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Brief Research Report

Influence of Socio-Demographic Characteristics on Feeding Habits of Residents of Katagum LGA, Bauchi State, Nigeria

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Abstract: The purpose of this study was to analyze the influence of socio-demographic characteristics on feeding habits of inhabitants of Katagum local government Area of Bauchi state, Nigeria. The two nominal independent variables used in the descriptive survey are income level, and culture/ethnicity. This study employed the descriptive survey design. The population of the study was drawn from three districts council of Katagum local Government Area in Bauchi State Nigeria. Three hundred and ninety nine (399) respondents was conveniently selected using stratified random sampling and convenient sampling techniques, the instrument used for collecting data for this study was questionnaire named Socio-demographic characteristics data (SDCDQ) and food frequency list (FFL), data collected was statistically analyzed using descriptive and inferential statistics. The result revealed that income level was not significantly influenced by the feeding habit of the Katagum inhabitants, which implies that there is no significant difference between feeding habit and income level. The findings further discovered that culture/ethnicity shows there is no significant difference between feeding habit and culture/ethnicity; the study concludes that the inhabitant feeding habit was not influenced by their various cultures. Based on these findings it was recommended among others that the government should ensure food self-sufficiency and provide necessary infrastructure to stimulate economic activities, enhance incomes and improve living conditions of the poor.

Keywords: Coping Strategies, Distress, Feeding Habits, Socio-Demographic

1. Introduction

Food refers to anything that is eaten to provide energy and keep the body healthy. It forms an important part of many Nigerian customs and traditions (Anozie, 2009). Whilst some foods are not regarded as food at all by some groups, the same foods are delicacies for others (Kavitha, 2009). Foods have been defined severally but for the purpose of this study, a more encompassing definition of food is whatever is eaten for satiety, energy, and other nutrients within the complexity of the individuals. (Food and Agriculture Organization (FAO), 2010). These complexities may well dictate the food habits of the individuals. Khan (1981) have described food habits as the way of individuals response to social and cultural pressures choice, consume and utilize portions of the available food supply. Food habits are ways individuals consume and utilize portion of food available to them. In other words, these determinants, otherwise known as factors, are often embedded in the socio-demography of the individuals (Khan, 1981). The socio-demographic characteristics of a given inhabitants are quantifiable in distribution and trends of values which may include, income level, level of education, gender, age, cultural and ethnic differences, and health status among others. These indices have been shown to impact on food habits (Larson et al., 2006). For instance, due to the economic hardship of the country most poor and disadvantage people are faced with various problems concerning the cost of living. They find it difficult to have the normal daily meals and if they should, their local food habits are constant and monotonous (Larson et al., 2006).

Major shifts in dietary patterns are occurring towards more diversified diets, even in the consumption of basic staples which may have considerable consequences (World Health Organization, 2003).The people of Katagum are predominantly farmers and they rear domestic livestock such as sheep, goat and cattle (Falola, 2024; Owoade et al., 2024). They cultivate crops namely millet, rice, sorghum, guinea-corn, wheat, sugarcane, groundnut and cowpea. Pastoral agriculture is an important aspect of the activities of Katagum people and they are mainly subsistence farmers who usually consumed food grown and produce in their area (Abdulkadir, 2002). Income status refers to the amount of money you have to spend that is whether you are rich or poor. This affects individual food habits because the types of food chosen would depend on how much money is available (Resnicow, 1991). High income earner can afford very expensive foods, eat in restaurants and can eat as many times as wanted in a day. Food chosen by poor people is meager and monotonous. Even where nutrition knowledge is high, income status still dictates how foods are consumed and all ethnic groups have their own food customs. (Ravallion, 1992).As cultural groups develop over the ages they formed their own living patterns which included food customs. Each group spelt out what its members could or could not eat how the food should be cooked and when it could be eaten utilized (Kavitha, 2009). According to Alamu (1993) and Nwangwu, (1993) the kinds of food available to an individual usually are the foods eaten. Even though food may be imported from other countries, most people depend on locally grown food products for their basic or staple food. Some foods can grow only in certain types of geographic locations and this determines the foods available in such locations (Anozie, 2009).

