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Dietary Diversity of Fathers and their Families in Ghana: A Case in Mankessim in the Mfantseman Municipality

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Abstract

The purpose of this study lends itself to the exploratory and descriptive survey design. A population of two hundred and seventy-eight (278) fathers were selected for the study. Multi-stage purposive and Convenience sampling techniques were used to select the respondents for the study. The Multi-stage cluster sampling was employed to arrive at the sample for the study. In the first stage, one cluster / suburb in Mankessim was selected by simple random, to form part of this study. The next stage was a purposive sampling of households that had fathers between the ages of 25 to 45 in the suburb. All fathers in the suburb within the age range were contacted for the study. Fathers who were at home with their wives or homemakers at the time the researcher made contact were those who were selected. This process continued until the required number of fathers was selected for each suburb of Mankessim. Selected fathers were consulted on the purpose of the study and their consent sought before proceeding with the study. The main instruments used in collecting data for the study were questionnaires and interviews. The study reveals that fathers equally have dietary issues that need to be addressed. It makes clearer the inability of homes to provide diverse diets for its members, contributing to the low dietary diversity of fathers. The study also concluded that, the money available, the food prepared by wives or homemakers, appetite for food, available food at home, nutritional information in the media and fathers understanding of healthy diet, influence the dietary diversity of fathers to a large extent. It is recommended that, mothers should plan family meals such that each day's meals provide variety. They should incorporate variety of food commodities found in the Ghanaian market in feeding their families.

Keywords

Dietary, Diversity, Fathers, Families, Mankessim Ghana

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1. Introduction and Background

Dietary diversity means the consumption of adequate amounts of a variety of food groups or a number of biologically distinct foods eaten over a given period of time [1]. Dietary patterns are frameworks that people adopt when choosing what to eat. It is therefore necessary to understand the level of influence various factors exert on the individuals' dietary practice when attempting to provide nutrition education for a particular group of people [2]. In other words, diversity means that we choose to eat a mixture (variety) of foods across the range of food groups such as the six food groups as outlined:

1) Animal foods and its products

2) Starchy roots and plantain

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3) Fruits and vegetables

4) Cereals and grains

5) Legumes, Nuts and oily seeds

6) Fats and oils

Dietary patterns reflect adequate nutrition thereby making it a key component in the socio-economic development of any nation that seeks to achieve the millennium development goals (MDGS) and primary healthcare [3]. Adequate nutrition means stronger immune system, fewer diseases, improved health and a more productive population [4]. According to Maslow's hierarchy of needs, food is a basic requirement for humans to eat in order to live (Maslow, 1943). In view of this assertion, a study proposed three key words: moderation, variety and balance as vital ingredients in every food plan which, could form part of the dietary guidelines indicated by the science of nutrition to prevent diet related diseases [5]. Information on dietary patterns reflects the overall nutritional behaviour better than the information on single foods or nutrients [6]. Also, the analysis of dietary patterns gives a more comprehensive quality impression of food consumption habits within a population [7]. Furthermore, the literature argues that varied diets or diversified diet tend to be the most healthy ones [8].

There is little evidence to show whether or not foods individuals eat both at home and outside the home are diverse enough to provide the various nutrients needed for health. Again there is not much known about homes making provisions for variety of meals than outside foods. Specifically, in Ghana dietary diversity has received little attention which augments the need for further research [9]. Comparatively, literature reviewed so far on dietary diversity has highlighted women as the most researched than men: in 2005, the Food and Nutrition Technical Assistance Project initiated the Women's Dietary Diversity Project (WDDP) [10]. This project was carried out in two parts, WDDP I and II, which span from 2005 to 2010 and 2012 to 2016 respectively [10, 11]. Other studies on dietary practices looked extensively at women and children, with little work on the dietary diversity of men [12, 13]. The researcher therefore seeks to carry out this study to assess the dietary diversity of fathers and that of their families, and find out whether the dietary diversity of the family has any influence on that of the fathers. The main purpose of this study was to assess the dietary diversity of fathers in Mankessim. The study was guided by these research questions – (1) Which factors contribute to dietary diversity of fathers? (2) What is the dietary diversity of fathers and their families?

