sugar) for the first six months of life, with the main reason of inadequate breast milk (65%). This is similar with other study in Ethiopia (Mohd. Shafee & Rana Firdous, 2013; Yalew & Abitew, 2014). In our study, only 80% of the mothers/caregivers exclusively breast fed the children during the first six months. This is much lower than the result reported from other studies in Asia including Malaysia and some African countries including Ethiopia, ranging from 17% - 96.1% of the mothers/caregivers exclusively breastfeed for the first six months of life (Agedew et al., 2014; Chudasama et al., 2009; CSA, 2008, 2012; Dachew et al., 2014; Dandekar et al., 2014; Egata et al., 2014; KL, 2009; L. Kumar et al., 2014; Mohd. Shafee & Rana Firdous, 2013; Motee et al., 2013; Patel et al., 2015; Mohsin et al., 2014; Sinshaw et al., 2015; Sonko & Worku, 2015; Tamiru & Mohammed, 2013; Yalew & Abitew, 2014). This could be due to the fact that the mothers/caregivers believe that the infant will not get enough milk from the breast for the first few days and cultural issue of this community that says the newborn should be given water, sugar and butter because breast has not yet produce milk.

In this study, 57.3% of the mothers/caregivers disagree to early initiation of breastfeeding and 82% believe that it is necessary to give additional food items such as butter, sugar and/or water to the newborn. This result is opposite to the report of a study conducted in Nigeria that 71% of the participants had positive attitude towards exclusive breastfeeding (Tan, 2011).

In our study, only 25% of the participants knew the correct time of complementary feeding to be at six months and this may hinder the achievement of Sustainable Development Goal three by 2030. This result was much lower than the result obtained from other studies in developing countries (Agedew et al., 2014; Ashkanani & Al-Sane, 2012; CSA, 2008; Sinshaw et al., 2015). In this study, 96.9% of mothers/caregivers knew that breastfeeding should be continued up to 24 months of age or even more. This is higher than the study conducted in different countries,

ranging from 4% - 66.3% of the mothers knew breastfeeding to be continued up to two years (Dachew et al., 2014; Patel et al., 2015; UNICEF, 2014). This could be the cultural different in this community whereby breastfeeding for two and more years are culturally acceptable.

Only 15.2% of the studied mothers/caregivers started additional food items at six months, while WHO/UNICEF recommended initiating complementary food at the age of six months of life with continuation of breastfeeding to be continued up to 24 months of age or more (WHO, 2014).

Almost seventy percent (69.2%) of the studied population continued breastfeeding up to two or more years; this was higher compared to other studies carried out in some developing countries (Chudasama et al., 2009; Patel et al., 2015). This difference could be the lifestyle, culture, educational level and information education communication/behavior change communication (IEC/BCC) with regard to infant and young child feeding practice.

A multivariable logistic regression models showed that, the major predictors of the optimal infants and young child feeding practices were the caregiver's knowledge index and number of under-five children in the family. As knowledge of the mothers/caregivers increase there is a development of positive attitude toward optimal feeding practice, and having more under-five children, there is an improvement on optimal feeding practices. While, those families with better wealth indices are having negative attitude toward optimal feeding practice (negative association), and higher knowledge index is associated with poor child feeding practice this is in coherence with other studies (Bayissa et al., 2015).

This study used pretested questionnaires, use of qualified degree and diploma nurses as supervisors and data collectors with two days extensive training and pre-test prior to actual data collection were the strengths of the study. However, there could be the possibility of recall bias and social desirability bias as the data was collected using a questionnaire, although an effort was made to minimize it. There could be seasonal differences in child feeding behaviors which the study could not capture due to its cross-sectional nature.

## **Conclusion**

This study showed that, large percent of the children were sub optimally fed. Despite the high knowledge of the participants on infant and young child feeding, a large proportion of mothers/caregivers had negative attitude and poor practice on proper infants and young child feeding. Behavior change communication interventions using strategies appropriate for the

pastoralist community, targeting on culture, believes and practices related to infant and young child feeding need to be performed using religious leaders, teachers, students, youth associations, female associations, frontline health actors, developmental army to bridge the gap between knowledge and practice.

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