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**Original Research Article**

# Sex-Specific Anthropometric Profile and Nutritional Habits among Adults in Ogbia and Oloibiri, Bayelsa State, Nigeria

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**Abstract:** ***Aim/Objective*:** This study focused on the anthropometric profile of adult residents in Ogbia and Oloibiri communities in Bayelsa state. ***Methods*:** A descriptive study design with structured questionnaire, weight scale, and calibrated meter rule for height was adopted to select all 298 respondents who voluntarily agreed to participate in this study to obtain their anthropometric profile. ***Results*:** The results obtained from this study shows higher females (62.42%) against males (37.58%) among the study population having at least two square meals (40.27%) and three (32.21%) compare to smaller number (27.52%) consuming one square meal daily. To improve their weight profile the participants included vegetables and fruits in their diet weekly and consume above two liters of water daily. The combined anthropometric profile was 23.55kg/m² while the separated sexes were 22.92kg/m² (males) when compared with females (23.69kg/m²). However, the observation from their weight profile according to age shows 21.52kg/m² (18-24yrs), 23.69kg/m² (25-34yrs), 23.98kg/m² (35-44), 22.41kg/m²(45-54yrs) and 23.24kg/m² (55-64yrs) with significant value respectively. ***Conclusion*:** The respondent in the study area are encourage to continue maintaining a good eating habit of food low in calories and exhibit the habit of regular exercise for stable normal healthy weight. Additionally, the increase weight gained among the female adults than their male counterpart may be due to differences in hormonal secretions and lower average height.

**Keyword:** Anthropometric, Diet, Height, Respondents, Weight.



## INTRODUCTION

Weight profile assessment is an important clinical indices usually considered at low cost. The excess distribution of body fats has been identify as an associated risk factor for type2 diabetes (Enang *et al.,* 2014). Anthropometry is the study of human body proportion scientifically that involve the assessment of weight and height measurement using non-invasive quantitative methods. The main focus of anthropometric is on body composition, size and nutritional status. The assessment is used to diagnose malnutrition or obesity to evaluate future disease risk in adults (William, 2023). Adult females regularly engaging in carbohydrate and Fatty food consumption have been observed to develop a significantly higher body mass index when compared to those consuming proteinous and other fibers enriched diets (Solomon *et al.,*2021). Body mass index (wt/H²) is used to measured overweight and obesity among population worldwide. Higher weight gain has been observed to be more common among adult women compare to males in Nigeria (Richard *et al.,* 2022). Increased body mass index among adults are associated with cardiovascular diseases compare to normal weight subjects (Solomon *et al.,* 2017).

Adequate nutrition plays a vital role in the prevention of essential nutrient deficiency against undesirable health outcome and most diet related diseases (Hambidge, *et al.,* 2017; Uvoh, *et al.,* 2025). Studies have shown that the quality of diet consumed contribute to high prevalence of malnutrition and diet related non communicable disease (Kozuki, *et al.,* 2019;

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Karaye, *et al.,* 2024). The ongoing rise of overweight and obesity worldwide has resulted in more than 80% of the global burden of CVD occurrences in low and middle income countries (Ofri-Asenso, *et al.,* 2017).

Anthropometry provide a valuable nutritional assessment Status in adults. Lower female fecundability (circle probability of conception) has been linked with obesity and overweight (Fryar *et al.*, 2016; Ope, *et al.,* 2023). Overweight among adults has been on the rise as reported by Solomon, *et al., (*2021) in some part of Bayelsa state. However, sufficient information regarding the anthropometric indices of both adult sex are lacking in rural communities.

## MATERIALS AND METHODS

Research Design: A descriptive cross-sectional design was adopted for this study and consenting adults male and female who fall within age 18- 65years in Ogbia and Oloibiri communities in Bayelsa State where selected.

**Inclusion Criteria:**

Only adult residents within the study communities were included for this study. Only adults who have lived within the study communities for at least 5years and above were recruited for this study.

**Exclusion Criteria:** Persons below 18 years of age were excluded from this study. Adults residing outside Ogbia local government area were not included in this study.

- The sample size of this study was determined using Cochran's formula. $n = \frac{Z^2 P(1-p)}{d^2}$

**Where:**

- Z= normal standard deviation is $1.96^2$ confidence interval
- P= prevalence of previous study by Uvoh *et al,* (2025) reported 26.29% obesity among adult residents.
- D= marginal error set as 5% or 0.05
- $n= 1.96^2 \times 0.2629(1-0.2629) /0.05^2$
- $n= 3.8416 \times 0.2629 \times 0.7371$
- 0.0025
- n= 0.744439/0.0025s
- n = 297.775 or 298 approximately as the sample size.

**Sampling Technique**

A simple random sampling technique was used to select all the 298 participants that were involved in this study.

