



Assessment of Donkey Meat (*Equus asinus*) Consumption among Households in Delta North Senatorial District of Delta State, Nigeria

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Abstract

The donkey is a domestic animal commonly found around homes in Nigeria. Despite its nutritional benefits, household consumption of donkey meat in Nigeria remains low. This study was conducted to determine the household consumption of donkey meat (*Equus asinus*) in the Delta North Senatorial District, Delta State, Nigeria. Three objectives were established to guide the study and two hypotheses were raised and tested at 0.5 level of significant. A descriptive survey research design was employed. The population consisted of 1,695,200 households in the Delta North Senatorial District, and a sample size of 400 was obtained using a multistage sampling technique. The questionnaire titled Household Consumption of Donkey Meat Questionnaire (HCDMQ) was used as the data collection instrument. Findings revealed that the level of household consumption of donkey meat in Delta State was high. Barriers to consumption included cultural barriers, negative perceptions or beliefs, poor awareness, religious restrictions, high cost, and low food safety. Strategies suggested to improve donkey meat consumption in the district includes but not limited to providing discounts and sample tastings, utilizing social media and e-commerce platforms to reach wider consumers, educating households on the nutritional benefits of donkey meat, and improving its accessibility. Therefore, this study concludes that although households in the study area frequently consume donkey meat, barriers to its consumption still exist. It is recommended that public education and awareness campaigns be conducted to highlight the nutritional benefits of donkey meat.

Keywords: Household consumption, Donkey Meat, Food and Nutrition, Nutritional content.

Introduction

Household consumption refers to the use or purchase of goods and services by a family to meet their personal needs and desires (Yonas, 2024). In this context, the household consumption of donkey meat involves the regular or occasional intake of donkey meat by individuals within a household to satisfy their dietary needs. Donkeys, domesticated animals commonly found in Nigerian households, belong to the Equidae family and are closely related to horses and zebras. Donkey meat, derived from *Equus asinus*, is consumed in various parts of the world, including regions in Asia, Africa, parts of Europe, and Nigeria (Hassan et al., 2022). The consumption of donkey meat is influenced by factors such as geographic location, religious beliefs, cultural practices, economic conditions, and individual preferences. In some cases, it is prepared and eaten as part of traditional cuisine (Ogba, 2014). Donkey meat, often used as a substitute for beef or pork, is a type of red meat characterized by its higher myoglobin content. Myoglobin is a muscle protein responsible for storing and transporting oxygen to muscle cells, which contributes to the meat's reddish colour (Vanek & Kohli, 2025). Compared to beef and pork, donkey meat is leaner and contains significantly less fat. According to Ivanković et al. (2023), “donkey meat is low in fat, cholesterol, and has a favourable fatty acid profile. It is also rich in iron, crude protein, and essential minerals, these nutritional qualities have led the authors to recommend donkey meat for consumption due to its minimal levels of fat, cholesterol, and fatty acids” Furthermore, studies by Ivanković et al. (2023) and Hassan et al. (2022) reveal that 100 grams of donkey meat contains only 2.02 grams of fat considerably lower than the fat content found in beef (7.9 g/100 g), lamb (8.1 g/100 g), and pork (8.2 g/100 g). Its cholesterol content is also lower at 66.7 mg per 100 grams, compared to beef (73.1 mg), lamb (78.2 mg), and pork (73.2 mg). As a result, donkey meat stands out as a healthy and nutritionally appealing alternative to more commonly consumed red meats (Polidori et al., 2020). Despite its nutritional benefits, the consumption



