

FRESH BEEF CONSUMPTION PATTERNS AND SOCIOECONOMIC DETERMINANTS IN JALINGO EMIRATE, NIGERIA

Muhammad R. Ja'afar-Furo ^{*)1)}, Aliyu Abubakar ¹⁾, Aishatu Abdullahi ¹⁾

¹⁾ Adamawa State University, Mubi, Nigeria

^{*)} Corresponding author, Email: jaafar436@adsu.edu.ng

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ABSTRACT

The paper assessed the fresh beef products consumer preference and consumption pattern in Jalingo Emirate communities of Nigeria. A sample of 300 respondents was drawn through random sampling method, and analyzed by the use of descriptive statistics and multiple regression analysis. Findings showed that majority of the fresh beef consumers were males within the age range of 20-50 years, and mostly singles. A larger proportion (49.00%) of the beef consumers had secondary school certificates. Occupationally, 34.00% of the respondents were traders earning between ₦21,000 and ₦70,000 only. Majority (77.33%) of the respondents consumed less than 2.00kg of beef monthly in the area. Most (74.00%) of the beef consumers eat the commodity at home with 40.00% of them consuming it 1-3 times weekly. The major determinants of fresh beef and its products consumption were age, monthly expenditure on substitutes, monthly income, price of beef, frequency of consumption and gender. The most experienced challenges for the beef consumers include outrageous cost of beef, unhygienic method of preparation and unwholesomeness of the beef. Institutions intending to minimize these constraints should assiduously work toward resolving these raised issues in the communities of the Emirate.

Keywords: Consumer preference; Fresh Beef products; Jalingo Emirate communities; Socioeconomic

INTRODUCTION

The importance of fresh beef in the diet of human cannot be over-emphasized. Apart from forming one of the essential components of the balance diets required for human beings existence, beef and its products also serve as delicacies in most parts of the world (Newton & Blaustein-Rejto, 2021). However, its consumption by consumers across the globe is dependent on certain factors which include mainly the level of income of the individual members of families in a community, size of the family, the extent of family expenditure on fresh beef products, the occupation of individuals and level of education, among others (Vinholes *et al.*, 2012; Henchion *et al.*, 2021; Abubakar *et al.*, 2024). Given this scenario, some regions in the world have had a sustainable significant increase in the consumption of fresh beef and its associated products, while there have been some noticeable decline in certain localities.

In line with the above, Parlasca & Qaim (2022) reported that there were substantial increased in the fresh beef consumption in several parts of the world, especially in the American continent, Argentina, Uruguay and Brazil. Also noted Ayyildiz & Cicek (2022), the boom in the fresh beef consumption has been directly connected with the rapid growth in the population of those regions. Similarly noted the report, the amount of the per capita intake of the fresh beef and its products has been



linked to certain socio-economic variables of the consumers. Among these factors were preference attached to the consumption of the commodity, the demography of the communities in consideration, their religious and cultural lineage, the change in climate of the region, and above all, the growth in income of the population of the people. Further to these assertions, Kristokva & Coque (2015) earlier observed that Latin American countries had the highest consumption per capita of fresh beef and its products in the world, with Uruguay topping the list with about 59kg per annum. This was specifically due to the position of the area as the most surplus in terms of beef production globally. Specifically, Argentina which ranked second with a value of per capita of 46kg per annum of fresh beef consumption had more preference for grilled beef despite the strict austerity measures embarked upon by its government. Magalhaes *et al.* (2022) reported that Brazil as the third consuming country with per capita of 31kg of consumption rate per year in 2020 was strikingly the highest producer of beef with about 9.5 million tonnes and an export of 2.5 million tonnes, accounting for about 20-25% of world's beef export. Further to this, Brazil has been known to be supplying beef to the European countries, the Middle-East and the global south. The upsurge in the consumption rate has been associated with the increased in urbanization, creation of jobs and the rise in expenditure on the outside home food services in these stated countries.

