

Complementary Feeding Practices and Associated Factors for Infants Attending Hawasa University Comprehensive Specialized Hospital, Sidama Region, Southern Ethiopia

Dr. Shemsu Gabiso Kasim

ss77new.shems@gmail.com


Dr. Hilina Hailu Nigussie

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Abstract

Background

Complementary feeding is defined as the process of starting additional food when breast milk alone is no longer sufficient to meet the nutritional requirements of infants. Inadequate infant feeding are the major causes of infant mortality and under-nutrition. Yet, very little is known about the determinants of complementary feeding practices in study area. This study assessed complementary feeding practices and associated factors for infants in Hawasa University Comprehensive Specialized Hospital, Sidama Region, Ethiopia.

Methods

Cross sectional study design was used to assess complementary feeding practices and associated factors for infants attending Hawasa University Comprehensive Specialized Hospital.

Result

Three hundred and ninety-five (395) mothers or caregivers were interviewed during the study making the response rate of 100%. More than half (66.3%) of respondents reported that they knew the reason for initiating complementary feeding while 58.9% knew when to start the complementary feeding for their infants; however 58.5% of them did not know the minimum frequency of complementary feeding in a day. The mean meal frequency for infants was 4.35 (\pm 1.24) (95% CI 3.3–3.6). The results show that only 19% of infants consume a minimum acceptable diet, 16% achieve minimum dietary diversity, and 44% reach minimum meal frequency. Multivariate regression analysis shows that mother's/care taker's knowledge about proper complementary feeding, mother's age, mother's employment status and father's employment status are significant predictors of complementary feeding practices among infants aged 6–24 months in the study area.

Conclusion

Infants' complementary feeding practices fell below the World Health Organization recommended level in terms of minimum acceptable diet and minimum meal frequency and minimum dietary diversity among infants aged 6–24 months in Hawasa University Comprehensive Specialized hospital. It's important to raise awareness of mothers/care takers of infants through health practitioners in addition to ensuring employment of infants' parents to ensure proper practices of complementary feeding among infants.

Introduction

Adequate nutrition during infancy and early childhood is fundamental to the development of each child's full human potential. It is well recognized that the period from birth to two years of age is a "critical window" for the promotion of optimal growth, health and behavioral development (1). The immediate consequences of poor nutrition during these formative years include significant morbidity and mortality and delayed mental and motor development. In the long-term, early nutritional deficits are linked to impairments in intellectual performance, work capacity, reproductive outcomes and overall health during adolescence and adulthood (2). For this reason, it is essential to ensure that caregivers are provided with appropriate guidance regarding optimal complementary feeding of infants.

Complementary feeding is defined as starting food and water when breast milk alone is no longer sufficient to meet the nutritional requirements of infants and therefore other foods and liquids are needed, along with breast milk. The target age range for complementary feeding is generally taken to be 6 to 24 months of age, even though breastfeeding may continue beyond two years (3).

Following the World Health Organization (WHO) recommendations, timely introduction means that complementary feeding should be introduced at 6 months of age. Complementary feeding is needed from that age because breast milk or infant formula alone are not enough to cover the infant's energy needs or provide sufficient amounts of certain nutrients such as protein, zinc, iron and fat-soluble vitamins (4).

Infants are born with a store of iron in their liver that is sufficient for the first 6 months of life but after that the amount of iron in breast milk will not satisfy infants' nutritional requirements for iron (5). In addition to timely introduction, the WHO also emphasizes diet diversity, meaning that a variety of the basic food groups should be included as part of the complementary feeding to ensure a heterogeneous nutrient intake that satisfies all nutrient needs in the growing infant (6).

The need of infants for energy and nutrients start to exceed what is provided by breast milk at the age of 6 months and complementary foods are necessary to meet those needs. Most of the times there are problems related to practicing complementary feeding for infants in most areas of the world. The problems are complementary foods are often provided to the infants of inadequate nutritional quality, or they are given too early or too late, or in too small amounts, or not frequently enough. If the feeds are given inappropriately, the growth of the infant may be faltered (7). In many developing countries, the incidence of under-nutrition usually increases during the period of complementary feeding from the age of 6 to 18 months (7). The occurrence of early nutritional deficits is linked to long-term impairments in child growth and health (7).