2. Conceptual Framework of the Study

This study adapted the conceptual framework on factors affecting dietary diversity [14]. Invariably, the diversity of diets consumed by fathers is largely influenced by their perception of what a diet should be and the available meal patterns of their families. The pattern of meals or menus often determines nutritionally balanced or deficiencies and / or nutrient toxicities which could lead to diet related diseases, or otherwise. The interrelationship and conditions which influence the dietary diversity of fathers and families could be based on the understanding that these factors contributing to food habits choices or dietary practices of families and for that matter, fathers influence their meal patterns and perception of dietary diversity. In this respect, political, economic, socio-cultural and technological factors, involving the availability and access to amount of food and score of foods eaten tends to form important factors to consider in achieving fathers' dietary diversity as depicted in Figure.

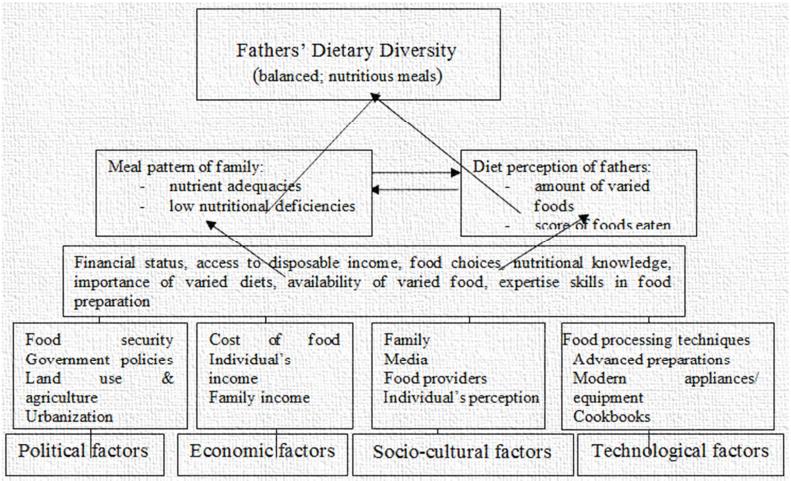

Figure 1. Conceptual framework on relationship of fathers' dietary diversity and meal patterns of families.

Source: Adapted from an idea of Kemunto [14].

3. Methodology

The purpose of this study lends itself to the exploratory and descriptive survey design. A population of two hundred and seventy-eight (278) fathers were selected for the study. Multi-stage cluster sampling technique was used to select the respondents for the study. In the first stage, one cluster / suburb in Mankessim was selected by simple random, to form part of this study. The next stage was a purposive sampling of households that had fathers between the ages of 25 to 45 in the suburb. All fathers in the suburb within the age range were contacted for the study. Selected fathers were consulted on the purpose of the study and their consent sought before proceeding with the study. The main instrument used in collecting data for the study were questionnaires and interviews. The data collected was edited and coded, before entry. Data analysis and interpretation were carried out using the Statistical Product for Service Solutions (SPSS) software application version 22. using descriptive statistics that is, tables, frequencies, percentages, means and standard deviations. A test of difference using the one-sample t-test and paired sample t-test was also carried out to determine whether or not fathers had high dietary diversity and whether there was significant difference between the dietary diversity of fathers and their families

4. Findings and Discussions

4.1. Factors that Inform the Dietary Consumption of Fathers

This aspect of the study sought to find out from fathers in Mankessim their knowledge on the factors that inform their dietary consumption. The responses of the fathers are shown in Tables 1 and 2.

Table 1. Eating habits of fathers.

Statement	Category	Respondents (n= 278)	
		N	%
Which best describe your eating situation?	I buy most of my meals outside home.	41	14.7
	I prepare my meals most of the time.	48	17.3
	My meals are normally prepared by a family member.	110	39.6
	I sometime buy meals outside or other times I eat meals prepared at home	79	28.4
What best describes your eating habits?	Omnivorous	204	73.4
	Semi-vegetarian	62	22.3
	Lacto-vegetarian	4	1.4
	Ovo-vegetarian	1	0.4
	Lacto-ovo-vegetarian	1	0.4
	Vegan	6	2.2
Who makes decision about your family's meal?	You (Father)	126	45.3
	Your wife	79	28.4
	Family members decide.	72	25.8

