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Adoption of Enriched Local Complementary Food in Osun State: Combating Micronutrient Deficiency in the First Two Years of Life

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Abstract

Locally processed complementary foods, appropriately enriched can complement breast milk and traditional foods during the nutritionally vulnerable periods of a child life. The study therefore examines the adoption of enriched local complementary foods in Osun State Nigeria. Structured interview schedule was used to collect information from 384 women about new home made complementary foods introduced to them during ante and post natal clinic. Awareness, adoption and discontinuity of the foods were also determined. Results revealed that majority of the women (44.3%) were between 30-39years of age and have attended secondary school (45%). Of the foods introduced in the urban center mothers were aware of “eko ilera” (12.8%), groundnut milk (11.1%), soya milk (23.5%), mashed potato and milk (11.1%), pap and banana (12.8%), cowpea milk (7.6%) and tom brown (6.4%). Their rural counterparts were only aware of food such as “eko ilera”, soya milk and pap and banana with low percentage which are 1.3%, 6% and 2% respectively. The adoption for “eko ilera” was (86.7%), pap and banana (93.3%), cowpea milk 88.8% and tom brown (86.6%) for the urban

women, while their rural counterparts recorded 100% for eko ilera, 55.5% for soya milk and 66.6% for pap and banana. It is concluded that for sustainability, interventions must be continued for longer periods of time to reach late adopters and it is recommended that improved child feeding practices will be promoted at the community level.

Key words: complementary foods, micronutrient, adoption

Introduction

Adequate nutrition is especially important during infancy and childhood where even short period of malnutrition have long lasting effect on growth, development and health in the adult life (Cooke et al, 2007). Deficiency in three micronutrients; iodine, iron and vitamin A are widespread affecting more than a third of the world's population. Other micronutrients of concern are B vitamins, vitamin C and Zinc. Individuals and families suffer serious consequences including learning disabilities, impaired work capacity, illness and death (Lofti et al, 1996). The introduction of complementary food is often accompanied by stress and ill health for infants in development country, mostly because the foods are not properly tailored to the infant needs (Pipes and Trahms, 1993; Rowland et al ,1986;Kakitahi, 1981). Many traditional weaning foods in Africa are only a slight modification of adult foods, involving only mashing and dilution without taking into consideration the special nutritional requirement of young children (Uwaegbute, 1991). Locally processed complementary foods, appropriately enriched can complement breast milk and traditional foods during the nutritionally vulnerable periods of a child life. New foods were developed in the different country to provide nutrition nutrient dense complementary food to meet the nutritional need of the children. Koko was an example of such foods introduced in Ghana. Most of such foods were based on local foodstuffs blended with legumes to give the protein portion of the diet (Lartey et al 1999). Often such foods are introduced to mothers, made available and methods of preparation are taught in either hospital during antenatal care or in the communities.

Adoption of innovation is defined as a point of decision to make full of the new idea as the best cause of action (Jibowo, 1992). The adoption process on the other hand is a mental process through which an individual passes from first hearing about a new idea to its final adoption. It is purely a personal or individual decision either to adopt or reject an innovation thus different people adopt innovation at different times. The channel of communication

throughout the adoption process, that is, in the creation of awareness, interest, evaluation, and trial up to adoption is another critical segment of the intervention that can determine the rate and level of adoption.(Creed-Kanashiro et al, 1991). While behaviour is central in adoption of innovation part of it is determined by understanding and information (SCN,1995).However the study of Creed-Kanashiro et al (1991), discovered that the recommended practices diminished with time as the caretakers forgot the new practices.

During ante natal and postnatal clinic especially in Government owned hospitals, there were talks on improving the local foods used as complementary foods to improve the micronutrient content of these foods since most of them are deficient. Eko ilera which is pap, made from maize but the introduction of palm oil was introduced to increase the B-carotene and consequently Vitamin A content of the pap, soya milk was also encouraged to increase the protein content of pap, groundnut milk and cowpea milk for Ca and B-carotene, pap and banana for B-carotene and iron and tom brown which is a multi mix of maize, groundnut, soybeans and crayfish which increase the level of the iron, protein B-carotene, and calcium.

