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INFANT AND YOUNG-CHILD FEEDING PRACTICES FOR UNDER-TWO CHILDREN INVOLVED IN COMMUNITY INFANT AND YOUNG CHILD FEEDING PROGRAMME IN ZARIA, NIGERIA

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ABSTRACT

Infant and young child feeding practices have substantial consequences for the growth, development, and survival of infants and children during the first two years of life and throughout life. The study aimed to assess the infant and young child feeding practices among the caregiver of children (0 -23 months) enrolled in a community infant and young child feeding programme. A validated semi-structured questionnaire was used to collect informations. The major food consumed was legumes (62.7%) and cereals (60.8%). Over (74.8%) of the caregivers were still breastfeeding during the period of the study, (22%) of caregivers initiated breastfeeding within one hour of birth and 8.2% exclusively breastfed their children; the majority (91.7%) of the caregivers breastfed on demand. Only (24.5%) of the caregiver met minimum meal frequencies, (10.1%) diversified their diet, while (47.5%) met the minimum acceptable diet. Almost two third of the indices measured for the quality of Communit Infant and Young Child Feeding programme was rated very good in Wucicciri , rated poor in Rafin Magaji and also poor in Babban Dodo primary health care. This study revealed inappropriate infant and young child feeding practices in study area, despite being enrolled in the Communit Infant and Young Child Feeding programme. Therefore, these poor practices needed urgent action and aggressive sustained intervention.

Keywords: Under-two Children, Dietary Intake, caregivers, Infant and Young child feeding practice, (C-IYCF) programm

INTRODUCTION

Optimal infant- and young child-feeding (IYCF) practices are crucial for nutritional status, growth, development, health, and ultimately the survival of infants and young children (Bhuta *et al.,* 2008 and Saha *et al.,* 2008). The timely introduction of complementary feeding can prevent almost 6% of under-five mortality (Jones *et al.,* 2003). It was estimated that, if 90% of infants are covered with a package of interventions to protect, promote, and support the optimal IYCF practices, almost one-fifth of overall under-five mortalities can be averted (Jones *et al.,* 2003). The poor complementary feeding practices mean that many children continue to be vulnerable to irreversible outcomes of stunting, poor cognitive development, and significantly increased risk of infectious diseases, such as diarrhoea and acute respiratory infection (WHO, 1998; Hop *et al.,* 2000 and Saha *et al.,* 2008).

Dietary Intake is referred to daily eating pattern of an individual include specific foods and calories consumed and their relatives qaulities (UNICEF, 2017). Summarizing multiple dietary components into overall diet measures takes into account the correlations between dietary constituents by exploring the effect of food combinations (HU *et al.,* 2002 and Moeller *et al.,* 2007). For example, factor analysis is used to derive a dietary pattern score reflecting foods that correlate with each other (Smithers *et al.,* 2012). Although early life is a significant period when dietary preferences and habits are first established, laying the foundation of adult eating habits (Dewnowski, 2009). As dietary patterns are likely to be age-specific, understanding early-life dietary patterns, their determinants and their influence on later health are important for developing strategies to improve nutrition in early childhood (Kant *et al.,* 2004).

IYCF programme is a key priority information programme of the government to improve the survival, growth and development of children in the first 1000 days of life and to protect and promote infant and young child feeding practices among the caregivers of the childing, increasing political commitment at all level, provide supportive environment and ensure its sustainability (UNICEF, 2010).

Multiple factors influenced the selection of Nigeria as the focus of the evaluation, including the fact that it was one of the first countries to officially adopt the (C-IYCF) Counselling Package as a national program. Beginning in 2010, under the leadership of the Nigerian FMOH, a strategic investment was made in adapting the core elements of the generic package to the Nigerian context. The adaptation process was supported technically and financially by both UNICEF and the United States Agency for International Development (USAID). The rollout of the Nigerian Package began in 2013, with support from the FMOH, SMOH, UNICEF, and SPRING. To date, the package has been implemented, to varying degrees, in nearly every state in Nigeria (UNICEF, 2010). All partners agreed that, for the evaluation, the Package would be implemented at scale in one local government area (LGA) in Kaduna State that had not previously benefited from any IYCF-related programme (UNICEF, 2010).

According to the work reported by USAID and UNICEF in Kaduna State in 2018, fewer than 1 in 5 children under six months old are exclusively breastfed, and complementary feeding practices are equally poor (USAID and UNICEF,

2018). There is limited report on the monitoring and evaluation of community infant and young child feeding programmes in Kaduna State (NNHS, 2018). Hence, this work seeks to to assess the infant and young child feeding practices among the caregiver of children (0 -23 months) enrolled in a community infant and young child feeding programme.

MATERIALS AND METHODS

Study Area

Zaria is a Local Government Area in Kaduna State Nigeria, with its headquarter in Zaria City, Zaria is a larger city in Kaduna State (Ahmad *et al.,* 2010). Zaria remains, however, one of Nigeria's largest traditional emirates (about 12, 750 sq mi [33,000 sq km]). The population is an ethnic mix in which Muslim Hausa and Fulani people predominate. It is bordered by Sabo Gari to the West, Soba to the East, and Igabi local government to the South. It's made of 14 area wards: Kaura, Kwarbai, Tudun wada, Tukur-Tukur, Gambo, Dutsen Abba, Gyallesu, Kufena, Kwarbai A, Kwarbai B, Limancin Kona, Ung. Fatika, Ung. Juma and Wucicciri Wards. It has a population of 1,020,577 in 2021 if the growth rate of 0.91% seen from 2006 to 2015 is maintained. It's one of the Local Government Areas supported by the State government, through Kaduna Emergency Nutrition Action Plan (KADENAP) in collaboration with UNICEF to address the infant and young child feeding problem at community level.

