Examining Infant and Young children feeding (IYCF) practice and its determinant factors among mothers who gave birth in the last two years, Ethiopia

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Research article

Keywords: infant and young child, feeding, determinants

Posted Date: December 9th, 2021

DOI: https://doi.org/10.21203/rs.3.rs-1148680/v1

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Abstract

**Background:** The first two years of life are critical stages for a child’s growth and development. However, globally, 60% of the infant and young child deaths reported due to inappropriate infant feeding practices and infectious disease, where two-thirds of these deaths are attributable to sub-optimal breastfeeding practices.

**Methods and materials**—community-based cross-sectional study design was employed from February to March 2020 in Jima Rare district, Ethiopia. The stratified sampling and simple random sampling were employed to recruit participants into the study. Data was collected by using semi-structured interviewer-administered questionnaire. And data were analyzed by using SPSS version 20.

**Results**—The actual feeding practice style among the respondents had been assessed by using eight core indicators of infant and child feeding practice of the WHO. The finding revealed that (initiated breastfeeding within one-hour after birth 78%), (66.7% and 33.4% exclusive breastfeeding at 6 and 4-5 months), respectively. About 11.8% of mothers continued breastfeeding at 2 years. About 33.4% and 66.7% of mothers started introducing solid, semi-solid or soft foods at 4 to 5 months at 6 months and above), respectively. The overall, proportion of children age 6-23 months who met minimum meal frequency and dietary diversity accounts for 51.2%, 49.9% respectively. About half proportion (49.9%) of children age 6-23 months fit for the minimum acceptable diet. The multivariate analysis finding shows that mothers who gave birth at health institutions, get help from their husband, had received practical support of IYCF practices, counseling during ANC and/or PNC visit and households who have agricultural land and radio were more likely to carryout appropriate IYCF practices than their comparable groups.

**Conclusion**—the result suggests that the overall appropriate infant and young child feeding practice was low. Hence, initiatives and interventions should focus on advocacy for institutional delivery, counselling and practical support for IYCF practice. Special attention needs to be given for young and illiterate mothers. Moreover, attention need to address to empower women to have autonomy of decision-making and control power over assets to support them for appropriate IYCF practices.

**Background**

The first two years of life are critical stages for a child’s growth and development. Any health problem caused by nutritional deficiencies during this period can lead to impaired cognitive development, compromised educational achievement, and low economic productivity [1]. Poor breast and complementary feeding practices, together with high rates of morbidity, are the prime-proximate causes of malnutrition in the first two years of child life [1, 2]. Globally, 60% of the infant and young child deaths reported due to inappropriate infant feeding practices and infectious disease, where two-thirds of these deaths are attributable to sub-optimal breastfeeding practices [2, 3]. Poor nutrition is not only the result of lack of food, but it can be due to lack of knowledge about optimal feeding practices and provision of poor
quality food \[4, 5, 6\]. In 2008, WHO identified 15 indicators for assessing infant and young child feeding practices (eight core indicators and seven optional indicators \[7\]).

Early initiation of breastfeeding prevents neonatal and infant deaths by reducing the risk of infectious diseases. Moreover, it improves mother infant interaction; promote strong and healthy relationship between mother and child \[3, 8\]. Timely initiation of breast feeding is cost effective and successful for life saving intervention for the health of the new born \[8\]. Poor breast-feeding and complementary feeding practices have been widely documented in the developing countries. Only about 39% of infants in the developing countries (25% in Africa) are exclusively breast-fed for the first six months. Additionally, 6% of the infants in developing countries are never breastfed \[7\]. The evidences show that, infants and young children of many developing countries infants and young children are most vulnerable to malnutrition due to of lack of knowledge how to feed a children and infectious diseases \[10, 11\]. Infants who are not breastfed properly have repeated infections, grow less and are more likely to die before the age of one month than infants who receive breast milk during this age \[3, 10\]. Many observational studies showed that maternal knowledge of optimal child feeding practices like exclusive breastfeeding for six months, continued partially breast feeding and the timely transition to adequate complementary food is basic to deliver physiological and economic benefits to mothers and to keep health of a child \[12, 11\].

The infant and young child feeding is a complex issue that has implications not only for an infant's nutritional and health status, but also affects infant's psychological development and the development for proper eating habits \[12, 13\]. Breastfeeding is declining in almost all parts of the world despite its nutritional and immunological benefits. Death rates in third world countries are lower among breastfed babies. Every day, between 3000 and 4000 infants die in the developing world from diarrhea and acute respiratory infections related to inadequate amounts of breast milk. The evidence show that infants who are not breastfed have a six-fold greater risk of dying from infectious diseases \[12, 13, 14\]. More than 10 million children die each year. Of this 41% of deaths occur in sub-Saharan Africa and 34% in South Asia. In Madagascar, one in ten children dies in the first year of life. A major contributor to their deaths is poor breastfeeding practices \[15, 16\]. Infants and children in developing countries are disproportionately affected by life threatening diseases, poor health care, and lack of potable water, malnutrition, poverty, and war. Malnutrition was observed in 18.52% of children on complementary feeding, compared to 14.61% in breast-fed infants \[17\]. In developing country, 26% of children died before reaching their second birthday, and 29% of those breast-fed for less than 9 months died prior to their first birthday. About 42% of less than 6 months died before the age of two years \[18\]. Other evidences in low-income countries shows that everyday 3 to 4 thousand infants’ death reported from diarrhea and acute respiratory infections due to inadequate breastmilk. The major contributing factor is poor breastfeeding practice \[19\]. In contrary optimal breastfeeding and appropriate complementary feeding could prevent 13% and 6% of under-five mortality, respectively \[20\].

