

Effectiveness of Nutrition Education in Improving Maternal Knowledge and Attitudes towards Complementary Feeding Practices: A cluster-randomized controlled trial in Ondo State, Nigeria

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Abstract

Significant low knowledge and poor attitudes on complementary feeding undermine the practices. This study was a cluster randomized controlled trial in which 284 study participants were assigned into two groups. One intervention group and a control group in a ratio of 1:1. Nutrition education on complementary feeding was carried out among the caregivers in the intervention group but the caregivers in the control group were not educated. To determine complementary feeding knowledge and attitudes, data was collected from caregiver at baseline, midline and at endline using researcher-administered questionnaires. Quantitative data were analyzed using SPSS version 22.0. From the analysis, there was a significant difference in complementary feeding knowledge of the caregivers after the intervention. The baseline difference was -0.06, the midline difference was 3.85 the endline difference was 4.00 and the DID of the baseline and endline was 4.06 which was significant at $p=0.001$. There was a significant difference in the attitude of the caregivers towards complementary feeding at baseline (-0.14), midline (2.09), endline (3.82) and the DID of baseline and endline was 3.96 which was significant at $p=0.001$. The intervention improved the caregivers' knowledge on complementary feeding and it improved the attitudes of the caregivers towards adequate complementary feeding.

Keywords: Knowledge, Attitudes, Complementary Feeding, Caregivers, Infants

Major classification: Health Science.

1. Introduction

Inadequacy in complementary feeding during infancy and childhood has been proved by researchers as a factor that leads to malnutrition; and eventually leading to high mortality and morbidity rate among the children (Nabugoomu et al., 2015). It was reported by UNICEF (2013) that 6.6 million deaths were recorded among children less than five years of age. UNICEF (2012) also, reported 6.3 million deaths among this age group. The interpretation is that an estimated 18,000 and 17,000 children less than 5 years of age died on daily basis in these periods respectively around the world. The author stated that 81% of this mortality

was from African nations and Southern part of Asia. The mortality rate recorded among the children of 5 years and below was directly and indirectly linked to inappropriate infant and young child feeding practices (WHO, 2016a).

Knowledge on complementary feeding by the caregivers has been revealed by Kruger and Gericke (2016) to be limited in African countries. A Nigerian study showed that knowledge on benefit of continued breastfeeding along complementary feeding till the infant's age 24 months is low (Sadoh et al., 2011). The role of nutrition education on caregivers feeding knowledge cannot be underrated.

Inadequate knowledge on appropriate complementary feeding is a determinant of malnutrition among the infants in the developing countries (Issaka et al., 2015). Poor complementary feeding attitudes have been linked with communities' beliefs and mothers' perceptions. Socio-cultural belief has a strong influence on infants feeding and determines optimal infants feeding practices; breastfeeding and complementary feeding in Kakamega County, Kenya (Karigi and Mutuli (2016).

In Zambia, majority stopped breastfeeding before the appropriate time because they believed that breast milk was not enough and that the child had lost interest in breastfeeding (Katepa- Bwalya et al., 2016). Mexican mothers in a cross-sectional survey by Monterrosa et al. (2012) showed that, they mostly fed their children with liquid and semi liquid foods with few vegetables, meats and legumes. The author stated that Mexican mothers took this decision due to their perspective on the consistency of the food for infants, that is, soft or solid foods are detrimental to infant's health. The detrimental effect of lack or low knowledge and poor attitude towards complementary feeding especially in the developing countries is the concern of this study.

2. Materials and methods

2.1. Study design and study location

This was a cluster randomized controlled trial with two phases: the needs assessment phase which was carried out to identify the complementary feeding knowledge and attitude gap from November 22 to December 23, 2016. The second phase was the main study, which was the intervention through nutrition education, it was designed according to the needs assessment findings and WHO (2004) complementary guide to train the caregivers in the Basic Health Centers consecutively for three weekends in Owo Local Government Area of Ondo State.

The caregivers were trained in 11/12/13 per group depending on the number of eligible participants screened for the training period. The duration for achieving the sample size of the eligible participants was five months. After the training, follow up was done to assess the infant feeding practices both at the caregivers home and at the BHCs if the caregiver lives around the BHC till the infants were eleventh month.