Preferentially, although the per capita beef consumption is reported to be 27kg per annum in the United States, fresh beef is not the major animal source of protein consumed. Instead, chicken and pork with per capita of 58kg and 38kg, respectively, were in the lead (FAO, 2023). However, there was a noticeable sharp increase in the consumption of fresh beef among the age group of 2-18 years and just a slight rise between 19-59 years, but a decline among the age group of 60 years and above. Gender-wise, Lau *et al.* (2018) documented that males consumed 60.8g of fresh beef per day and their female counterpart's intake was 31g accordingly. In the US, the fresh lean cut or steak beef, ground beef and the processed form of beef are the three most consumed beef. In contrast, the ESPR (2022) reported that the per capita beef consumption had dropped by 0.9% in Europe, making the recent annual per capita consumption at 10.3kg. In spite of the 6.8 million tonnage of beef produced by the European farmers, the trend in the intake has been on the decline. This is mainly due to the multifaceted factors which seem to hamper the level of beef consumption, leaving behind a huge gap between domestic consumption and production that needs to be bridged by imported beef.

Additionally, the ESPR (2022) maintained that the exorbitant price of beef played a great role in influencing the Europe's consumption of the commodity, owing to the ethical concern placed over the ban of hormone-treated fresh beef from the US and other nations. In the recent years, the EU granted some market access to hormone-free beef from the US and other suppliers in form of quota, allocating 35,000tonnes of fresh beef to be imported to the EU market as a measure to stabilise its beef sector. Magalhaes *et al.* (2022) provided a more robust reason for the EU's preference for fresh beef over other meats, with varieties of cuts or pieces and series of beef products as the major course for the choices. Moreover, consumers' appeal tends to be more tilted towards the colour and appearance, the level of fat contents, traceability of the products and the price of beef, among others.

Given the perspective of the Africa continent in terms of consumption and preference of fresh beef, the FAO (2023) reported that there has been a drastic short fall in its per capita consumption for the past decade. The continent had consumed 6.2kg of beef as per capita in 2012 which later dropped to 5.2kg in the year 2021. However, it's projected that the continent would experience an increase to a figure of 9.8kg per capita per annum from 2022 to 2030. In line with this development, the livestock sector in Africa is commonly responding to the volatile growing demand for beef products. Erdaw (2023) affirmed that West Africa is an outstanding zone for

livestock rearing with nearly 160 million cattle. But there has not been commensurate parity between the production and consumption of the beef.

In the Nigeria's context, several studies (Nse-Nelson, 2017; Akerele *et al.*, 2018; Odoemena *et al.*, 2020; Arowolo *et al.*, 2021) had shown that beef has been the most popularly consumed meat across different ethnic groups, culture and tradition, with little or no religious barrier. But the preference and rate of intake differ among these groups. This is evidenced by Yakubu *et al.* (2013) who attested that the common beef products consumed in the country have been the stewed form with 44.0%, fried beef (31.1%), steak or roasted beef accounting for 14.4% and kilshi or sun-dried and spiced beef with 5.6%. This was more pronounced in Arowolo *et al.* (2021)'s report which affirmed that 76.5% of the households in Nigeria consumed fresh beef and spend at least N750.0 only on beef monthly. Although the daily intake as recommended by the FAO is 200g of animal sourced protein per day, an average Nigerian consumes less than the recommended quantum per day. Specifically, Akerele *et al.* (2018) documented that the daily protein per capita in the country had been within 65g-85g with the least (35g) which came from the beef sources. This showed that the consumption of animal related protein in Nigeria has been scanty, owing to the soaring prices of beef products, low disposable income of the citizenry, and the increased rate of inflation which is slightly over 35.0%.

According to NBS (2019), Nigeria which features as a developing economy spent more on food items than any other goods. Evidencing from the organization's survey of 2018-2019, consumers expended a total of N22.7 trillion, and of this sum, about 56.6% was accounted for by food items. And particularly, meat constituted 2.9% of the food items expended. The observed trend was particularly associated with the dwindling economic situation in the country which has been perpetrated by poor policy formulation of those at the helms of affairs of the government. The need for fresh beef in the diet of the population of any country cannot be over-stressed. Given this scenario, the provision of beef and its products to a nation's citizenry would demand for appropriate information on both the rural and urban population. It's on this account that this study, attempted to document the consumers' preference and pattern of fresh beef consumption in Jalingo Emirate communities with the intent of providing the needed information for appropriate policymaking towards improving the nutritional aspect of the citizenry.