Breastfeeding is nearly universal in Ethiopia. However, large numbers of mothers, both urban and rural, do not practice appropriate breastfeeding and complementary feeding behavior. In Ethiopia 57% of all under-five deaths is highly associated with abrupt cessation of breastfeeding and infectious diseases, but it is
closely linked to gap of knowledge how to feed appropriately and food insecurity [5, 11, 21]. A recent report showed that 27% of mothers early provide water, butter and various types of food to feed their children, thereby reducing the percentage of exclusively breastfeed and increasing the percentage of receiving complementary food at very young age [21]. Nationally, 50.6% of mothers’ start breastfeeding within 1 hour of child birth and about 38% mothers exclusively breastfed their children for 6 months [7, 11].

In Ethiopia, like in other developing countries, diarrhea is a major contributor of morbidity and mortality in young infants and children, due to inappropriate breastfeeding patterns. About 58% of the children deaths are attributable to malnutrition, making the greatest single cause of child mortality. About 70% of infants are sub-optimally breast-fed, which is another major contributor to infant mortality rate. Currently, 24% of infant death is due to poor breast-feeding practices [22]. Knowledge of adequate preparation of replacement foods and benefit of breast feeding was clearly insufficient among peasant society [18]. Study conducted in Ethiopia showed that one third of children age 4-5 months are exclusively breastfed. Also 14% of children at 6-8 months of age continued exclusively breast-feeding, (receive plain water in addition to breast milk 9%), consume water-based liquids 6%), and (consume cow milk 20%) [23]. The study shows that in the Tigray region, a high proportion of mothers (80%) initiate feeding of newborns with pre-lacteal feeds including butter or water [17, 24]. The study conducted in Oromia region shows that workload of some results in barriers to feed as frequently as needed. For example, shopping class and harvest times were reported to limit breastfeeding frequently [25].

Therefore, improving IYCF practices particularly for the children younger than 2 years’ age is the highest priority of the world. Hence, this study aimed to examine infant and young children feeding practice and its determinant factors among mothers who gave birth in the last two years, in Jimma Rare district, Oromia regional state, Ethiopia.

**Methods**

**Study design and period**

The study was conducted in Jimma Rare district, Oromia regional state, Ethiopia. A community-based cross-sectional study design was employed from February to March 2020 to examine infant and young children feeding practice and its determinant factors among mothers who gave birth in the last two years. For this study, the source of population was all mothers or caregivers who have the Infant and Young Child (0-24 months) and who lived more than six months were recruited into the study.

**Sample and sampling technique**

Simple population proportion sampling was used (p=0.277), CI-95%, margin of error (d=5%) and 10% of non-response rate was added. By using this sampling procedure, a total of 339 study participants to have taken part in the study. The stratified sampling technique was recruited to select rural and semi-urban kebeles in the district. Then two semi-urban and 12 rural kebeles were selected by simple random
sampling (lottery method) among a total of 20 kebeles. The census was conducted to register all eligible women in the selected semi-urban and rural areas. Later on, the sample was allocated proportionally to recruit eligible participants from selected semi-urban and rural areas. Finally, lottery method sampling technique was used to recruit participants into the study.

Data collection procedure

A questionnaire was adopted from different literatures and composed of eight core indictors of WHO for IYCF practices. Furthermore, the WHO recommendation was taken into consideration in developing research tools and protocols. A semi-structured interviewer-administered questionnaire was used to examine the IYCF practice and its determinants among mothers with children aged between 0-24 months. The information collected included socio-economic characteristics, Water, sanitation and hygiene (WASH) and Infant and young child feeding practices. The questionnaire was adopted in English, and translated into local language (Afan-Oromo) by experts and translated back into English by the professionals who speak both languages to check for its consistency. The study questionnaire's addressed the outcome variable (Infants and young children feeding practices) and independent variables like socio-demographic, occupation, place of delivery, support from health facility and Mothers’ work load. Before, actual data collection the questionnaire was pre-tested on 10% of the sample size. Based on the pre-test results, some amendments of the questionnaire were conducted. Data was collected by seven B.Sc. public health, nurses and supervised by two experienced supervisors. All of the data collectors and supervisors have taken the two-days training about the study objectives, procedures, ethical and the content of the study. The data quality was maintaining through checking for completeness, accuracy, clarity, and consistency by the supervisors and the principal investigator by daily basis.

Data processing and analysis

First, data were interred into Epi Info 5.3.4 and exported to SPSS 20.0 Statistical package to clean and analyze the data. First, we explored the frequency distribution of socio demographical, IYCF practices and WASH activities of the study subjects and descriptive statics was used to summarize and present the frequencies, percentages and tables with 95% CI before the prevalence estimate. The binary logistic regression model was used to identify the determinant factors associated with young child feeding practices. Then variables which showed associations with outcome variable in the bivariate analysis were entered into multivariate logistic regression model. Multiple logistic regression analysis was used to examine the association between outcome variable and independent variables to avoid other potential confounders. A p-value of less than or equal to 0.05 was used to state the statistical significance.