1.1. Statement of Problem

Until the past few decades, Nigeria had been self-sufficient in producing enough food to feed the population. As petroleum production and industry began to boom in Nigeria, much of the national attention drifted to the new industries at the expense of agriculture. Nigeria, which had previously been a net exporter of agricultural products, soon needed to import vast amounts of food it once was able to produce for itself, and this has led to drastic changes in the socio-demography of her citizen. This has obviously impacted on how available foods are consumed and utilized. The people of Katagum local government area are predominantly farmers on cash crops. This probably influenced their feeding habits with inclusion of diversified foods and subsequently nutrients dense. Observations have shown that their otherwise balanced diets with their meals containing all the needed food nutrients such as carbohydrate, protein and fats have changed and their feeding habits have drastically fall short of what it used to be. Katagum inhabitants now struggle to cope with their new found feeding habits. This change in feeding habits could be due to accessibility, availability and affordability. The major question on the Katagum peoples' new feeding habits is whether their socio-demography has greatly influence their choices hence the investigation on the extent to which socio-demographic characteristics of Katagum zone inhabitants influence their feeding habits needed to be carried out. The problem statement for this study therefore is whether socio-demography influences the food habits of inhabitants of Katagum LGA, Bauchi state.

1.2. Purpose of the Study

The general purpose of this research is to: Investigate the influence of socio-demographic characteristics on feeding habits of katagum LGA in a distress economy Specific purpose is to:

(a) Determine the feeding habits of Katagum inhabitants?
(b) Find out to what extent level of income influence the food habits of Katagum inhabitants
(c) Find out to what extent culture influence the food habits of Katagum inhabitants
(d) Investigate extent at which socio demographic characteristics can sustain the new food habits of Katagum inhabitants?

1.3. Research Questions

The following research questions guided the study:

(a) What are the feeding habits of Katagum inhabitants?
(b) To what extent does level of income influence the food habits of Katagum inhabitants
(c) To what extent does culture influence the food habits of Katagum inhabitants
(d) To what extent can socio demographic characteristics sustain the new food habits of Katagum inhabitants?

1.4. Research Hypotheses

Ho_1: There is no significant differences between the income level and the feeding habits of Katagum inhabitants.

Ho_2: There is no significant differences between the culture\ethnicity and the feeding habits of Katagum inhabitants.

1.5. Regional and Inter-country Food Consumption Patterns/Habits

Globally, significant improvements have been made in raising food consumption per person with a rise of almost 400 kcal per person per day—going from 2411 to 2789 kcal per person per day between 1969/1971 and 1999/2001 (Alexandratos 2006), and thus in the past four decades, dramatic improvement in reducing the prevalence of under-nutrition has taken place. There are still, however, some developing countries (especially in sub-Saharan Africa, e.g. Somalia, Burundi, Nigeria, Rwanda and Kenya) that have in fact declined further from what was already a very low per capita food consumption level. A detailed discussion on the levels of under-nourishment in countries throughout the world is provided in the FAO studies (Bruinsma 2003; Alexandratos 2006). The marked rise in available food energy observed globally has been accompanied by changes in the composition of the diet and the process involved in such dietary change appears to follow a pattern influenced by culture, beliefs and religious traditions. In particular, such traditions can influence the extent to which animal products substitute vegetable products and the specific types of meat and animal products consumed (Smil 2000).

1.6. Income and Food Habits

Food is a significant factor in mental, physical and psychological growth, development and existence (Kavitha, 2009). Most people who live in low-income areas have eating habits that are unhealthier than those of the general population. According to Rudd and Friedman (2008), low-income individuals, minorities and people living in rural areas suffer the highest rates of preventable, diet-related diseases that are linked to unhealthy eating habits. Public transportation in these communities can be a barrier for some people to get access to healthy foods, and the cost associated with buying healthier food is another cause of unhealthy eating behaviors in low-income communities. Ukpore (1993) reported that average family spends 25-35% of their income on food than other basic needs. Alamu (1993) and Nwangwu (1993) reported that galloping food prices limits the amount of food a family can afford to buy at a given time. Okpeke (2009) opines that high cost of food could be traceable to current global food crises resulting from increased demand for food as a result of rising population, increasing prices of oil, agricultural inputs, climate change, harvest short falls and export restriction in traditional export countries. Most people who live in low-income areas have eating habits that are unhealthier than those of the general population. According to the Rudd Report published by Yale University in 2008, low-income individuals, minorities and people living in rural areas suffer the highest rates of preventable, diet-related diseases that are linked to unhealthy eating habits (Rudd & Friedman, 2008). The economist (Amartya Sen)observed that, in recent decades, famine has always being a problem of food distribution and/or poverty, as there has been insufficient food to feed the whole population of the world. He states that malnutrition and famine were more related to problems of food distribution and purchasing power. The United States was collapsing, it is said that trillions of dollars moved to invest in food and primary commodities, causing the 2007–2008 food price crisis, High cost of food encountered by people puts food beyond the family reach.