METHOD

The area of study, namely the Jalingo rural communities, is situated in Taraba State, Nigeria. The capital city of the State is situated in the study area. It is located in North-Eastern part of Nigeria, nestled between Latitude $8^{\circ} 54'$ to $37^{\circ} 21'$; and Longitude $11^{\circ} 22'$ to $11^{\circ} 30'$ East of the Equator. The area is one of the 16 Local Government Areas (LGAs) in Taraba State with estimated population of 581,000 and covering landmass of about 204,073 km². The entire area has an altitude of 351 meters above sea level (Bakoji *et al.*, 2020). However, it shares border with Bali LGA to the East, Wukari LGA to the South, Gassol LGA to the West and Sardauna LGA to the North. Further, guinea Savanna transverse through the area, however, it has short grasses with tall trees and shrubs. The annual rainfall received ranges between 217mm and 958mm, with temperature of between 21°C and 27.9°C.

The area under consideration is characterised by rolling hills and plateaus with parts of flat plains. River Mayo-Gwoi and Lamurde navigates through the area right away from Yorro and passes its main tributary into river Benue around Lau axis (Garboa *et al.*, 2016). The main economic activities practiced in the region are agriculture and trade. The area is well known for its fertile soil and diverse landscape with agricultural potential. Further, crops like yam, maize, cassava, rice and groundnut are predominantly cultivated. Rearing of livestock such as cattle, goat and sheep are endemic in the region. The strategic location of the study area makes it attractive to

migrants, marketers and farmers as well, paving way for agricultural production and imminent revenue, respectively.

The sampling method and data collection were made through purposive and random sampling type on one hand, and the application of structured questionnaire, respectively. The Jalingo communities are composed of 10 wards namely Kachalla Sembe, Kona, Yelwa, Turaki-A, Turaki-B, Majidadi, Sintali-A, Sintali-B, Sarkin Dawaki and Mayo-Gwoi. Of these 10 wards, five wards were purposely selected due to the enormous population in the areas and relevance in terms of fresh beef and related products consumption. An equal number of 62 respondents as households were randomly selected from each ward, making a total of 310. Although 310 well-structured questionnaire were applied across all the respondents, 300 households as consumers of fresh beef products were retrieved successfully. The data were collected through interview session and group discussion in some instances by trained enumerators and keenly supervised by the researchers. The collection of data lasted for a period of four weeks in which primary data were mainly retrieved from the respondents.