According to the 2019 mini Demographic and Health Survey (mEDHS), the Ethiopian national prevalence of appropriate complementary feeding practices among infants was 41% (8). Contrary to the WHO recommendation that children under the age of 6 months should not start complementary feeding, 14% of infants 0–5 months consume plain water, 1% of infants consume non-milk liquids, 8% consume milk, and 9% of infants under 6 months use a bottle with a nipple, a practice that is discouraged because of the risk of exposing the child to illness (8). However, the regional variation (among the regions of Ethiopia) of complementary feeding practice was not separately addressed by the Ethiopian Mini Demographic and Health Survey, 2019 (8). The mini EDHS also revealed that, 37.2% of infants in Ethiopia meet the criteria of dietary diversity and feeding frequency that are appropriate for their age. Thus, only few children receive nutritionally adequate and safe complementary food (8).

Inappropriate complementary feeding practice may result in malnutrition and cause various diseases. Almost half (45%) of all children's deaths are associated with malnutrition, while children in sub-Saharan Africa are more than 14 times likely to die before the age of 5 than children in developed regions (9).

Until now, indicators used to measure infant and young child feeding practices in population-based surveys have focused mostly on breastfeeding practices (10). Considerations were not given to quantity and quality of complementary foods and feeding practices including dietary diversity like breast feeding. Meanwhile, inadequate knowledge about appropriate foods and the feeding practices are often greater determinants of malnutrition than mere lack of food (11). Having a better complementary feeding knowledge and practices among mothers of infants will prevent the consequences of malnutrition thereby enabling children to receive appropriate nutrition and consequently achieve their full human potential (12).

Optimal complementary feeding practices depends not only for what is feed, but also on how, when, where and by whom the child is feed (9). In many developing countries, less than 25% of infants within the age 6–24 months meet the criteria of dietary diversity and feeding frequency that are appropriate for their age (13). Thus, only few children receive nutritionally adequate and safe complementary food (14). In Ethiopia, according to the Demographic and Health Survey, more than 70% of infants are given complementary food too early which is usually of poor nutritional values (5). Study also shows that only 37.2% of infants receive nutritionally adequate and safe complementary food in Ethiopia though inappropriate complementary feeding practice may result in malnutrition and cause various diseases. (15).

Thus this study will assess the complementary feeding practices and associated factors for infants attending Hawasa University Comprehensive Specialized Hospital assessing the level of attainment of minimum acceptable diet, meal frequency and dietary diversity during complementary feeding of infants in addition to identifying factors affecting complementary feeding practices for infants.

Significance of the study

Acknowledging this, the interest in the complementary feeding practices and associated factors of infants is not incidental; rather it is influenced by a thorough observation and experience in the child health program. On top of this acknowledgement, finding of this study will also provide clear evidence of complementary feeding practices and associated factors for infants in the study areas to assist healthcare providers and managers to plan for further improvement of the program of infant's complementary feeding practices.

Methods

Study design and settings

Study design

Cross sectional study design was applied to assess complementary feeding practices and associated factors for infants (6–24 months of age) attending Hawassa University Comprehensive Specialized Hospital .

Study settings and period

The study was conducted in Hawassa University Comprehensive specialized hospital, found in Hawasa city, Capital of Sidama Region. Hawassa City is located at 275 km South-East of Addis Ababa, capital city of Ethiopia. Based on the hospital's report, a total of 14651 patients of pediatric age were served in the hospital in 202. The pediatric ward has estimated monthly admissions of 928–1352 patients (16).

The study was conducted from July 1/2022 to September 30/2022 G.C.

Source population

All pediatrics patients who visited Hawasa University Comprehensive Specialized Hospital during the study period were source population.

Study population

All infants, up to 24 months of age, who attended pediatrics Out Patient Department, pediatrics ward, Expanded Program for Immunization and pediatrics follow up clinics, were study population.

Inclusion criteria and exclusion criteria

Inclusion criteria

All infants whose age limit were 6–24 months were included

Exclusion criteria

Infants whose attendant (care giver) were unable to provide information due to various reason like lacking infant's complementary feeding history/information or unable to communicate due to illnesses were excluded

Sample size and sampling technique

Sample size determination

Sample size was calculated using single population proportion formula using the following assumptions with 37.2% prevalence (p) of appropriate complementary feeding practice in Debreabor Hospital (17).

- Desired precision (d) = 5%,
- Confidence level = 95% ($Z_{\alpha/2} = 1.96$ value)
- 37.2% of the prevalence (p) of appropriate complementary feeding practice in Debreabor Hospital was considered.