Ethical clearance was received from Wollega University review board. Further permissions were obtained from the woreda administrative and written consent were taken from study subjects. Participation in the study was voluntary and information collected from the study subjects was handled confidentiality.

Results
A total of 339 study participants have taken part in the study. Of the total study participants, about (41.6% males) and (58.4%) were females. Regarding to the study participants educational background, (uneducated 33.0%), (can read and write 33.6%), (completed primary school 25.1%) and about 8.3% were secondary school and above). The majority (58.1%) were Protestant and (41.9%) were Orthodox followers. The majority 66.7% of study mothers were housewife, (farmer 16.8%), government employee 8.3% and daily laborer 8.3%. about 58.5% of the study fathers were farmers while 17% of were merchants. Of the study participants about 58.7%, 33% and 8.3% had 6-10, 1-5 and 11-15 family size, respectively. About half 50% of the study mothers hadn't autonomous decision-making and power to control their assets. The majority (41.6%) of the study participants’ child age (in moths) was 12-24 while 6-12 months 33.3% and 1-6 was 25% (Table 1)
| Variables                        | Frequency | %   |
|---------------------------------|-----------|-----|
| Mother/care giver age           |           |     |
| 20-24                           | 56        | 16.5|
| 25-29                           | 84        | 24.8|
| 30-34                           | 143       | 42.2|
| 35-39                           | 56        | 16.5|
| Religion                        |           |     |
| Orthodox                        | 142       | 41.9|
| Protestant                      | 167       | 49.3|
| Muslim                          | 30        | 8.8 |
| Marital status                  |           |     |
| Married                         | 282       | 83.2|
| Divorced                        | 29        | 8.6 |
| Widowed                         | 28        | 8.3 |
| Mothers educational background  |           |     |
| Illiterate                      | 112       | 33.0|
| Can read and write              | 114       | 33.6|
| Primary school                  | 85        | 25.1|
| Secondary and above             | 28        | 8.3 |
| Mothers occupation              |           |     |
| housewife only                  | 226       | 66.7|
| Farmer                          | 57        | 16.8|
| Government employee             | 28        | 8.3 |
| Daily laborer                   | 28        | 8.3 |
| Fathers educational background  |           |     |
| No husband in home              | 57        | 16.8|
| Illiterate                      | 56        | 16.5|
| Can read and write              | 56        | 16.5|
| Primary school                  | 114       | 33.6|
| Secondary and above             | 56        | 16.5|
| Farmer                          | 198       | 58.4|
| Government employee             | 28        | 8.3 |
The status of maternal healthcare service delivery and child Anthropometric measurements.

The majority (91.7%) of the study mothers’ child were immunized and following the rest of vaccine that delivered in their age rages. About (74.6%) children were had no illness diarrhea, cough, and fever in the past six months while (33%) had these symptoms at least once in the last six months. Most (57.6%) of the respondents seek advice about IYCF practice from HEW or other Health professionals in the last past three months, but 42.2% did not. The majority (68.7%) of child’s MUAC measures was >12, while 0.6% and 5.6% of MUAC measurement were <11 and between 11-12 centimeters, respectively. About 58.7% of study respondents were visited by HEW/other health professionals at their home, but their counterparts (41.3% did not) in the last 3 months of this study.