**Nature/Sources of Data**

The data for this study was derived from primary source and were documented in the spaces provided in the questionnaires.

**Instrument for Data Collection**

The following instrument were used for data collection

- Questionnaire
- Weighing scale for weight (kg)
- Measuring rule for height (m)

**Data Analysis**

SPSS version 25.0 was used to analyze data obtained for this study and express in simple percentages, mean, tables, standard deviation and significance at 0.05**.**

**Validity/Reliability of Instrument**

The structured administered checklist and questionnaire was validated through face content validity. A pilot survey was adopted where 5% of the samples of population was observed with the instrument and data analyzed with a split half method to test for stability.

**Ethical Consideration**

Institutional ethical approval was granted before the commencement of this study including inform consent approval obtained from Community Development Chairman (CDC). Also obtain was verbal consent from all prospective participants before conducting the study.

## RESULTS

The results in this section are separated into tables and discussions of findings and are compared with other related previous works.

**Table 1: Socio-demographic Characteristics of the respondents**

| S/N | Variables | Frequency (n) | Percentage (%) |
|---|---|---|---|
| 1 | **Age(yrs)** | | |
| | 18-24 | 114 | 38.26 |
| | 25-34 | 60 | 20.13 |
| | 35-44 | 60 | 20.13 |
| | 45-54 | 30 | 10.07 |
| | 55-64 | 20 | 6.71 |
| | >64 | 14 | 4.70 |
| 2 | **Sex** | | |
| | Male | 112 | 37.58 |
| | Female | 186 | 62.42 |

| S/N | Variables | Frequency (n) | Percentage (%) |
|---|---|---|---|
| 3 | **Ethnic group** | | |
| | Ogbia | 110 | 36.91 |
| | Nembe | 75 | 25.17 |
| | Ijaw | 80 | 26.85 |
| | Others | 33 | 11.07 |
| 4 | **Marital status** | | |
| | Single | 138 | 46.31 |
| | Married | 107 | 35.91 |
| | Widow | 20 | 6.71 |
| | Separated | 18 | 6.04 |
| | Divorce | 15 | 5.03 |
| 5 | **Occupation** | | |
| | Civil servant | 50 | 16.78 |
| | Business | 100 | 33.56 |
| | Student | 130 | 43.62 |
| | Farming | 18 | 6.04 |
| 6 | **Education** | | |
| | Primary | 58 | 19.46 |
| | Secondary | 150 | 50.34 |
| | Tertiary | 90 | 30.20 |

**Source**: Field survey, 2026

**Table 2: Anthropometric Indices of the Combined Respondents**

| S/n | Variables | Combined |
|---|---|---|
| 7 | Weight (kg) | 61.81±10.77 |
| 8 | Height(m) S | 1.62±0.05 |
| 9 | BMI (kg/m²) | 23.55±5.04 |
| p-value | | 0.03 |

From the above table, the BMI of the respondents was 23.55kg/m²

That falls above underweight of ≤ 18.5kg/m². The table also shows that the participant's weight is neither above 25.0kg/m² (overweight) 30.0kg/m² (obese).

**Table 3: Weight Profile of Different genders**

| S/n | Variables | Males | Females | P- value |
|---|---|---|---|---|
| 8 | Height (m) | 1.65±0.06 | 1.61±0.04 | 0.03 |
| 9 | Weight (kg) | 62.40±10.26 | 61.40±12.30 | 0.04 |
| 10 | BMI (kg/m²) | 22.92±8.13 | 23.69±9.10 | 0.00 |

The above table shows the profile weight of both sexes in the study population with significant values in all the parameters.

**Table 4: The Anthropometric Profile of the respondents According to Age (yrs)**

| S/n | Variables | 18-24 | 25-34 | 35-44 | 45-54 | 55-64 | >64 | P. value |
|---|---|---|---|---|---|---|---|---|
| 11 | Height(m) | 1.62±0.06 | 1.63±0.06 | 1.62±0.05 | 1.62±0.04 | 1.60±0.01 | - | 0.08 |
| 12 | Weight(kg) | 56.47±11.16 | 62.95±10.75 | 62.94±10.75 | 58.80±10.13 | 59.50±7.78 | - | 0.84 |
| 13 | BMI (kg/m²) | 21.52±6.02 | 23.69± 8.12 | 23.98±7.33 | 22.41±7.98 | 23.24±6.54 | - | 0.04 |

This table 4 describes the different age range of the respondents in relation to their weight profile indicating a significant BMI value when compared.