Note: n =Response, %= Response rate
Source: Field data 2017

Table 1 reveals the eating habits of fathers; precisely, fathers were asked to describe their eating patterns and or habits. Generally, a good number (110) of fathers would eat from the "meals normally prepared by a family member", while others (79) were of the opinion that they will either "buy meals from outside or eat meals prepared at home." At the same time, 48 of the fathers remarked that they "prepare their meals most of the time", with 41 of them stating that they "buy most of their meals outside home" which supports assertions made that out of home meals are becoming increasing phenomenon in urban and peri-urban areas [15]. In confirmation, of the results of this study, a similar study reported that 7 out of 8 cohort studies found a positive association between the frequency of eating away from home and body weight [16, 17]. With regards to what best describes fathers' eating habits, participants gave varied responses: 73% of the fathers tend to be omnivorous while 22% were Semi-vegetarian, 2% and 1% Vegan and Lacto-vegetarian respectively. This finding confirms a study which indicated that globally, the consumption of meat appears to be on the ascendancy as the practice of vegetarianism declines, [18].

On who makes decision about their family's meal, almost half (45%) of the participants remarked that they [fathers] make the decision concerning what to eat with the majority (54%) eating whatever their wives and any other family members decided on respectively to support a study highlighting North American women. However, the results were in contrast to a study which showed traditional feminine ideals that made women to provide their husbands with their preferred choices of food rather than what the women preferred [19].

To further find out more on the factors that influence the

daily dietary consumption of fathers, they were made to respond to a list of factors to ascertain how much they think those factors determined their daily dietary consumption as shown in Table 2.

Table 2. Factors that determine what father eat on daily basis.

Statement	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree	Mean	SD	Remark
	N (%)	*N* (%)	*N* (%)	*N* (%)	*N* (%)			
The money I have	19 (6.8)	55 (19.8)	11 (4.0)	121 (43.5)	70 (25.2)	3.61	1.25	Accepted
The food my wife prepares or the one prepared at home	13 (4.7)	30 (10.8)	4 (1.4)	145 (52.2)	85 (30.6)	3.94	1.08	Accepted
The food I have appetite for.	5 (1.8)	39 (14.0)	13 (4.7)	119 (42.8)	100 (36.0)	3.98	1.07	Accepted
The work I do	70 (25.2)	69 (24.8)	33 (11.9)	85 (30.6)	14 (5.0)	2.65	1.30	Not Accepted
The availability of the food	15 (5.4)	54 (19.4)	18 (6.5)	122 (43.9)	66 (23.7)	3.62	1.20	Accepted
My friends	156 (56.1)	72 (25.9)	12 (4.3)	26 (9.4)	12 (4.3)	1.80	1.15	Not Accepted
Nutritional advice from a doctor	81 (29.1)	50 (18.0)	27 (9.7)	76 (27.3)	43 (15.5)	2.82	1.49	Not Accepted
Nutritional advice I saw in book or newspaper	49 (17.6)	50 (18.0)	40 (14.4)	91 (32.7)	46 (16.5)	3.13	1.37	Accepted
My understanding of healthy diet	16 (5.8)	24 (8.6)	15 (5.4)	143 (51.4)	78 (28.1)	3.88	1.09	Accepted

Source: Field data 2017

Considering the factors that influenced what people eat, various authors have enumerated factors such as personal issues, family traditions, geographical locations, religious beliefs, economic, technological advancement, foreign influence, education, peer influence and mass media as among factors that influence dietary patterns of people [20, 21]. The findings of this study however disagreed with suggestions by earlier study on adolescent's in Greece, that their choices were influenced by their peers [21]. This could possibly result from the fact that fathers being adults are not easily influenced as the adolescents who are easily swayed by peer pressures as suggested by authors, [22-24]. The results further showed that fathers would under a normal situation be influenced to eat what they eat, from both internal and external factors. On the internal side, fathers' available money was a determinant on the kinds of foods eaten. Additionally, the spouses decided on the kinds of meals prepared and eaten which supports the findings on a similar study that invariably, wives determined the meals to be consumed by families and for that matter, fathers [25]. On the external side, the education received by fathers from the media or newspapers was a contributory factor to their eating habits which agreed with the assertions that, the media's influences what fathers eat [26].