The study mothers maternal ANC healthcare utilization practice (Table 3) shows that the majority (38.3%) of mothers visited health institutions 2-3 times for ANC, while others (none 26%), at least once (32%) and more than four times 3.5%). About 30.7% of mothers gave their last childbirth at health center, while (health post 27.4), (home 25%), (hospital 16.8%) their last child place of delivery. The majority (76.7) of study participants didn’t received IYCF Counseling from healthcare professionals during ANC and/or PNC visit of health institutions. Of the study participants about 56.9% received the postnatal care service visit for 1-2 times, whereas 11.8% received ≥ 3 times and 31.3 didn’t for postnatal care service visit. The majority (31.6%) of study participants hadn’t received IYCF practical support from anyone. However, others received the IYCF practical support from (Family members 12.4%), (WDA 18.6%), HEWs 30% and (other healthcare professionals 7.4%). About 38% of study mothers hadn’t got the opportunity to discuss
IYCF practices. However, about 12.7%, 16.8% and 25% had got the opportunity to discuss about it from family members, WDA, and HEWs, respectively (Table 2).
| Variables                                      | Category          | Frequency | %  |
|------------------------------------------------|-------------------|-----------|----|
| Child ever been immunized                      | Yes               | 311       | 91.7 |
|                                                | No                | 28        | 8.3 |
| ANC visit                                      | None              | 89        | 26  |
|                                                | At least once     | 109       | 32  |
|                                                | 2-3               | 130       | 38.3|
|                                                | ≥ 4 times         | 12        | 3.5 |
| Last child place of deliver                    | Home              | 85        | 25  |
|                                                | Health post       | 93        | 27.4|
|                                                | Health center     | 104       | 30.7|
|                                                | Hospital          | 57        | 16.8|
| Current breastfeeding                           | Yes               | 226       | 66.7|
|                                                | No                | 113       | 33.3|
| Postnatal care service visit                   | None              | 106       | 31.3|
|                                                | 1-2 times         | 193       | 56.9|
|                                                | ≥ 3 times         | 40        | 11.8|
| IYCF Counseling during ANC and/or PNC visit    | Yes               | 79        | 23.3|
|                                                | No                | 260       | 76.7|
| Mothers who had received practical support on IYCF practices | No one          | 107       | 31.6|
|                                                | Family members    | 42        | 12.4|
|                                                | WDA               | 63        | 18.6|
|                                                | HEWs              | 102       | 30  |
|                                                | Other health professionals | 25 | 7.4 |
| Mothers who had ever gotten the opportunity to discuss IYCF practices | No one          | 129       | 38  |
|                                                | Family members    | 43        | 12.7|
|                                                | WDA               | 57        | 16.8|
| Variables                                                                 | Category                        | Frequency | %  |
|--------------------------------------------------------------------------|---------------------------------|-----------|----|
|                                                                          | HEWs                            | 85        | 25 |
|                                                                          | Other health professionals      | 25        | 7.4|
| Has child had illness diarrhea, cough, and fever in the last 2 weeks?    | Yes                             | 112       | 33.0|
|                                                                          | No                              | 227       | 67.0|
| Did you seek advice about IYCF practice from HEW or other Health        | Yes                             | 196       | 57.8|
| professionals center in the last three months                           | No                              | 143       | 42.2|
| Child (age greater than 6 months) MUAC measures (in centimeter).         | <11                             | 2         | 0.6|
|                                                                          | 11-12                           | 19        | 5.6|
|                                                                          | >12                             | 233       | 68.7|
| In the last 3 months, have you been visited at your household by an     | Yes                             | 199       | 58.7|
| HEW/other health professionals                                           | No                              | 140       | 41.3|

**Women’s empowerment, household food security and agriculture practices**

Out of the total study respondents the autonomy to make a decision on their monthly or yearly earned money the majority (58.4%) was by their husbands, while 16.5% of them had an autonomy to decide on their monthly/yearly income jointly. The majority (58.1%) of mother participants hadn’t control and power in decision-making, but (41.9%) had some power in decision-making and control over assets. About (58.7%) study participants reported any of their household members hadn’t eat a smaller meal than they felt they need in the last four weeks of the study, but their counterpart (41.3%) they did they felt they had smaller meal than the usual. Furthermore, the majority (51%) of the respondent didn’t eat a limited variety of foods in the last four weeks, but about half (49%) had limited variety of foods due to a lack of resources.

The majority (83.5%) of the study participants reported they have their own agricultural land, of this the majority (75.2%) have 1-3 hectares, 8.3% have 4-6 hectares, however (16.5%) households hadn’t the agricultural land. More than half (75.2%) of households had their own any livestock, herds, other farm animals and 84(24.8%) hadn’t any of these livestock or other farm animals (table 3).
Table 3  
The Women’s empowerment, household Food security and agriculture practices   
of the study participants in Jima Rare district of Ethiopia, 2020

| Variables                                                                 | Frequency | %   |
|--------------------------------------------------------------------------|-----------|-----|
| who decides the money you earn will be used                              | Husband   | 198 | 58.4|
|                                                                          | Mother    | 56  | 16.5|
|                                                                          | Jointly   | 85  | 25.1|
| Do you have some control and power in decision-making                   | Yes       | 142 | 41.9|
|                                                                          | No        | 197 | 58.1|
| In the past four weeks, any household member have to eat a smaller meal | Yes       | 141 | 41.6|
| than you felt you needed because not enough food.                        | No        | 198 | 58.4|
| In the past four weeks, did you or any household member have to eat a   | Yes       | 146 | 43.1|
| limited variety of foods due to a lack of resources.                     | No        | 193 | 56.9|
| Does any member of the household own any agricultural land?              | Yes       | 283 | 83.5|
|                                                                          | No        | 56  | 16.5|
| Number of hectares of agricultural land                                 | 1-3       | 255 | 75.2|
|                                                                          | 4-6       | 28  | 8.3 |
|                                                                          | No        | 56  | 16.5|
| Does this household own any livestock, herds, other farm animals         | Yes       | 255 | 75.2|
|                                                                          | No        | 84  | 24.8|
| household owned radio                                                   | Yes       | 114 | 33.6|
|                                                                          | No        | 225 | 66.4|