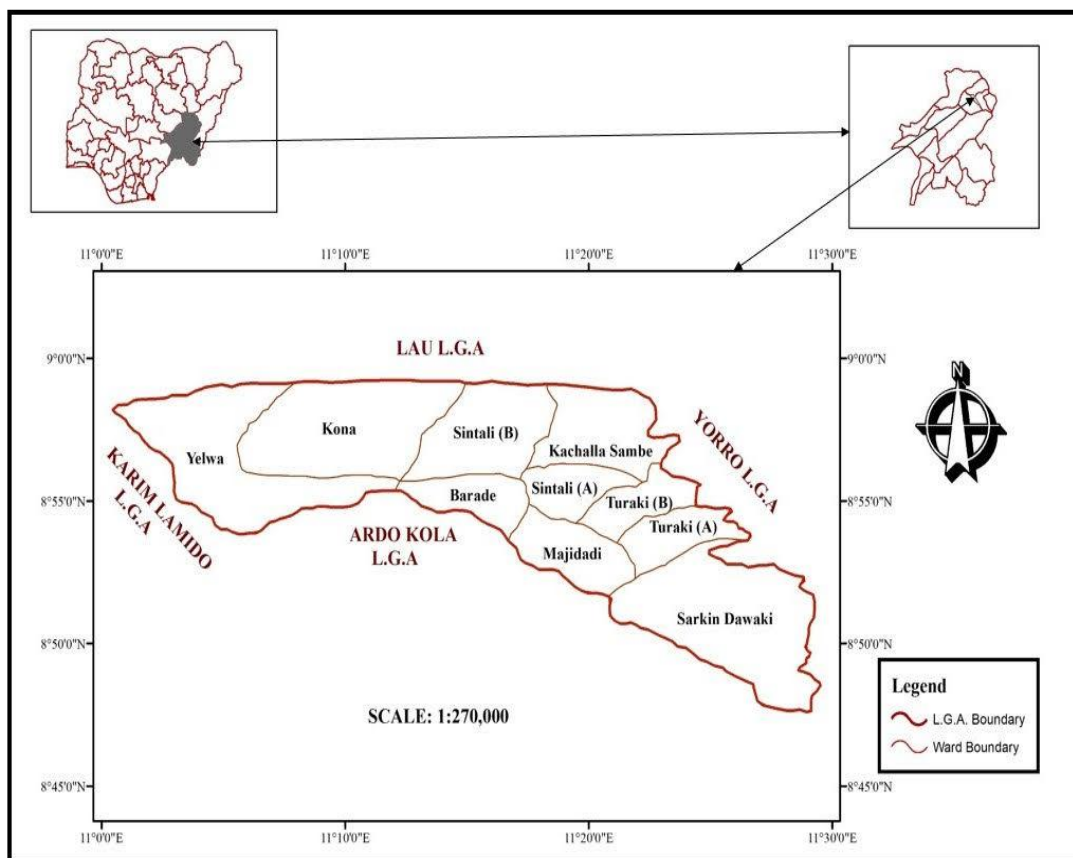


Figure 1: Map of the Study Area Showing the 10 Wards/Communities Surveyed

The use of both inferential and descriptive statistics was made in the analysis of data. The aspects of socio-economic demography, pattern, preference and challenges associated with fresh beef and its products consumption were achieved through the application of descriptive statistics. The consumers' perception on the fresh beef consumption was realized by the use of a 3-count Likert scale. Additionally, multiple regression analysis was made in achieving the aspect of socio-economic attributes influencing the consumption fresh beef and its products. The implicit form is expressed as:

$$Y = f(\text{AGE; GEN; MS; EL; HHS; MES; MI; TS; FQ; PC; BP; } e)$$

and the above is explicitly expressed as;

$$\text{QBC} = \beta_0 + \beta_1\text{AGE} + \beta_2\text{GEN} + \beta_3\text{MS} + \beta_4\text{EL} + \beta_5\text{HHS} + \beta_6\text{MES} + \beta_7\text{MI} + \beta_8\text{TS} + \beta_9\text{FQ} \\ + \beta_{10}\text{PC} + \beta_{11}\text{BP} + e$$

Where:

QBC = Quantity of beef consumed in a month (kg);

β_0 = Constant;

β_1 - β_{11} = Coefficient of explanatory variables;

AGE = Age of beef consumers (yrs);

GEN = Gender (1 = male; 0 = otherwise);

MS = Marital status (1 = married; 0 = otherwise);

EL = Education Level (yrs);

HHS = Household size (number);

MES = Monthly expenditure on substitute of beef (naira);

MI = Monthly income (naira);

TS = Taste (1 = yes; 0 = otherwise);

FQ = Frequency of beef consumption (days);

PC = Place of consumption (1 = at home; 0 = otherwise);

BP = Beef price (naira); and

e = error term.

RESULT AND DISCUSSION

Socio-Economic Characteristics of the Fresh Beef Consumers in the Area

In the context of community development and more especially the improvement of the livelihoods of the rural consumers and farmers that constitute the major chunk of the population, knowing the demography and the composition of these dwellers become imperative. This measure would facilitate the understanding of the policymakers towards provision of appropriate intervention in modifying the condition of living of the populace. Earlier studies by Audu *et al.* (2020) and Abubakar & Ja'afar-Furo (2024) had extensively discussed the significance of understanding the socio-economics variables of both the rural and urban dwellers in policymaking. These socio-economic variables of the respondents studied in this survey are shown in Table 1.

The distribution of the fresh beef consumers according to Age, Gender, Marital-status, Household-size, and Level of Education in the study area

As indicated in the plead of the segment of this research, five socio-economic variables of the fresh beef consumers are presented in Table 1. These are the age of the respondents, their gender, marital-status, number in the households and the educational attainment of the beef consumers engaged in the survey. These variables were discussed under their frequency and percentage for the purpose of clarity.

Going by the findings in Table 1, majority of the fresh beef consumers were within the age group of less than 30 years old. Those that fell within the middle age class (31-50years) were 25.67% accounting for the population that trailed as second position. However, the aged persons that consumed fresh beef and its related products in the communities surveyed were in the minority with only 4.33%. Pooling from the results

above, it could be conveniently stated that the larger chunk of the population of consumers of beef in the study area were mainly youths (20-50 years). This finding could be associated with the several ill-health conditions observed in elderly persons that consume red meat, and also the resultant dwindling economic situation experienced in Nigeria, where even those that are still on the government payroll find it absolutely difficult to meet-up with their basic demands. This particular result is in consonance with the findings of Abubakar *et al.* (2024) who assessed the socio-economic determinants of consumers of fresh beef in the country.

