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Understanding the Knowledge, Attitudes, and Practices of Mothers/Caretakers Regarding Complementary Feeding in Children Aged 6 Months to 2 Years Attending the Pediatrics Outpatient Department at Ishaka Adventist Hospital

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ABSTRACT

This research aimed to evaluate the knowledge, attitudes, and practices among mothers caring for children aged 6 months to 2 years regarding Complementary Feeding (CF). Conducted over a one-month period from October to November 2020, this descriptive cross-sectional study engaged 206 Mothers/caretakers attending Ishaka Adventist Hospital OPD for various child health concerns, including immunization and growth monitoring. Participants were selected randomly based on their arrival order at the hospital during the study period. Data collection involved researcher-administered questionnaires for illiterate participants and self-administered questionnaires for literate individuals after obtaining consent. Participants' comprehension and execution of complementary feeding practices were assessed through their responses. Data entry and analysis utilized EPI-DATA and STATA 17 software. Univariate analysis determined frequency, mean, mode, and percentage of participant responses, while bivariate analysis explored the relationship between knowledge and attitude, and between knowledge and practices among mothers/caretakers at Ishaka Adventist Hospital's pediatric OPD. Findings revealed that only 4% of participants were knowledgeable about the frequency of both Complementary Feeding (CF) and Breastfeeding (BF) for infants and the ideal diet composition. However, 63% were aware of the appropriate ages to initiate CF and stop BF, along with the consequences of delayed CF initiation. Although 85.5% commenced CF at the recommended age of six months, merely 4.3% provided adequate quantity and quality of complementary feeds to their infants. The study discovered statistically significant associations between proper/poor CF practices and respondents' age, education level, socio-economic status, and number of children in the household. Despite varied practices, participants generally exhibited positive and supportive attitudes toward CF.

Keywords: Breast milk, Malnutrition, Immunization, Complementary Feeding, Babies.

INTRODUCTION

The whole life and health of an individual can be influenced by breastfeeding at birth and throughout the early years of a child. It is common knowledge that breastfeeding is important for optimal infant feeding. Breast milk alone can be used for feeding babies in the first six months of life, but from then on, complementary feeding is necessary [1-3]. The nutritional adequacy of complementary food is essential for the prevention of infant morbidity and mortality, including malnutrition and overweight. Malnutrition is one of the most widespread conditions affecting human health, especially during infancy and immune-compromised conditions [4, 5].

The 'germ' of malnutrition attacks a fetus in the intra-uterine life due to a lack of sufficient antenatal care on the part of the mother. The condition deteriorates further when after birth the infant is deprived of exclusive breastfeeding or the initiation of complementary food is delayed. Complementary food should be started after the age of 6 months and should contain energy-rich semi–solid food [6]. Malnutrition makes a child susceptible to infections and delays recovery, thus increasing mortality and morbidity [7, 8]. The rapid growth of a baby during the first year of life and specifically the first 6 months postpartum requires an adequate supply of nutrients to cope with the rapid buildup of body muscle and other tissues. This critical transition period is associated with a dramatic increase in malnutrition among infants. The 24-hour dietary assessment revealed that children consumed mainly a thin porridge prepared from maize flour as a complementary food. Carbohydrates contributed the most energy (on average 69%), followed by fats (18.6%) and protein (on average 12.1%) [9]. WHO and UNICEF recommend exclusive breastfeeding for the first 6 months of life starting within an hour after birth, followed by appropriate and adequate complementary breastfeeding for the first 2 years of life as an economical and safe means of protecting children from infection and providing them with an ideal source of nutrients [10]. Almost half of the children below 6 months of age were exclusively breastfed (49 percent) [9]. More children living in rural areas (50 percent) were exclusively breastfed than in urban areas (44 percent). At 6 – 9 months of age 42 per cent of children were breastfed and received timely complementary feeding. By 12 – 15 months, 74 percent of children were still being breastfed and by 20 – 23 months, 53 percent continued breastfeeding, with males breastfeeding longer than females [11].

Feeding practices during infancy are critical for the growth, development, and health of a child and of importance for the early prevention of chronic degenerative diseases [12, 13]. Anemia and its related complications are the most prevailing effects of undernutrition in both adults and children [14-16]. It has been estimated that exclusive breastfeeding (BF) for the first 6 months of life could reduce infant deaths by 13% and optimal complementary feeding practice could reduce 6% of all under 5 deaths [17]. As of 2018, 2.2 million (29 percent) of Ugandan children under the age of five are stunted, meaning they are too short for their age. About 850,000 (11 percent) of Ugandan children under the age of five are underweight and a further 300,000 (4 percent) are too thin for their height. The severity of a child's stunting directly relates to their degree of cognitive impairments. Adults who were malnourished as children often have lower educational attainment and earn decreased wages. These adults have a reduced likelihood of escaping poverty. Current population-based estimates of age-related patterns of complementary feeding are few and generally of poor quality. In Uganda, the scant information available suggests that there is inappropriate timing of introduction and frequency of complementary feeding and that the nutrient content of traditional complementary recipes is inadequate. This study, therefore, seeks to assess the knowledge, attitude, and practices of mothers/caretakers about complementary feeding in children aged 6 months to 2 years visiting the pediatrics outpatient department of Ishaka Adventist Hospital.

METHODOLOGY

Area of Study

The study was conducted at the pediatric outpatient department of Ishaka Adventist Hospital which is located along the Kasese-Mbarara highway in Ishaka town in Ishaka-Bushenyi municipality in Bushenyi district western Uganda. It is located

immediately north of the junction of the Ntungamo-Kasese road with the Mbarara-Ishaka road. Its location is approximately 77km (48 mi), by road, west of Mbarara, the largest city in the sub-region. This location lies approximately 360 kilometers (224 mi), by road, southwest of Kampala, the capital of Uganda, and the largest city in Uganda. The hospital has 120 beds, a male ward, a female ward, a maternity ward, maternal child health services, radiology services, dental care services, a lifestyle and wellness Centre, laboratory services, a chaplaincy department an HIV clinic, and two medical training schools.

Study population

The study participants were mothers/caretakers to children aged 6 months up to 2 years visiting the outpatient department of Ishaka Adventist Hospital. Mothers/caregivers were the study respondents because they know their children and spend more time with these children.

Sample size determination

The sample size for the study was calculated using a single population proportion formula using the UDHS 2016 prevalence of appropriate complementary feeding for Toro region 8.8%, 95%CI, 5% marginal error, and 10% non-response rate and a design effect of 1.5. A total of 206 young children 6-23 months was required for the study. These were calculated using n= (Z^2PQ/δ^2) (Kish, [18]) a non-response rate of 10%, and a design effect of 1.5 (MOH, 2009).

Where;

Z=1.96 (The standard normal deviates at a 95% confidence interval)

P= 14% (The prevalence of minimum acceptable diet in urban settings (UBOS, 2017)

Q=100%-P

δ= 0.05 (marginal error)

N= (1.96^2*0.088*0.912)/0.05^2.

N=123

Non-non-response rate of 10%

N= Calculated sample size (1-0.1)

= 123/0.9 17

= 137

Design effect of 1.5

Final N=137*1.5 N= 206 participants.

Sampling procedures

Simple random sampling technique was used to sample the study participants whereby mothers/caretakers with infants/children aged between 6 months to 2 years attending the outpatient department of Ishaka Adventist Hospital and met the inclusion criteria were enrolled into the study.