**Water, Sanitation and Hygiene (WASH) practice of the study participants**

The majority (65.5%) of their households’ main source of drinking water was protected spring, while (unprotected springs 24.5%), (public stand pipes 8.6%) and 1.5% of them of participants’ households use a pipe connected into their home. Of the total respondents (had latrine without slab 66.7%), no latrine 24.8% and (latrine with slab 8.6%) for defecation. The majority 75% of households primarily buried their households waste, while their counterparts (25%) dumped in street/open space. About (66.7%) of
respondents practice hand washing with a soap after and before preparing food, but 33.3% did not practice handwashing before and after food preparation. Out of the total children who had diarrhea, cough, and fever in the last 3 months (n= 112), about 70.5% and 19.6 % their households were using unprotected springs and protected source of drinking water, respectively. Of the total children who had diarrhea, cough, and fever in the last 3 months (n= 112), majority 64.3% and 22.3 % of children's family haven't toilet facility and used shared toilet shared with other households (table 4).
| Variables                                                                 | Frequency | %  |
|---------------------------------------------------------------------------|-----------|----|
| What is the main source of drinking water for the household               | Unprotected springs | 84  | 24.8 |
|                                                                           | Protected springs  | 233 | 68.7 |
|                                                                           | Public stand pipes | 12  | 3.5  |
|                                                                           | Piped connection into house | 10  | 2.9  |
| What is the usual place of defecation for family members                  | No facility      | 79  | 23.3 |
|                                                                           | Pit toilet/latrine used by this household only | 242 | 71.4 |
|                                                                           | Toilet/latrine shared with other households | 18  | 5.3  |
| How does your HH primarily dispose of HH waste                           | Dumped in street/open space | 85  | 25.1 |
|                                                                           | Buried          | 254 | 74.9 |
| should wash your hands with soap after and before preparing food         | Yes            | 226 | 66.7 |
|                                                                           | No             | 113 | 33.3 |
| The child who had diarrhea, cough, and fever in the last 3 months (n= 112) versus main source of drinking water for the household | Unprotected springs | 79  | 70.5 |
|                                                                           | Protected springs | 22  | 19.6 |
|                                                                           | Public stand pipes | 6   | 5.4  |
|                                                                           | Piped connection into house | 5   | 4.5  |
| The child who had diarrhea, cough, and fever in the last 3 months (n= 112) versus usual place of defecation for family members | No facility | 72  | 64.3 |
|                                                                           | Pit toilet/latrine used by this household only | 15  | 13.4 |
|                                                                           | Toilet/latrine shared with other households | 25  | 22.3 |
The actual feeding practice style among the respondents had been assessed by using eight core indicators of infant and child feeding practice of the WHO. About (78%) of mothers initiated breastfeeding within one-hour after birth, but (25%) of mothers did it after birth within twenty-four hours. More than (half 66.7%) and 33.4% of the respondents practiced exclusive breastfeeding at 4-5 months and for the first six months without giving any additional food except for necessary medications, respectively. Less than half (33.3%) of mothers continued breastfeeding at 1 year of child age. But about 16.7% and 11.8% of mothers continued breastfeeding at 18 months and at 2 years of the child age. Moreover, about 21.6% of participants reported they were practicing bottle feeding.

Regarding to complementary feeding practices (Fig. 1), about 33.4% and 66.7% of mothers started introducing solid, semi-solid or soft foods at (for all children at 4 to 5 months) and (all children at 6 months and above), respectively. Overall, of the total participants’ proportion of children age 6-23 months who met minimum meal frequency, composite of minimum dietary diversity and, consumption of iron-rich or iron-fortified foods accounts for 51.2%, 49.9% and 25.4%, respectively. About half proportion (49.9%) of children age 6-23 months fit for the minimum acceptable diet (Fig. 1).

Predictors of IYCF practice of the study participants in Jima Rare district of Ethiopia, 2020

The multivariate analysis revealed that being illiterate (AOR = 0.231; 95% CI (0.625-0.942)), less power to decide on the earned money (AOR = 0.231; 95% CI (0.625-0.942)), hadn’t get the opportunity to discuss IYCF practices (AOR = 0.231; 95% CI (0.625-0.942)), and less autonomy of decision-making and control power over assets (AOR = 0.231; 95% CI (0.625-0.942)) were identified as factors that contribute in less likely IYCF appropriate practices than their counterparts. Moreover, the households who have 11-15 total family size were less likely practice IYCF than those household who have less family size AOR=0.431; 95% CI (0.715-0.802)). However, mothers who gave birth at health institutions, get help from their husband, had received practical support of IYCF practices, counseling during ANC and/or PNC visit and the households who have agricultural land and radio were more likely to carryout appropriate IYCF practices than their comparable groups.

Mothers who gave birth at health institutions were 1.734 times more likely to have appropriate IYCF practice than mothers who gave birth at home (AOR =1.734; 95% CI: (1.130, 2.661)). Mothers who have been counseled during ANC and/or PNC visit and having practical support on IYCF practices were 3.41 and 2.15 times more likely to practice IYCF appropriately than their comparable group (AOR=3.41; 95% CI: (2.641-4.012), (AOR=2.15; 95% CI: (3.312-5.013), respectively. Furthermore, mothers who got their husband help to feed child and those who have agricultural land were about two-times more likely to practice IYCF appropriately than their comparable group (AOR=1.982 and 1.473 (AOR=1.893 3.41; 95% CI: (2.641-4.012), (AOR=2.15; 95% CI: (3.312-5.013), respectively. Mothers who gave birth at health institutions were 1.734 times more likely to have appropriate IYCF practice than mothers who gave birth
at home (AOR =1.734; 95% CI: (1.130, 2.661)). This also extends to households those who have radio were 1.2 times more likely to have appropriate IYCF practice than their comparable group (Table 5).
Table 5
Predictors of IYCF practice of the study participants in Jima Rare district of Ethiopia, 2020