Sample Size Determination

A multi-stage sampling method was used which include convenience sampling method, stratified sampling method and simple random sampling technique. The convenience sampling was used to determine the study population based on the number of the caregiver's/children pairs at the hospital facility during the period of the study. Stratified sampling method was used to divide population area into three strata, while one Ward was selected from each stratum. Simple random sampling technique was used to determine the equal sample size by choosing the caregivers/children using a random number table from a complete list of caregivers/children attending IYCF programme in the selected communities/primary health centres in Zaria LGA.

Sampling Method

The IYCF centres were divided into three strata: The western Wards (Rafin Magaji and Dutsen Abba), the Central Wards (Babban dodo and Unguwan Fatika) and the Eastern Ward (Wucicciri) parts of the Local Government Area. One centre was selected randomly from each stratum, therefore 3 IYCF centres were used for this study. One hundred and fifty nine (159) caregivers/children were selected randomly, 53 was from Rafin magaji ward, 53 were from Babban dodo ward and 53 were from wucicciri ward.

Field Data Collection

A cross-sectional study was conducted among 159 randomly selected mother-infant pairs in Primary Health Care Facility, attending the C-IYCF programme. Dietary diversity scores were used to assessed dietary intake. Core indicators, minor indicators and C-IYCF programme indicators were used to assess infant and young child feeding practices and the strength of the C-IYCF programme which was assessed using a validated semi-structured questionnaire.

Minimum Meal Frequency

The Minimum Meal Frequency is calculated using the following fraction:

$$\frac{\text{(Breastfed children } 6-23.9 \text{ months of age who received solid, semi} - \text{solid or soft foods in the minimum number of times or more during the previous day)}}{\text{Total Breastfed children } 6-23.9 \text{ months of age}}$$

Minimum Dietary Diversity

Minimum dietary diversity is defined by the proportion of children between 6-23 months who received food from 4 or more food groups in the past 24 hours (WHO, 2010). The 8 foods groups used for tabulation of this indicator are: - Grains, roots and tubers, legumes and nuts, milk and milk products (breast milk, yogurt, cheese), flesh foods (meat, fish, poultry and liver/organ meats), eggs, vitamin-A rich fruits and vegetables and other fruits and vegetables.

Minimum Acceptable Diet

The Minimum Acceptable Diet is calculated using the following two fractions:

$$\frac{\text{Breastfed children } 6-23.9 \text{ months of age who had at least the minimum dietary diversity and the minimum meal frequency during the previous day}}{\text{Breastfed children } 6-23.9 \text{ months of age}}$$

$$\frac{\text{Non} - \text{breastfed children } 6-23.9 \text{ months of age who received at least 2 milk feedings and had at least the minimum dietary diversity and the minimum meal frequency during the previous day}}{\text{Non} - \text{breastfed children } 6-23.9 \text{ months of age}}$$

Community-IYCF Evaluation Scores in Zaria, LGA of Kaduna State

The strength of the community infant and young child feeding programme was determined using the IYCF action or intervention scores and rating keys as (WHO, 2010):

Scores	Rating
0 – 3	POOR (very low number of the key IYCF actions or interventions implemented)
4 – 6	FAIR (low number of the key IYCF actions or interventions implemented)
7 – 8	GOOD (average number of the key IYCF actions or interventions implemented)
9 – 10	VERY GOOD (high number or all of the key IYCF actions or interventions implemented)

Data Analysis

Data were coded, validated and analyzed using SPSS package version 20.0 software. Frequencies, percentages, associations and cross-tabulations were generated to reflect the caregiver's practices of the mothers and the strength of the C-IYCF programme.

RESULT

The result for the breastfeeding practices is presented below in Table 1 . As shown in the Table exclusive breastfeeding was practised by only 13(8.2%) mothers out of the 159 in the study population. The majority (74.8%) of these children were still breastfeeding at the time of study but out of these children, only a few of about 35(22%) were initiated to breastfeeding within one hour of birth as recommended (WHO and UNICEF, 2003). Whereas majority (91.7%, n=112) responded to breastfeeding on-demand with a small proportion of 5(4.1%) and 4(3.3%) responded to breastfeeding When Convenient and breastfeeding at a Schedule time respectively.

For optimal breastfeeding, WHO and UNICEF recommended breastfeeding to 23 months of age. Among the participants' mothers who had stop breastfeeding during the period of this study (about 38 of them), none practised optimal breastfeeding of up to 23 months as recommended.

About 106(66.7%) of the mothers responded to have breastfed yesterday during the day or at night and about 100 (62.9%) reported to have given vitamin drops or other medicines yesterday day and night (table 1).

In this study, almost all (91.6%, n=146) of the women had introduced solid food to their children before 6 months (Table 1).

Table 1: Infant and Young Child Feeding Practices Among the Caregiver of Children (0-23months) Involved in C-IYCF Program in Zaria, LGA of Kaduna State

Variables		Frequency	Percentage (%)
Exclusive Breastfeeding	Yes	13	8.2
	No	146	91.8
Breastfed	Yes	119	74.8
Non-breastfed	No	40	25.2
Early initiation of breastfeeding	Yes	35	22.0
	No	124	78.0
Breastfeeding Regime (N=121)	On demand	150	92.6
	Schedule time	4	3.3
	When Convenient	5	4.1
Has this child ever been breastfed?	Yes	155	97.5
	No	4	2.5
Was this child breastfed yesterday during the day or at night?	Yes	106	66.7
	No	53	33.3
Was this child given any vitamin drops or other medicines as drops yesterday during the day or at night?	Yes	100	62.9
	No	59	37.1

Food Consumed by the Children (6-23months) Involved in C-IYCF Program in Zaria, LGA of Kaduna State

According to Figure 1. The major food consumed by the children is legumes (62.7%) and Cereals (60.8%). Consumption of flesh was done by 55.1% of children, milk and milk products by 45.6% and beverages by 32.9%. Eggs, vitamin-rich fruits were consumed by 32.3 and 23.4% respectively while sweets and vitamin-rich vegetables were consumed by 19% and 13.9% of the children respectively.