1.7. Culture and Food Habits

Proper nutrition and healthy living require an understanding of factors that influence what we eat. Food habits are among the oldest and most entrenched aspects of many cultures that exert deep influence on the behaviour of people (Resnicow, 1991). The cultural background determines what is eaten as well as when and how. A people's culture has a lot of influence on the kind of foods people eat in each community. In every part of the society, people have diverse feeding habits that have been inherited from generation to generation. What the African communities eat can be viewed in the context of the diverse socio-cultural and economic environments. The food consumed is not the same throughout, although there are some striking similarities. Several factors influence the choice of the food we eat. These include availability, economy, cultural and social habits, physiological and psychological attributes, marketing methods, and nutritional knowledge, among others. Gatenby, Donnelly and Connell (2011). Food habits are slow and difficult to change because food has important psychological associations with the family and the community. Familiar food is satisfying and reassuring, particularly the traditional foods of childhood, which evoke a deep-seated emotional response. Many African countries have in the past three generations experienced extensive changes in food supplies and in household diets. Exotic (untraditional) foods now dominate many urban areas in Africa. Even in the rural areas, the range of traditional domestic foodstuff has been considerably reduced partly due to increased cost of production and processing, and long and laborious domestic preparation methods. Their contribution to the family diet has therefore considerably declined (Mroso, 2003).

1.8. Challenges of Food Security in Distress Economy

Food security in Nigeria is faced with lot of challenges. Sani (2000) stated non availability of food in Nigeria is related to poor infrastructure; including poor feeder roads between the rural area of food production and urban area of food consumption. In addition, there is lack of non-farm and off-farm storage facilities which inhibit expansion of farm land. Domestic food production is on rise in Nigeria but it is not enough to meet the national food demand, worst still losses of produced crops are on the rise because processing and storage of crops are not adequately done. Nutritious foods are limited by low income and poverty; most nutrition food are often expensive, food intake and nutritional well-being of many households are of relatively low quantity and are effected by their low economic status. Ravallion (1992).This implies that Nigeria food problems does not lie basically with food production, rather it lies with what is done to crops after their production; the food problem in Nigeria is largely due to the inability to preserve food surpluses during the short harvest period and rather than to low production (Oriola, 2009). According to FAO (2001), when compared to other African countries, Nigeria has one of the highest per capital food output; it accounts for about 70% of the yam and 19% of global market share for cassava. Food losses have a great impact on food availability and security (Osunde, 2008). Nkama, Adamu and Igene (1994), revealed that 20% to 30%, 5%, 10% to 15%, 20% & 20-67% of maize, rice, cassava and yam are lost respectively at post-harvest-stored levels in Nigeria. In addition to this, extension service delivery system suffers from inadequate number of extension workers and, import tariff on fertilizer and other agricultural

inputs

The dwindling economic situation in Nigerian is not unconnected with the global economic crisis. Unimproved social services and oil deregulation has brought about unsteady national economic growth which no doubt may force households to make various adjustments that affect not only their livelihoods but also their overall performance of the Nigerian economy. This has invariably led to increased food/social insecurity and poverty (Opeke, 2009). At the same time poverty and economic inequality exist very much along regions, states and ethnic group lines. Food security exists when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life (Oriola, 2009). Food security is essential for sustainable human development. Limited money resources predispose the family to food insecurity making meal provision drudgery. Reacting to household food insecurity, Uko-Aviomoh (2005) stresses that Nigerians need economic access to enable them get physical possession of food and not mere availability in the market. According to Central Bank of Nigeria, (2006) the poverty rate is 63.8% in rural and 43.1% in urban areas. Thus, endemic poverty and low income per capital becomes a significant problem for average Nigerian in providing adequate meals for the family. Nutritional status is usually associated with food intake which, in turn, is taken to be dependent on household income. Hence poverty is regarded as a major cause of low level of nutrition (Oriola, 2009).The framework developed by WHO recognizes the basic and underlying causes of under nutrition, including the environmental, economic and socio-political factors, with poverty having a central role. For Nigeria in particular, poverty indicators have steadily worsened since 1986 (FOS 1999). Agriculture and related jobs provide employment for almost 60% of the population, primarily for the rural population. Poverty and performance of the agricultural sector are closely related in Nigeria (D'Situa 1994).

The impact of population size on the demand for and supply of food has long attracted the attention of economists and demographers (Srinivasan, 2000). Most of the contemporary developed countries are currently experiencing slow growth, in the size of their populations. Given their high real income levels, their demand for food is unlikely to grow rapidly, and so their impact on the world food economy is more significant through food supplies and exports. Although the imports of a few developed countries such as the USSR on international trade in food and feed-grains could be important. For instance, while the cereal imports of industrialized market economies were virtually unchanged at about 65.5 and 66.1 million tonnes respectively in 1974 and 1982, the imports of the USSR rose from 7.8 to 40.1 million tonnes and the imports of less developed countries rose from 64.2 to 95.6 million tonnes (World Bank 1984,). But it is fair to say that population growth is unlikely to influence the import demand for grains by the USSR. As a result of this, almost all recent analyses of the food-population nexus have focused on the developing countries. Several channels of influence in each direction can be distinguished in the relationship between population and food. First, population growth, hence the size of the future population, obviously affects the demand .in the rate of growth of population (Oriola, 2009). Second, to the extent demand elasticities differ across socio-economic groups, change in income distribution will have an impact on food demand even if