Hence, the calculated sample size using the formula

$$n = \frac{(Z_{\alpha/2})^2 * [p(1-q)]}{d^2}$$

Where,

n = is a required sample size

P = 37.2% (0.372) as mentioned above

q = 1-p

$$q = 1 - p. \text{ i.e: } 1 - 0.372 = 0.628. \text{ Using the above formula, } n = \frac{(1.96^2) * 0.372 * (1 - 0.372)}{0.05^2} = 359$$

Adding up the estimated 10% non- response rate, which is 36, the total sample size was **395**

Sampling procedure and technique

- Simple random sampling technique was employed to select the study participants.

Study variables

Independent variable

Socio-economic and demographic characteristics such as:

- age of the mother
- marital status of the mother
- family size
- educational status of the mother/care taker
- husband's educational status
- occupational status of the mother/care takers
- family income
- Religion of mothers

Maternal health service and related characteristics such as:

- Parity
- Place of delivery
- PNC visit

Knowledge of mothers/care takers/ of complementary feeding practices

Child related characteristics such as

Dependent variables

- Complementary feeding practices

Operational definition

Infants

In this study infants are those children 6 months up to 24 month of age(14).

Complementary feeding

is the process of starting additional foods and liquids aside from breast milk because breast milk alone is no longer sufficient to meet the nutritional requirements of infants after 6 months of age (5). In this study, the level of complementary feeding is categorized as optimal or sub-optimal based on the World Health Organization's recommendation of infant and young child feeding (18, 19)

Complementary feeding practices

is the process of practicing and attaining minimum dietary diversity, minimum meal frequency and minimum acceptable diet for infants of age 6–24 months (21).

Minimum Dietary Diversity

Is said to be attained when infants 6–24 months of age who consume from 4 or more of the 7 food groups (grains/tubers/roots, legumes/nuts, milk/diary product, eggs, vitamin A rich, flesh foods and other fruits and vegetables) with 24 hours dietary recall (18).

Minimum Meal Frequency

Is said to be attained when infants of age 6–24 months fed a minimum of three meals per day within a 24-hour dietary recall period (18).

Minimum Acceptable Diet (MAD)

A composite indicator of minimum dietary diversity and minimum meal frequency. Proportion of children 6–24 months of age who received a minimum diversified diet and minimum meal frequency (apart from breast milk) is said to be MAD fulfilled (18).

Measurement of variables

Minimum dietary diversity is based on the WHO recommendation of consuming at least four food groups out of seven to provide necessary nutrients and energy for the child to ensure normal growth (18). The Ethiopian guidelines for Infants and Young Child Feeding (IYCF) also recommends food groups for IYCF and the practices can be assessed based on the mother's 24-hour recall of foods given to her child (19). The seven food groups covered in the guidelines for young children (infants) between 6–24 months of age include grains, roots, and tubers; legumes and nuts; dairy products (milk, yogurt); flesh foods (meat, fish, poultry and liver/organ meats; eggs; vitamin- A-rich fruits and vegetables; and other fruits and vegetables. Minimum meal frequency is defined as the proportion of infants between 6–24 months of age (breastfed or otherwise) who received solid, semi-solid, or soft foods for at least the minimum number of times recommended by the World Health Organization (18). For non-breastfed infants, milk is also considered in calculating the minimum food-frequency (19). The definition of "minimum" varies by age. Breastfed infants between 6 and 8 months of age and between 9 and 24 months of age should consume solid or semi-solid food minimum twice a day and thrice a day, respectively. Non-breastfed children infants 6 and 24 months of age should consume solid or semi-solid food at least four times a day, and also, they should intake dairy or formula milk (20).

A minimum acceptable diet is a combination of diet diversity and meal frequency variables where a breastfed infant 6–24 months of age is considered to be receiving a minimum acceptable diet if he had at least the minimum dietary diversity and meal frequency in the last 24 hours. Similarly, a non-breastfed infant 6–24 months of age is considered to be receiving a minimum acceptable diet if he has received at least two milk feedings with minimum dietary diversity (excluding milk) and minimum meal frequency in the last 24 hours (18, 19).