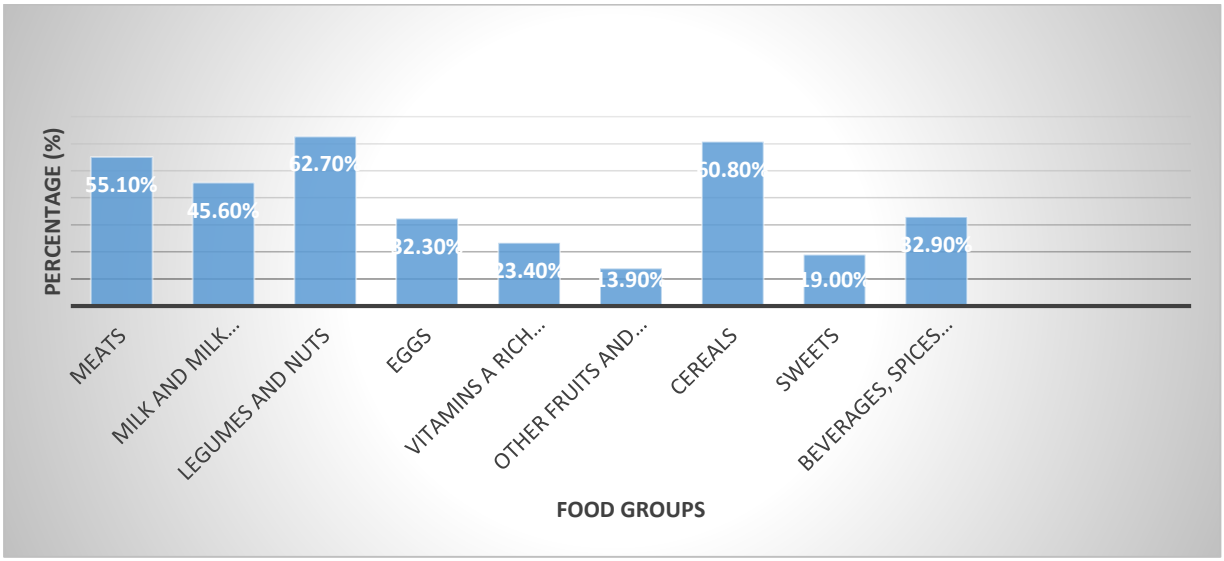

Figure 1: Food Consumed by the Children (6-23 months) Involved in C-IYCF Program in Zaria, LGA of Kaduna State

Diet Quality of the Children (6-23months) Involved In C-IYCF Program In Zaria, LGA of Kaduna State

In the study as shown in Figure 2, the majority (75.5%) of the caregivers failed to meet the minimum meal frequency commended, only about 24.5% met the UNICEF and WHO recommendations.

In this study children who met the minimum acceptable diet were close to half (47.5%) of the population as can be seen in Figure 2. In this study majority (89.9%) of the mothers did not meet the minimum dietary diversity as recommended by WHO and UNICEF, only 10.1% portion of the population met the minimum recommendation (Figure 2).

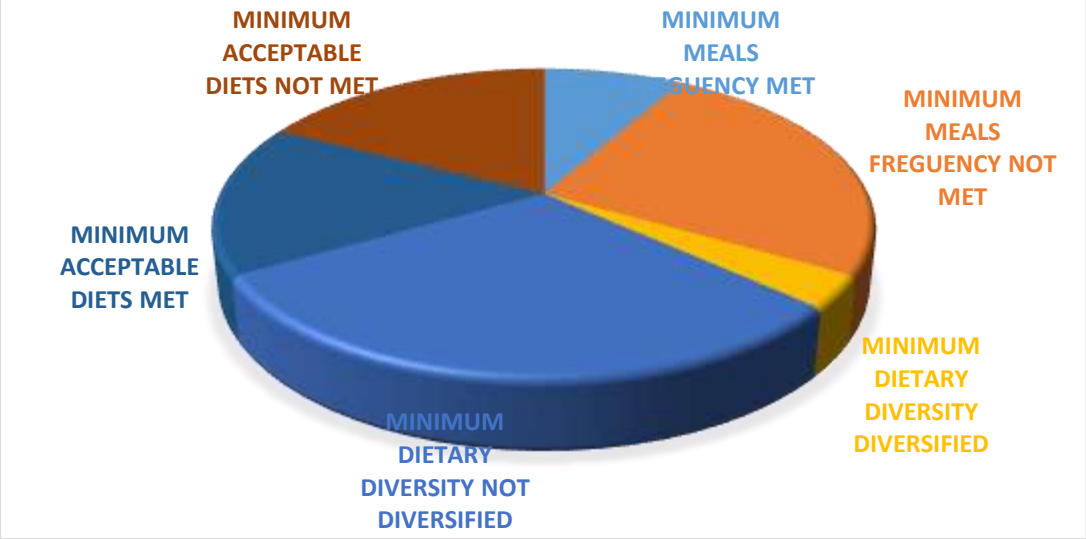

Figure 2: Diet Quality of the Children (6-23months) Involved In C-IYCF Program In Zaria, LGA of Kaduna State

Community IYCF Programme Wards Scores in Zaria, LGA of Kaduna State

More than half (78.3%) of the participant in Rafin Magaji, all (100%) of the participant in Wuciciri ward, and 66.7% in Baban Dodo reported that they focus much on breastfeeding while 21.7% and 33.3% in Rafin Magaji and Baban Dodo focuses on complementary feeding in the Community IYCF programme (Table 2).