Data collection methods and management

Data was collected through using the researcher-administered questionnaires for the illiterate study respondents and self-administered questionnaires for the literate counterparts. The questionnaires were divided into socio-demographic characteristics, knowledge of complementary feeding, attitudes, and complementary feeding practices of mothers/caretakers of children aged 6 months to 2 years. The researcher and researcher assistants introduced themselves to the prospective participants and read to individual participants the consent form, the title and the purpose of the study, the benefits and risks of being part of the study as well as the rights of the participants throughout the study. Literate mothers/caretakers of children aged 6 months to 2 years at Ishaka Adventist Hospital outpatient department who consented to participate in the study were given questionnaires to fill on their own and return them shortly after completing them as their illiterate counterparts were individually and confidentially interviewed by the researcher and research assistants so that they could rightfully answer the questions in the questionnaires. The questionnaires were given out to mothers/caretakers early in the morning as they were waiting for the arrival of the health workers, this minimized errors that could arise from fatigue later on in the day. The questionnaires contained only closed-ended questions for easy analysis of responses from study participants. The investigators recorded all the questionnaire serial numbers

NOT the participants' names. This was done to ensure confidentiality and data quality as it was entered in the coding box.

Data analysis

Both Descriptive/Univariate analysis and Bivariate analysis were used to analyze collected data using soft Excel, STATA version 17 Software. Spearman correlation was used to assess for association between knowledge regarding CF and CF practices plus knowledge regarding CF and attitudes toward CF at Bivariate analysis. The level of significance was 5% thus the association was statistically significant. Data was presented using variant tables, pie charts, and bar charts and put in representative figures to ease the process of interpretation of the study findings.

Quality control

Recruitment of two research assistants who are literate and could also properly speak the local language for the sake of the illiterate study participants that needed to be giving their responses in researcher-administered questionnaire format was taken through appropriate training and orientation about the study I.e. purpose of the study, the procedure of data collection and ethical considerations two weeks before commencing data collection. The research assistants worked under close supervision of the principal researcher to ensure fidelity while executing the data collection process. To ensure quality work, the inclusion and exclusion criteria were strictly adhered to and data forms were double-checked by the principal investigator for completeness, sorted, coded, and entered into the computer.

Ethical considerations

Ethical approval was sought from the Kampala International University Research Ethics Committee, and the study was granted an ethical clearance and an introductory letter from the university addressed to the medical superintendent of Ishaka Adventist Hospital was issued. Permission to conduct research was sought and attained from the administration of Ishaka Adventist Hospital. Consent was acquired from the participants upon being fully explained about the study objectives, risks, and benefits. In order to ensure confidentiality, the names of the study respondents were not taken but instead, codes were used and the information collected was confidentially kept.

RESULTS

Socio-demographic characteristics

Most of the study respondents 56.3% (116/206) were aged between 26-30 years, majority 58.3% (120/206) were married. The majority 72.8% (150/206) were Banyankole by tribe and 75.2% (155/206) were Christians while 24.8%(51/206) were Muslims. Almost half of the study participants 41.2% (85/206) had attained a secondary level of education, 43.7% (90/206) were practicing subsistence farming for a living and 48.5% (100/206) were earning between 25,000/=- 100,000/= monthly. More than half of the study participants 53% (109/206) had between 3-5 children, 64% (133/206) of the last born children were 0-6 months of age and 60% (124/206) of the last born were female by sex. The socio-demographic characteristics of the study respondents are summarized in Table 1 below.

Table 1: shows the socio-demographic characteristics of the study respondents

Socio-demographic characteristic	Category by age	Frequency (n=206)	Percentage (%)
Age of the mother/caretaker as atlast birthday	18-25 years	50	24.3
	26-30 years	116	56.3
	31-35 years	25	12.1
	36-40 years	15	7.3
Marital status of the mother/caretaker	Single Married Separated/divorced Widowed	- 120 80 06	00 58 39 3.0
Tribe of mother/caretaker	Munyankole	150	73
	Muganda	06	3.0
	Mukiga	40	19
	Mufumbira	10	5.0
Religion of mother/caretaker	Christian	155	75
	Moslem	51	25
Level of education of mother/caretaker	Primary	25	12.1
	Secondary	85	41.3
	Post-secondary	50	24.3
	No formal education	46	22.3
Occupation of the mother/caretaker	Subsistence farming	90	44
	Shop keeper	19	9.0
	Housewife	65	31
	Nurse	20	10
	Teacher	12	6.0
Monthly household income in (shs)	< 25,000	65	31.5
	25,000-100,000	100	48.5
	100,000-250,000	41	20
	250,000-500,000	-	00
	>500,000	-	00
Number of children	< 3	94	46
	3-5	109	53
	6-8	03	1.0
	>8	-	00
Age of last born as of current	0-6 months	133	65
	6-12 months	40	19
	12-24 months	33	16
Sex of last born	Male	82	40
	Female	124	60

Knowledge of mothers/caretakers regarding complementary feeding of children aged 6 Months years

Most study participants 88.3% (182/206) knew the meaning of complementary feeding, more than half of them 63% (130/206) reported having gotten information regarding complementary feeding from health workers whereas 37% (76/206) of them had gotten information from relatives/neighbors/friends. Close to two-thirds (130/206) of the study participants knew at what age to initiate and stop complementary feeding and breastfeeding respectively, what could be the effect of delayed initiation of complementary feeding to the child plus what would be appropriate to use while serving the child with complementary feeds, however, very few of them 4% (8/206) could clearly tell how many times should both complementary and breastfeeding be done in a day plus what should constitute a 6months -2years child's diet. Below arefigures6,7,8,9 and Table 2 summarizes the above results.

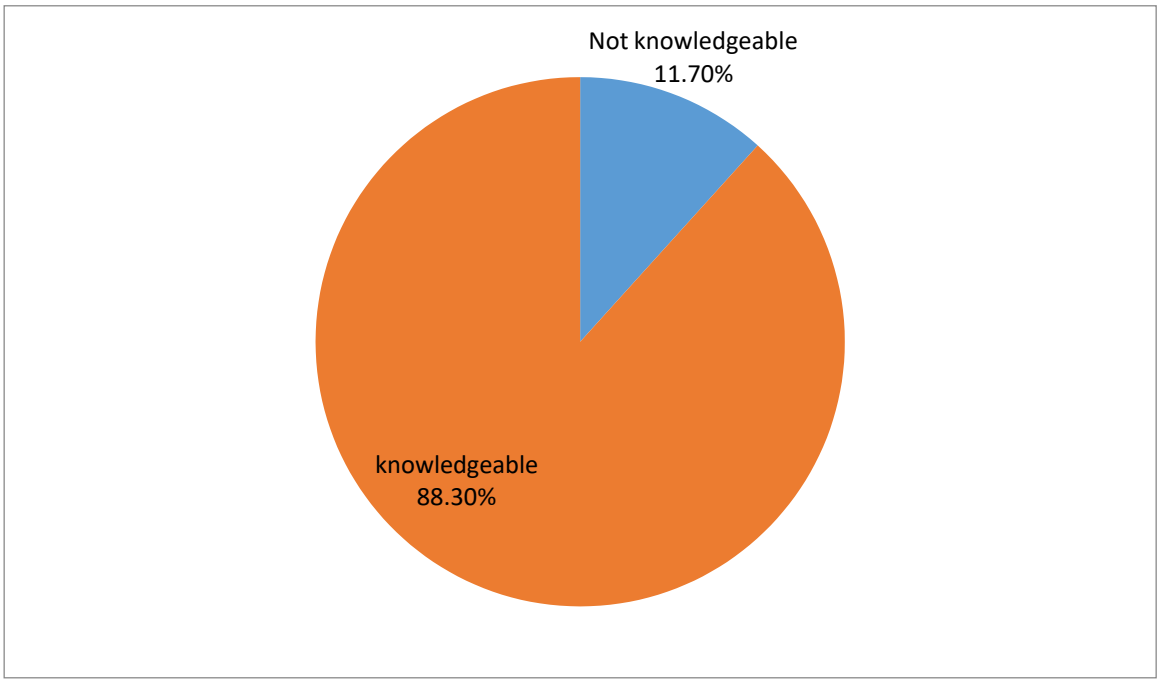

Figure 1: Knowledge of respondents regarding meaning of complementary feeding

More than three-quarters (182/206) of the respondents would tell the meaning of complementary feeding, however, when asked the details about it very few would clearly specify as observed in proceeding questions.