2.2. Sampling techniques

Multi-stage sampling method was adopted for this study. Purposive sampling method was used for the selection of Ondo North Senatorial District out of the three Senatorial Districts in the State. Owo Local Government Area (LGA) was purposively selected out of the six (6) LGA in the District due to existing literature on infant complementary feeding practices and of poor nutrition status of children less than five years. Scientifically based research has reported that thin gruel from cereals contributes to 70% of complementary diet among infants in the area (Bolajoko and Ogundahunsi, 2012).

Simple random sampling method was used for the selection of the 4 Basic Health Centers (BHC) out of thirty three (33) BHCs in the LGA. Randomization was then conducted to assign the BHCs into intervention groups and control groups on a ratio of 1:1. BHCs rather than caregivers were randomized. To avoid contamination which may have occurred if women live next to each other from different study groups shared information on nutrition education from the research team. Two BHCs were in the intervention group while two BHCs were in the control group

2.3. Target population

The populations targeted for this study were the caregivers of infants aged 6-11 months age in Owo LGA, Ondo North Senatorial District, Ondo State, Nigeria. The population of live births recorded in the LGA was 17,043 (Ondo State Bureau of Statistics, 2009). Most of the women engaged in trading especially farm produce and less than 40% of the women are peasant farmers (Ondo State Bureau of Statistics, 2009).

2.4. Sample size

The study applied Chan, 2003 formulae for continuous assessment of two independent samples. Type 11 error and power set at two-sided 5%. The study power was 90%. A total of 290 were screened for the study, however 6 caregivers were lost to follow up. The total participants were 284.

2.5. Data management and analysis

Eight graduates of nutrition and dietetics were used as enumerators and were trained for 5 days purposively for this study on how to handle the questionnaires and research ethics. The community health extension workers in the selected intervention groups were trained on adequate complementary feeding, how to conduct presentation, demonstrations and lectures on complementary feeding. The CHEWs were trained to assist the researcher during training and to ensure the practice of complementary feeding nutrition education in the study area.

Questionnaire was used to collect data both in the control group and the intervention group during the same period. The questionnaire was used to elicit information from caregivers. It had several sections: Section A: Demographic characteristics and socio-economic status of the caregivers; This elicited information on demographic characteristics such as sex and rank of the infants of the participants and Socio-economic status such as, educational level, employment status and level of income of the participants and also the name, age, sex and parity.

Section B: Knowledge and Attitude validated questionnaire by (FAO, 2014); this was used to assess caregivers' (i) Complementary feeding knowledge, (ii) Complementary feeding attitude.

Data were analyzed using SPSS version 22.0. Bivariate association was assessed using 2-sided Pearson's chi-square and T-test for effect size while univariate results were presented in proportions. Content analysis was performed for KIIs and FGDs based on predetermined themes of the study objectives. New themes that emerged during the study were incorporated for analysis. The FGDs and KIIs were analyzed to determine the frequency of some content on complementary feeding knowledge, attitude and practices involved in the community. The analysis was conducted adjusting for the clustering effect of the design.

2.6. Logistics and ethical considerations

Ethical clearance was obtained from Ondo State Health Research Ethics Committee (OSHREC). Letter of introduction to the coordinator of Owo LGA, BHCs was obtained from Ondo State Primary Health Care Development Board (OSPHCDB), Nigeria.

3. Results

3.1. Qualitative results for needs assessment

Needs assessment was conducted to establish the complementary feeding knowledge and attitude in the community and to determine factors enhancing complementary feeding and challenges to adequate complementary feeding in the community. In response to questions on food consistency, their knowledge

and how it was been practiced in the community. This was what a chew from one the communities had to say during the need assessment:

The consistency to be fed is not known by us as well as the caregivers. Even research that involves training like this has never happened in this area. The caregivers in this community give thin pap always for 3 times daily to the infants.

To corroborate this; a caregiver from the control group also said that: An infant cannot swallow solid food; the best food to give to them is liquid since the consistency their stomach can tolerate at that level is liquid.

Another question on intake of fruits and vegetables by the infants in that community, this was what a caregiver had to say; Vegetable can cause diarrhea, it is not good for a small child because their stomach will not be able to digest it.

3.2. The effect of nutrition education on caregivers' complementary feeding knowledge

After the intervention, a significantly higher proportion of mothers in the intervention group than the control group (96.5 % and 19% respectively (χ^2 : 200.88; $p=0.001$) knew the importance of timely introduction of soft/thick complementary food consistency while 88.7% in the intervention group and 43% in the control group understood responsive feeding (χ^2 : 56.04; $p=0.001$).