aggregate income growth is kept constant. And the process of population-growth itself can alter income distribution. Finally, population growth can affect food supplies in several ways: by changing potential labour force size and quality, by changing the availabilities (per worker) of other inputs such as land through changes in the size distribution of farms and the extent of land fragmentation, by influencing the technology of cultivation (Boserup 1965, 1981; Simon 1981), and by influencing the environment through changes in the process of soil erosion and degradation, thereby affecting yields. A situation such as this, if continued, will lead to a further depression of the low standards of living, and a deterioration of the social and economic conditions. The root causes of the circumstances in which population growth leaps ahead of food production are not all clear; yet several measures, including the raising of farm productivity per man and the reduction of birth rates, have been suggested.

1.9. Coping Strategies in a Depressed Economy

Typical coping strategies include: All other factors remaining constant, changes in income alter the quantity and quality of foods purchased and consumed. Price movements of food and non-food items: This affect the ability to buy food. For example to cope with rapid food inflation, a household could cut its food purchases and adjust its consumption patterns, buy a smaller quantity of food, switch to different types of food, Reduce dietary diversity and skip meals (Oldewage-Theron et al., 2006). Aliber (2009) pointed out that those high dependency ratios mean that losing an income-earning opportunity can make a household that might have been food-secure into one that is not.

Home Gardening: The problem of high cost of living resulting from high inflation, low purchasing power can readily be solved by the households especially in the urban areas embracing the practice and culture of home gardening in this period of recession. Home gardening contributes to nutrition and household food security by providing quick and direct access to different foods that can be harvested, prepared and eaten by family members daily thereby reducing their spending in household foods during this period of economic recession (Agwu, 2012). The low income household can practice home gardening in their backyard, with small pots, cans, homestead land, roadsides, and edges of field, vacant plots or in containers. Home gardening can be done with little or no money, by the use of locally available planting materials, green manures, life fencing or indigenous methods of pest control (UNDP, 2006).

Proper meal planning: The impact of depressed economy can be reduced on the household through education on the importance meal planning. Proper meal planning will save the household from irrelevant spending, irrelevant wastage and generally improve their overall well-being.

Free Internal Food Supply: low family income earners should be provided with free or subsidized food items by the government in various states within the nation. The governor Lagos state is good example in this area, who have provided internal subsidized food items for the masses.

Increase the Minimum Wage: The minimum wage policy should be adjusted regularly to fight poverty among the low income household (Sharon, 1998). While Noko (2016) categorically stated minimum

wage should be at least increased from N18, 000 to N25, 000 to help the low income families during the period of depressed economy.

Re-orientation of the Family: During economic hardship most families' relationship grows sore, sometimes leading to divorce. According to Adegbite (2016) the effect of no source of income to meet basic family needs and obligation may cause frictions among families, which may lead to long lasting damaged family relationships. He argued that this particular incidence can be reduced by the families jointly pooling their resources together to meet their basic needs while cutting down their expenses in the face of the new economic realities. Uwade (2009) argued that government and the clergy men should re-orient the families on the needs to stay together during dwindling economic challenges as it is a temporal situation in the country.

Increase in Social incentives to the Poor: The government and NGO's are advised to increase expenditure on social incentives like paying the poor some cash stipends, unemployment benefits or insurance. This will help in putting food on the table of the poor in the society.

2. Materials and Methods

1.1. Design for the Study

This study employed the survey design.

2.1.1. Ethics Statement

The Research Ethics Committee at the Aminu Saleh College of Education, Bauchi State, Nigeria provided ethical clearance for this research project. The respondents were recruited based on their willingness to participate in the research work and their personal information were kept confidential.