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of donkey meat remains limited. For example, Ogba (2014) reported that in many areas of Ebonyi State, people reject donkey meat due to cultural perceptions seeing the animal primarily as a beast of burden used for transporting goods, carrying the deceased, and transporting the sick or disabled in Northern Nigeria. Additionally, Zhang et al. (2024) observed that several factors including breed, genetics, sex, age, muscle type, feeding practices, storage, and processing methods—significantly influence the nutritional quality of donkey meat, which subsequently affects its acceptance and consumption. While donkey meat is not as widely accepted as beef or chicken, it is still consumed by specific individuals and communities. Omonigho, (2018) observed that in Central and South Senatorial Districts of Delta State, it is commonly enjoyed in restaurants, often accompanied by chilled alcoholic beverages. In these areas, households frequently purchase it in its dried form, known as *tilk*. The sale of donkey meat, particularly when dried, is a profitable and thriving business in these regions. However, there is currently no available data on the level of donkey meat consumption in the Delta North Senatorial District, which has prompted this study. Several factors can influence the consumption of donkey meat. Predanócyová et al. (2023), in a study conducted in Slovakia, found that gender plays a role in the consumption of meat and meat products, with men generally consuming more meat than women. Similarly, a Swedish study by Jovanovic and Navickiene (2016) supported this finding. In the United States, Ritzel and Mann (2021) reported that women tend to be more concerned about the calorie content and healthiness of their meals, while men are more focused on taste and enjoyment. This trend is partly attributed to the perception that eating meat is masculine, whereas consuming fruits and vegetables is seen as more feminine (Velzeboer et al., 2024). Daniel and Tomiyama (2021) further observed that eating meat, including donkey meat, is often associated with masculinity, with some men viewing it as a way to affirm their manhood. Location is another key factor influencing donkey meat consumption. According to Hassan et al. (2013), access to donkey meat differs between rural and urban areas, with consumption being more common in rural regions. This is largely due to the greater availability of donkeys for slaughter and their widespread use as working animals in rural communities (Pogurschi et al., 2018). Exploring household consumption of donkey meat offers valuable insights into local dietary habits, cultural taboos, and food preferences factors that are crucial for developing culturally appropriate policies. As a potential alternative source of protein, donkey meat could play a role in enhancing nutritional security. However, the scarcity of academic research on donkey meat consumption in the study area makes it difficult to evaluate its dietary significance and its impact on the health of local populations. This study aims to address this gap by generating data that can inform future research and policy development. Consequently, the objective of this research is to determine the extent of household consumption of donkey meat in the Delta North Senatorial District of Delta State.

Research questions

1. What are the levels of household consumption of donkey meat in the Delta North Senatorial District?
2. What are the barriers to donkey meat consumption in the Delta North Senatorial District?
3. What are the strategies for improving the consumption of Donkey Meat in the Delta North Senatorial District?

Hypotheses

The following will be tested at 0.05 level of significance.

H₀₁: There are significant differences in the consumption of donkey meat between genders, with males consuming more than females.

H₀₂: The consumption of donkey meat varies significantly by geographic location, with rural households consuming more than urban households due to nutritional awareness availability.

Methodology

The study employed a descriptive survey research design. According to Nworgu (2015), survey research is used to systematically collect data and describe characteristics such as attitudes, activities, motivations, and opinions within a given population. The target population for this study consisted of 1,695,200 households in the Delta North Senatorial District of Delta State (Delta State Population Statistics, 2022). The sample size was determined using a multistage sampling technique. The first stage involved using Taro Yamane's formula to obtain the sample size of four hundred (400) respondents for the study. Where $n = \frac{N}{1 + N(e)^2}$. Sample size $N =$ Population size (i.e., 1,695,200) $e =$ Sampling error estimation (i.e., 5%) $1 =$ Constant value. This calculation yielded a sample size of 390 households. The second stage involved the simple random selection of two local government areas (Ika South and Ika North East) to represent the Delta North Senatorial District. In the final stage, the sample size was evenly distributed among the two selected local government



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areas, resulting in 200 respondents from each area. The sample size consists of 400 respondents. The researcher developed an instrument called the Household Consumption of Donkey Meat Questionnaire (HCDMQ). The HCDMQ has a total of thirty-one items. The questionnaire was segmented into four sections. Section A obtained data about the respondents' gender and area of residence. Section B contained 11 items that elicited data on the level of consumption of donkey meat. Section C, comprising 11 items, obtained information on the barriers to donkey meat consumption. The 9-item section C elicited data on the strategies for improving the consumption of donkey meat in households. Responses were on a 4-point scale of strongly agree (SA=4), agree (A=3), disagree (D=2), and strongly disagree (SD=1). The reliability of the instrument was assessed using a sample of 20 respondents drawn from the study population. Cronbach's Alpha was employed to determine the internal consistency of the instrument, yielding a coefficient value of 0.72. Based on this result, the instrument was considered reliable. All procedures in the study adhered to ethical guidelines for research involving human participants, ensuring respect for individuals, confidentiality, and participant safety. Oral informed consent was voluntarily obtained from each participant prior to their involvement in the study. The researcher, assisted by four trained research assistants, administered the questionnaire directly to the respondents. The questionnaires were completed and collected on the spot, resulting in a 100% response rate. The data collected were analysed using the Statistical Package for Social Sciences (SPSS), version 23. Descriptive statistics such as mean and standard deviation were used to summarize the data. Items with a mean score of 2.50 or higher were interpreted as "Agreed," while items with a mean score below 2.50 were considered "Disagreed." Inferential statistics, specifically the independent samples t-test, were used to test the stated hypotheses at the 0.05 level of significance. A hypothesis was rejected if the p-value was less than the critical value (0.05); otherwise, it was retained.