Table 1. Distribution of the Fresh Beef Consumers Based on Age, Gender, Marital Status, Household Size and Level of Education in the Area (n:300)

S/no.	Variable	Frequency	Percentage (%)
1.	Age (yrs.):		
	Less than 30	210	70.00
	31 – 40	44	14.67
	41 – 50	33	11.00
	51 & above	13	4.33
	Total	300	100.00
2.	Gender:		
	Male	200	66.70
	Female	100	33.30
	Total	300	100.00
3.	Marital Status:		
	Married	125	41.67
	Single	164	56.67
	Divorcee	6	2.00
	Widower	5	1.67
	Total	300	100.00
4.	Household Size:		
	Less than 10	246	82.00
	11 – 20	44	14.67
	21 & above	21	7.00
	Total	300	100.00
5.	Education level:		
	Non-formal	24	8.00
	Primary	33	11.00
	secondary	147	49.00
	Tertiary	96	32.00
	Total	300	100.00

Source: Computed from field data, 2024

The gender of the consumers of fresh beef is also captured in table 1. Almost two third of the respondents surveyed in the communities of Jalingo were males, with the female counterparts accounting for the one-third. This might not be unconnected with the fact that most of the household-heads who provide or buy the family needs were employed, and therefore, were those that go shopping. In a similar fashion, Vougat *et al.* (2017) in Maroua area in the Republic of Cameroon reported a larger proportion of the population of the beef consumers were mostly married male persons. However, it was at variance with the findings of this research in which 56.67% of the respondents were unmarried. While about 41.67% of the consumers of fresh beef consumers were married, an absolute negligible proportion (divorcees: 0.06%; widowers: 0.05%) of the respondents were either divorcees or widowers.

The size of the households of the fresh beef and its products consumers are also reflected in the Table 1. It could be seen that majority of the households of the

consumers in the study area were compositions of between 1 and 10 persons, indicating that their families were fairly large. Those consumers with very large number of members of families in households accounted for just only 14.67%, while only 7.00% of the respondents were composed of families of 21 and above persons. Akerele *et al.* (2015) also reported a value of 57.5% for fresh beef consumers' households with persons between 1 and 10 per family. Other surveys that gave similar findings were that of Adesope *et al.* (2021) and Uloh *et al.* (2022) which were both products of studies conducted in the Southern and Eastern parts of the country, respectively.

The level of education of any community plays a great role in influencing the behaviour of the people of that area in terms of understanding the policies of the government for advancement of the entire society and modification of their development pattern. Dimas & Ja'afar-Furo (2024) and Abubakar & Ja'afar-Furo, (2024) expressed similar findings with regards to the importance of socio-economic characteristics of beef consumer and rice farmers, and particularly their level of education in some selected communities in the State. In this research, the finding on this variable is also shown in the table 1. It could be observed that the larger proportion of the fresh beef consumers attended secondary education, while those who attended tertiary education trailed as the second position. However, beef consumers with primary school education were the third group in ranking. Further, respondents with non-formal education were in the minority. In line with this finding, it could be stated that majority (92.00%) of the fresh beef consumers in the area have had a slight or deep stint with the western education. In other words, most of the respondents were composed of persons that were moderately enlightened across the strata of the communities involved. Several other studies (Akerele *et al.*, 2018; Adesope *et al.*, 2021; Arowolo *et al.*, 2021; Magalhaes *et al.*, 2022) reported similar findings on the variable of this study. By implication, those that were found educated were those that were employed and invariably consumed fresh beef more.

The occupation and monthly income of the fresh beef consumers in Jalingo Emirate Communities, Nigeria

Table 2 shows two major important socio-economic variables of the fresh beef consumers in the Jalingo communities in Nigeria. These were the occupation and the monthly income of the consumers. From the findings of this survey, a larger proportion of the respondents were found to be petty traders, while other categories which constituted artisan like welders, bricklayers, volcanisers etc. formed the second percentage (25.00%). Fresh beef consumers that were civil servants and farmers accounted for 17.70% and 22.70%, respectively.