Table 2: Summarizing study participants' knowledge regarding complementary feeding in children aged 6 months -2 years. An overwhelming majority of the study participants, 96% (198/206) were NOT knowledgeable about how many times in a day both breast and complementary feeding should be done for a 6-month -2years child plus what should constitute that child's diet. Of the 8 study participants who were knowledgeable,75% (6/8) were nurses and 25%(2/8) were teachers.

Close to two-thirds of the respondents, 63% (130/206) scored 05 out of 10 points.

Table 2: Summarizing study participants' knowledge regarding complementary feeding in children aged 6 months -2 years

Question	Response	Frequency (n=206)	Percentage (%)
Source of information regarding complementary feeding	Health worker	130	63
	Family members/friends/neighbors	67	33
	Media	09	4.0
	Others(specify)	-	00
At what age should complementary feeding?	<2months	-	00
	3-5 months	22	11
	At 6 months	130	63
	7-9 months	54	26
When should breastfeedingstop?	At 6 months	08	4.0
	8-10 months	26	13
	12-14 months	42	20
	18-24 months	130	63
How many times in a day should a child breastfeed upon introducing complementary feeding?	2 times	-	00
	As often as the child desires	08	4.0
	3 times	98	47.5
	I don't know	100	48.5
How many times in a day should you give complementary foods to the child?	At 6 - 8 months	<2 times (**20**)	10
		2 - 3 times (**08**)	4.0
		3 - 5 times (**68**)	33
		Don't know(**110**)	53
	At 9 - 11months:	<3 times (**35**)	17
		3 - 4 times (**08**)	4.0
		4 - 6 times (**57**)	28

	At >12 months:	Don‘t know(**106**)	51
		<3 times (**14**)	7.0
		3-4 times (**08**)	4.0
		4 - 6 times (**54**)	26
		over 6 times (**42**)	20
		Don‘t know(**88**)	43
Types of foods that should constitute the diet of a 6-month- 2-years child.	Processed cereals.	-	00
	Usual family foods (rice, cassava, bread, beans, posho, fish, matooke).	89	43
	Varieties of family foods are madesofter with the addition of proteinous foods.	04	2.0
	Tea, sweets, chocolates and soft drinks.	-	00
	Normal adult milk.	-	00
	Fruits and vegetables.	02	1.0
	Mixed Food (groundnut/Mukene/egg/soya bean).	02	1.0

The attitude of mothers/caretakers regarding complementary feeding of children aged 6 Months years.

Study respondents were asked their opinions with respect to 6 statements regarding complementary feeding in children aged 6 months to 2 years. A six-point Likert scale was used to gauge opinion. The categories offered to respondents were as follows: Agree, strongly agree, Disagree, strongly disagree, neither agree nor disagree, and Don’t know for those respondents who thought had insufficient knowledge to give an opinion about the subject in question. The data were merged into four simplified categories:

- Agree (all degrees of agreement added together)
- Neither agree nor disagree
- Disagree (all degrees of disagreement added together) and
- Don’t know

Respondents’ attitudes with regard to complementary feeding were overwhelmingly positive and supportive. Over three-quarters (172/206) of the respondents disagreed with the statement that an infant can stop breastfeeding as soon as he/she can eat other foods. See figure2 below.

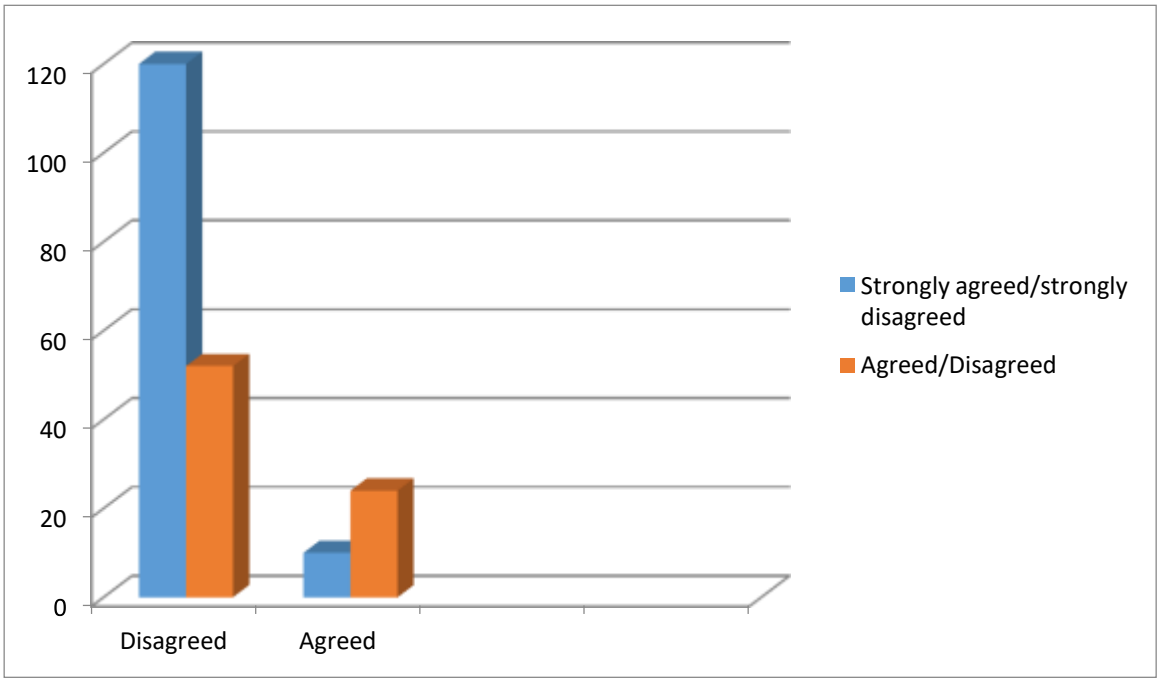

Figure 1: **Showing number of respondents that agreed or disagreed to infants stopping breastfeeding as soon as they can eat other foods.**

Over 90%(194/206) of the respondents disagreed to the statement that a 6months-2years old child should only eat solid foods after teeth have started developing. As shown in figure 3 below.