Presentation of Results

- Research Question One:** What are the levels of household consumption of donkey meat in the Delta North Senatorial District?

Table 1: Levels of household consumption of donkey meat

Levels	Mean	Standard Deviation	Decision
I eat donkey meat out of curiosity or experiment	2.07	1.042	Disagree
I purchase donkey meat for household consumption	3.43	.774	Agree
I eat donkey meat due to its taste or flavor	3.36	.720	Agree
I consume donkey meat when I visit rural areas	3.36	1.107	Agree
I deliberately look for a place that sells donkey meat	3.04	.820	Agree
I consume donkey meat because it is tender	3.51	1.30	Agree
I eat donkey meat based on its health or nutritional benefits	3.27	1.33	Agree
I prefer donkey meat over other red meats	3.36	.820	Agree
I consume donkey meat once a week or more	3.10	.980	Agree
I consume donkey meat as part of my regular diet	3.18	.888	Agree
I eat donkey meat at restaurants or eateries	2.72	.995	Agree

Table 1 shows the level of donkey meat consumption of households in Delta North Senatorial District, Delta State. Out of the 11 mentioned items, 10 were greater than the cut-off points of 2.50 on a 4-point rating scale. I consume donkey meat because it is tender (3.36), I eat donkey meat due to its taste or flavor (3.36), I purchase donkey meat for household consumption (3.43), and I consume donkey meat as part of my regular diet (3.18). The respondents showed a low extent of eating donkey meat out of curiosity (2.07), below the benchmark of 2.50 on a 4-point scale. This implies that the level of household consumption is high due to its taste, flavour, tenderness, nutritional value, preference over red meat, sold in the eateries as regular meat.

- Research Question Two:** What are the barriers to donkey meat consumption in the Delta North Senatorial District?

Table 2: Barriers to donkey meat consumption

Barriers	Mean	Standard Deviation	Decision
Some cultures consider donkey meat unclean and forbid eating it	2.83	1.16	Agree
Negative belief about donkey meat	2.93	1.06	Agree



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Poor awareness about the nutritional benefits of donkey meat	2.68	1.14	Agree
Donkeys are used to carry dead people	2.96	.96	Agree
Some religion forbids eating donkey meat	2.92	1.26	Agree
Donkey meat is not as tasty as other red meats	2.51	1.30	Agree
Donkey meat is not readily available in local markets	2.27	1.13	Disagree
High cost of donkey meat	2.91	1.21	Agree
The perception that a donkey is a burden beast	3.08	1.12	Agree
Consumers of donkey meat are seen as outcasts	2.45	1.10	Disagree
Low food safety standards during the processing of donkey meat	2.53	1.27	Agree

Table 2 revealed the mean and standard deviation responses of the respondents on barriers to donkey meat consumption. Out of the 11 mentioned items, 9 were greater than the cut-off points of 2.50 on a 4-point rating scale. This includes the perception that a donkey is a burden beast (3.08), donkeys are used to carry dead people (2.96), negative beliefs about donkey meat (2.93), some religion forbids eating donkey meat (2.92), the high cost of donkey meat (2.91), among others. Donkey meat not being readily available in local markets, with a mean of 2.27, and consumers being seen as outcasts (2.45) were not considered barriers to the consumption of donkey meat by the respondents. This implies that barriers like culture, negative perception or beliefs, poor awareness, religion, high cost, and low food safety hamper the consumption of donkey meat in the Delta North Senatorial District.

3. **Research Question Three:** What are the strategies for improving the consumption of Donkey Meat in the Delta North Senatorial District

Table 3: Strategies for improving the consumption of Donkey

Strategies	Mean	Standard Deviation	Decision
Promotion of donkey meat in culturally acceptable areas	2.31	1.10	Disagree
Donkey meat should be made affordable	2.40	1.08	Disagree
Households should be educated on the nutritional benefits of donkey meat	2.57	1.23	Agree
Use of social media and e-commerce platforms to create awareness about donkeys	2.75	1.09	Agree
Explore new marketing channels to reach more consumers	2.73	1.21	Agree
Improve transportation networks to make donkey meat more accessible to consumers	2.50	1.26	Agree
Promoting donkey meat in local cuisine	2.72	1.20	Agree
Improve slaughtering and processing facilities to ensure meat quality and safety	2.62	1.27	Agree
The use of discounts and sample tastings to improve interest	3.00	1.09	Agree