Table 1: Effect of nutrition education on caregivers' complementary feeding knowledge

Knowledge	Total N=284	% of caregivers by groups		Chi-square p-value
		Intervention group N=142	Control group N=142	
Infants can start CF at 6 months along with breastfeeding Yes	230 (81.0)	116 (81.7)	114(80.3)	0.880
Soft / thick consistency complementary foods are for infants at six month Yes	164 (57.7)	137 (96.5)	27 (19.0)	0.001*
Infants 6-8 months need to be fed 2-3 in addition to breastfeeding Yes	275 (96.8)	138 (97.2)	137 (96.5)	0.734
Caregiver should encourage Infants to eat Yes	187 (65.8)	126 (88.7)	61 (43.0)	0.001*
Breastfeeding only is enough for infants after 6 months Yes	0 (0.0)	0 (0.0)	0 (0.0)	
Infants should be encouraged to eat in their own plate Yes	267 (94.0)	135 (95.1)	132 (93.0)	0.616
Fruits like carrots, mangoes, papaya contain vitamin A Yes	194 (68.7)	131 (91.5)	63 (44.4)	0.001*
White rice and cassava products are rich in protein, vitamins and minerals Yes	158 (55.6)	116 (81.7)	42 (29.6)	0.001*
Animal products and legumes promote child growth Yes	177 (62.3)	129 (90.8)	48 (33.8)	0.001*
Understand breastfeeding the infant for at least 2 years Yes	147(51.8)	119 (83.8)	28 (19.7)	0.001*

*significantly different at $p<0.05$

Similarly, 81.7% in the intervention group and 29.6% in the control group knew the available nutrient in some commonly consumed foods served to the infants (χ^2 : 76.02; $p=0.001$) while 89.4% in the intervention

group and 28.2% in the control group knew that there is need to increase the meal frequency as the infant grow in age (9-24months). In contrast, no significant differences were seen among the groups in aspects such as knowledge on time of introduction of complementary feeding (88.7% and 80.3% for the intervention group and the control group respectively (χ^2 : 0.403; $p=0.776$). Similar findings were seen for knowledge on feeding at least 2 times at age 6-8 months (97.2 % and 96.8% for the intervention group and the control group respectively (χ^2 : 0.306.02; $p=0.734$).

Table 2: Effect of nutrition education on caregivers' complementary feeding knowledge continued.

Knowledge	Total N = 284	% of caregivers by groups		Chi-square p-value
		Intervention group N = 142	Control group N=142	
Mother should wait until the sick child is healthy before giving more foods Yes	137(48.2)	13 (9.2)	124 (87.3)	0.001*
Medical attention can be needed if a child is losing weight Yes	243 (85.6)	135 (95.1)	118 (83.1)	0.001*
Infants 9-24 months old will need 1-2 snacks and eat 3-4 times a day. Yes	167 (58.8)	127 (89.4)	40 (28.2)	0.001*
Increase the frequency of breastfeeding and the frequency of fluids and foods during diarrhea	160 (56.3)	132 (93.0)	28 (19.7)	0.001*

*significantly different at $p<0.05$

3.3. Effect of nutrition education on caregivers' knowledge score on complementary feeding

There was a significant difference in the knowledge scores of the caregivers after the nutrition education intervention. The differences were -0.06 at baseline, at the midline it was 3.85 and 4.00 at the endline.

Table 3: Effect of nutrition education on caregivers' knowledge score on complementary feeding

Caregivers	Mean knowledge score				
Study Group	Baseline Mean score \pm SD	Midline Mean score \pm SD	Endline Mean score \pm SD	Difference (SE)	T-test p-value
Control	4.45 \pm 1.82	4.76 \pm 1.71	4.80 \pm 0.77	0.35 (0.21)	0.545
Intervention	4.34 \pm 1.71	8.61 \pm 0.92	8.80 \pm 1.90	4.46 (0.17)	<0.001*
Mean of group 2 minus mean of group 1	Baseline difference	Midline difference	Endline difference	Difference in difference	
	-0.06	3.85	4.00	4.06	<0.001*

*Significant at $p<0.05$

SE = Standard Error

The difference in difference (DID) of the baseline and the endline was 4.06 between the intervention and the control group and it was significant (P<0.001). The knowledge score of the intervention group improved significantly.