Objective of the study

The general objective of the study is to examine the adoption of enriched local complementary foods in Osun State. The specific objectives are to

- i) identify foods used as complementary foods
- ii) investigate the use of commercially processed complementary foods
- iii) identify the locally enriched complementary foods introduced to women
- iv) determine the level of awareness and adoption of these foods

Methodology

With the use of a structured interview schedule, the study was carried out in Osun State of Nigeria and data were collected from 384 women. It was designed to collect information about personal characteristics of children, social economic characteristics of women, foods used as complementary foods, complementary foods introduced to women in the hospital during post natal clinics. They were further asked about the adoption of these complementary foods. Descriptive statistics such as frequency counts and percentage distribution were used for the analysis of data.

Results

Personal characteristic of children and mothers

Sex of children

The sex of the children as presented on the Table 1 shows that 51.2% of the children were females while 28.8% were males. Male children were more in the urban communities while the female children were more on the rural communities.

Age of children

The age range of children was 0-24 months. Data on the Table 1 shows that majority(42.7%). of the children fall between the range of 0-6 months, 26.4% were children of 7-12 months of age, while children between the ages of 13-18 months and 19-24 month were 16.5% and 14.4% respectively.

Age of mother

Result from Table 1 show that 2.6% of respondent were below the age of 20 years, 38.0% were 20-29 years old, a majority (44.3%) were between 30- 39, while 13.5% fell in the age interval of 40-49 years. Others (1.6%) though few, were between the ages of 50-59 with none of these groups in the rural communities.

Years of formal education

Data in Table 1 show that majority (45%) of the women had attended secondary school, while (29.0) attended one tertiary institution or the other. Only (3.6%) of respondents did not have formal education while (15.9%) and (5.7%) had between 7 and 12 and above 18 years of formal education respectively. Most of the women that have at least 13-18 years and above of formal education were concentrated in the urban communities while most of their rural counterpart have between 7-12 years of formal education .

Income

Respondents income per month was grouped into five categories as presented on Table 1. The lowest of the group account for 73.6% of the respondents, which represent those with income below ₦10,000, while 20.1% of the respondent fell between the income range of ₦10,000 to ₦20,000. Others, though few, fell in the income range ₦30,000 (4.2%), ₦30,001- ₦30,001 - ₦40,000 (1.1%), and ₦ 40,001- ₦50,000 (0.8%). A few respondents were recorded with higher income of ₦20,000 and above in the rural communities.

Children first complementary food

Data on Table 2 shows that 48.7% of the respondents gave enriched pap as first food while 32.2% gave plain pap, (15.2%) children were given special weaning foods while others (3.9%) received foods such as amala, moimoin (steamed blended beans), akara (bean cake), and beans as their first foods. Plain pap was mostly given in the rural (56.9%) communities as compared to their urban (7.0%) counterpart while special weaning foods were mostly used in the urban (27.2%) centers than the rural (3.4%).

Homemade complementary food enrichment

Pap was generally used as complementary foods in the communities. Pap however has low nutrient quality especially in micronutrient; therefore some of the mothers enrich pap to improve the nutritional quality. Five foods were used for enrichment. Results as presented on the Table 2 show that the most popular of all was powdered milk (63.4%), followed by crayfish (13.1%) and soymilk (10.3%) and egg (4.8%).

Use of processed food

Table 2 show that mother use commercially processed complementary foods because of its convenience (26.7%), ease of preparation (37.6%), because it contain more nutrient (30.6%) and for avoidance of food contamination (4.9%)

Reasons for not using processed food

As is presented on Table 2, (74.0%) do not use processed complementary foods because they are expensive, and some babies reject them (14.3%) while some mother said these foods are not readily available (11.7%).in the urban communities, mother did not see the foods as expensive (6.9%)as compared to the rural mother 82.5%)

Foods used as complementary foods

Complementary foods come in different form and vary for the urban and rural communities. In the urban centre the most common of the food is tinned food (78.2%) while the most popular foods are amala (66%) and rice (66.7%).

Food introduced to mothers

Seven foods were introduced to women in the hospital that can be used as complementary foods. The foods include groundnut milk, soya milk, mashed potato and milk, pap and banana, cowpea milk and turn brown.