Table 2. Distribution of Fresh Beef Consumers According to Occupation and Monthly Income in Jalingo Communities, Nigeria (n: 300)

S/no.	Variable	Frequency	Percentage (%)
1.	Occupation:		
	Farmers	68	22.70
	Civil servants	53	17.70
	Traders	104	34.70
	Others	75	25.00
	Total	300	100.00
2.	Monthly Income:		
	< ₦20, 000	86	28.70
	₦21, 000- ₦70, 000	165	55.00
	₦71, 000 & above	49	16.30
	Total	300	100.00

Source: Computed from the field data, 2024

Also, in terms of monthly income generation of the respondents, majority (55.00%) of them fell within the income group of ₦21, 000- ₦70, 000, with only few of the fresh beef consumers earning less than ₦20, 000. However, a very negligible portion (16.30%) of the consumers earned ₦70, 000 and above. Udomkun *et al.* (2018) who undertook a survey in the Democratic Republic of Congo (DRC) reported that higher income group and business owners or traders were the majority in the consumption of meat in the area. The implication of the findings in this research is that majority of the consumers of fresh beef and its products in the consuming area were mainly enlightened persons who were mostly self-employed. In this dispensation, even the civil servants have been seen to be relegated to the lower ladder of consumers of fresh beef due to the meagre salary earning capacity across the country.

The monthly expenditure on beef and its products and quantum consumed in the Jalingo Emirate Communities, Nigeria

The findings in Table 3 revealed three main important variables of the fresh beef consumers. These were the types of products consumed by the respondents, the monthly expenditure on the beef and its products, and the quantum of the products consumed. Slightly over 95.00% of the respondents studied consumed both the fresh beef and its products. In other word, an overwhelming majority of the consumers in the study area liked both the beef in its fresh form and the resultant products. However, only a negligible minority (4.33%) of the respondents eat the products alone. Also, the monthly expenditure on the commodity is captured in this Table (3). About four categories of purchasing groups are presented, with the majority of the consumers spending a sum less than ₦10,000 only. The result showed clear indication of the reality that most of the people in the Jalingo communities or emirate hardly consumed beef. Monthly expenditure on beef ranging from ₦11,000 - ₦30,000; ₦31,000 - ₦60,000 and ₦61,000 and above accounted for 14.67%, 7.33% and 0.67%, respectively. Similarly, in terms of quantity consumed, the majority of the respondents fell within the quantity of less than 2.00kg in a month. Those consumers that consumed 2.10kg-5.00kg were few, while only 8.00% of the respondents purchased 5.10kg and above fresh beef in their houses in the study area. This finding aligned with that of Adesope *et al.* (2021) who conducted a comparative survey on beef and Chevron consumption in the western part of the country.

Table 3. Consumption, Monthly Expenditure and Quantity of Beef Consumed in the Study (n: 300)

S/no.	Variable	Frequency	Percentage (%)
1.	Consumption of Fresh Beef		
	Yes, with products	287	95.67
	No, only beef products	13	4.33
	Total	300	100.00
2.	Monthly Expenditure		
	Less than ₦10,000	232	77.33
	₦11,000 - ₦30,000	44	14.67
	₦31,000 – ₦60,000	22	7.33
	₦61,000 & above	2	0.67
Total	300	100.00	
3.	Qty. of Beef Consumed		
	Less than 2.00kg	232	77.33
	2.10kg – 5.00kg	44	14.67
	5.10kg & above	24	8.00
	Total	300	100.00

Source: Computed from field data, 2024

The location or place for consumption of beef and its products in the study area

As the cost of consumption of fresh beef and its products is becoming increasingly expensive across various communities in the study area and beyond, this survey sought to obtain clarity on where best these consumptions take place. It could be observed from the table 4 that two variables used in the study were captured. The criteria adopted were the place of consumption of fresh beef, and whether the consumers associated the eating of the commodity to its taste or none. It was discovered that most of the beef consumers in the Jalingo Emirate communities surveyed consumed these products at home with their families, as it has been the usual tradition. However, those beef consumers who ate their purchased beef and its products away from home accounted for just 20.33% of the respondents. The action of this small proportion of the consumers might be linked to the present economic reality in the country in which inflation hit slightly over 30.00%, and couldn't accord head of families the opportunity to provide fresh beef for the entire members of their households thereby necessitating them to eat outside. The last category of fresh beef consumers in this research regarded as "others" were composed of individuals that incidentally provided with these products by either friends or relatives as gifts. And these situations could occur in meetings, festivities or even on trips. Also, reflected in the table 4 is the consumption of the fresh beef due to its taste. The overwhelming majority of the consumers responded in the affirmative with only a negligible (17.67%) percentage of the respondents answering in the null. The latter category of the fresh beef consumers was well-to-do personalities who probably consumed the product because of the nutritional and health benefits and not necessarily due to its palatability. This same set of consumers might also fell within the aged group of people whom are now retired and seriously watching their diets as a result of the expected health implications.