Data collection technique and instruments

Quantitative data were collected using a pre-tested semi-structured questionnaire, adapted from similar studies and the WHO's guidelines of complementary feeding, infants and young child nutrition (18). Data were collected from mothers or care takers of the infants by using face-to-face interviews. Questionnaire was developed in English and was translated into local language and then was translated back to English during data analysis to ensure the consistence of information.

Data quality assurance

To ensure data quality, data collectors were adequately trained on data collection procedures and a researcher followed and monitored the process of data collection thoroughly. Access to data for unauthorized personnel was restricted to maintain data quality during coding and data entering.

Data analysis

Data coding, entering, and cleaning was done using the EPI Info 6 software version then, the SPSS software of version 25 was used, and descriptive data analysis was computed. Bivariate and multivariate analysis was conducted to analyze the association between child characteristic and family socio-economic characteristics with complementary feeding practice. Chi-square test with a confidence level of 95% was used to analyze the association between family's socio-economic and demography characteristics with complementary feeding practice.

Ethical consideration

The approval to conduct the study, through the ethical clearance, was obtained from Hawasa University College of Medical and Health Sciences Institutional Review Board (IRB). All the ethical principles (Informed consent, autonomy, Beneficence, justice, confidentiality and anonymity, termination) were maintained during data collection, data analysis and dissemination of findings. Oral informed consent was obtained from mothers or care takers of their infants who participated in the study.

Results and Discussion

Socio-demographic characteristics of study participants

Three hundred and ninety-five (381) mothers and caregivers were interviewed during the study making response rate of 96.4%. The age ranges of majority of respondents (49.3%) were 18–24 years followed by 25–35 years (38.5%). The mean age of the respondents was 24.7 years with +/-2.1 Standard Deviation. Majority (97.7%) of the respondents were married. One hundred and fifty six (41%) of the participants had primary school education and 24.6% had secondary education while 6.6% of participants had college level education. However, 25.8% of had no formal education. More than half (52%) of the participants were Muslim by religion and 40.7% of the participants were protestant. Two hundred and six (54.2%) of the participants were Oromo by their ethnicity and 134 (35.2%) were Sidama by their ethnicity. More than half (59.6%) of infants were 6–12 months by their age. The average size of a family was 4 (range from 2 to 6) people (see table 1 in separately attached document).

Table 1
 Socio-demographic characteristics of the study population
 (n = 388)

Socio-demographic characteristics	Sample (n)	Percent
Maternal age (years):n = 395	395	
< 18		3.3
18–24		
25–35		
> 35		
Infant's age (months)	395	
6		8.4
6-8.9		
9–12		27
> 12		32
First infant or not	395	
Yes	155	39.2
No	240	60.8
Age of older infant (years)	240	
< 2	17	7
> 2	223	93
Sex of infant	395	
Male	229	58
Female	166	42
Marital status	395	
Single		0.5
Married		97.7
Widowed		0.75
Divorced		1
Mother's educational status	395	
Not educated	102	25.8
Adult education	8	2
Grade 1–4	83	21
Grade 5–8	79	20
Grade 9–10	83	21
Grade 11–12	14	3.6
College level education	26	6.6
Religion	395	
Protestant	161	40.7
Muslim		52.2
Orthodox	13	3.3
Catholic	7	1.8
Others	8	2.0
Ethnicity	395	
Sidama	139	35.2

Socio-demographic characteristics	Sample (n)	Percent
Oromo	214	54.2
Amhara	13	3.2
Wolaita	19	4.8
Gurage	5	1.3
Other	5	1.3

Socio-economic characteristics of the households

Husband's educational status

Majority (59%) of the husbands had an educational status of primary education (grade 1–8). There were no husbands who attended adult education and 67 (17.4%) had not educated at all while 45 (11.5%) had college level educational status (see Table 2 below).

Table 2
Husband's educational status (n = 388)

Level of education	Frequency	Percent
Not educated	67	17.4
Adult education	0	0
Grade 1–4	126	32.5
Grade 5–8	103	26.5
Grade 9–10	14	3.6
Grade 11–12	33	8.5
College level	45	11.5

Nine (2.3%) of the participants had no husband at the time of interview due to divorce/widow

Husband's occupational status

One hundred and ninety-five (51.3%) of the participants' husbands were farmers in occupation, 52 (13.6%) were merchants, 54 (14.2%) formally employed and 16 (4.2%) unemployed. Most of the mothers (65.6%) were housewives by occupation (see Table 3 below).