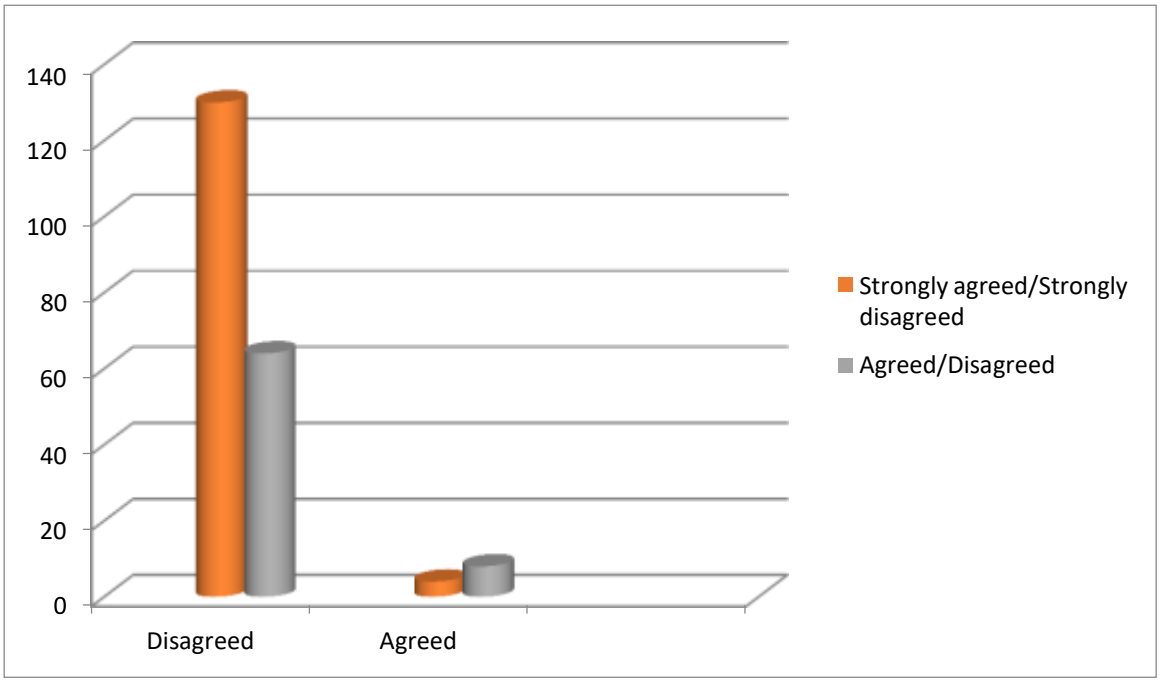

Figure 2: Number of respondents that agreed/disagreed to the statement that an infant shouldonly eat solids after teeth have begun developing.

All respondents 100% 206/206) acknowledged that it's very important to wash hands properly before preparing to feed the infant and they also unanimously agreed that locally available foods are cheaper than processed packaged foods, however, 56% (116/206) of the respondents agreed that processed packaged foods are more nutritious than locally available foods whereas 12% (25/206) of them reported NOT knowing if processed packaged foods are/aren't more nutritious than locally available foods. See Figure 4 below.

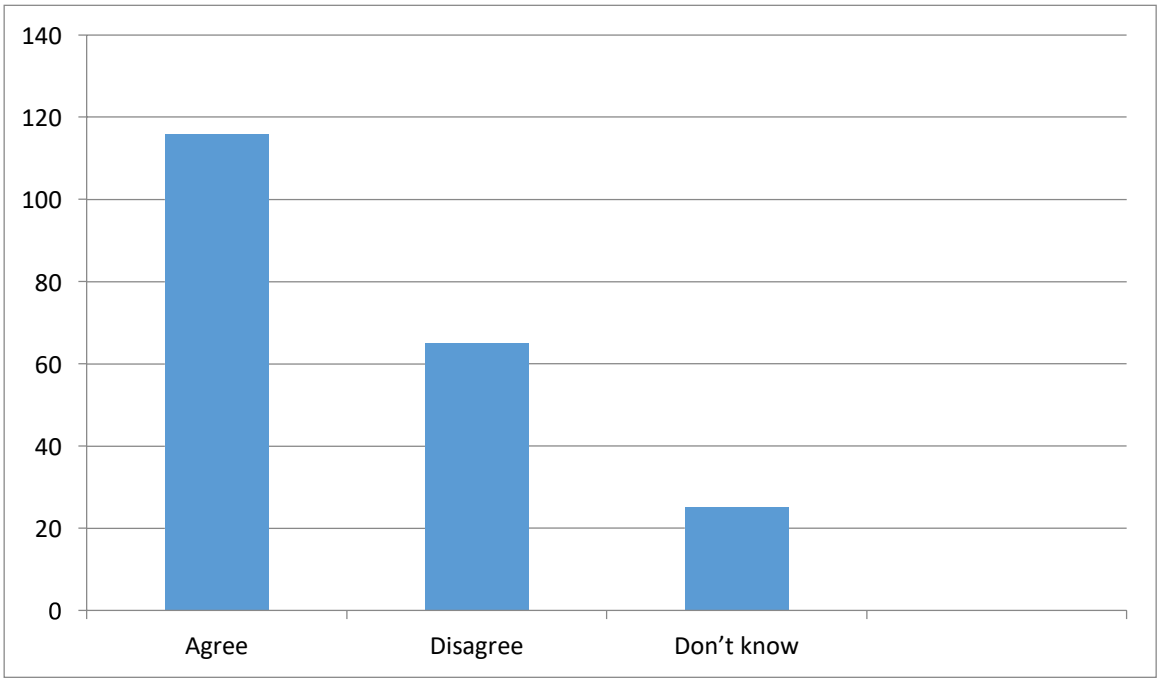

Figure 3: showing respondents' responses to the statement that processed packaged foods aremore nutritious than locally prepared foods.

74% (152/206) respondents felt that infants should NOT eat meals prepared for house hold onlyat scheduled times. See figure 5 below.

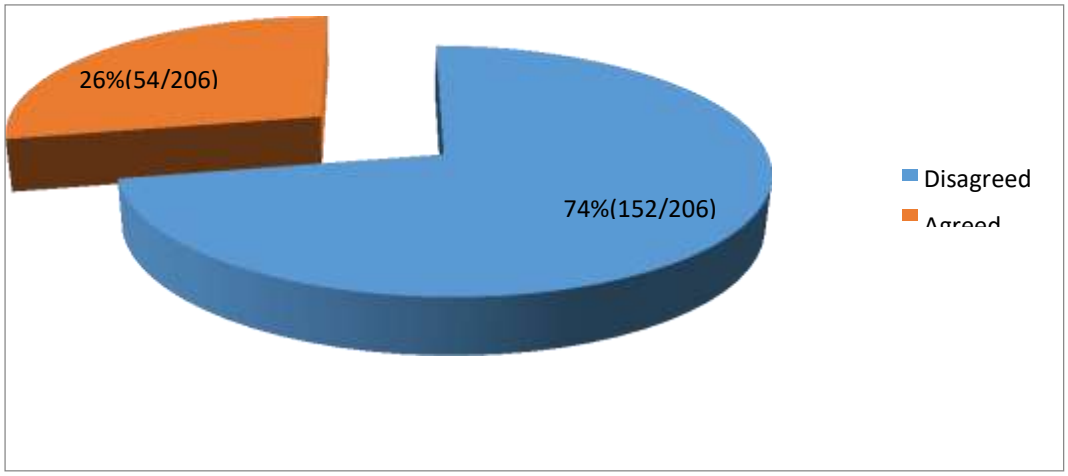

Figure 4: Number of respondents that agreed or disagreed to the statement that infantsshould only eat meals prepared for the house hold at scheduled times.

Practices of mothers/caretakers regarding complementary feeding of children aged 6 months to 2 years.

Close to three-quarters of the respondents (148/206) reported still breastfeeding their children aged 6 months to 2 years compared to 28%(58/206) that were not still breastfeeding by then. Of the 148 respondents, 95 reported breastfeeding their children on demand, 21 were breastfeeding their children three times in a day and 32 were breastfeeding theirs two times in a day. See Figure 7 below.