Table 3 revealed the mean and standard deviation responses of the respondents on strategies for improving the consumption of donkey meat. Out of the 9 mentioned items, 7 had a mean ranging from 2.50 to 3.00, which were greater than the cut-off points of 2.50 on a 4-point rating scale, with a standard deviation ranging from 1.08 to 1.27. Some of these strategies include providing discounts and sample tastings (3.00), utilizing social media and e-commerce platforms to reach wider consumers (2.75), educating households on the nutritional benefits of donkey meat (2.75), and promoting donkey meat in local cuisine (2.72). Promotion of donkey meat in areas where they are culturally acceptable (2.31) and making donkey meat affordable (2.40) were not seen as strategies for improving the consumption of donkey meat by the respondents.

H_{01} : There are significant differences in the consumption of donkey meat between genders, with males consuming more than females.

Table 5: T-test analysis of the difference in the consumption of donkey meat based on gender

Gender	N	Mean (\bar{x})	SD	Df	t-cal.	P-value	Decision
Male	188	59.85	9.372	398	2.709	.007	Rejected
Female	212	57.51	7.702				



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Table 5 presents a t-value of 2.709 and a p-value of 0.007 for the difference in donkey meat consumption based on gender. At an alpha level of 0.05, the p-value is less than the significance level, indicating a statistically significant difference. Therefore, the null hypothesis which stated that there is no significant difference in donkey meat consumption based on gender is rejected. This implies that males and females do not consume donkey meat equally. With a mean difference of 2.35, the results suggest that males consume donkey meat more than females. This disparity may be attributed to gender roles and cultural expectations. Men are often more likely to consume certain types of meat, including donkey meat, due to traditional associations with strength, hunting, or specific food preferences. In contrast, women may adhere to different dietary habits, customs, or restrictions.

H₀₂: The consumption of donkey meat varies significantly by geographic location, with rural households consuming more than urban households due to nutritional awareness availability.

Table 6: T-test analysis of the consumption of donkey meat based on geographical location

Location	N	Mean (\bar{x})	SD	Df	t-value	P-value	Decision
Rural	184	57.63	8.185	398	-2.126	.034	8.866
Urban	216	59.44					

Table 6 shows a t-value of -2.126 and a p-value of 0.035. At an alpha level of 0.05, the p-value is less than the significance level, indicating a statistically significant difference. Therefore, the null hypothesis that there is no significant difference in donkey meat consumption based on location is rejected. This suggests that rural and urban residents in the Delta North Senatorial District consume donkey meat at different rates. With a mean difference of 1.81, the results indicate that urban consumers consume donkey meat more than rural residents. This difference may be due to varying cultural attitudes toward donkey meat in urban areas, which could be influenced by globalization, media exposure, and cultural exchange. In contrast, rural communities may adhere more closely to traditional dietary practices, resulting in lower consumption.

Discussion of findings

The study investigated household consumption of donkey meat (*Equus asinus*) in the Delta North Senatorial District. Conducting research on this topic is justified for several reasons. It provides insight into local consumption patterns, cultural beliefs, economic factors, public health concerns, and conservation issues. Such information is essential for policymakers, public health officials, livestock managers, and local communities alike. The findings revealed that respondents generally agreed that the level of household consumption of donkey meat in the Delta North Senatorial District was high. This highlights the importance of donkey meat in local dietary practices and suggests potential economic, health, and regulatory implications. Authorities and stakeholders should consider these findings when making decisions related to food safety, nutrition policies, and cultural sensitivities. This finding is in line with Li et al. (2017) who confirmed that donkey meat is regarded as a traditional delicacy and is widely consumed in China, Italy, and certain regions of Africa. In China, donkey meat is especially popular in specific culinary dishes and is valued both for its nutritional benefits and cultural significance. This finding aligns with Ogba (2014), who noted that many people in both rural and urban areas of Ebonyi State accept and consume donkey meat. It also supports the observations of Polidori et al. (2020), who described donkey meat as a healthy and nutritionally valuable alternative to other common types of red meat. Further findings revealed that several barriers limit the consumption of donkey meat in the Delta North Senatorial District. These include cultural restrictions, negative consumer perceptions and beliefs, lack of awareness, religious prohibitions, high cost, and concerns about food safety. These barriers present significant challenges that must be addressed to encourage greater acceptance and regular consumption of donkey meat in the area. This finding is in line with Ogba's (2014) assertion that culture, religion, taste, colour, availability, and cost are major reasons why donkey meat is rejected in many parts of Ebonyi State. He attributes the barriers and low consumption of donkey meat to the role's donkeys perform in Northern Nigeria, such as transporting goods, carrying the dead, and assisting the sick and disabled. Donkeys are often viewed as burden animals with little or no nutritional value. This finding contrasts with Zhang et al. (2024), who identified factors affecting the quality and nutritional value of donkey meat to include breed, genetics, gender, age, muscle type, feeding regimen, storage, and processing conditions. The study also identified strategies to enhance donkey meat consumption in the Delta North Senatorial District. These strategies include offering discounts and sample tastings, leveraging social media and e-commerce platforms to reach a broader audience, educating households about the nutritional benefits of donkey meat,