| Variables                                      | Category              | p-value | COR (95% CI)       | p-value | AOR, (95% CI)       |
|------------------------------------------------|-----------------------|---------|--------------------|---------|---------------------|
| Educational background (illiterate)            | Illiterate            | 0.361   | (0.415-0.703)      | 0.002   | 0.231; (0.625-0.942) |
| Total family size                              | 1-5                   | Ref.    |                     |         |                     |
|                                                 | 6-10                  | 0.002   | 0.333               | (0.190-0.586) |                     |
|                                                 | 11-15                 | 0.001   | 0.902               | (0.399-0.582) | 0.001               | 0.431; (0.715-0.802) |
| Last child place of delivery                   | Health institution    | 0.001   | 2.601               | (2.021-3.450) | 0.001               | 1.734; (1.130, 2.661) |
|                                                 | Home                  | Ref.    |                     |         |                     |
| Decision over the earned money to use          | Husband               | 0.003   | 0.783               | (0.364-0.679) | 0.002               | 0.231; (0.625-0.942) |
|                                                 | Wife                  | Ref.    |                     |         |                     |
| Autonomy of decision-making and control power over assets | Yes             | Ref.    |                     |         |                     |
|                                                 | No                    | 0.001   | 0.321               | (0.313-0.485) | 0.001               | 0.231; (0.625-0.942) |
| Does your husband help(yes)                    | Yes                   | 0.001   | 2.671               | (3.592-6.126) | 0.002               | 1.982; (2.641-4.012), |
|                                                 | No                    | Ref.    |                     |         |                     |
| Household member has agricultural land         | Yes                   | 0.002   | 3.132               | (2.621-6.012) | 0.003               | 2.15; (3.312-5.013), |
|                                                 | No                    | Ref.    |                     |         |                     |
| Household owned radio                          | Yes                   | 0.002   | 2.41                | (2.641-4.012) | 0.001               | 1.201(5.023-7.461) |
|                                                 | No                    | Ref.    |                     |         |                     |
| IYCF Counseling during ANC and/or PNC visit    | Yes                   | 0.002   | 4.821               | (5.006-9.531) | 0.002               | 3.41; (2.641-4.012) |
|                                                 | No                    | Ref.    |                     |         |                     |
| Variables                                      | Category | p-value | COR (95% CI) | p-value | AOR, (95% CI) |
|-----------------------------------------------|----------|---------|--------------|---------|---------------|
| Mothers who had received practical support on IYCF practices | Yes      | 0.001   | 3.821(6.106-8.511) | 0.003   | 2.15; (3.312-5.013) |
|                                               | No       | Ref.    |              |         |               |
| Mothers got the opportunity to discuss IYCF practices | Yes      | Ref.    |              |         |               |
|                                               | No       | 0.621(0.006-0.521) | 0.004   | 0.231; (0.625-0.942) |

**Discussion**

This study aimed to examine infant and young child feeding practice and its determinants in Jima Rare Woreda, Oromia Region state, Ethiopia. The actual feeding practice style among the respondents had been assessed by using eight core indicators of infant and child feeding practice of the WHO. The finding result suggests that the overall appropriate infant and young child feeding practice was low. The finding revealed that (initiated breastfeeding within one-hour after birth 78%), (66.7% and 33.4% exclusive breastfeeding at 6 and 4-5 months), respectively. Similarly, the researches that conducted in other part of Ethiopia and Nigeria shows that about 62.6% and 14.5% of mothers reported that they initiated breastfeeding within one-hour of infant birth, respectively [26].

The study revealed that about 33.3%, 11.8% and 16.7% of mothers continued breastfeeding at 1, 2 years and at 18 months. This proportion is far less than the recommended proportion of mothers to be continued breastfeeding to one-year age by the WHO [27]. Also the national EDHS (2011) and the study conducted in Addis Ababa, Ethiopia shows that about 35% and 94.8% of mothers continued breastfeeding to at age of one-year, respectively [EDHS 2011 and 28]. The difference may be due to the study participants’ residence area in which in this study most of participants were from rural area. This finding shows that more than (half 66.7%) and 33.4% of the respondents practiced exclusive breastfeeding at 4-5 months and for the first six months without giving any additional food except for necessary medications, respectively. Concurrently, the study conducted in Nigeria, Ethiopia shows that about 24.3% and 55.6% [29] mothers practiced exclusive breastfeeding at one-year age, respectively [29, 30]. The national EDHS (2011) reported that 53% of mothers practiced exclusive breastfeeding at one-year age, which is higher that this study finding. The discrepancy may be due to the study area and the sampling size since the EDHS was conducted at a nationwide by using large sample [31]. Regarding to complementary feeding practices, this finding revealed that about 33.4% and 66.7% of mothers started introducing solid, semi-solid or soft foods at (for all children at 4 to 5 months) and (all children at 6 months and above), respectively. Similarly, the study conducted in Nigeria and national EDHS shows that 45.8% and 46% of mothers started complementary feeding practices at 6 months’ age, respectively [30, 31, 33].
In this study of the total participants’ proportion of children age 6-23 months who met minimum meal frequency, composite of minimum dietary diversity and, consumption of iron-rich or iron-fortified foods accounts for 51.2%, 49.9% and 25.4%, respectively. About half proportion (49.9%) of children age 6-23 months fit for the minimum acceptable diet. Concurrently, the study conducted in Zambia, and Uganda shows that the proportion 54.1% and 56.3% of children age 6-23 months meet for a minimum meal frequency, respectively [17, 32]. Similarly, the study conducted in Tanzania shows that the proportion 38% of children age 6-23 months meet for a minimum meal frequency [33]. Concurrently, the study conducted in Tanzania shows that the proportion 38% of children age 6-23 months meet for a minimum dietary diversity within 24 hours’ recall [31, 33].