**Table 5: Dietary Intake Pattern of the Respondents**

| S/n | Items | Response | Frequency (n) | Percentage (%) |
|---|---|---|---|---|
| **10** | How many square meals do you consume daily? | Ones | **82** | **27.52** |
| | | Twice | 120 | 40.27 |
| | | Thrice | 96 | 32.21 |
| **11** | How often do you skip breakfast weekly? | Ones | **154** | **51.68** |
| | | Twice | 96 | 32.21 |
| | | Thrice | 48 | 16.11 |

| S/n | Items | Response | Frequency (n) | Percentage (%) |
|---|---|---|---|---|
| **12** | How often do you consume fast food? | Ones | **130** | **43.63** |
| | | Twice | 108 | 36.24 |
| | | Thrice | 60 | 20.13 |

**Source**: Field survey, 2026

**Table 6: Participants response to Water and Fruits Consumption**

| S/n | Items | Response | Frequency (n) | Percentage (%) |
|---|---|---|---|---|
| **13** | How often do you consume fruits and vegetables weekly? | Ones | **102** | **34.23** |
| | | Twice | 114 | 38.26 |
| | | Thrice | 82 | 27.52 |
| **14** | How often do you drink more than two liters of water daily? | Ones | **66** | **22.15** |
| | | Twice | 118 | 39.59 |
| | | Thrice | 114 | 38.26 |

**Source**: Field survey, 2026

The above table shows 34.23% consume fruits and vegetables ones daily while 38.26% do so two times weekly. On daily consumption of daily water, 39.59% regularly do so two times on a daily basis.

## DISCUSSION

The socio-demographic of the respondents shows that adults within the ages of 18-24 (38.26%) were the most participants compared to others who volunteered for this exercise**.** Females who voluntarily accepted to participate in this study was (62.42%) compare to their male counterparts of (37.58%). Ogbia dialect speaking respondents (36.91%) were more involved in the study population while single participants in relation to their marital status was (46.31%) compared to married couples (35.91%) and others who are below the above percentage ranges. The main occupation of the respondents as observed from this study was students (43.62%) while the least was farming (6.04%). The educational status of most respondents was secondary (50.34%) school level followed by tertiary (30.20%) respectively.

The study observed a remarkable percentage among the study population consuming two square meals (40.27%) and three (32.21%) daily compared to 27.52% of respondents having one square meal daily. Furthermore, fast foods are consumed by 43.63% ones, 36.24% twice and 20.13% three times weekly. Most associated risk factor resulting in illness and deaths globally is malnutrition that caused about 52.5% of all deaths. Some malnutrition outcomes include increased infection risk, and cognitive development delay, leading to adult's poverty (Tette *et al.,* 2015).

Regarding fruits and vegetables 38.26%, 34.23% and 27.52% include those nutrients twice, ones, and three times weekly to improve their anthropometric health status. Also water that serve as the basis for all metabolic reactions in the body was consume at a volume above two liters by 22.15%, 39.59% and 38.26% ones, twice, and three times daily by the respondents.

**The Anthropometric Index:**

This study shows a significant difference between the height, weight and body mass index among males in relation to their female counterparts with p value of 0.03, 0.04, and 0.00 respectively among the study population. Regarding the grouping of the respondents' anthropometrics in relation to their ages, there was a significant difference in their body mass index (0.04) and a non-significant difference in weight. The **c**ombined height shows (1.62m) and weight (61.81kg) with a normal body mass index of 23.53kg/m² in the study communities. Our findings are not in congruent with Uvoh *et al., (*2025) who observed a considerable number of obesity among adult females in River state. Though this study is confined to the Ogbia axis only but yet is not in agreement with previous study conducted among adult females of 25.9kg/m² in some selected communities exposed to gas flares in Bayelsa state (Solomon *et al., 2021; 2024).* Furthermore, our current study is not also in agreement with previous study of 28.7kg/m², and 27.21kg/m² among adult males in Bayelsa state (Solomon *et al.,* 2017). Another study conducted in kogi state shows 50% of the adults' population with a normal weight contrary to our present study though not significantly measured (Emmanuel *et al., 22*). For the initial millennium development goal to be achieved there should be an eradication of extreme poverty and hunger and thus intensify nutrition action needs (Tunje, 2018). Previous studies conducted concentrated on under-nutrition among children whereas adults are often omitted from health and nutrition surveys (Tebeje *et al.,* 2022). Nutritional deficiencies affect both growth and immunity with clinical manifestations such as low body mass index and anemia (Fadare *et al.,* 2019; Siato *et al.,* 2021). Malnutrition can be prevented engaging in a well-balanced diet regularly with a variety of nutritious whole foods composition (Solomon *et al.,* 2025). Sufficient nutrients intake required by the body reduced micronutrient deficiencies common even with a fairly standard diet. (Animut *et al.,* 2015).

## CONCLUSION

The finding from this study shows females outnumbering the males among the study population with both genders having normal weight indices. This could be due to the vast hectares of lands available in the area used mainly for cultivation of different varieties of crops required to maintain normal dietary intake for a healthy weight control.

**Conflict of Interest:** None declared.

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