Adoption of introduced complementary foods

As presented to Table 4 could be observed that mother in the urban centres were more of the foods introduced in the hospital than their rural counterpart. In the urban centre they were aware of eko ilera (12.8%), groundnut milk (11.1%), soymilk (23.5%), mashed potato and milk (11.1%), pap and banana (12.8%) cowpea milk (7.6%) and turn brown (6.4%). The rural counterparts were only aware of foods such as eko ilera, soymilk and pap and banana with low percentages i.e. 1.3%, 6% and 2% respectively.

Adoption of foods introduced was really high for food introduced to the mothers, though the level of awareness was low. The adoption for was eko ilera (86.6%),groundnut milk (73%) soymilk(87 .2%), mashed potato and milk (80.7%) pap and banana (93.3%), cowpea milk 88.8% and turn brown (86.6%) for the urban women, while their rural counterparts recorded 100% for eko ilera, soymilk (55.5%) and pap and banana(66.6%).

Discussion

Adoption of new complementary foods

The awareness for the complementary foods was low but the adoption by those mother that were aware of these foods was high in the study in the urban communities than in the communities

If more women were aware of these foods most of them may have the foods and thereby serve as a way of combating micronutrient deficiency in the area. Mother of younger children are more likely to adopt the practices than mothers of young children who were believed to be already accustomed to particular feeding practices the reason may be due to the fact that message on new and improved complementary foods were probably not properly disseminated to the communities and mothers that attended ante natal and post natal clinic were taught on the preparation of these foods leaving out the majority of women who will not attend clinic nor have anything to do with the hospital especially in the rural areas.

The objectives of the intervention were to improve the micronutrient content of foods given to children to combat micronutrient deficiency. The channel of communication through the adoption process, in the creation, interest, evaluation, and trial up to adoption is another critical segment of the intervention that can determine the rate level of adoption. Considerably higher level of trial and adoption will occur when messages were received from a doctor or nurse or, to a slightly lesser extent, through a mothers club, indicating the importance of interpersonal communication (Creed- Kanashiro

et al 1991). Ogunba and Adeyefas (2002) study also stressed the higher influence of health workers in influencing mother's decision on the choice of food for children. Radio message were also instrumental for transmitting knowledge, but they needed to be complemented with one or more additional interpersonal channels to achieve trial or adoption. For sustainability, intervention must be continued for even longer periods of time to reach these "late adopter." Moreover, those segments of the target of the population in greatest need of improved feeding practices are often the most resistant to change. In Creed Kanashiro et al (1999) research, it was discovered that the recommended practices diminished with time as the caretakers forgot the new practices.

Conclusion

Foods preparation or recipe of the selected foods should be formulated through a participatory of recipe trial with the beneficial. Behavioural change trials of use of the these preparations in the home must be then be conducted to explore the acceptability of the recommended foods and feedings practices and feeding, and any necessary modification then be made. Using this methodology, improved child feeding practices will be promoted at the community level.

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Table 1: Distribution of respondent by personal characteristic of children and mothers

Variables	Urban No= 234		Rural No= 150		Total No= 384	
	Frequency	%	Frequency	%	Frequency	%
Sex						
Male	119	51.3	67	45.0	186	48.8
Female	113	48.7	82	55.0	195	51.2
Age of children(months)						
0- 6	122	52.4	41	27.5	163	42.7
7-12	52	22.3	49	32.9	101	26.4
13-18	32	13.7	31	20.8	63	16.5
19-24	27	11.6	28	18.8	55	14.4
Mean:9						
Age (years)						
<20	1	0.4	9	6.0	10	2.6
20-29	84	35.7	62	41.6	146	38.0
30-39	107	45.5	63	42.3	170	44.3
40-49	37	15.7	15	10.1	52	13.5
50-59	6	2.6	0	0.0	6	1.6
Year of formal education						
1	1	0.42	13	8.6	14	3.6
None	30	12.8	31	20.6	61	15.9
1-6	100	42.6	73	49.0	173	45.1
7-12	96	40.9	18	12.1	114	29.7
13-18	8	3.4	14	9.4	22	5.7
>18						
Income/month						
<10,000	145	65.6	116	87.2	261	73.6
10,001-20,000	54	24.4	17	12.8	71	20.1
20,001-30,000	15	6.8	0	0.0	15	4.2
30,001-40,000	4	1.8	0	0.0	4	1.1
40,001-50,000	3	1.4	0	0.0	3	0.8