2.2. Area of the Study

Bauchi State has a total of 55 tribal groups in which Hausa, Fulani, Gerawa, Sayawa, Jarawa, kirfawa, turawa Bolewa, Karekare, Kanuri, Fa'awa, Butawa, Warjawa, Zulawa, and Badawa are the main tribes. This means that they have backgrounds, occupational patterns, beliefs and many other things that form part of the existence of the people of the state. There are cultural similarities in the people's language, occupational practices, festivals, dress and there is a high degree of ethnic interaction. Bauchi State is one of the States in Northern Nigeria spanning two distinct ecological zones; namely, the Sudan Savannah and the Sahel. A number of rivers, which include Gongola and Jama'are along with the various fadama areas in the state, provide suitable land for agricultural activities including fishing, crop production and livestock. Agriculture is the mainstay of the economy of the state and makes it possible for about 75-80% of its indigenes to engage in food and cash crop farming. The major crops produced include cotton, maize, groundnut, millet guinea corn and rice. Katagum LGA covers an area of about 1120square kilometers with its headquarters at Azare, it comprises of three (3) districts namely madara ,chinade and Azare district area with various tribes but notable among them are the Hausas, Kanuris and Fulanis (Abdulkadir, 2002).The Katagum LGA has a total population of 295,000 (N P C, 2006) .The people of the local government are predominantly farmers and they rear domestic livestock's such as sheep ,goat, cattle etc. and cultivate crops such as millet, sorghum, cassava ,wheat ,sugarcane ,groundnut ,cowpea etc. (Abdulkadir,2002).

2.3. Population and Sample

The population of the study comprise all inhabitants of Katagum local Government in Bauchi State. The LGA has a total population of 295,000 (N P C, 2006) and this figure comprises various tribes but notable among them are the Hausas, Kanuris and Fulanis.

Table I: Distribution of the population for three district of Katagum Local Government Area

Local Government Area	Districts	Population
Katagum	Madara	67,982
	Chinade	24,828
	Azare (headquarters)	202,190
	Total	295,000

Source: (Katagum Local Government Council Handbook 2006)

The sample size was 399 and the sampling Techniques used in the study was stratified random sampling and convenient sampling techniques. The LGA is stratified into four clusters and three was randomly selected, then three hundred respondents were conveniently selected.

Table 2: Distribution of sample size from the population

Districts	Population	Percentage of sample size (%)	Approximated Percentages (%)	Sample size from each district	approximated Sample size from each district
Madara (A)	67,982	23.04	23	91.77	92
Chinade (B)	24,828	8.41	8.4	33.5	34
Azare (C)	202,190	68.53	68.5	273.3	273
Total	295,000	100	100	399	399

Source: (Adapted from Uzoagwu 2009)

2.4. Instrument for Data Collection and Study Procedure

Questionnaire used was based on the subject matter of the study. The two sections A and B where A was Socio -demographic characteristics data (SDCD) used to evaluate the influence of income and ethnicity on food habits. Section B was food frequency list (FFL) which assessed the habitual food consumption that will sustain the new choices of food habit: The content of the instrument was validated by three experts in Home Economics Education.

2.4b. Reliability of the instrument

Spearman Brown's formula was used to determine the internal consistency of the instrument, a reliability index of 0.91 was established.

2.5. Data Collection Technique

Questionnaire was used to elicit responses for the study. Socio -demographic characteristics data (SDCDQ) and food frequency list (FFL) created by the researcher was used.

Data was collected from the respondents by administering questionnaire. The questionnaires were

administered by the researcher and two trained research assistants. The research assistants were trained in the rudiments of questionnaire administration, distribution and collection by the researcher. Completed copies of the questionnaire were collected and checked in order to ensure their completeness by the respondents**.**

2.6. Data Analysis Technique

Data collected was statistically analyzed using descriptive and inferential statistics. Research questions were answered using frequency counts, percentages, standard deviation (SD) and mean. All hypotheses were tested using one way Analysis of variance (ANOVA) at 0.05 level of significance.

3. Results and Discussion

Research Question 1: What are the feeding habits of Katagum inhabitants?

Table 3: Mean and Standard Deviation of the Feeding Habits of Katagum Inhabitants

S/N	Foods and their categories	Mean	SD	Remarks
1	Cereal Groups	2.71	0.907	AE
2	Vegetable/Fruits Group	2.74	0.898	AE
3	Roots/Tubers	2.57	0.819	AE
4	Meat Group	2.48	0.671	OE
5	Milk Group	2.45	0.929	OE
6	Sugars/Sweets	2.53	0.981	AE

Rating scale	**weight**
Frequently eaten	4
Sometimes eaten	3
Rarely eaten	2
Never eaten	1

The result of Table 3 shows that the calculated mean value of cereal food groups is frequently and always eaten at (2.71), the calculated mean value of vegetable\fruits groups is frequently and

always eaten at (2.74), therefore majority respondents consumed fruits more than three times per week. The calculated mean value of root\tubers groups is frequently and always eaten at (2.57), the calculated mean value of meat groups is occasionally eaten at (2.48), the calculated mean value of milk groups is occasionally eaten at (2.45) and also calculated mean value of sugar\sweet groups is frequently and always eaten at (2.53). Therefore, the Katagum inhabitants feeding habits majorly large amount of carbohydrate based food, vegetable\fruits and sugar\sweet food groups than food rich in protein such as milk and meat groups. The availability and the affordability (price) of these food items might be the possible reasons for this dietary pattern. The difference in the habitual consumption of certain foods and in traditions of preparation in certain cases such as exclusion of meat and milk from the diet is noted. In conclusion the study observes that Irregular patterns were common among Katagum inhabitants and that effective interventions were needed to establish

Research Question 4: To what extent do these socio-demographic characteristics can sustain the new feeding habits of Katagum inhabitants?