Other authors similarly argued that the media are a principal source of information about food and nutrition for many people because of its capacity to persuade the public [27]. Another view was indicative that consumers normally obtain most of their health and nutrition information from the media because it exerts significant impact of nutritional information on consumers' food choices which makes it an effective communication approach that affects consumers' health [28]. This study finds the impact of the media on consumers as very strong, which could be used as a channel through which the health benefits of diversified diet could be promoted among the population.

The findings of this study was in support of other findings which stated that economic status is an important factor that influences dietary quality and food choices [29, 30]. It was highlighted in the study that fathers from lower socio-economic position groups consumed more energy dense and nutrient poor diets which were of lower costs as shown in a similar study [31]. The reason being that access to disposable income often offers the opportunity to purchase or consume diverse, nutritious foods instead of eating only their own crops which may not be diverse [32]. It is also possible that fathers with less income might not be in a position to purchase or consume diverse diets compared to those living in households with a higher income [29]. Fathers 'understanding of healthy diet' and standards of living or 'the money they have' were major factors on their access to dietary diversity since the 'poor' tend to suffer from lack of adequate meals as highlighted in the study of [33].

4.2. Dietary Diversity of Fathers

This section of the study sought to assess the dietary diversity of fathers in regards to the food groups they ate within the last twenty-four hours and the total diversity score range(s) of fathers. The responses of the fathers are seen in Tables 3 and 4.

Table 3 provides brief information of the food groups eaten by participants as at the time of the study. In the chronological pattern, the findings revealed that 14%, 18%, 22%, 22%, and 27% of the fathers had eaten eggs, pulses, other fruits, nuts & seeds, and dairy products respectively. Also, it was established from the findings that almost all of the fathers, (275: 99%) had eaten 'grains, white roots and tubers, and plantain. This gives the indication that grains,

starchy roots and plantain still form the major food commodities in the diets of families which fathers are included. This finding is consistent with studies conducted globally exampled by the Agriculture and Consumer Protection Department, which concluded that the Ghanaian diet largely relies on starchy roots (cassava, yam), fruits (plantain) and cereals (maize, rice), for the supply of almost three quarters of the dietary energy [34]. A similar study revealed that, higher consumption of starchy roots and cereals constitutes a major component of diets [35, 36].

Table 3. Dietary diversity of fathers.

Food groups	Yes	No
	n (%)	n (%)
Grains, white roots and tubers, and plantains	275 (98.9)	3 (1.1)
Pulses (beans, peas and lentils)	51 (18.3)	227 (81.7)
Nuts & Seeds	62 (22.3)	215 (77.3)
Diary (milk and milk products)	75 (27.0)	202 (72.7)
Meat, poultry and fish	254 (91.4)	24 (8.6)
Eggs	39 (14.0)	238 (85.6)
Dark green leafy vegetables	68 (24.5)	209 (75.2)
Other vegetables	192 (69.1)	85 (30.6)
Vitamin A rich fruits and vegetables	177 (63.7)	101 (36.3)
Other fruits	60 (21.6)	218 (78.4)

Mean ranges**:** SD (00-1.0), D (1.1-2.0), U (2.1-3.0), A (3.1-4.0), SA. (4.1- 5.0), Mean of means: 3.27, Mean of SD: 1.22.
Source: Field data, 2017

Additional findings on the women dietary diversity project in Mali and other developing countries have revealed a high consumption of cereals as standard foods in diets of families [37]. This could be due to the fact that starchy roots and cereals are staple foods in most parts of the world that are cheaper among the food commodities and readily available. Aside the carbohydrate foods, the study further indicated that 64%, 69% and 91% of the fathers engaged in the eating of 'vitamin A rich fruits and vegetables', 'other vegetable' and 'meat, poultry and fish' respectively. Generally, the study found out that the majority of the fathers appeared to be interested in consuming more carbohydrate and protein foods which agrees with authors' assertion that higher intakes of organ meat, flesh foods, vitamin A- and vitamin C-rich fruits and vegetables, and legumes and nuts were significantly associated with lower risk of micronutrient inadequacy [38].