This study multivariate analysis finding shows that mothers who gave birth at health institutions, get help from their husband, had received practical support of IYCF practices, counseling during ANC and/or PNC visit and households who have agricultural land and radio were more likely to carryout appropriate IYCF practices than their comparable groups. However, being illiterate, less power to decide on the earned money, hadn’t get the opportunity to discuss IYCF practices, and less autonomy of decision-making, households who have 11-15 total family size and control power over assets were identified as factors that contribute in less likely IYCF appropriate practices than their counterparts. Concurrently, the study conducted in Ethiopia, Zambia shows that mothers who haven't formal education identified as factors that contribute in less likely IYCF appropriate practices than their counterparts [32, 34]. Similarly, the mothers who get feeding help from their husbands (more likely) and who can’t to decide on earned money less likely practice appropriately IYCF than their counterparts [33, 35].

**Conclusion**

The finding revealed that (initiated breastfeeding within one-hour after birth 78%), (66.7% and 33.4% exclusive breastfeeding at 6 and 4-5 months), respectively. About 33.3%, 11.8% and 16.7% of mothers continued breastfeeding at 1, 2 years and at 18 months. About 33.4% and 66.7% of mothers started introducing solid, semi-solid or soft foods at 4 to 5 months at 6 months and above), respectively. The overall, proportion of children age 6-23 months who met minimum meal frequency, composite of minimum dietary diversity and, consumption of iron-rich or iron-fortified foods accounts for 51.2%, 49.9% and 25.4%, respectively. About half proportion (49.9%) of children age 6-23 months fit for the minimum acceptable diet. Out of the total children who had diarrhea, cough, and fever in the last 3 months (n=112), about 70.5% and 19.6% their households were using unprotected springs and protected source of drinking water, respectively. Of the total children who had diarrhea, cough, and fever in the last 3 months (n=112), majority 64.3% and 22.3% of children’s family haven’t toilet facility and used shared toilet shared with other households.

This study multivariate analysis finding shows that mothers who gave birth at health institutions, get help from their husband, had received practical support of IYCF practices, counseling during ANC and/or PNC visit and households who have agricultural land and radio were more likely to carryout appropriate IYCF practices than their comparable groups. However, being illiterate, less power to decide on the earned
money, hadn’t get the opportunity to discuss IYCF practices, and less autonomy of decision-making, households who have 11-15 total family size and control power over assets were identified as factors that contribute in less likely IYCF appropriate practices than their counterparts.

**Recommendations**

Therefore, we recommend the initiatives and interventions should focus on advocacy for institutional delivery, counselling and practical support for IYCF practice. Special attention needs to be given for young and illiterate mothers. Moreover, attention need to address to empower women to have autonomy of decision-making and control power over assets to support them for appropriate IYCF practices.

Furthermore, we recommend to work on source of drinking water and toilet facilities for the communities.

**Limitation of the Study**

This study employed only quantitative study design and qualitative approach was not considered.

**Abbreviations**

ANC, Antenatal Care, EDHS, Ethiopian Demographic Health Survey, HEW, Health Extension Workers, HH Household, IYCF Infant and Young Child Feeding, MUAC Mid-Upper Arm Circumference, PNC Postnatal Care, WASH, Water, Sanitation and Hygiene, WDA, Women Development Army

**Declarations**

**Ethics Approval and Consent to Participate:** Ethical clearance was received from Wollega University review board. Further permissions were obtained from the woreda administrative and written consent were taken from study subjects.

**Consent for Publication:** Not applicable

**Availability of Data and Material:** Up on the request, data and material will be available

**Competing Interests:** The author declare that they haven’t any competing interests

**Funding:** The author received no specific funding for this work

**Authors’ Contribution:** ACF and TBA conducted this research from the inception to manuscript write up and its submission.

**Acknowledgements:** The author would like to have heartfelt thanks for study participants.

**References**
1. Trout KK. Averbuch and M.Barawski, (2011), Current Diabetes Report, Promoting breastfeeding among obese women and women with gestational diabetes mellitus.

2. UNICEF and World Health Organization, (2003), Global Strategy for Infant and Young Child Feeding, Geneva, Switzerland.

3. Bernadette et al. (2003), Special Issue Base World Health Organization Expert Consultation on Complementary Feeding, Food and Nutrition Bulletin; 2003, vol.24(1).