Table 4: Socio-demographic characteristics of income and ethnicity

Cereal foods vegetable and fruit foods root and tuber foods meat foods milk foods sugar and sweet foods level of income*

level of income		Cereal	Vegetable/fruit	Root/tuber	meat	milk	Sugar/sweet
below N5000	Mean	29.40	10.23	10.40	23.83	9.43	26.40
	SD	5.096	2.698	2.464	4.168	2.565	6.342
N5000-N10000	Mean	29.23	10.54	9.87	24.06	9.86	25.95
	SD	4.396	2.169	2.360	3.482	2.069	6.122
N10000-N50000	Mean	29.14	10.22	10.32	23.43	9.20	24.06
	SD	3.830	2.509	1.842	3.195	1.964	5.515
Above N50000	Mean	28.26	10.80	9.46	24.80	9.75	27.22
	SD	4.840	2.304	2.144	3.936	2.558	6.087

Cereal foods vegetable and fruit foods root and tuber foods meat foods milk foods sugar and sweet foods culture/ethnicity*

culture/ethnicity		Cereal	Vegetable/fruit	Root/tuber	meat foods	Milk	Sugar/sweet
Kanuri	Mean	27.37	11.79	10.68	25.11	9.32	23.26
	SD	4.374	2.637	1.857	3.695	1.600	4.771
Fulani	Mean	29.41	11.08	9.97	23.57	8.95	25.34
	SD	3.863	2.903	2.331	4.563	2.714	6.072
Hausa	Mean	29.09	9.92	10.18	23.57	9.73	25.55
	SD	4.827	2.438	2.468	3.757	2.363	6.413
Others	Mean	28.80	10.97	10.00	24.51	9.46	27.17
	SD	4.264	2.111	1.866	3.487	1.967	5.668

The results of table 4 shows that the means values ranged for cereal, (vegetable) fruits,

root/tubers, meat, milk and sugar /sweets The results through the entire data shows that socio-demographic status can sustain the feeding habit of the Katagum inhabitants.

Hypothesis 1: There is no significant difference between the income level and the feeding habits of Katagum inhabitants.

Table 5: Analysis of Variance (ANOVA) on Differences Feeding Habit of the respondents Based on Income Level

All Feeding Habit	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	642.211	3	214.070	.832	.477
Within Groups	89004.429	346	257.238		
Total	89646.640	349			

The data in Table 5 shows the ANOVA of the all the feeding habits of Katagum inhabitants based on their level of income, the between groups and the within groups sum of squares were 642.211 and 89004.429 respectively, the degree of freedom (df) for the two sources of valence stood at 3 and 346 respectively, means square of 214.070 and 257.238 were from the source of variance. The table shows an f- value (0.832), and p-value (0.477), testing at alpha level 0.05. Since (P>0.005) the null hypothesis of no significant is accepted, which implies that there is no significant difference between feeding habit and income level.

Table 6: ANOVA Summary Level of Income and Feeding Habit (food groups)

Food Groups	Sources of Variance	SS	df	MS	F	Sig	Decision
Cereal	Between Groups	63.513	3	21.171	1.009	.389	NS
	Within Groups	7256.661	346	20.973			
	Total	7320.174	349				
Vegetable/fruit	Between Groups	20.055	3	6.685	1.095	.351	NS
	Within Groups	2106.168	345	6.105			
	Total	2126.223	348				
Root/tuber	Between Groups	48.536	3	16.179	3.310	.020	S
	Within Groups	1681.521	344	4.888			
	Total	1730.057	347				
Meat	Between Groups	84.637	3	28.212	2.021	.111	NS
	Within Groups	4830.018	346	13.960			
	Total	4914.654	349				
Milk	Between Groups	22.376	3	7.459	1.389	.246	NS
	Within Groups	1852.839	345	5.371			
	Total	1875.215	348				
Sugar/sweet	Between Groups	497.750	3	165.917	4.581	.004	S
	Within Groups	12495.93	345	36.220			
		5					

	Total	12993.685	348

The data in Table 6 shows the ANOVA of the feeding habits of Katagum inhabitants based on their level of income. The f-values 1.009, 1.095, 2.021` and 1.389, are not significant at probability values (p) of 0.389, 0.351, 0.111 and 0.246 for cereal, vegetable /fruits, meat and milk groups respectively. The null hypothesis is therefore retained for cereal, vegetable /fruits, meat and milk groups. Conversely, the f-values of 3.310 and 4.581 are significant at p-values of 0.020 and 0.004 for root/tubers and sugar /sweet groups respectively. The hypothesis is therefore rejected for root/tubers and sugar/sweet groups.