The results of this study indicated low consumption of pulses (18%), nuts and seeds (22%), dark green leafy vegetables (25%) and other fruits (22%) which supports other studies argument of being associated with micronutrient adequacy [37]. In another findings diets low in fruits, vegetables and meat were associated with iron, folate, zinc, thiamin, riboflavin, niacin, vitamin B-6, and vitamin B-12 inadequacies [39]. The study also looked at the total diversity range scores of fathers is shown in Table 4.

Table 4. Total diversity scores of fathers.

Actual scores	n (%)
1	2 (0.7)
2	7 (2.5)
3	55 (19.8)
4	91 (32.7)
5	67 (24.1)
6	27 (9.7)
7	23 (8.3)
8	4 (1.4)
9	2 (0.7)
Total Scores in ranges	
4 scores	155 (55.8)
5- 9 score	123 (44.2)

Source: Field data, 2017

From Table 4, 56% of the fathers in the study could be argued as having a total diversity score ranging from 1-4 while 44% attained a diversity of 5-9. Interpreting this result in relation to the Minimum Dietary Diversity for Women (MDD-W) indicator guide, it could be said that, the majority of fathers involved in the study have low dietary diversity score (1- 4) [11]. This was followed up with a test of difference using one sample t test to find out whether fathers in the study have a high dietary diversity.

Table 5. One sample t-test on the issue as to whether Fathers in Mankessim have a high dietary diversity.

	N	M	SD	T	df	Sig.
Fathers	278	4.5072	1.37734	-5.966	277	.000

** Significance level .05 (n) Sample, (M) Mean, (SD) Standard deviation (df) degree of freedom
Source: Field data, 2017

A test of difference using the one sample t-test with a test value of five (test value = 5) as indicated by the Minimum Dietary Diversity for Women (MDD-W) indicator guide (FAO and FHI 360), was used to determine if fathers in in the study have a high dietary diversity. The results from Table 5, shows that the mean of fathers' dietary diversity score

(M=.5072, SD = 1.37734) is not higher than the yardstick for high diversity (value of 5 and above); t (277) = -5.966, p=.00 (two-tailed). This results tend to confirm previous studies findings where there was adequate evidence on the association of dietary diversity with nutrient adequacy, specifically, the authors found that monotonous diets are associated with nutrient inadequacies, which attracted the attention of various international bodies [10, 11, 38, 39].

This questionnaire sought to ascertain the dietary diversity of father's family. The questionnaire provided questions probing the dietary diversity of father's family within the past twenty-four hours as at the time of the study. The responses of the home makers are seen in Tables 6 and 7.

Table 6. Dietary diversity of father's family.

Food groups	Yes	No
	n (%)	n (%)
Grains, white roots, tubers, and plantains	242 (87.1)	36 (12.9)
Pulses (beans, peas and lentils)	42 (15.1)	235 (84.5)
Nuts & Seeds	45 (16.2)	232 (83.5)
Diary (milk and milk products)	63 (22.7)	215 (77.3)
Meat, poultry and fish	229 (82.4)	49 (17.6)
Eggs	30 (10.8)	248 (89.2)
Dark green leafy vegetables	57 (20.5)	221 (79.5)
Other vegetables	173 (62.2)	105 (37.8)
Vitamin A rich fruits and vegetables	157 (56.5)	121 (43.5)
Other fruits	51 (18.3)	227 (81.7)

Source: Field data, 2017

Regarding the food groups cooked by father's family as at the time of the study, it was revealed in a chronological way that 11%, 15%, 16% and 18% of father's family engaged in the cooking of eggs, nuts & seed, pulses, and other fruits respectively. The consumption of these food groups amongst the fathers was however very low. The majority of fathers had not consumed these food groups as at the time for study. Data from the study also indicated that 21%, 23%, 57% and 62% of the father's family as at the time of the study had cooked 'dark green leafy vegetable', 'diary products' and 'vitamin A rich fruits and vegetables, and other vegetables respectively. Finally, 82% of the father's family were engaged in the cooking of meat, poultry and fish' while 87% were involved in the cooking of 'grains, white roots, tubers, and plantains'.

Table 7. Total Dietary diversity of father's family.