All the participant in Rafin Magaji, and about 37.5% in wuciciri and 88.9% in Baban Dodo responded to the fact that Community programme identified targets or measurable objectives that it is mandated to achieve. Majority (85.7%, 87.5% and 80%) in Rafin magaji, Wuciciri and Baban Dodo respectively agree they are making progress toward achieving targets objectives. However, about 6(66.7%), 8(100.0%) and 7(87.5%) in Rafin Magaji, Wuciciri and Baban Dodo respectively believe that the community programme has adequate funds for its implementation. All Wuciciri (100%) participant and half of the participant in Rafin magaji (50%) and Baban Dodo (50%) said financial support is provided by the government (Table 2).

Table 2: Community IYCF Programme Wards Scores in Zaria, LGA of Kaduna State

		Wards					
		Rafin Magaji		Wuciciri		Baban Dodo	
		N	%	N	%	N	%
Community infant and young child feeding programme focus on	Breastfeeding	7	78.3	8	100.0	5	66.7
	Complementary feeding	2	21.7	0	0.0	3	33.3
Community programme identified targets or measurable objectives that it is mandated to achieve.	Yes	11	100.0	3	37.5	8	88.9
	No	0	0.0	5	62.5	1	11.1
Community programme making progress towards achieving those targets and objectives?	Yes	6	85.7	7	87.5	4	80.0
	No	1	14.3	1	12.5	1	20.0
Community programme has adequate funds for its implementation	Yes	6	66.7	8	100.0	7	87.5
	No	3	33.3	0	0.0	1	12.5
Financial support provided through the government?	Yes	3	50.0	8	100.0	2	50.0
	No	3	50.0	0	0.0	2	50.0
Community programme a multi sectorial and involves regional and local components, with coordination among existing programmes and initiatives?	Yes	10	100.0	2	66.7	6	85.7
	No	0	0.0	1	33.3	1	14.3

An Active and Sustainable Baby-Friendly Hospital Initiative

The Active and Sustainable Baby-Friendly Hospital Initiative in the community IYCF programme in Zaria LGA is shows in Table 3. All in wuciciri ward, 9(81.8%) and 7(87.5%) in Rafin Magaji and Baban Dodo respectively reported an Active and Sustainable Baby-Friendly Hospital Initiative in the C-IYCF programme. Concerning BFHI training programme in the past year, (40%) in Rafin Magaji ward, all in Wuciciri and Baban Dodo answered Yes. Also, all the participants in Wuciciri, 4(80%) in Babando and 5(71.4%) Rafin Magaji reported that Health facilities are being assessed within 12 months of being ready.

Most of the participants in all the wards (70% n=7, 87.5% n=7 and 66.7% n=6) Rafin Magaji, Wuciciri and Baban Dodo respectively responded to BFHI being integrated within the community health care system and receives adequate resources to sustain it. Majority (80% n=8) in Rafin Magaji and 4(50%) in Baban Dodo Wards Answered to private hospital as the health encouraged to follow the BFHI Steps, while 6(75%) in Wuciciri answered to Health or maternal and health centres.

Table 3: An Active and Sustainable Baby-Friendly Hospital Initiative

		Wards					
		Rafin Magaji		Wuciciri		Baban Dodo	
		n	%	n	%	N	%
Active and sustainable Baby-friendly Hospital Initiative	Yes	9	81.8	8	100.0	7	87.5
	No	2	18.2	0	0.0	1	12.5
BFHI coordinator or equivalent is working within the official health care system structure, on at least a half-time basis, to implement the Initiative?	Yes	4	40.0	6	75.0	5	71.4
	No	6	60.0	2	25.0	2	28.6
BFHI training programme provide training or refresher training in the past year	Yes	11	91.7	8	100.0	9	100.0
	No	1	8.3	0	0.0	0	0.0
The community training team replaced, as needed, and receive refresher training	Yes	4	50.0	3	37.5	3	50.0
	No	4	50.0	5	62.5	3	50.0
Health facilities being assessed within 12 months of being ready	Yes	5	71.4	8	100.0	4	80.0
	No	2	28.6	0	0.0	1	20.0
Is"Baby-friendly" hospitals currently being monitor or reassess within five years of designation or are being reassess regularly as part of a national quality assurance, quality of care, or hospital accreditation programme.	Yes	5	55.6	7	87.5	4	57.1
	No	4	44.4	1	12.5	3	42.9
BFHI integrated within the community health care system and receives adequate resources to sustain it.	Yes	7	70.0	7	87.5	6	66.7
	No	3	30.0	1	12.5	3	33.3
Which health facilities or services are encouraged to follow the BFHI Steps?	Private hospitals	8	80.0	2	25.0	4	50.0
	Health or maternal and health centres	1	10.0	6	75.0	2	25.0
	Prenatal services	1	10.0	0	0.0	2	25.0

Mother-Friendly Child Birth Strategies

Mother-Friendly Child birth Strategies is presented in Table 4. All the participants except 1 participant in Rafin Magaji responded to the fact that mother-friendly childbirth or safe motherhood strategy (or equivalent) had been implemented, which encourages birth procedures that are supportive of breastfeeding and that initiative or programme promotes appropriate mother-friendly birth procedures supportive of breastfeeding. Also all except 2(20%) in Rafin Magaji said a community coordinator or other programme official is responsible for promoting birth procedures supportive of breastfeeding.