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exploring new marketing channels, improving meat accessibility, conducting public awareness campaigns, enhancing the safety of slaughtering and processing facilities, and promoting donkey meat in local cuisine. These findings suggest that adopting modern marketing approaches such as discounts, tastings, and digital platforms can effectively raise awareness and boost consumption of donkey meat in the district. These methods will help attract new customers, make donkey meat easier to get, and reach more people especially younger or tech-savvy consumers. By using these strategies, demand for donkey meat could increase, support local farmers, and help the donkey meat industry grow in the community. This agrees with Ogba (2014), who said that educating people can improve the acceptance and use of donkey meat. The findings also showed a clear difference between men and women in donkey meat consumption, with men eating it more than women. This suggests that cultural, social, or belief-related barriers might limit women from eating donkey meat. To encourage equal consumption, there should be education and awareness programs to address any misunderstandings or cultural rules that stop women from eating donkey meat. Marketing could also be designed to appeal more to women, creating new opportunities and helping the industry grow in a more inclusive way. This finding supports Jovanovic and Navickiene (2016), who found that men eat more meat than women. They also noted that women pay more attention to health and calories, while men care more about the taste and enjoyment of food. Similarly, Velzeboer et al. (2024) observed that women eat more fruits and vegetables than men, and they suggested that eating meat is seen as masculine, while eating fruits and vegetables is viewed as feminine. Daniel and Tomiyama (2021) also found that men tend to eat more meat and are less likely to become vegetarian compared to women. Predanócyová et al. (2023) agreed, showing that men generally consume more meat and meat products than women. This may be because meat, being high in protein and energy, is linked to ideas of strength and power. Ritzel and Mann (2021) also supported these findings by concluding that men eat more meat than women. The findings show that there is a significant difference in donkey meat consumption based on location. Urban consumers eat more donkey meat than those in rural areas. This higher consumption in cities may be because urban people have better access to donkey meat through markets and restaurants, higher incomes, or different cultural attitudes. This suggests that marketing and sales efforts should first focus on urban areas, while efforts to raise awareness and improve access in rural areas could also help increase consumption there. This finding aligns with Betru and Kawashima (2009), who discovered that urbanization and higher income levels are associated with increased meat consumption in Ethiopia. The findings also support Aganga et al. (2003), who reported that men and women differ significantly in their views on donkey meat's consumption, tenderness, and firmness. However, these results contrast with Pogurschi et al. (2018), who said donkey meat is more commonly eaten in rural areas because donkeys are more available for slaughter there.

Conclusion

The major conclusion reached from the findings is that household consumption of donkey meat in the Delta North Senatorial District is high because of its taste, flavour, and nutritional benefits. However, barriers like cultural beliefs, negative opinions, lack of awareness, religious restrictions, high cost, and concerns about food safety limit its consumption. To increase consumption, social media and online platforms can be used to reach more people. Educating households about the health benefits of donkey meat, running public awareness campaigns, and promoting it in local dishes are also important. The study found that donkey meat consumption varies by gender and location, with more men than women eating it.

Recommendations

Based on the findings of the research, the following recommendations were made.

1. The government and key groups should strengthen rules for the donkey meat supply chain, promote public health education about safe ways to eat donkey meat, and support sustainable donkey farming.
2. Government agencies, NGOs, and community leaders should run awareness and education programs, enforce food safety rules, help lower the cost of donkey meat production, and encourage respectful conversations about cultural and religious beliefs. These actions will build trust and clear up misunderstandings while respecting different cultures and religions.
3. Stakeholders should create promotional campaigns, use digital platforms for marketing and sales, provide nutrition education, find new ways to sell donkey meat, and improve how easy and safe it is to get. Adding donkey meat to local recipes and increasing public awareness will also help boost acceptance and demand.



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4. Awareness and nutrition education programs should focus on the concerns and views of women. Encouraging women to take part in the donkey meat business, creating recipes that appeal to them, and addressing cultural or religious beliefs can help close the consumption gap and increase acceptance in households.

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