3.4. Effect of nutrition education on caregivers’ attitude towards recommended complementary feeding practices

The attitude of the caregivers towards complementary feeding in the two groups was compared (Table 2). There were 8 questions asked and scores awarded. To any positive attitude answer 1 was awarded and 0 was awarded to negative attitudes, at baseline and after intervention.

After the intervention, a significantly higher proportion of mothers in the intervention group than the control group (95.8% and 13.4% respectively (χ^2 : 87.04; p=0.001) had a positive attitude towards timely introduction of complementary feeding while 97.2% in the intervention group and 59.4% (χ^2 : 45.06; p=0.001) in the control group had a positive attitude towards diversified food groups in complementary feeding. Similarly, 83.1% in the intervention group and 39.4% (χ^2 : 78.02; p=0.001) in the group had a positive attitude towards changing the belief of intestinal upset result from feeding the infants with different foods and 77.5% in the intervention group and 12.3% in the control group had a positive attitude towards changing the belief that feeding infants frequently results in gluttony in the infants. In contrast, no significant differences were seen among the groups in aspects such as attitude towards feeding 6-8 months infants 2-3 times (91.5% and 90.1%) for the intervention group and the control group respectively (χ^2 : 0.023; p=0.837), and attitude viewing continued breastfeeding as difficult (2.8% and 4.2% for the intervention group and the control group respectively (χ^2 : 0.076.01; p=0.747).

Table 4: Effect of nutrition education on caregivers’ complementary feeding attitude

Attitude	Total N=284	% caregivers by study groups		Chi-square p-value
		Intervention group N=142	Control group N=142	
Have confidence in introducing complementary feeding Yes	155 (54.6)	136 (95.8)	19 (13.4)	0.001*
Believe in giving different types of food to infants Yes	194 (68.3)	138 (97.2)	56 (39.4)	0.001*
Believe that giving different food to infants can lead to intestinal upset like purging or constipation Yes	174 (61.3)	118 (83.1)	56 (39.4)	0.001*
Have difficulties in feeding infant due to gluttonous habitual effect belief Yes	128 (45.1)	110 (77.5)	18 (12.7)	0.001*
It is good to feed infants 6-8 months 2-3 times Yes	258 (90.8)	130 (91.5)	128 (90.1)	0.837
Possible to feed infant 9-11 months 4 times daily Yes	137 (48.2)	105 (73.9)	32 (22.5)	0.001*
It is good to continue breastfeeding child beyond 6 months Yes	284 (100.0)	142 (100.0)	142 (100.0)	0.238
Difficulties to breastfeed your child beyond 6 months Yes	10(3.5)	4 (2.8)	6(4.2)	0.747

*significantly different at p<0.05

3.5. Effect of nutrition education on caregivers attitude’s score

There was a significant difference in the attitude scores of the caregivers after the nutrition education intervention. The differences were -0.14 at baseline, at the midline it was 2.09 and 3.82 at the endline. The difference in difference (DID) of the baseline and the endline among the intervention group and control group was 3.96 and it was significant (P<0.001). The attitude score of the intervention group improved significantly.

Table 5: Effect of nutrition education on caregivers' attitude score on complementary feeding

Caregivers	Mean attitude score				
Study Group	Baseline Mean score ± SD	Midline Mean score ± SD	Endline Mean score ± SD	Difference (SE)	T-test p-value
Control (Group 1)	4.80±0.97	4.09±0.61	4.00±0.57	-0.8(0.08)	0.521
Intervention (Group 2)	4.66±0.67	6.18±0.99	7.82±1.01	3.16 (0.12)	<0.001*
	Baseline difference	Midline difference	Endline difference	Difference in difference	
Mean of group 2 minus mean of group 1	-0.14	2.09	3.82	3.96	<0.001*

*Significant at p<0.05

SE ≡ Standard Error

3.6. Qualitative assessment during the study

The issue of consistency at which the infants should be fed was handled during the training and it was able to assist the caregivers in the intervention group on the consistency an infant should be fed this was what a caregiver from the intervention group said; *I really appreciate the training received during this program, like the issue of food consistency; I did not know that an infant could be fed thick pap.*

The issue of lack of confidence to introduce complementary feeding was raised during the needs assessment and the caregivers in the intervention group were taught on responsive feeding. This was what a caregiver had to say *I did not believe that the different ways of allowing the infants to accept complementary food will work because of my experience with my first daughter but the training helped me. Since the time we were taught on responsive feeding which was demonstrated to us in the health center, I practiced it and it worked for my infant.*