Table 3
The husband's occupational status (n = 388)

Types of occupation	Frequency	Percent
Farmer	199	51.3
Merchant	52	13.4
Student	9	2.4
Government employee	54	13.9
Others	58	14.9
No occupation	16	4.1

Household's income status

One third (34.2%) of mothers had monthly income of less than 2000 ETB.

Fig 1: Below shows household's income status.

Family size

Family size of 2–5 was 220 (57.7%) and family size of more than 5 was 160 (42.3%).

Figure 2: Below shows family size of participants

Maternal health services utilization characteristics

Most (42.7%) of the mothers were primi-parus; 152 (40%) were multi-parus while the rest (17.3%) were grand multi-parus. Among the participants, 305 (80%) attended at least the first visit of ante natal care. Majority, 212 (55.6%) of the mothers gave births at home while 166 (43.5%) of the mothers gave births at health facilities (either health center or hospital), and 3 (0.8%) of them gave births on the way to health facilities. One hundred and fifty two (39.8%) mothers did not attend the early post-natal care after home delivery. Majority (59.3%) of mother attended the post-natal care after several weeks of delivery while 24.4% and 16.3% of mothers attended the post-natal care after days and on the same day of delivery respectively.

Mother's knowledge of complementary feeding practices

Among the participants, 253 (66.3%) had knowledge about appropriate complementary feeding practices while 225 (59%) of mother knew when to start the complementary feeding for their infants. On the other hand, 223 (58.5%) of them did not know the minimum dietary frequency, dietary diversity and minimum acceptable diet for complementary feeding in a day.

Infants' Complementary Feeding practices

Assessment of complementary feeding practice was done using pre-determined questions provided to the study participants with 'Yes/No' options and the frequency in which they reported to practice based on actionable options were provided in the questionnaire.

Three hundred and nine (81%) of infants had started the complementary feeding at the time of the interview of the participants. Among them, 219 (57.4%) of infants started the complementary feeding before 6 months of age. Majority (53.3%) of the infants started the complementary feeding by cow milk followed with porridge (22%), juice and egg (9.6%), packed milk (8%) and 7.4% gruel (atimit in local language). Most (83.8%) of the infants were fed the complementary feeding by their mothers, and bottle feeding was the most (52.3%) practiced method of feeding followed by hand feeding (24.3%) and cup and spoon feeding (23.4%).

Mothers or care givers reported to always wash their hands (40.4%) before feeding to keep food hygiene.

Minimum meal frequency, minimum dietary diversity and Minimum acceptable diet during complementary feeding of infants

Minimum Meal frequency

One hundred and thirty six (44%) of infants reach minimum meal frequency. The mean meal frequency for all the aged infants 6–24 months old was 4.35 (\pm 1.24) (95% CI 3.3–5.4).

Minimum dietary diversity

Out of those infants who started complementary feeding, only 49 (16%) infants achieve minimum dietary diversity

Minimum acceptable diet

Minimum acceptable diet is to indicate those infants who had at least the minimum dietary diversity and meal frequency in the last 24 hours. Accordingly, 59 (19%) infants consumed a minimum acceptable diet.

Complementary feeding practices determining factors

Factors associated with minimum dietary diversity, minimum meal frequency and minimum acceptable diet

The adjusted odds ratios from the multivariate logistic regressions for the factors associated with minimum dietary diversity compliance (95% CI) are presented (Tables 4 and 5). Among demographic and socio-economic factors, mother's/care taker's age is a significant predictor of minimum dietary diversity (see Table 4 below).

Table 4 Significant relationship between demographic and socio-economic factors and complementary feeding practices (combined attainment of minimum meal frequency, minimum dietary diversity and minimum acceptable diet)

Characteristics	complementary feeding practices						P- value
	Yes		No		Total		
Mothers' age (n=395) in years	N	%	N	%	n	%	0.039*
<18	9	69.2	4	30.8	13	3.3	
18-24	113	58	82	42	195	49.3	
25-35	71	46.7	81	53.3	152	38.5	
>35	13	37.1	22	62.6	35	8.9	
Mother's occupation	complementary feeding practices						0.045*
	Yes		No		Total		
	N	%	N	%	N	%	
Employed	29	66	15	34	44	11.2	
Not employed	137	39	214	61	351	88.8	
Husband's occupation	complementary feeding practices						0.040*
	Yes		No		Total		
	N	%	N	%	N	%	
Employed	79	74.5	27	25.5	106	27	
Not employed	123	43.6	159	56.4	282	73	

Mothers whose age is young have two-fold higher odds of meeting minimum dietary diversity, meal frequency and minimum acceptable diet in infants feeding (2.4):(1.59–3.38), as compared to the mothers of old age. Parent's occupation is a significant predictor of minimum dietary diversity meal frequency and minimum acceptable diet. Employed mothers and employed fathers have four-fold higher odds of meeting minimum dietary diversity, meal frequency and minimum acceptable diet in infants feeding (4.4): (3.57–5.29).