Hypothesis 2: There is no significant difference between the culture\ethnicity and the feeding habits of Katagum inhabitants.

Table 7: Analysis of Variance (ANOVA) on Differences of Feeding Habit of the respondents Based on culture\ethnicity

All Feeding Habit	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	432.314	3	144.105	.555	.645
Within Groups	95061.754	366	259.732		
Total	95494.068	369			

The data in Table 7 shows the ANOVA of the feeding habits of Katagum inhabitants based on their culture /ethnicity, the between groups and within group sum of squares were 432.314 and 95061.754 respectively, the degree of freedom (df) for the two sources of variance stood at 3 and 366 respectively, means squares of 144.105 and 259.732 were respectively from the source of variance. The table shows an f- value (0.555), and p-value (0.645), testing at alpha level 0.05. Since (P>0.005) the null hypothesis of no significant is accepted, which implies that there is no significant difference between feeding habit and culture\ethnicity.

Table 8: ANOVA Summary of Culture/Ethnicity and Feeding Habit

Feeding habits	Sources of Variance	SS	df	MS	F	Sig	Decision
Cereal	Between Groups	71.481	3	23.827	1.210	.306	NS
	Within Groups	7205.387	366	19.687			
	Total	7276.868	369				
Vegetable/fruit	Between Groups	138.404	3	46.135	7.314	.000	S
	Within Groups	2302.219	365	6.307			
	Total	2440.623	368				
Root/tuber	Between Groups	10.093	3	3.364	.650	.583	NS
	Within Groups	1883.559	364	5.175			
	Total	1893.652	367				
Meat	Between Groups	87.681	3	29.227	1.896	.130	NS
	Within Groups	5642.092	366	15.416			

	Total	5729.773	369				
Milk	Between Groups	38.048	3	12.683	2.300	.077	NS
	Within Groups	2012.830	365	5.515			
	Total	2050.878	368				
Sugar/sweet	Between Groups	315.488	3	105.163	2.843	.038	S
	Within Groups	13501.070	365	36.989			
	Total	13816.558	368				

The data in Table 8 shows the ANOVA of the feeding habits of Katagum inhabitants based on their culture /ethnicity. The f-values 1.210, 0.650, 1.896, 2.300 and 2.843 are not significant at p-values of 0.306, 0.583, 0.130 and 0.077 for cereal, root/tubers, meat, and milk groups respectively; therefore the null hypothesis is retained (accepted). Conversely, the f-values of 7.314 and 2.843 are significant at p-values of 0.000 and 0.038 for vegetable /fruits and sugar / sweets groups respectively; therefore the hypothesis is rejected for the two food groups.

The main objective of the study was to investigate the influence of socio-demographic characteristics on feeding habits of Katagum local government of Bauchi state. The result of Table 3 shows that the calculated mean value of cereal food groups is frequently and always eaten at (2.71), the calculated mean value of vegetable\fruits groups is frequently and always eaten at (2.74), therefore majority respondents consumed fruits more than three times per week. The calculated mean value of root\tubers groups is frequently and always eaten at (2.57), the calculated mean value of meat groups is occasionally eaten at (2.48), the calculated mean value of milk groups is occasionally eaten at (2.45) and also calculated mean value of sugar\sweet groups is frequently and always eaten at (2.53). Therefore the katagum inhabitants feeding habits majorly contains large amount of carbohydrate based food, vegetable\fruits and sugar\sweet food groups than food rich in protein such as milk and meat groups, the availability and the affordability of carbohydrate food items might be the possible reasons for this dietary pattern. The difference in the habitual consumption of certain foods and in traditions of preparation in certain cases such as exclusion of meat and milk from the diet is noted, possibly due to the high price of such commodities. In conclusion the study observes that irregular meal patterns were common among Katagum inhabitants and that effective interventions were needed to establish healthy dietary habits. This findings agree with Mikki et al. (2009) who carry out a study on study dietary habits of Palestinian adolescents and associated sociodemographic characteristics.