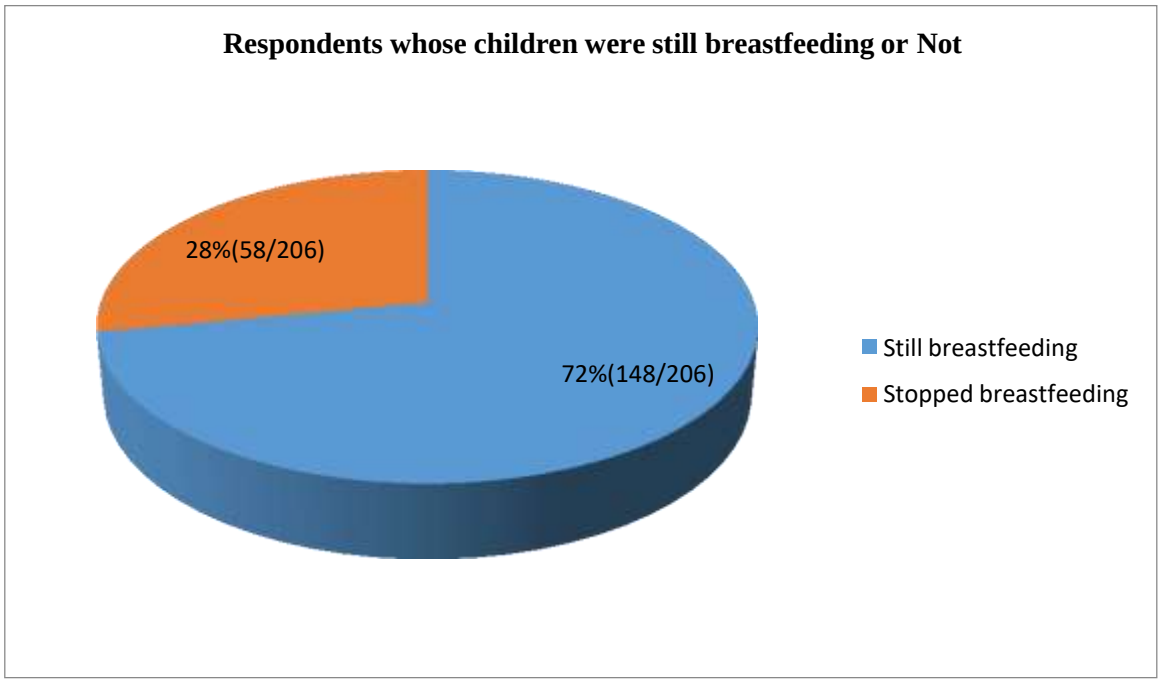

Figure 5: Number of respondents whose children were still breastfeeding or Not

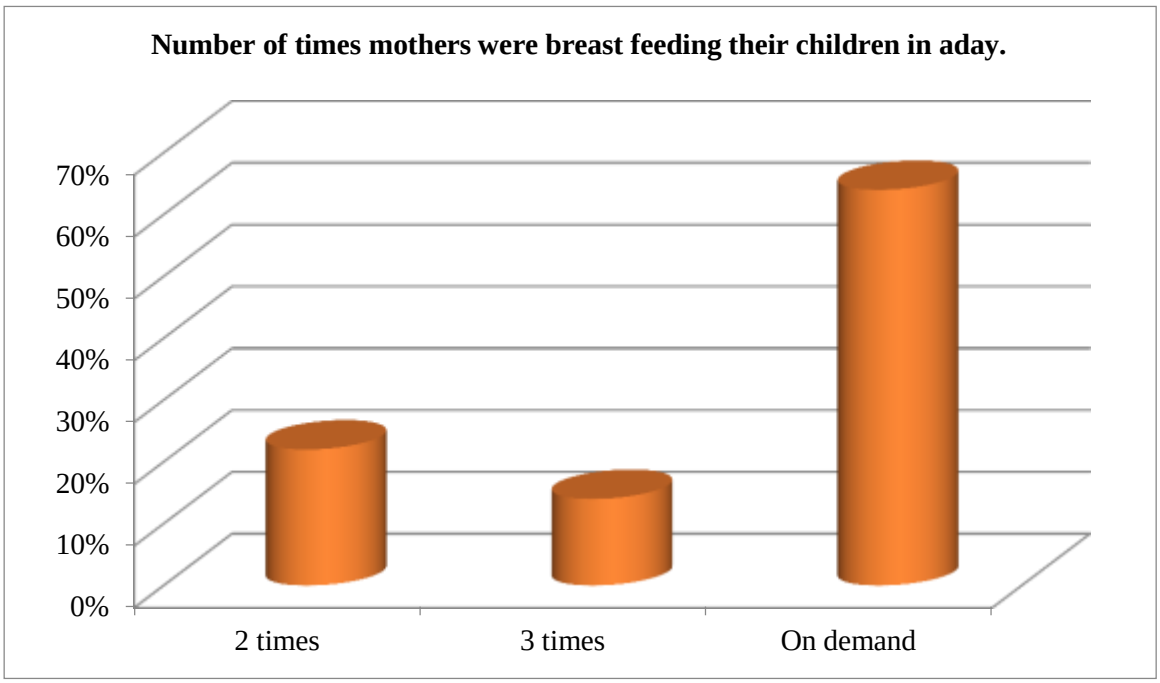

Figure 6: Number of times mothers/caretakers said their children were breastfeeding in a day.

Of the 58 respondents that were not breastfeeding their children by then, 25 reported having stopped breastfeeding when the babies were between 9-12 months old, 22 reported having stopped when the babies were between 12-18 months whereas 11 said they had stopped when the babies were between 6-9 months old. Amongst the reasons why mothers had stopped breastfeeding, majority 57%(33/58) reported lacking time because of busy work schedules, followed by 40%(23/58) that reported lack of enough breast milk and only two respondents reported their children refusing breast milk in the early months of their life due to mothers supplementing their insufficient breast milk with cow milk. See figures 8 and 9 below.

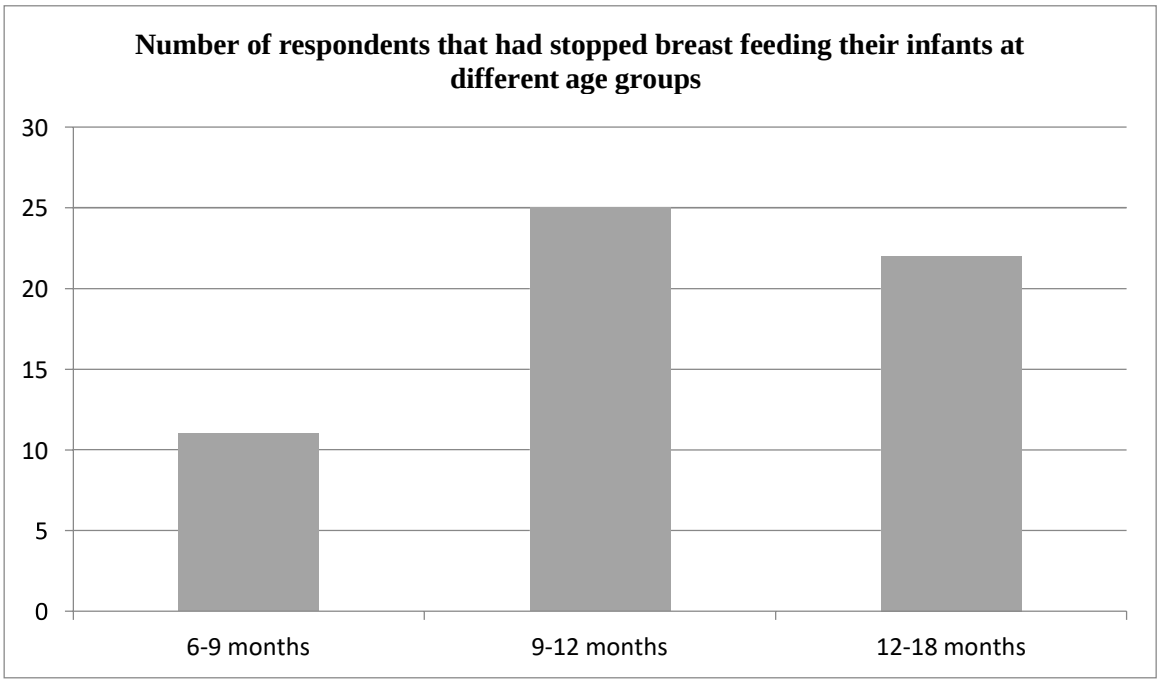

Figure 7: Showing different ages at which different study respondents had stopped breastfeeding their children.