4. WHO, Implementing the global strategy for infant and young child feeding, Geneva 2003.

5. Altrena G. et al. (2006), Infant and Young Child Feeding Update, ORC Macro Calverton, Maryland, USA.

6. Alive & Thrive. (2010), Infant and Young Child Feeding in Communities: A Rapid Assessment in Tigray and SNNPR, Ethiopia. Addis Ababa, Ethiopia.

7. WHO (2010), Indicators for assessing infant and young child feeding practices. International Food Policy Research Institute.

8. Tsedeke W et al. (2014), prevalence and determinants of timely initiation of breastfeeding among lactating mothers of urban dwellers in western Ethiopia: Food science and quality management. vol.31

9. Lauer J. A. Betran, C. Victora, M. de Onis and A. Barros, 2004, Breastfeeding patterns and exposure to suboptimal breastfeeding among children in developing countries, BMC Medicine, 2(1).

10. Gretel H. Et al. (2003), Improving feeding practices: Current patterns, common constraints, and the design of interventions, Division of Nutritional Sciences. vol. 24(1).

11. Federal ministry of health, (2005) National strategy for child survival in Ethiopia, Addis Ababa Ethiopia, Family health department publications.

12. WHO, (2001), Report of the global consultation on Summary of guiding principles for complementary feeding of the breastfed child, Geneva Switzerland.

13. Ethiopia Federal Ministry of Health (2004), National strategy for infant and young child feeding.

14. WHO, (2006), Multicenter Growth Reference Study, Department of Nutrition.

15. WHO, UNICEF, AED, USAID Africa`s (2011), Health, learning from Large Scale Community-based Programs to Improve Breastfeeding Practices, Department of Nutrition for Health and Development.

16. Obeng S. (2011), Ethnicity and Infant Mortality in Sub-Saharan Africa, the Case of Ghana, Population Studies Center, University of Western Ontario, Canada.

17. Nouemsi K., P. Anne, J. et.al. (2007), Factors Associated with Breast feeding as Well as the Nutritional Status of Infants in, Pakistan Journal of Nutrition. Vol. 6 (3).

18. Binta N., MS. Kirsten, B. et.al. (2006), Early Breastfeeding Cessation in Rural Senegal, American Journal of Public Health, Vol 96, No 1

19. Popkin BM, Adair L, et.al. (2007), Breast feeding and diarrheal morbidity pediatrics. vol. 86(6):874–882. 13.
20. Holla-Bhar R, Iellamo A. et.al (2015), Investing in breastfeeding—the world breastfeeding costing initiative. Int Breastfeed J. vol. 10(1):8. doi:10.1186/s13006-015-0032-y
21. Ethiopia Demographic and Health Survey 2011.
22. Anonymous Training Manual, Linkages, (2004) Essential Nutrition Actions to Improve the Nutrition of Women and Children in Ethiopia, including under Situations of Emergencies and HIV/ and AIDs.
23. Merga B. (2014) Assessment of knowledge, attitude and practice of mothers in feeding their under five children in a rural community of Kellech Tikka Kebele, Sebeta Awas, special zone surrounding Finfinne, Oromia Region.
24. UNICEF, (2009), Statistics on Breastfeeding in Ethiopia, Basic Indicators on Nutrition, Health, HIV/AIDS, Education, Demographic Indicators, Economic Indicators, Women, child Protection.
25. USID/ENGINE. Mothers’ infant and young child feeding practice and their determinants in Amahara and Oromia region, Feed the future and global health initiatives2014.
26. Sanusi R.A, *Leshi O.O, Agada U.N. Mother's knowledge and practice of breastfeeding and complementary feeding in Enugu State, Nigeria. January, 2016, Vol. 5(1).
27. WHO, (2011), Global Infant feeding recommendations. (http://www.breastfeedingtensteps. Org/who-recommendation.htm.).
28. . Disha AD. Rawatr. et.al. (2012), Infant and young child feeding (IYCF) practices in Ethiopia and Zambia and their association with child nutrition: analysis of demographic and health survey. Vol. 12
29. Eskeziyaiw A., Meaza D. et.al. (2014), Early Initiation of Complementary Feeding and Associated Factors among months of two Years Young Children, in Kamba Woreda, South West Ethiopia
30. . Sanusi R.A, Leshi O.et.al (2016), U.N. Mother's knowledge and practice of breastfeeding and complementary feeding in Enugu State, Nigeria. Vol. 5(1).
31. EPHA (2006), Abstract 11, Assessment of Infant and Young Child Feeding Practice in Dabat Town, North West Ethiopia.
32. EDHS, RFP (2011), Improving infant and young child feeding practices through multispectral collaboration. Ethiopia Background for Amhara Radio Campaign.
33. Victor. (2012), Infant and Young Child Feeding Practices among Children Aged 0-23 Months in Tanzania. Maternal and Child Nutrition Journal.
34. Kibebew, A. (2012), Infant and Young Child Feeding Practices among mothers Living Harar Town. Harar Bulletin of Health Sciences, vol. 66–78.
35. FanosY., Mekuria A. et.al. (2015), Infant and Young Child Feeding Practice Status and Associated Factors among Mothers of under 24-Month-Old Children in Oromia Region, Ethiopia.

Figures
Figure 1

The IYC breastfeeding and complementary feeding practices of study participants in Ethiopia (by using 8 core indicators of WHO, 2020)