In the control group, the challenge is still the same and this caregiver from the control group had this to say. *The problem am having now is that the child is not accepting the food from me and this is prompting my mother in-law to be force feeding him anytime he wants to it.*

This issue on dietary diversity was able to be handled during nutrition education training by using different multiple mixes of foods for complementary feeding. The use of multiple food mixes did not take much time but in the control group due to poor knowledge on importance of dietary diversity many do not believe in feeding the infants with varieties frequently with the belief that it will lead to bad habitual issues such as gluttony. One of the participants in the control group had this to say; *if you continue to spoil a child from infancy by giving different types of food it will lead to gluttony in the future for him or her and the child will be a spoiled child.*

4. Discussion

The caregivers in both study groups were people living in the rural communities; they had similar characteristics in age, parity, living conditions, marital status, educational level and income level. Majority of the caregivers were women of age 25 years and above. This corroborates the report of World Data Atlas on Nigerian women of child bearing age. The report stated that child bearing age of Nigerian women ranges from 29.5 years in 1970 to 29.8 years in 2015.

Knowledge is the understanding of any given topic (FAO, 2014). In this study, knowledge referred to the ability to understand specified aspects of complementary feeding. Increase in the knowledge of caregivers as observed in this study was related to nutrition education given to the intervention group.

Knowledge on early initiation of breastfeeding was low among the caregivers who participated in this study both in the intervention group and in the study group. The result could be due to the level of awareness of the caregivers on early initiation of breastfeeding before the nutrition education intervention. The level of knowledge on early initiation of breastfeeding of the Ondo state mothers was also established by National Nutrition and Health Survey (NNHS, 2017) which revealed that only 13.4% of mothers in Ondo State introduced breastfeeding within one hour after birth. There are benefits attached to timely initiation of breastfeeding, which was confirmed that timely initiation of breastfeeding is a predictor of neonatal survival within 28 days of life (Edmond et al., 2016).

The knowledge on continued breastfeeding of the infants daily, throughout the study period both in the intervention group and in the control group was good. Although some caregivers stopped breastfeeding before the infants were eleven months of age. The NNHS (2017) report laid emphasis on continued breastfeeding as diarrhoea is predominant during the period of complementary feeding. It was stated that the period of introduction of complementary feeding is a very delicate transition period and therefore continued breastfeeding until age 2 years and beyond is highly recommended.

Despite the knowledge of the caregivers in the control group on timely introduction of complementary feeding, majority of the caregivers did not understand acceptable consistency the infants should be fed. This study was in line with Bolajoko and Ogundahunsi (2012) which stated that, 70% of mothers in Owo LGA fed infants with thin gruel from sorghum only. Nutrition education on introducing the right food at the right time as the infants grow in age, so as to develop the potentials at the right time is an ultimate (NNHS, 2017). The effects of untimely introduction of complementary feeding was established by Ogunlesi et al. (2014) who showed that untimely introduction of complementary feeding was a risk factor of poor nutrition status among infants in Sagamu, Nigeria.

Nutrition education was able to improve the knowledge of the caregivers on the appropriate meal frequency for the infant at the particular age. Most of the caregivers in the control group fed the infants with watery consistency two to three times throughout the period of complementary feeding but a change which was to be observed in feeding 3 times along with snacks when the infants was nine to eleventh month was not acceptable by the caregivers in the control group. This was corroborated by SMART (2014) which reported that 53.8% of infants in Southwest Nigeria received Minimum Meal Frequency. The feeding frequency practiced by most of the caregivers in the control group was not in accordance with the WHO/UNICEF guidelines by Kenneth and Brown (2000).

The caregivers in the control group started feeding 3 times daily as from 6 months, for those that started the complementary feeding at 6 months. Most at times, the feeding was force feeding which filled the infants' stomach with porridge. Inability of the caregivers to understand the appropriate ways of feeding the infants has led severally to inadequacy in complementary feeding (FAO, 2014). The author further stated that the knowledge of caregivers on adequate complementary feeding in different communities all over the world especially the developing countries was generally low. According to Berihu et al. (2014), mothers' knowledge on appropriate infant feeding in Mekelle Ethiopia deviated from current international guidelines on complementary feeding. Also, Olatona et al. (2017) revealed that in Lagos Nigeria, only 14.9% of the mothers had right knowledge of complementary feeding. Bandara et al. (2014) revealed that feeding knowledge of caregivers in Sri Lanka was low thereby, 25.5% of their infants were unable to attain the normal weight for height and their infants had delayed in achievements of motor milestones.