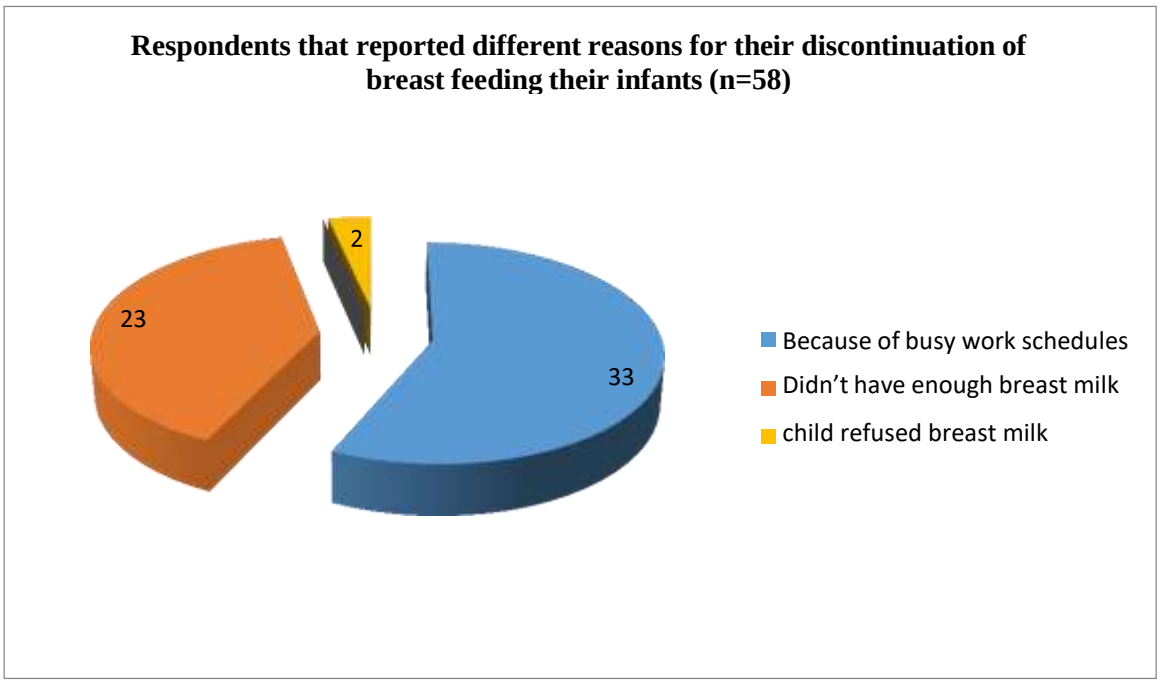

Figure 8: Showing number of respondents that reported the different reasons for their discontinuation of breast feeding their infants.

74% (152/206) of the respondents reported having introduced complementary feeding for their infants while 26%(54/206) had not yet. 130 of the 152 respondents had initiated complementary feeding when the infants were 6 months old and above whereas 22 respondents reported having initiated complementary feeding for their infants when they were below 6 months old. Of the 54 respondents who had delayed or NOT initiated complementary feeding, 30 said their children had refused complementary feeds, 21 reported having a lot of breast milk and they thought it was sufficient to perfectly meet their babies' nutritional demand whereas 3 felt that their children at 6 months - 9 months were not of age yet. See Figures 10, 11, and 12 below.

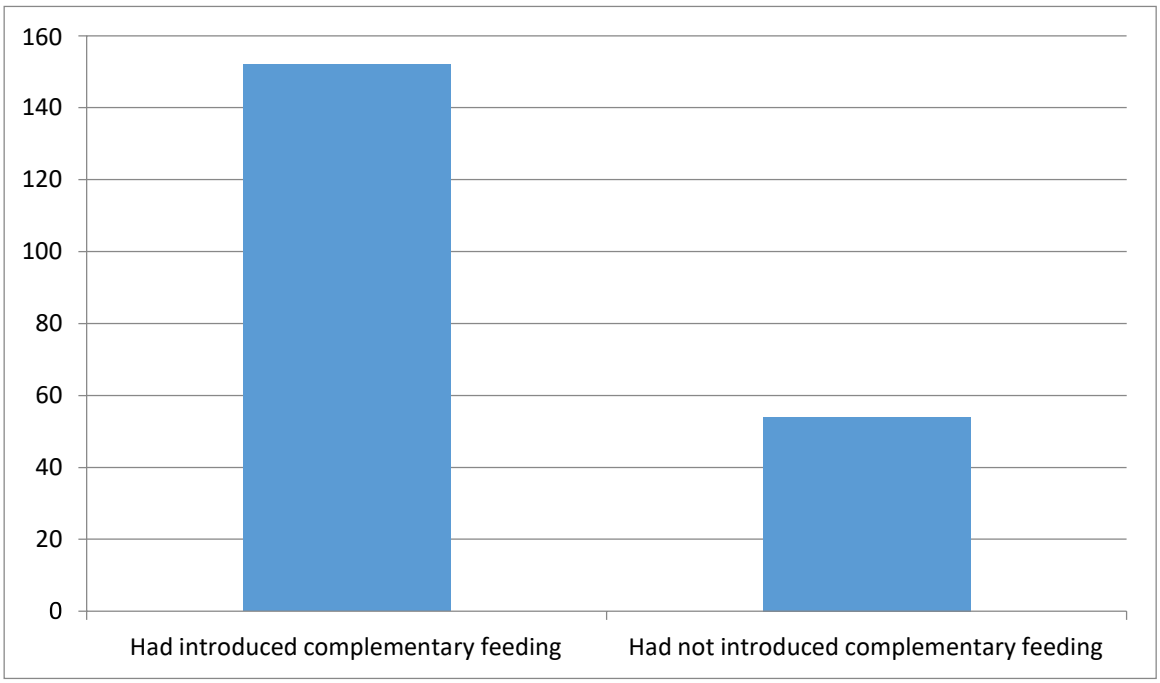

Figure 9: Number of respondents that had and those that had not introduced complementaryfeeding.

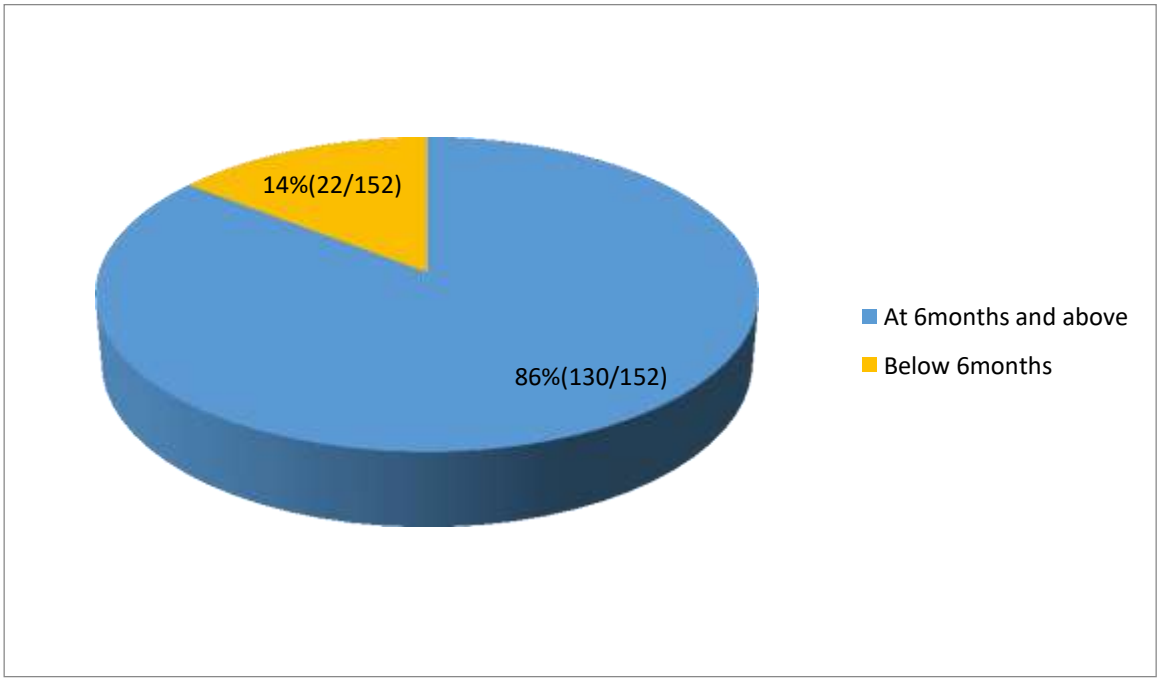

Figure 10: Showing the different ages at which respondents initiated complementary feeding.