Mothers/care takers who know about the recommendations and importance of complementary feeding practices have three-fold higher meeting minimum dietary diversity, meal frequency and minimum acceptable diet in infants feeding (3.3):(2.24–4.4), as compared to the mothers who do not know about the importance of complementary feeding practices for infants aged 6–24 months (see Table 5).

Table 5

Significant relationship between mother's knowledge on recommendations and importance of complementary feeding and complementary feeding practices (combined attainment of minimum meal frequency, minimum dietary diversity and minimum acceptable diet)

Characteristics	Complementary feeding practices						P value,
	(attaining minimum meal frequency, dietary diversity and acceptable diet)						
Knowledge on the importance of complementary feeding of infants	Yes		No		Total		0.008*
	N	%	N	%	N	%	
Correct response by the mother	179	68.3	83	31.7	262	66.3	
Incorrect response by the mother	54	31.7	79	68.3	133	33.7	
Knowledge on recommendations of complementary feeding	Complementary feeding practices						0.033*
	(attaining minimum meal frequency, dietary diversity and acceptable diet)						
	Yes		No		Total		
	n	%	N	%	N	%	
Correct response by the mother	149	64	84	36	233	58.9	
Incorrect response by the mother	59	36	103	64	162	41.1	

Discussion

In this study, we examined the level of attainment of minimum acceptable diet, meal frequency and dietary diversity and factors associated among infants between 6 and 24 months of age visiting Hawasa University Comprehensive Specialized Hospital. Findings revealed that, less than one-fifth of the infants met diet diversity criteria, about two-fifth met minimum meal frequency criteria, and, less than one-fifth met the minimum acceptable diet criteria. The lowest

percentage of infants consumed minimum acceptable diet in the study area as compared to findings of other studies in different parts of the world especially in LMICs like Bangladesh 23% (25) and Nepal 36% (26). However, the percentage of infants who consumed minimum acceptable diet in the study area is higher than findings of the study conducted in India, which is 9.6% (24) and Afghanistan, which is 16% (27). The higher percentage as compared to those countries might be due to the fact that most of the participants were from urban societies contrary to the study conducted in India and Afghanistan whose participants were mostly from rural areas.

Taking the findings in to account, poor dietary intake among infants in the study area is a thoughtful alarm as consumption of a diversified diet and attaining minimum acceptable diet is associated with adequate micronutrient intake and a lower risk of malnutrition in children in developing countries (23, 27).

The results of multivariate regression analysis show that mothers in young age group have higher odds of achieving minimum diet diversity and minimum acceptable diet than mothers in the older age groups. Our findings are in agreement with previous studies Pakistan (28). The possible explanation could be that mothers are particularly careful about their infants' feeding requirements in their young age than in their older ages because in their young ages, they tend to follow and take care of their infants more frequently as number of children they have might be low.

Parent's (both mother and father) employment is also associated with complementary feeding practices in terms of attaining minimum acceptable diet. It could be because of employed parents are able to afford for infants' foods and provide diversified food for their infants (29).

Mother's knowledge of importance of complementary feeding practices is also a significant predictor of minimum dietary diversity and minimum acceptable diet. Adjusted odds ratios show that infants whose mothers know the importance of complementary feeding practices have higher odds of receiving recommended diet, and it may be explained that knowledge of mothers to comply with the recommended dietary practices for infants contributed to practice based on recommendations (30, 31). The positive correlation of a mother's knowledge of complementary feeding practices for infants is generally interpreted as a mother's level of awareness in the literature (27, 32). Previous studies have also shown that mother's knowledge predicts minimum diet diversity, acceptable diet and minimum meal frequency (22, 30)

Conclusion

Overall, the current study shows that only 19% of the infants in the age group of 6–24 months receive the minimum acceptable diet which is significantly lower than other areas such as Nepal and Afghanistan. Poor complementary food practices are widespread. Our results show several factors associated with complementary feeding practices, including a mother's age mother's knowledge of complementary feeding practices recommendation, employment of parents (both mothers and fathers) of infants. It's important to raise awareness of mothers/care takers of infants through health practitioners in addition to ensuring employment of parents to ensure proper practices of complementary feeding among infants.