About 6(60%) participants in Rafin magaji, 6(85,7%) in Baban Dodo and all in Wuciciri, agree that Standards and guidelines for mother-friendly childbirth procedures and support had been developed and disseminated to all facilities and personnel providing maternity care. Health personnel involved in health-facility births, and home-birth attendants were trained in "mother-friendly" practices as more than half (57.1%, n=4) in Rafin Magaji, all in Wuciciri and about 5(83.3%) attest to the fact (Table 4).

Table 4: Mother-Friendly Child Birth Strategies

		Wards					
		Rafin Magaji		Wuciciri		Baban Dodo	
		N	%	N	%	N	%
A mother-friendly childbirth or safe motherhood strategy (or equivalent) been implemented, which encourages birth procedures that are supportive of breastfeeding?	Yes	9	90.0	8	100.0	8	100.0
	No	1	10.0	0	0.0	0	0.0
Mother-friendly childbirth strategy been developed?	Yes	4	40.0	8	100.0	3	42.9
	No	6	60.0	0	0.0	4	57.1
Initiative or programme promotes appropriate mother-friendly birth procedures supportive of breastfeeding?	Yes	6	85.7	8	100.0	8	100.0
	No	1	14.3	0	0.0	0	0.0
A community coordinator or other programme official responsible for promoting birth procedures supportive of breastfeeding?	Yes	8	80.0	8	100.0	7	100.0
	No	2	20.0	0	0.0	0	0.0
Standards and guidelines for mother-friendly childbirth procedures and support been developed and disseminated to all facilities and personnel providing maternity care?	Yes	6	60.0	8	100.0	6	85.7
	No	4	40.0	0	0.0	1	14.3
Health personnel involved in health-facility births, and home-birth attendants trained in "mother-friendly" practices.	Yes	4	57.1	6	100.0	5	83.3
	No	3	42.9	0	0.0	1	16.7

Health Care Providers (pre-service) Education

The Health Care Providers (pre-service) Education. About 8(88.9%) of the Participants in Rafin Magaji and all the participants in the other wards reported that the curricula or session plans for medical, nursing, midwifery, allied/public health, and nutrition education programmes is implemented. Concerning whether health care provider schools and pre-service education programmes indicates that IYCF curricula or session plans are adequate, 4(44.4%) in Rafin Magaji said all is adequate, another

4(44.4%) answered none and 1 participant responded to some are adequate. In Wuciciri 8(100%) responded to all while in Baban dodo 4(66.5%) responded to all and the remaining 2(33.3%) said none (Table 5).

Table 5: Health Care Providers (pre-service) Education

		Wards					
		Rafin Magaji		Wuciciri		Baban Dodo	
		n	%	n	%	n	%
The curricula or session plans of medical, nursing, midwifery, allied/public health, and nutrition education programmes	Yes	8	88.9	8	100.0	6	100.0
	No	1	11.1	0	0.0	0	0.0
Health care provider schools and pre-service education programmes indicates that IYCF curricula or session plans are adequate.	All	4	44.4	8	100.0	4	66.7
	Some	1	11.2	0	0.0	0	0.0
	None	4	44.4	0	0.0	2	33.3
Medical	Yes	0	0.0	6	75.0	1	14.3
	No	10	100.0	2	25.0	6	85.7
Nursing	Yes	0	0.0	6	75.0	1	14.3
	No	10	100.0	2	25.0	6	85.7
Midwifery	Yes	7	70.0	5	62.5	6	85.7
	No	3	30.0	3	37.5	1	14.3
Allied/public health	Yes	0	0.0	5	62.5	1	14.3
	No	10	100.0	3	37.5	6	85.7
Nutrition	Yes	3	30.0	8	100.0	2	28.6
	No	7	70.0	0	0.0	5	71.4

In-Service Training for Health Care Providers

The result for In-service training for health care providers is present Table 6. Only 4(36.4%) participant in Rafin Magaji wards responded "No" regarding in-service training or continuing education programmes for health care providers update their knowledge and skills related to infant and young child feeding practices. Half of the participant in Rafin Magaji, all in Wuciciri and 3(37%) in Baban Dodo reported that in-service training programmes provide knowledge and skills related to infant and young child feeding for relevant health care providers and is provided throughout the communities. All of the participated staffs in the wards responded to the fact that the training programmes cover most of the essential topics related to infant and young child feeding practices.

Concerning, Clinical and counselling skills, all of the participated staffs in Wuciciri Wards, 7(85.7%) in Baban Dodo and 6(60%) in Rafin Magaji said Clinical and counselling skills needed on the job are integrated into the content of the training programmes and is allotted 30% of the training as it can be seen by the response of 11(91.7%) in Rafin magaji ward, all in wuciciri ward and 7(87.5%) in Baban Dodo ward. Majority (87.5%) of the staffs in Wuciciri and 3(27.3%) in Rafin Magaji together with 1 participant in Baban Dodo responded "All" to the fact that content and skills related to infant and young child feeding are integrated, as appropriate, into training programmes focusing on relevant topics.