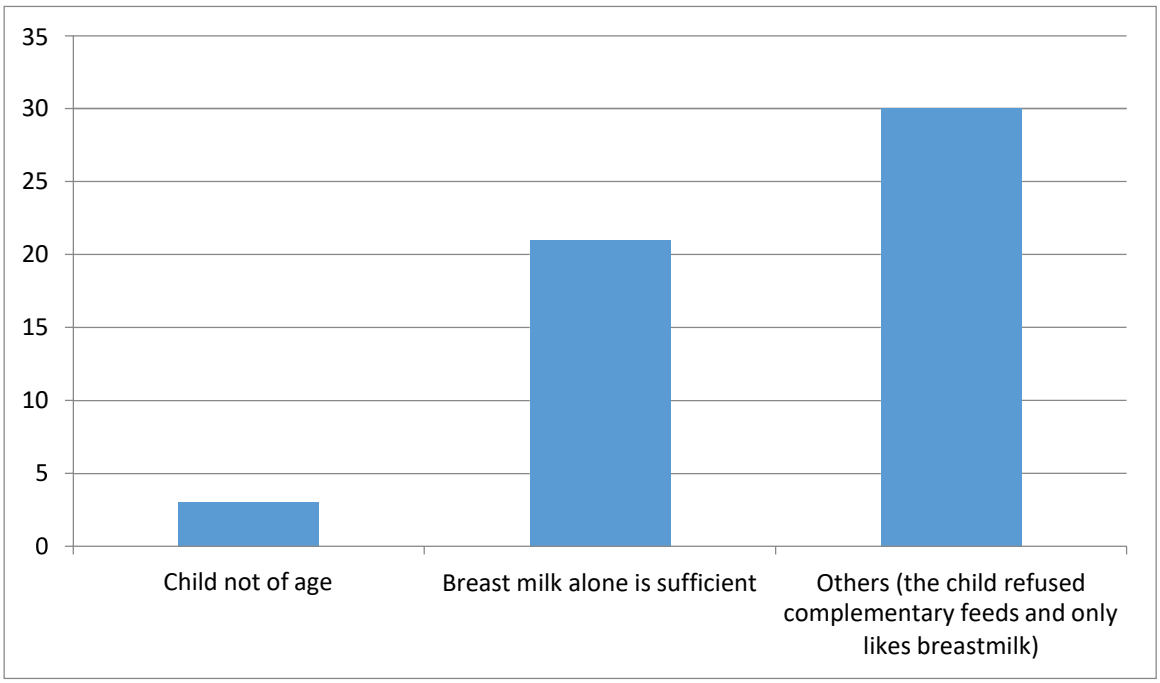

Figure 11: Showing number of respondents with different reasons for not initiating complementary feeding.

Table 3: Below summarizes how many respondents introduced which types of foods at what ageof the infant.

Food Category	Age group of infants	Frequency (n=152)	Percentage (%)
Cereals (Rice, Bread, Maize e.t.c)	< 3months	-	00
	3-5months	10	7.0
	At 6 months	90	59
	6months-1 year	40	26
	After 1 year	12	8
Cassava, Potato, other tubers	<3 months	-	00
	3-5months	-	00
	At 6 months	111	73
	6months-1 year	41	27
	After 1 year	-	00
Fruits	<3 months	00	00
	3-5months	18	12
	At 6 months	69	45
	6months-1 year	65	43

	After 1 year	00	00
Vegetables	<3months	-	00
	3-5months	-	00
	At 6 months	20	13
	6months-1 year	40	26
	After 1 year	92	61
Legumes	<3months	-	00
	3-5months	22	14.5
	At 6 months	108	71
	6months-1 year	22	14.5
	After 1 year	-	00
Eggs	<3months	-	00
	3-5months	-	00
	At 6months	120	79
	6months-1year	32	21
	After 1 year	-	00
Fish	<3months	-	00
	3-5months	-	00
	At 6months	40	26
	6months-1year	112	74
	After 1year	-	00
Skimmed/low fat milk	<3months	-	00
	3-5months	22	14.5
	At 6months	120	79
	6months-1year	10	6.5
	After 1year	-	00
Cow milk	<3months	-	00
	3-5months	22	14.5
	At 6months	120	79
	6months-1year	10	6.5

	After 1 year	-	00
Black tea	<3months	-	00
	3-5months	12	8.0
	At 6months	35	23
	6months-1year	25	16
	After 1year	80	53
Sweets, chocolate, and soft drinks	<3months	-	00
	3-5months	03	2.0
	At 6months	13	9.0
	6months-1year	28	18
	After 1year	108	71
Formula feeds (Liptomil, Cow and Gate e.t.c)	<3months	03	2.0
	3-5months	15	10
	At 6months	07	5.0
	6months-1year	-	00
	After 1year	-	00

Table 4: Below summarizes the details of what mothers/caretakers do during complementaryfeeding of their infants.

Question	Category	Frequency(n=152)		Percentage (%)
How often do you/did you feed your child at the following ages?	6-8 months	<2 times	(**19**)	13
		2-3 times	(**08**)	5.0
		3-5 times	(**125**)	82
		>5 times	-	00
	9-12 months	<2 times	-	00
		3-4 times	(**09**)	6.0
		4-6 times	(**143**)	94
		>6 times	-	00
	>12 months	<3 times	- (**12**)	00
		3-4 times	(**140**)	8.0
		4-6 times	-	92
		>6 times		00
When do you feed your child?	At scheduled times.	18		12

	Any time the child gives a cue.	25	16
	When family is eating.	109	72
	Others(specify)	-	00
How often in a week did you introduce new foods for a child between 6-12 months of age?	Once	97	64
	Twice	44	29
	Three times	11	7.0
	Four times	-	00
	Five times	-	00
Which of the following food groups did you feed your child withyesterday during day/night?	Rice, bread, pasta, maize.	14	9.0
	Fruit juice, flavored	-	00
	Beans, groundnut, soya beans.	34	22.4
	Banana, oranges, mango, pineapple.	08	5.3
	water-melon.	-	00
	Soko, ugu, tomato, onion, green pepper.	-	00
	Fish, meat, poultry.	12	8.0
	Milk, cheese, yoghurt, eggs.	26	17.1
	Nan, Cerelac.	-	00
	Breast milk.	22	14.5
	Tea, coffee.	08	5.3
	Yam, potatoes, cassava (garri).	28	18.4
Do you add salt to your child's food?	Yes	152	100
	No	-	00
What do you use to feed your child?	Feeding bottle.	33	22
	Bowl and spoon.	83	55
	Hand feeding.	36	23
	Others, specify.	-	00
Who feeds your child?	Caregiver.	78	51.3

	Myself.	63	41.7
	Leave the child to feed him/herself.	11	7.0
	Others specify.	-	00
Describe the thickness of your child's food.	Same as other people in the family.	32	21
	Thick enough to stay on a spoon.	35	23
	Watery, similar to breast milk.	85	56
	Others please specify.	-	00
Do you wash your hands before feeding your child?	Sometimes.	-	00
	Always.	152	100
	Never.	-	00
Do you wash and sterilize your child's feeding utensils after use?	Sometimes.	105	69
	Always.	47	31
	Never	-	00
How do you feed your child when he/she is sick and has lost appetite?	Feed him/her slowly and patiently.	88	58
	Give your favorite foods.	43	28
	Feed the child forcefully.	21	14
	Reprimand the child.	-	00