Table 4. Distribution of Consumers of Fresh Beef and Products According to Place of Consumption and Taste of Beef (n: 300)

S/no.	Criterion	Frequency	Percentage (%)
1.	Place of Consumption:		
	At home	222	74.00
	Away from home	61	20.33
	Others	17	5.67
	Total	300	100.00
2.	Taste of Beef:		
	Yes	247	82.33
	No	53	17.67
	Total	300	100.00

Source: Computed from field data, 2024

The rate of consumption of fresh beef and its products in the Jalingo Emirate Communities, Nigeria

The rate of consumption of fresh beef and its products in the study area is presented in table 5. Observing from the latter, it could be seen that a larger chunk of the respondents consumed beef and its products 1-3 times weekly, while those that ate the commodity and its related products 1-3 times fortnightly came second as a category of consumers in the Jalingo Emirate. The households that consumed beef and its products daily in the area trailed third in the hierarchy. These were the personally who were considered well-to-do with both the purchasing power and wherewithal to acquire beef and its products, and therefore, were those also found enlightened in terms of western education attainment in the society. Those respondents that consumed beef and its products 1-3 times monthly accounted for just 7.67%. Going by the analysis in the table 5, it could be said that there was slightly or

fairly distribution or evenly spread consumption pattern of beef and its products across the strata of the Jalingo Emirate communities in spite of the hard economic condition in the country. Similar finding was equally reported by Adesope *et al.* (2021) in the Southern part of Nigeria.

Table 5. Rate of Fresh Beef and its Products Consumption in the Jalingo Emirate Communities, Nigeria (n: 300).

S/no.	Rate of Consumption	Frequency	Percentage (%)
1.	Daily	75	25.00
2.	1-3 times weekly	120	40.00
3.	1-3 times fortnightly	82	27.33
4.	1-3 times monthly	23	7.67
	Total	300	100.00

Source: Computed from field data, 2024

Socio-economic determinants of beef and beef product consumption in Jalingo Emirate Communities, Nigeria

In an effort to determine the socio-economic factors that influence the rate and pattern of consumption of beef and its products in Jalingo Emirate communities, a regression result of the output and the independent variable were documented in table 6. In this result, a total number of 11 socio-economic variables of the fresh beef and its products consumers were regressed against the output. These variables were the age, gender, marital status, level of education and household size of the respondents. Other factors were monthly expenditure on beef and its products, monthly income of the consumers, taste, frequency of consumption, place of consumption and price of beef and its products.

Table 6. Regression Results Showing Socio-Economic Factors Influencing Consumption of Fresh Beef and its Products in the Area.

Variable	Coefficient	Std. Error	t-Value	Level of Sig.
Constant	-3.0209	0.1740	-17.359	0.0000 ^{***}
Age	-0.0772	0.1037	-0.7447	0.4570 ^{ns}
Gender	0.0408	0.0241	1.6912	0.0919 [*]
M/status	0.0037	0.0294	0.1286	0.8977 ^{ns}
E/level	-0.0255	0.0602	-0.4246	0.0050 ^{**}
HHsize	-0.0127	0.0416	-0.3064	0.0175 ^{**}
MEsub.	-0.1261	0.0336	-3.7512	0.0000 ^{***}
M/income	-0.0576	0.0350	-1.6029	0.0080 ^{**}
Taste	-0.0294	0.0310	-0.0241	0.3437 ^{ns}
F/consump.	0.0540	0.0374	1.4444	0.1049 [*]
P/consump.	0.0010	0.0259	0.0228	0.0198 ^{**}
P/beef	0.7614	0.0403	18.8716	0.0000 ^{***}
R ²	0.8415			
R ² Adj.	0.8352			
F-value	132.7824			0.0000 ^{***}

Note: ^{*}significant at p <0.01; ^{**}significant at p <0.05; ^{***}significant at p <0.001 and ns = not significant; M/status = Marital status; E/level = Education level; HHsize = Household size; MEsub = Monthly expenditure on substitute; M/income = Monthly income; F/consump. = Frequency of consumption; P/consump. = Place of consumption; and P/beef = Price of beef.