Table 6: In-Service Training for Health Care Providers

		Wards					
		Rafin Magaji		Wuciciri		Baban Dodo	
		N	%	n	%	n	%
In-service training or continuing education programmes for health care providers update their knowledge and skills related to infant and young child feeding?	Yes	7	63.6	8	100.0	7	100.0
	No	4	36.4	0	0.0	0	0.0
In-service training programmes provide knowledge and skills related to infant and young child feeding for relevant health care providers?	Yes	5	50.0	8	100.0	3	37.5
	No	5	50.0	0	0.0	5	62.5
In-service training programmes provided throughout the communities?	Yes	7	63.6	8	100.0	7	87.5
	No	4	36.4	0	0.0	1	12.5
The training programmes cover most of the essential topics related to infant and young child feeding?	Yes	8	100.0	8	100.0	7	100.0
	No	0	0.0	0	0.0	0	0.0
Clinical and counselling skills needed on the job are integrated into the content of the training programmes?	Yes	6	60.0	8	100.0	6	85.7
	No	4	40.0	0	0.0	1	14.3
Clinical and counselling skills allotted at least 30% of training time?	Yes	11	91.7	8	100.0	7	87.5
	No	1	8.3	0	0.0	1	12.5
Is content and skills related to infant and young child feeding are integrated, as appropriate, into training programmes focusing on relevant topics	All	3	27.3	7	87.5	1	12.5
	Some	2	18.2	1	12.5	4	50.0
	None	6	54.5	0	0.0	3	37.5

Community Outreach and Support

The community outreach and support. From the Table 7 all the participants in wuciciri, 8(72.7%) in Rafin magaji and 6(75%) in Baban Dado said Community outreach and support mechanisms in place to protect promote and support optimal infant and young child feeding. About 6(60%) of the participants in Rafin Magaji, all in Wuciciri and 6(85.7%) in Baban Dodo had

established community-based IYCF activities either as stand-alone and/or integrated within other programmes. All but 6(75%) and 3(50%) in Rafin Magaji and Baban Dodo respectively responded that the Health facility based community outreach and support activities related to IYCF have national (or regional) coverage. Fifty percent of the participant in Rafin Maggaji, all in Wuciciri and only 1 participant in Baban Dodo said Community-based IYCF outreach and support activities are being implemented. The same proportion except 4(80%) in Baban Dodo also responded that Community-based IYCF outreach and support activities have national (or regional) coverage. All (100%) of the participants in Wuciciri ward and half each of the participants in the other two wards said Non-health organizations are conducting IYCF outreach and support activities at the community level. Lastly, every (100%) participant in Wuciciri, others in 8 (85.7%) in Rafin Magaji and 6(50%) in Baban Dodo reported that IYCF community outreach and support activities are integrated into an overall infant and child health strategy.

Table 7: Community Outreach and Support

		Wards					
		Rafin Magaji		Wuciciri		Baban Dodo	
		n	%	n	%	N	%
Community outreach and support mechanisms in place to protect promote and support optimal infant and young child feeding.	Yes	8	72.7	8	100.0	6	75.0
	No	3	27.3	0	0.0	2	25.0
Health facility based community outreach and support activities related to infant and young child feeding (IYCF) are being implemented.	Yes	6	60.0	8	100.0	6	85.7
	No	4	40.0	0	0.0	1	14.3
Health facility based community outreach and support activities related to IYCF have national (or regional) coverage.	Yes	6	75.0	8	100.0	3	50.0
	No	2	25.0	0	0.0	3	50.0
Community-based IYCF outreach and support activities are being implemented.	Yes	1	50.0	7	100.0	1	33.3
	No	1	50.0	0	0.0	2	66.7
Community-based IYCF outreach and support activities have national (or regional) coverage.	Yes	1	50.0	8	100.0	4	80.0
	No	1	50.0	0	0.0	1	20.0
Non-health organizations (e.g. agricultural extension, education, credit groups) are conducting IYCF outreach and support activities at the community level.	Yes	5	50.0	8	100.0	3	50.0
	No	5	50.0	0	0.0	3	50.0
IYCF community outreach and support activities are integrated into an overall infant and child health strategy (inter sectorial and intra sectorial).	Yes	8	72.7	8	100.0	6	85.7
	No	3	27.3	0	0.0	1	14.3

Information Education and Communication

The Information on education and communication is described in Table 8. All the participated staffs in the ward believe that Comprehensive information, education and communication strategies being implemented for improving infant and young child feeding practices and that there is a comprehensive community IEC strategy for improving IYCF as 6(54.5%) in Rafin Magaji ward, All in Wuciciri and 5(71.4%) in Baban Dodo attest to this.

Concerning IEC campaign or programme using electronic, print and event media and activities has channelled messages on infant and young child feeding to targeted audiences during the past 12 months, all responded to "yes". Also concerning IEC programmes (either governmental or nongovernmental) that include infant and young child feeding practices are being actively implemented at both regional and local levels only 5(71%) persons in Rafin Magaji and a participant in Banban Dodo responded to no. Majority of these participants (8(80%) in Rafin Magaji, 8(100%) in Wuciciri and 5(71%) in Baban Dodo ward) believe that content of IEC messages is technically and clinically sound, based on national or international guideline.

All except one participant in Rafin Magaji responded that the focus and wording of messages based on formative research and pretested with target audiences before use.

Table 8: Information on education and communication

		Wards					
		Rafin Magaji		Wuciciri		Baban Dodo	
		n	%	N	%	n	%
There a comprehensive community IEC strategy for improving IYCF?	Yes	6	54.5	8	100.0	5	71.4
	No	5	45.5	0	0.0	2	28.6
IEC campaign or programme using electronic, print and event media and activities has channelled messages on infant and young child feeding to targeted audiences during the past 12 months?	Yes	11	100.0	8	100.0	7	100.0
	No	0	0.0	0	0.0	0	0.0
IEC programmes (either governmental or nongovernmental) that include infant and young child feeding issues are being actively implemented at both regional and local levels?	Yes	6	54.5	8	100.0	6	85.7
	No	5	45.5	0	0.0	1	14.3
Individual counselling and group education services related to IYCF are available within the health care system or through community outreach?	Yes	6	75.0	8	100.0	5	71.4
	No	2	25.0	0	0.0	2	28.6
Content of IEC messages is technically and clinically sound, based on national or international guidelines?	Yes	8	80.0	8	100.0	5	71.4
	No	2	20.0	0	0.0	2	28.6
The focus and wording of messages based on formative research and pretested with target audiences before use?	Yes	8	88.9	8	100.0	7	100.0
	No	1	11.1	0	0.0	0	0.0

Evaluation Scores of Community-IYCF Program Centres in Zaria LGA of Kaduna State

An Active and Sustainable Baby-Friendly Hospital Initiative showed that 39.3% was rated good, 9(32.1%) rated fair, 6(21.4%) poor while only 2(7.1%) was rated Very good. For Mother-Friendly Childbirth Strategies, 10(33.3%) was rated fair, 9(30%) was rated very good, 6(20%) was rated well while 5(16.7%) was rated poor (Table 9).