Scores range	N (%)
00	30 (10.8)
1	1 (0.4)
2	4 (1.4)
3	69 (24.8)
4	85 (30.6)
5	37 (13.3)
6	25 (9.0)
7	21 (7.6)
8	3 (1.1)
9	3 (1.1)
Total Scores in ranges	
1-4 scores	189 (67.9)
5- 10 scores	89 (32.1)

Source: Field data, 2017

Table 7 reveals the total diversity range scores of father's families. From the table, 68% of the father's families have a total diversity scores ranging from 1-4 while 32.1%% have diversity of 5-9. In all, the majority of father's families involved in the study have low dietary diversity score, using the Minimum Dietary Diversity for Women (MDD-W) indicator guide [11]. It was also found out that some homemakers did not cook any meal at home for their family members throughout the whole day. A test of difference using the paired sample t test was used to determine whether there is difference in the total dietary diversity score of fathers (DDS) and that of the total dietary diversity score of father's family.

Table 8. Paired sample test on the difference in dietary diversity of father's families and that of dietary diversity of fathers.

	N	M	SD	T	df	Sig.
Fathers total dietary diversity	2784.5072		1.37734	6.337	227	.000
Families total dietary diversity	278	3.9173	1.91997			

** Significance level .05 (N) Sample, (M) Mean, (SD) Standard deviation (df)degree of freedom
Source: Field data, 2017

A test of difference using the paired sample test was used to determine if the total dietary diversity score of fathers was higher than that of their family. The table 8 shows that mean of fathers' scores (M= 4.5072, SD = 1.37734) is significantly higher than the mean of father's family dietary diversity t= 6.337, df = 227, sig < 0.05). There is a statistically significant difference in the scores of fathers' dietary diversity and father's family dietary diversity. Implies that, father's dietary diversity is higher than that of the dietary diversity of families. The results show that although fathers' dietary as at the time of the study was lower, it is far higher than that of the dietary diversity of father's family. Hence, it can be said that dietary diversity of fathers in the study is far higher than that of their immediate families. Evidence from other parts of the Western world, indicates that men's diets are different and often poorer than women's diets [25]. They argued that women tend to assess healthy foods and healthy eating guidelines more favorably than men based on studies conducted in certain developed countries [40]. This study did not measure the individual dietary diversity (IDD) of the homemakers and for that matter cannot draw the conclusion that fathers have a better dietary diversity score than their

homemakers.

Most homemakers in Mankessim are traders in the market or shops. It was realized that, due to getting to market early on market days to procure goods for sale, or meet customers early for trading activities and not coming home early enough to have ample time for evening meals, some homemakers are unable to prepare meals for their families throughout the whole day. However, larger numbers of women in the work force with less time to prepare meals for the family, among the various factors that contribute to the change in dietary pattern in urban areas [15]. The researcher concluded that the fast paced urban lifestyle make many urban consumers rely on pre-prepared or street foods and convenient foods. A scientific study also reiterated that, social changes such as the increased participation of women in the workforce lead to reduced time available for food selection and meal preparation [41]. Some fathers in the study had to rely on meals sold outside home for the whole 24hours due to the fact that their homemakers were involved in economic activities

5. Conclusions and Recommendations

In the population of fathers, nutritional needs are met by homemakers of fathers' families, food vendors and fathers themselves. Nutritional interventions targeting fathers should also look at their families in addition to food vendors. The study reveals that fathers equally have dietary issues that need to be addressed. It makes clearer the inability of homes to provide diverse diets for its members, contributing to the low dietary diversity of fathers. The individuals' perception on dietary diversity does not necessarily determine the amount of diversity in ones' diet. It is concluded that, the money available, the food prepared by wives or homemakers, appetite for food, available food at home, nutritional information in the media and fathers understanding of healthy diet, influence the dietary diversity of fathers to a large extent.

It is recommended that, current regulations regarding food safety and hygiene by food vendors should include key nutrition principles of balance and variety. It is possible to encourage them to include variety of food commodities in the meals they sell. A typical example is encouraging porridge sellers to sell bread sandwiched with vegetables and fish or egg instead of porridge with just white bread which does not provide any form of variety. It is also recommended that, parents should make it a point to teach and encourage children to observe healthy diet principles such as consumption of diversified diet. This will help them grow to get used to eating diversified foods. Taste and appetite for food, which are strong influences on diet, are shaped by childhood experiences. Mothers should plan family meals such that each day's meals provide variety. They should incorporate variety of food commodities found in the Ghanaian market in feeding their families.

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