The findings of the study in table 4 shows that the entire data shows that socio-demographic status can sustain the new feeding habit of the Katagum inhabitants because all the socio-demographic characteristics analyzed income level, educational level, culture and health status are not significantly influenced their old feeding habit likewise it will probably not influence the new feeding habit. The findings of the study in table 5 shows that income level is not significantly influenced by the feeding habits of Katagum inhabitants based on these food groups' cereal groups, vegetable\fruits, milk and meat groups maybe because most of these food groups are been grown in

the region, and the inhabitants have access to them easily. Meanwhile the root/tuber and sugar/sweet food groups is significantly influenced by income level maybe it was due to difficult accessibility to those food groups or because it was not grown there. On the final analysis, table 6 shows there is no significant difference between the feeding habit and income level of the respondents; this signifies that whatsoever the inhabitant earns it does not really influences their feeding habits because almost all the food groups are cheaper to afford by different income earners. The other food groups that are significantly influences by income level are those that are not grown in that region but some average/high income earners are able to afford it. These findings is in consonant with Rozin and Vollmecke (1986) who carried out a research on food habits in relationship to individual socio-demography status and discovered there are differences in gender, age, income, education, social and employment status in food choices for healthy eating.

The data in table 6 shows the ANOVA of the feeding habits of Katagum inhabitants based on their culture /ethnicity, the between groups and within group sum of squares were 432.314 and 95061.754 respectively, the degree of freedom (df) for the two sources of variance stood at 3 and 366 respectively, means squares of 144.105 and 259.732 were respectively from the source of variance. The table shows an f- value (0.555), and p-value (0.645), testing at alpha level 0.05. Since (P>0.005) the null hypothesis of no significant is accepted, which implies that there is no significant difference between feeding habit and culture\ethnicity. This disagree with the findings of Marques-Vidal et al. (2018) who carry out a study on Socio-demographic and lifestyle determinants of dietary patterns in French-speaking Switzerland and discovered that respondents maintaining some of their traditional dietary patterns.

The findings of the study in table 6 showed that the culture\ethnicity is significantly influenced by the feeding habits of Katagum inhabitants based on these food groups' cereal, root\tubers, milk and meat groups which means some ethnic groups are influenced by these groups while others are not, food groups such as vegetables\fruits and sugar\sweets are significantly influenced by some ethnic groups which means different culture\ethnicity have different food that they like or dislike. On the final analysis, there is no significant difference between the feeding habit and culture\ethnicity of some of the respondents; this signifies that the inhabitant feeding habit was influence by their various cultures. It was also observed by different authors that cultural background determines what is eaten as well as when and how, and people's culture has a lot of influence on the kind of foods people eat in each community. In every part of the society, people have diverse feeding habits that have been inherited from generation to generation. This is in agreement with Rimal et al. (2001) who examined the effects of socio-demographic characteristics on household meal planner's consideration and discovered that household income, number of children, geographic location, gender, age and education significantly affected meal planning.

4. Conclusion

These results does not mean that the beneficial effects are always outweighed by the detrimental but it is clear that this research showed that the differences in the average numbers of food groups

consumed were not significantly different according to the two socio-demographic characteristics. It also indicated that there were some significant differences in feeding habit of some food groups, based on socio-demographic characteristics such as income level and culture\ethnicity status of the inhabitants. However, regardless of their socio-demographic characteristics the majority of the inhabitants still embraced the new feeding habits and generally, most of the inhabitants in this study had healthy feeding habits except in frequency of meals, and other food group consumptions. It was observed that uncontrolled feeding patterns among people could be due to compulsive eating behaviors. With the paradigm shift towards industrialization and cultural change globally, information on healthy diet has become scarce in many developing and developed nations. Most people have adopted unhealthy eating behaviors due to reduced availability, affordability and accessibility of healthy diet in their region. The study results may help to create a foundation for possible interventional programs on healthy feeding habits promotions. Blended with different socio-cultural and psychological attributes across different regions, a unified healthy eating policy should be drafted, being potentially amalgamated and practiced in all regions including developing and developed nations. Government should ensure food self-sufficiency and provide necessary infrastructure to stimulate economic activities, enhance incomes and improve living conditions of the poor. There is a real need in improving the inhabitants of Katagum on knowledge about nutrition. This need is especially important since many diseases could be delayed or prevented by just changing or improving the nutritional habits. Nutrition awareness is one approach used to increase nutrition knowledge that can promote healthy dietary behaviors.

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Conflict of Interest

The authors declare that they have no conflict of interest.

Authors' Contributions

Oluwakemi Adeniji: Supervision, contributed to manuscript preparation, analysis and interpretation of results.

Christiana Gbadebo: Participated data distribution and collection, thoroughly read and edited the manuscript.

Oluwadare Adenike: Took the lead in writing the manuscript, with contributions from all co-authors.

Morufat Fadare: conceived and planned the data, carried out the data distribution and data collection.

Aishatu Abubakar: Contributed to the interpretation of the results

All authors reviewed the results and approved the final version of the manuscript

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All data generated or analysed during this study are included in this published article

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