Also, for In-Service training for Health care providers, 9(32.1%), 8(28.6%) and 6(21.4%) were rated fair, very good and good respectively while 5(17.9) was rated poor. Regarding Community Outreach and Support, poor (33.3%, n=9) scores were high, followed by 8(229.6%), 7(25.9%) and 2(7.4%) were rated very well, fair and good respectively.

For Information on education and communication, 11(42.3%) was rated very good 6(23.1%) each was rated good and fair while 2(7.7) was rated poor.

Table 9: Evaluation Scores of Community-IYCF Program Centres in Zaria LGA of Kaduna State

Variables		Frequency	Percentage (%)
An Active and Sustainable Baby-Friendly Hospital Initiative (n=28)	Poo r	6	21.4
	Fair	9	32.1
	Good	11	39.3
	Very Good	2	7.2
Mother-Friendly Child birth Strategies (n=30)	Poor	5	16.7
	Fair	10	33.3
	Good	6	20
	Very Good	9	30
In-Service training for Health care providers (n=28)	Poor	5	17.9
	Fair	9	32.1
	Good	6	21.4
	Very Good	8	23.6
Community Outreach and Support (n=27)	Poor	9	32.1
	Fair	7	22.9
	Good	2	16.1
	Very Good	8	38.1
Information on education and communication (n=25)	Poor	2	16.1
	Fair	6	29.7
	Good	6	24.1
	Very Good	11	43.7
	Poor	2	16.1
	Fair	2	16.1

Relationship between the Selected Centres of the C-IYCF Program in Zaria LGA of Kaduna State

The result of the relationship between Community-IYCF programme and the Wards is shows in Table 10. The Significant (chi square=***21.778***; p=0.001) portion rated very good (100%) for Active and Sustainable Baby-Friendly Hospital Initiative are more likely to come from Rafin Magaji C-IYFC programme, while portion rated good (72.7%) were highly significant in Wuciciri than Baban dodo (27.3%) and Rafin Magaji (0.0%).

Community-IYCF Mother-Friendly Childbirth Strategies showed a significant relationship with the wards (chi-square=***19.694,*** p-value 0.003. Based on this index, Wuciciri ward was more likely to be rated very good than the other wards in times of Community-IYCF Mother-Friendly Childbirth Strategies.

A significant (chi square=15.027; p=0.02) higher proportion (80%) of Wuciciri ward C-IYCF programme were more likely to be rated very good (80%) and good (100%) for Health Care Providers (pre-service) Education than the other wards (Table 8).

In-Service training for Health care providers was significantly (Chi-square= 22.183, p-value=0.001) related to the wards. In-Service training for Health care providers is more likely to be effective in Wuciciri wards as 87.5% was rated as very good.

Community Outreach and Support was significantly (Chi-square= 23.066, p-value=0.003) related toward. A significant portion rated very good (87.5%) were more likely to come from Wuciciri ward than the others.

Information on education and communication was also significantly (Chi-square= 19.431, p-value=0.013) related to the wards. According to this, a significant portion rated very good were more likely to be from Wuciciri ward than the other ward.

Table 10: Relationship between the Selected Centres of the C-IYCF Program in Zaria LGA of Kaduna State

		Wards				
		Rafin Magaji	Wuciciri	Baban Dodo	Chi-square test	
		%	%	%	X	p-value
An Active and Sustainable Baby-Friendly Hospital Initiative	Poor	50.0	0.0	50.0	***21.778***	***0.001****
	Fair	66.7	0.0	33.3		
	Good	0.0	50.0	50.0		
	Very Good	100.0	0.0	0.0		
Mother-Friendly Child birth Strategies	Poor	60.0	0.0	40.0	***19.694***	***0.003****
	Fair	60.0	0.0	40.0		
	Good	66.6	16.7	16.7		
	Very Good	0.0	77.8	22.2		
Health Care Providers (pre-service)Education	Poor	60.0	0.0	40.0	***15.027***	***0.020****
	Fair	50.0	25.0	25.0		
	Good	0.0	100.0	0.0		
	Very Good	0.0	80.0	20.0		
In-Service training for Health care providers	Poor	80.0	0.0	20.0	***22.183***	***0.001****
	Fair	44.4	0.0	55.6		
	Good	50.0	16.7	33.3		
	Very Good	12.5	87.5	0.0		
Community Outreach and Support	Poor	66.7	0.0	33.3	***23.066***	***0.003****
	Fair	57.1	0.0	42.9		
	Good	0.0	50.0	50.0		
	Very Good	0.0	87.5	12.5		
Information on education and communication	Poor	100.0	0.0	0.0	***19.431***	***0.013****
	Fair	50.0	0.0	50.0		
	Good	50.0	0.0	50.0		
	Very Good	18.2	72.7	9.1		

The Chi-square statistic is significant at the 0.05 level

DISCUSSION

The 8.2% exclusive breastfeeding of under 6 months children recorded in this study is poor, as 57.1% was reported by Sinhababu *et al.* (2010). A study from the slum of Delhi has shown 57% of the children below 6 months were exclusively breastfed. Study have reported that about one-fourth of the children who received liquids and solids, along with breastfeeding at 0–6 months of age, remained at risk for infectious diseases and undernutrition (WHO, 2008). This revealed that continued breastfeeding was done by (74.8%) children between 12 and 23 months which as positive effect on overall health of the children. This was lower as compared with a study from West Bengal which showed that 91.1% of children between 12 and 23 months were continuing breastfeeding (Sinhababu, *et, al.*, 2010).