Source: Extracted from computer print-out IBM SPSS V.21, 2024

Of the listed factors, six were indicating negative coefficients, while the remaining five showed positive signs. In the former set of variables (6), a remarkable increase in the variation also experienced decrease in the output, in which case the beef and its

product consumption. In the second set of variables (5), any increase in the value of the coefficients would also indicate positive variation in the consumption of the beef and its products. Specifically, Age of the respondents (-0.0772), the level of their education (0.0255), their household size (-0.0127), their Monthly expenditure on substitutes (-0.1261), monthly income of the consumers (-0.0576) and taste (-0.0294) were all negatively signed. Therefore, what this means is that, any 1.00% increase in the variation of these variables would lead to decrease in the consumption of beef and its products by the equal value against each variable. Similarly, in the aspect of gender of the consumers (0.0408), the consumers' marital status (0.0037), the frequency of consumption of beef (0.0540), the place of consumption of beef (0.0010) and price of the beef and its products (0.7614), any 1.00% increase in their variation would lead to the increase of beef and its products by an equal value against each variable. Going by the findings in the table 6, it could be seen that in any negative variation in the variables, the major determinants of consumption in descending order were the monthly expenditure on substitutes, age of the consumers and their monthly income. On the other hand, any exerted positive influence on the consumption of beef and its products were heavily influenced by the price of the beef, frequency of consumption and gender of the consumers in descending order. Vougat *et al.* (2016)'s earlier study partly showed the relevance of age of the consumers, monthly income and location as significant in the consumption of beef in Maroua in Northern Republic of Cameroon. Abubakar & Ja'afar-Furo (2024) documented similar findings in the rural communities of Adamawa State, Nigeria.

Challenges associated with the consumption of fresh beef and its products in the Jalingo Emirate Communities, Nigeria

Challenges are bound to occur in all human endeavours. These obstacles in life are usually appropriately figured and solutions adequately sought and provided. In this research, there were six direct most experienced constraints by the fresh beef and its products consumers in Jalingo Emirate communities in Nigeria. These obstacles include the cost of beef and related products which accounted for the majority of the respondents in the study area. This was followed by those consumers who reported that unhygienic preparation of the commodity as the main reason hindering its consumption. The perceived unwholesomeness of the beef and its products was the third most advanced reason as to the reduction in the eating the fresh beef. Other associated challenges faced by the fresh beef consumers were the appearance of the beef (43.33%), un-tenderness nature of the beef (26.67%) and taste of the beef. While Odumkun *et al.* (2018) emphasized on the cost of beef as one of the major obstacles in determining beef consumption in some rural location in Eastern DRC, Abubakar & Ja'afar-Furo (2024) mentioned the price of beef as the second most experienced challenges for beef consumers in the northern parts of the rural communities in Nigeria.

Table 7. Direct Challenges Associated with Consumption of Fresh Beef and its Products In Jalingo Emirate Communities, Nigeria (n: 300).

S/no.	Variable	Frequency	Percentage (%)	Ranking
1.	Cost of beef	257	85.67	1 st
2.	unhygienic preparation	143	47.67	2 nd
3.	Unwholesomeness	135	45.00	3 rd
4.	Appearance of beef	130	43.33	4 th
5.	Un-tenderness of beef	80	26.67	5 th
6.	Taste of beef	65	21.67	6 th

Note: *Multiple responses were observed

Source: Computed from data, 2024

CONCLUSION

Evidencing from the findings of this report, it's concluded that majority of the consumers of fresh beef and its products were young unmarried and slightly educated males that consumed less than two kilogram. Most of the beef consumers were petty traders who earned between ₦21,000 and ₦70,000 only. Most of the beef and its products consumed in the Emirate were done at homes at the rate of 1-3 times weekly. The main factors that influenced the consumption beef and its products in the area were the price of beef itself, frequency of consumption of the products, age of the consumer, monthly income of the consumer, monthly expenditure on the substitutes and gender of the consumers. The consumers mainly sighted the expensiveness of the beef and its products as the major challenge to its consumption. Other experienced obstacles to its consumption were unhygienic preparation and the exhibited unwholesomeness.

Based on the aforementioned issues, both the government and non-government institutions should work toward reducing the cost of production of cattle and related livestock so that the cost of beef and its products would be lowered. Similarly, more livestock extension officers or personnel should be properly trained in order to enlighten the livestock producers and beef marketers the hygienic processes of handling the commodity, and by extension improving the unwholesomeness. In essence, the modernization of marketing of the beef and its products should be upheld in the area. And lastly, the cattle growers and marketers should be offered or allowed access to soft-loans so as to easily expand production and reduce marketing costs. The implementation of the suggested measures is deemed appropriate in resolving the experienced challenges, thereby improving the consumption of beef and its products in the Jalingo Emirate and beyond.

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