Abbreviations

AAP

American Academy of Pediatrics

EDHS

Ethiopian Demographic and Health Survey

EMDHS

Ethiopian mini Demographic and health survey

ESPG HAN

European Society for Pediatric Gastroenterology, Hepatology and Nutrition

IYCF

Infant and Young Child Feeding Practices

SD

Standard deviation

UNICEF

United Nations Children's Fund/ United Nations International Children's Emergency Fund

WHO

World Health Organization

Declarations

Author Contribution

SGK: Wrote overall research methodology, Wrote the main manuscript text. HHN: wrote part of manuscript

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Data Availability

Data will be provided in the manuscript or supplementary information files up on reasonable request.

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Figures

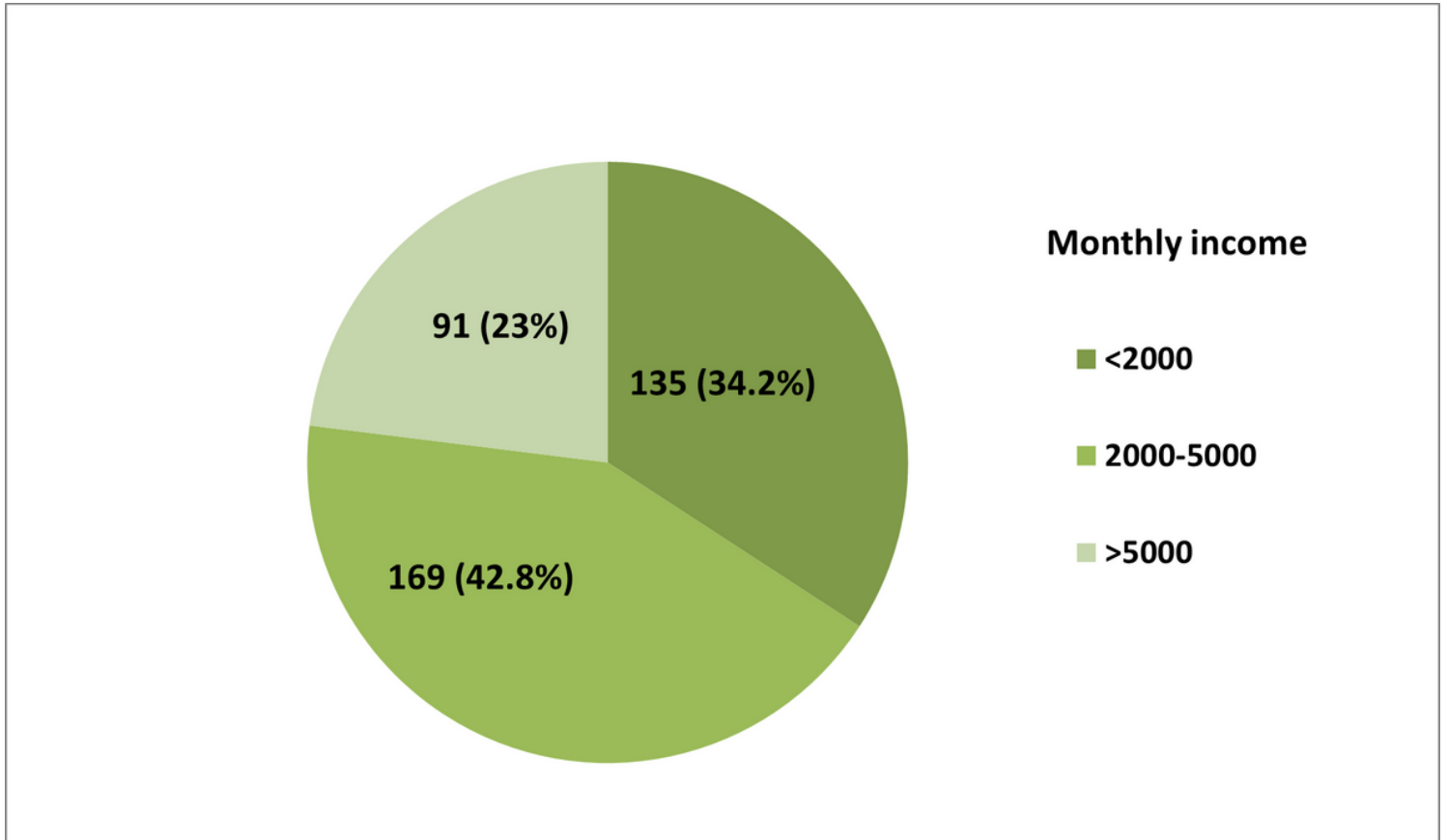


Figure 1

Households income status, complementary feeding practices and associated factors of infants (6-24 months age) attending Hawasa University Comprehensive Specialized Hospital, Sidama Region, Ethiopia,

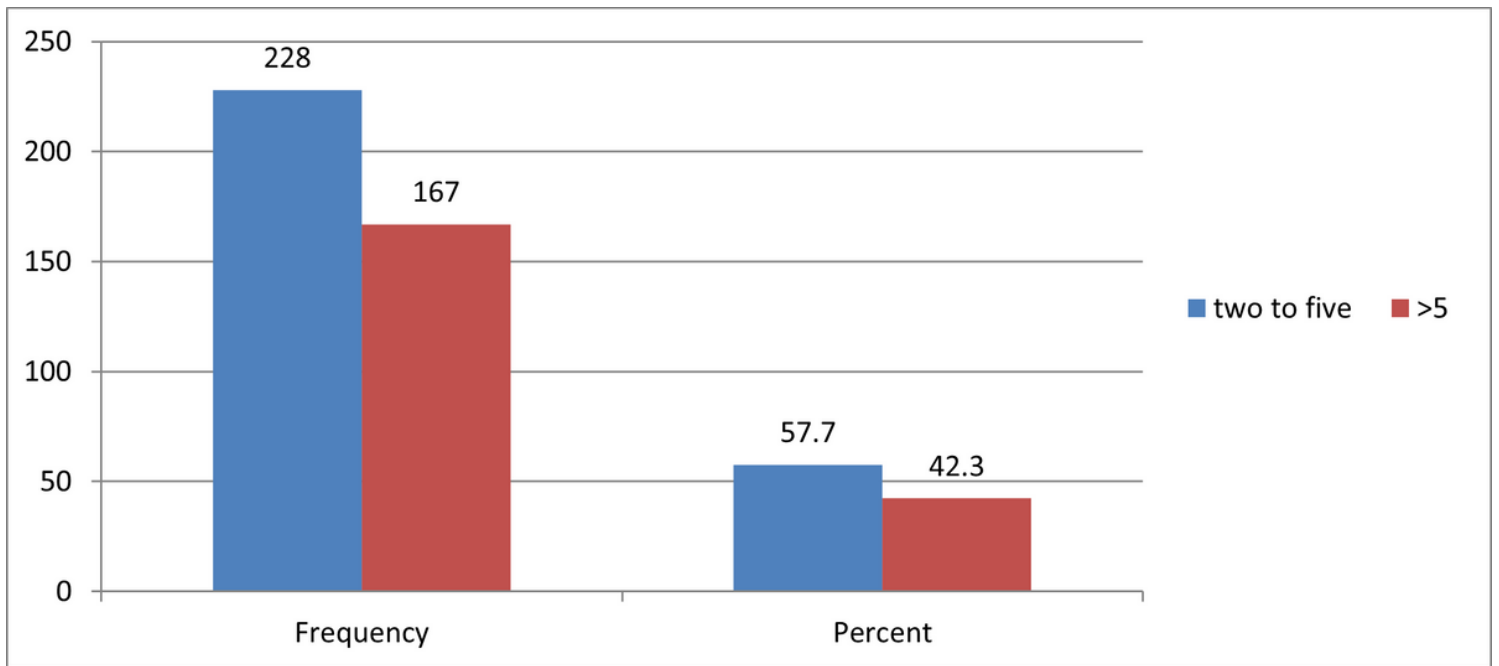


Figure 2
 Family size, complementary feeding practices and associated factors of infants (6-24 months age) attending Hawasa University Comprehensive Specialized Hospital, Sidama Region, Ethiopia, 2022.

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