Minimum dietary diversity (MDD) indicator is the proportion of children 6–23 months of age who receive foods from 4 or more food groups from a total of 7 food groups, namely, dairy products, legumes and nuts, flesh foods, eggs, vitamin A-rich fruits and vegetables, cereals reveal whether the child is receiving a complete and balanced diet or not. MDD was observed in 10.1% of the children between 6 and 23 months (WHO, 2008).

Minimum meal frequency (MMF) indicator is the proportion of breastfed and non-breastfed children aged 6–23 months who receive solid, semi-solid, or soft foods (but also including milk feeds for non-breastfed children) the minimum number of times or more (WHO, 2008). For breastfed children, the minimum number of times varies with age (two times if 6–8 months and three times if 9–23 months). For non-breastfed children, the minimum number of times does not vary by age (four times for all children aged 6–23 months). MMF was observed in about one-half (24.5%) of children aged 6–23 months.

The minimum acceptable diet (MAD) indicator is the proportion of children aged 6–23 months who receive at least the MDD as well as at least the MMF according to the definitions mentioned above (WHO, 2008). This was found to be adequate only in 47.5% of the 6-23-month-old children. Overall from India shows that only 44% of breastfed children are fed at least the minimum number of times recommended and only half of them also consume food from three or more food groups (NFHS, 2005-06). Feeding recommendations are

followed even less often for no breastfeeding children. Overall only 21% of breastfeeding and non-breastfeeding children are fed according to the IYCF recommendations (NFHS, 2005-06). A study done in urban slums of Delhi found 48.6% of children aged 6-23 months are fed the recommended minimum times per day and 32.6% are fed from the appropriate number of groups. All three recommended IYCF practices were practised by only 19.7% of mothers of children aged 6-23 months.

IYCF Programme assessment is often used by UNICEF's offices, in close collaboration with governments and other partners involved in IYCF programming, to regularly monitor and assess the scope and scale of recommended IYCF actions and identify areas for improvement. It can be used periodically to assess whether progress is being made to address identified gaps.

Some of the key finding areas in Community IYCF programme evaluation include Active and Sustainable Baby-Friendly Hospital Initiative, Mother-Friendly Childbirth Strategies, Health Care Providers (pre-service) Education, In-Service training for Health care providers, Community Outreach and Support and Information on education and communication.

Another study carried out with professionals from São Paulo, aiming to assess the WHO/UNICEF Breastfeeding Counselling Course demonstrated a significant improvement in counselling skills. In contrast with our study, however, that one was developed to deal solely with the theme of breastfeeding. It was observed that, immediately after the course, the participants' knowledge and skills in the clinical management of breastfeeding and counselling significantly improved, in relation to those of the control group, and that this was repeated 3 months after intervention (Rea and Venancio, 1999).

Similar findings can be found in the results of studies undertaken in the United Kingdom (Moran, *et, al.,* 2000), Bangladesh (Haider, *et, al.,* 1997), Ghana (Aidam, *et, al.,* 2005), Mexico (Morrow, *et, al.,* 1999) and Brazil (Leite, *et, al.,* 2005). But always in interventions while including counselling, give priority to just one feature (or phase of life) of child nutrition, without, such as HIV/AIDS. With relation to the Integrated Course, the subject of this study, including special dietary situations while it may be considered that there were few gains in counselling skills, the good results achieved in general knowledge on infant and young child feeding and dietary practices in Wucciciri ward of the study area may represent a welcome improvement to what is currently found inactiveness of health workers in Wucciciri ward of study community.

This evidence emphasizes the importance of carrying out actions relating to counselling on infant and young child feeding that integrate content, in the form of permanent practices, to child healthcare policy, highlighting concern with constantly updating professional's training. The fact that this project was carried out with health professionals who are already working for a large scale institution such as primary healthcare and in a city with the Metropolitan characteristics of Zaria LGA of Kaduna State, demonstrates its potential for implementation in and adaptation to more circumspect circumstances.

In this study, almost two-thirds of indices measured for the effectiveness of the C-IYCF programme were rated very good in Wucciciri than in Babban dodo while poor in Rafin Magaji. Therefore, this study revealed more effectiveness in Wucciciri than in Babban dodo while poorly effective in Rafin Magaji when compare to standard guideline which is contrary to the study carried out in Kaduna state Kajuru LGA as an intervention site and Kaura LGA as a comparison site, revealed strong support for the conclusion that the C-IYCF training was successfully implemented in the intervention site and had the intended impact on knowledge and attitudes among health workers and community volunteers (USAID and UNICEF, (2018).

CONCLUSION

This study highlights that inappropriate infant and young child feeding practices are still very much prevalent in the study community. The education level of the mothers seems to affect the feeding practices of the children, and this makes education for both genders important to focus on for future generations. In this study, we can conclude that IYCF practices are still inappropriate in the study area and the C-IYCF counselling package is less strong since almost two-third of indices measured for evaluation of C-IYCF programme were rated very good in Wucciciri than in Babban dodo while poor in Rafin Magaji.

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