DISCUSSION

The study revealed that the knowledge of mothers/caretakers regarding CF of infants was extremely limited with only 5% (10/206) being knowledgeable. This is consistent with a study by Nankumbi and Muliira [19], on CF showing a low level of CF knowledge, in Uganda. A similar study in an urban local government in Lagos, Southwest Nigeria to determine the CF knowledge, practices, minimum dietary diversity, acceptable diversity, and acceptable diet among mothers showed that the knowledge of CF was low 14.9% which is higher compared to this study [20] similar to the reports from Lahore in Pakistan 24% and Kenya 33.5% [21]. Reports from countries in Africa have also corroborated this low level of knowledge with even lower figures compared to the study [22]. This applied to an overwhelming majority who didn't know how frequently in a day should an infant breastfeed after initiating CF, how often a day should an infant be given complementary feeds, and what the diet of an infant, plus a significant minority who didn't know when to stop BF when to introduce/initiate CF and effects of its delayed initiation, and those who didn't know what would be appropriate to use when administering complementary feeds to the infant. This was apparent

for both the educated and those who had NOT attained any level of formal education though relatively worse for the latter. This very low level of knowledge of mothers/caretakers regarding CF can be justified by three reasons; **(1)** lack of experience about CF of infants by study respondents due to study respondents' young age and the number of children they had i.e. (24.3% were 18-25 years old, 56% were 26-30 years old) and 46% of study respondents had less than three children respectively. **(2)** Lack of accessible, reliable, and consumer-friendly information regarding CF as 33% of study respondents reported getting insight into CF from family members/friends/neighbors and 4% reported getting information about CF from media, and the reliability of both these sources can't be ascertained. **(3)** No or low level of education i.e. 22.3% had not attained any level of education, 12.1% had attained a primary level of education and 41.3% had attained a secondary level of education. The findings from the study suggested some synergies between the level of education and level of knowledge regarding CF as those with the highest knowledge score were some nurses and some teachers. The same synergism was expressed between knowledge level about CF and positive/negative attitudes towards the same. The vast majority of the respondents 88.3% (182/206) indicated that they knew the term complementary feeding, however, their practices exhibited otherwise reflecting they were not conversant with what it entails. Most respondents reported getting information about CF from health workers, this has an implication of reliable information relative to those who were faced with sourcing information about CF from friends/neighbors/relatives and/or media whose origins and reliability could not be ascertained. Generally, respondents' attitudes toward CF were overwhelmingly positive and supportive and it was so for both those who had attained some level of education and those who had not, however, in spite of such positive inferences, it was apparent that a significant minority had negative attitudes which were shaped partly by lack of knowledge as previously indicated. Lack of knowledge about complementary feeding was a significant factor influencing the responses of some study participants. For example, some respondents 56% (116/206) perceived processed packaged foods as being more nutritious than locally available foods whereas others confessed not knowing if they are or not. This was consistent with a study by Chambers et al. [23] on British and French lactating mothers which revealed that British mothers had a perception that only foods with high nutrient content should be given to the child whereas the French mothers thought that pleasure and taste development are of primary importance during CF. Others perceived it right to stop breastfeeding the infant as soon as that infant can eat other foods, with a misconception that those infants can no longer nutritionally benefit from breast milk. Of some study respondents, 10% (20/206) thought infants should only eat solids and/or semisolids after developing teeth, thinking it would choke the baby and it's difficult for the baby to digest. This was similar to findings in a study in a rural area in Nigeria by Ogunlesi [24] which reported that 75% of lactating mothers believed that giving complementary foods to infants would cause illnesses, choking and trouble with digestion to the infants; this is higher than that of the current study probably this can be because the current study was a hospital-based study and the respondents are likely to have had right information regarding that subject from health providers at the facility. Others expressed reluctance to feed infants on demand believing that infants should eat meals prepared for the household at scheduled time only and this can be attributed to misleading and/or unreliable information regarding CF practices from unreliable sources e.g.

un-informed or misinformed friends/relatives/neighbours.

Generally, the CF practices of study respondents were very poor (4.3%) but relatively worse among mothers who had attained no or only primary level of education and those from poor households (earning <25,000/- to 100,000/-). Similarly, Ethiopia DHS, shows the prevalence of appropriate CF practices among children aged 6-23months was very low (4.8%), and in another study to assess for the appropriate CF practices and associated factors among mothers of children aged 6-23months in south Ethiopia, it was found out that only 9.5% of mothers practiced appropriate CF [25]. This is higher compared to this current study. The poor CF practices in this current study can be explained by low socio-economic statuses for most respondents which leave them incapable of providing varieties of complementary feeds to their infants plus a low level of knowledge of mothers regarding CF due to low or no education level and the unreliable sources of insights into CF. The majority of the respondents 72% (148/206) were still breastfeeding their infants; a large number who were non-working mothers were breastfeeding their children according to the child's demand while others were breastfeeding their children two to three times a day. This is consistent with a study assessing breastfeeding practices in Iran by Olang et al. [26], which showed that children of non-working and educated mothers were more likely to feed their children appropriately. This is because non-working mothers (housewives) always have ample quality time with their infants therefore capable of timely BF unlike their working counterparts. Similarly, educated mothers are more likely to comprehend rightful information given to them from appropriate sources e.g. health facilities and this shall properly guide their BF and CF practices, unlike their un-educated counterparts. A significant minority 28% (58/206) had stopped breastfeeding; most of them reported having stopped when the infant was 9-12 months of age, followed by those who had stopped when the infant was between 12-18 months of age and the least respondents reported having stopped breastfeeding when the infant was 6-9 months old. Among the reasons for this were; mothers not having time for their children because of busy schedules at work, mothers not having enough breast milk and the child refusing breast milk. The majority of the respondents 74% (152/206) had introduced CF and most of them had introduced it when the infants were six months old and above while a few had introduced it when the infant was below 6 months of age. This is consistent with the findings in a study by Akhtar et al. [27] in slums of Dhaka city which showed that although CF is started early by some mothers, the majority started at 6months, as 64% of mothers started CF at 6-7months while only 19.2% started CF between 4 to 5months. This is lower compared to the current study. In this current study, most mothers were introduced to CF at the recommended age of six months and this can be attributed to most of them having received and comprehended the right information about CF from health facilities. A significant minority 26% (54/206) had not introduced CF when infants were 6 months old. This is similar to a study in northern Uganda, a study to assess current practices, challenges and opportunities of CF in Kitgum and Pader districts, where 54% of mothers were not in a position to practice recommended IYCF practices [28]. This was higher than that of the current study. In this current study some mothers had not introduced CF due to their child refusing complementary feeds, some mothers believed they had a lot of breast milk and that it was sufficient to meet their infant's nutritional demands while others thought at six months their babies were still too young to enroll on CF. The majority of respondents 53%(109/206) reported majorly feeding their infants on Bushera porridge and

this is reflected in another studies [29, 30]. In contrast, a study in South Africa revealed that 7 out of 10 lactating mothers' believed that starch-rich foods (excluding maize porridge) or fat should not be given to small children because it was considered unsuitable to them [31].

CONCLUSION

In this study majority of respondents' level of knowledge about CF was very low (5%), their attitudes toward CF were highly positive and supportive and their CF practices were generallypoor (4.3%).

Recommendation

Ishaka Adventist Hospital in conjunction with other stakeholders should address the high-profile concern of knowledge gaps revealed by the study to aid mothers/caretakers in embracing proper CF practices since at the heart of proper CF practices lies accessible, credible and audience-friendly information provided by trained and appropriately qualified health professionals through proper channels to its intended consumers/users, the following should be done: Establish a CF awareness campaign for the general population at health facilities and through mass media. Form peer-support programs where young mothers/caretakers can get reliable and credible information from informed peer educators at the health facilities or mass media.

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