Table 2: Distribution of respondents according to complementary feeding practices

Complementary feeding practices	Urban No= 234		Rural No= 150		Total No= 384	
	Freq	%	Freq	%	Freq	%
Children's first complementary food						
Plain Pap	8	7.0				
Enriched pap	70	61.4				
Special weaning foods	31	27.2	66	56.9	74	32.2
Others	5	4.4	42	36.2	112	48.7
			4	3.4	35	15.2
			4	3.4	9	3.9
Foods used for enrichment						
Egg						
Soya milk	5	4.46	2	6.0	7	4.8
Powdered milk	11	9.82	4	12.0	15	10.3
Groundnut	72	64.3	20	60.6	92	63.4
Crayfish	12	10.7	0	0.0	12	8.3
	12	10.7	7	21.2	19	13.1
Reason for use of processed food						
Convenience	19	24.1	8	34.7	27	26.7
Ease of preparation	27	34.2	11	47.8	38	37.6
Contain more nutrient	28	35.4	4	17.4	31	30.6
Avoidance of contamination	5	6.3	0	0.0	5	4.9
Reason for not using processed food						
Too expensive						
Child rejected it	29	6.9	85	82.5	14	74.0
Not readily available	11	21.6	11	10.7	22	14.3
	11	21.6	7	6.8	18	11.7

Table 3: Distribution of foods used as complementary foods

Food	Urban 234		Rural 150		Total 384	
	Freq.	%	Freq.	%	Freq.	%
Pap	107	45.7	82	54.7	189	49.2
Bread	135	57.7	63	42	198	51.6
Golden Morn	169	72.2	41	27.3	210	54.7
Cornflakes	132	56.4	65	43.3	197	51.3
Indomie noodles	139	59.4	61	40.7	200	52.1
Tinned Foods	183	78.2	33	22	216	56.3
Eko	150	64.1	54	36	204	53.1
Rice	79	33.8	99	66	178	46.4
Moinmoin	116	49.6	76	50.7	192	50
Akara	111	47.4	79	52.7	190	49.5
Beans	119	50.9	74	49.3	193	50.3
Egg	123	52.5	71	47.3	194	50.5
Meat	117	50	75	50	192	50
Fish	126	53.9	69	46	172	44.8
Yam pottage	110	47	80	53.3	190	49.5
Yam	121	51.7	72	48	169	44
Amala	78	33.3	100	66.7	178	46.4
Snack	121	51.7	73	48.7	194	50.5
Fruit	113	48.3	77	51.6	190	49.5
Tea	43	18.4	122	81.3	165	42.9

***Multiple responses**

Table 4: Distribution of respondents according to complementary food introduced and adopted

Foods Introduced	Awareness		Taught		Adopted		Not adopted		Discontinued	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Eko Ilera	30(12.8)	2(1.3)	18(60)	2(100)	26(86.6)	2(100)	4(13.3)	-	2(6.66)	-
Groundnut milk	26(11.1)	-	14(53.8)	-	19(73)	-	7(27)	-	2(7.69)	-
Soya milk	55(23.5)	9(6)	35(63.6)	6(66.6)	48(87.2)	5(55.5)	7(12.8)	4(44.5)	6(10.9)	-
Mashed potato and milk	26(11.1)	-	18(69.2)	-	21(80.7)	-	5(19.3)	-	6(23.1)	-
Pap and banana	30(12.8)	3(2)	16(53.3)	1(33.3)	28(93.3)	2(66.6)	2(6.7)	-	9(30)	-
Cowpea milk	18(7.6)	-	6(33.3)	-	16(88.8)	-	2(11.2)	-	1(5.55)	-
Turn brown	15(6.4)	-	7(46.6)	-	13(86.6)	-	3(13.4)	-	8(53.3)	-

*Percentages in parentheses