The improved knowledge on change of meal frequency during illness was achieved by nutrition education intervention on the caregivers. The control group believed that a sick child should not take any food except breast milk until he or she is healthy. This corroborates the findings of Paintal and Aguayo (2016) revealed that infants were fed lesser with complementary foods during illness in South Asia.

The knowledge of the caregivers on dietary diversity during complementary feeding was low at the baseline study among the caregivers in the two groups. The significant difference recorded in knowledge between the groups was achieved after intervention with nutrition education. Kuchenbecker et al. (2017) discovered improvement in caregivers' knowledge on dietary diversity in Malawi and also, Reinboth et al. (2016) discovered the same change after nutrition education among caregivers on dietary diversity in Cambodia. Meanwhile, Heirvonen et al. (2016) revealed that dietary diversity during complementary feeding depends on mothers' access to market in Ethiopia. In contrary to Khan et al. (2017) showed that nutrition education was able to reduce under nutrition in food insecure households in Pakistan. Knowledge is believed to enhance attitude (Zhu and Xie, 2015).

The strength of nutrition education as an intervention to improve caregivers' knowledge on adequate complementary feeding cannot be overemphasized. In Shahr-e-kordcity of Chaharmahal and Bakhtiari Province, Iran revealed wide margin in complementary feeding knowledge among the intervention group over the control group after nutrition education (Vardanjani et al., 2015). Increase in the knowledge endline score was attributed to nutrition education

because there was no significant difference at the baseline knowledge score of the caregivers in the two groups. Also, Priyanka and Veenu (2015) enumerated the difference in pre-score knowledge of mothers on adequate nutrition and the post-score after nutrition education which showed a great significant difference in Fatehabad District, Haryana of India.

Misconception and false beliefs were the factors hindering the caregivers in the control group to good attitude towards complementary feeding. The belief that infants' stomach could not tolerate varieties of food led to poor dietary diversity among the caregivers in the control group. Infants were fed monotonously with thin pap by most of the caregivers in the control group. The misconception hindering the appropriate infant feeding practices can be corrected by infant feeding education (Sethi et al., 2017). There was a significant difference between intervention group and control group caregivers' attitude towards dietary diversity of the infants' meal.

Caregivers in the control group tend to decline from continued breastfeeding as the infant ages in this present study. The attitude was due to the belief that once a child started eating foods which mostly was thin pap and started walking there is no need for breastfeeding again. This study is in line with the study of Mohammed et al. (2014) which revealed that majority of the women in rural area in El-Minia Governorate; Egypt stopped breastfeeding when introducing complementary feeding.

Negative habitual issues were raised as the reason for poor attitudes towards meal frequency and dietary diversity. The habitual belief which was mainly gluttony was the reason for the caregivers not to feed infant frequently in the study groups before the nutrition education. The false belief was handled and proved wrong during the nutrition education and the caregivers were able to change the poor attitude to good attitudes in the intervention group as a result of nutrition education. This was achieved through the use of posters to display the benefits and local songs were used to rhythm out the benefits. It was stated that people will not have change in behavior unless they see the benefits (USAID, 2011). The author stated further that nutrition education without effective behavioral change strategy will not change the individual's behavior.

This shows that change in attitude among the caregivers in the intervention group was based on the information received during the nutrition education. The study was in line with USAID (2016) which revealed that there was a positive association with socio cognitive theory and food diversification in a systematic review study on feeding behaviours.

5. Conclusion

The study proved that the complementary feeding nutrition education significantly improved the caregivers' complementary feeding knowledge which enhanced the attitudes of the caregivers towards complementary feeding.

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Conflicts of interest

There authors declared no conflict of interest regarding this study

Authors Contributions

Akinrinmade Remilekun was involved in the conceptualization the study, data collection and analysis and writing of the manuscript, Eunice Njogu was involved in the conceptualization the study, supervision of the study activities and writing of the manuscript, Irene Ogada and Keshinro(2017) were involved in the conceptualization of the study, supervision of the study activities and writing of the manuscript.

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