

Application of health belief model (HBM) in assessing the impact of saturated fat consumption on cardiovascular diseases risk among 330 female civil servants in Umuahia North Local Government Area, Abia State.

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ABSTRACT

This study was aimed at using the Health Belief Model (HBM) to assess the impact of saturated fat consumption on cardiovascular diseases risk among 330 female civil servants in Umuahia North Local Government Area, Abia State. A descriptive cross sectional multistage sampling technique was used to get the sample size. An interviewer-administered structured questionnaire was used to collect data on personal and socioeconomic characteristics, the consumption pattern of foods high in saturated fat of the respondents and the health belief of female civil servants towards cardiovascular diseases risk. The relationship between socioeconomic and demographic, consumption pattern and cardiovascular diseases risk using health belief model was also determined. Analysis was done using IBM SPSS version 23.0. Descriptive statistics (frequencies, percentages, mean and standard deviation) was used to analyze data on the socio-demographic and economic characteristics, consumption pattern of foods and health belief of female civil servants towards cardiovascular diseases risk. Pearson's correlation was used to determine the relationship between the socioeconomic and demographic, consumption pattern and cardiovascular diseases risk using health belief model and P-value (<0.05) was accepted as statistically significant. The HBM was measured on a 3.00 point reference scale. Result findings indicated respondents showed high perceived severity (2.20 ± 1.43) and high perceived benefits (2.41 ± 1.44), indicating good understanding of the consequences and advantages of positive dietary changes. Self-efficacy was strong (2.40 ± 1.29), suggesting that most women believe they can implement healthier choices. Perceived barriers (1.81 ± 1.25) remain significant, highlighting cost, availability, and time as major obstacles. Perceived susceptibility is moderate (2.11 ± 1.44), showing that while most understand CVD risk, a portion does not

internalize it personally. Cues to action are moderately influential (1.84 ± 1.31), implying room for stronger public health messaging. However, high consumption of foods rich in saturated fats, regular intake of processed foods, inconsistent physical activity patterns, and uncertainty about family medical history highlight areas requiring targeted health education and interventions. Across all variables, perceived severity, perceived benefits, and self-efficacy showed the strongest associations with education, income, and knowledge. This indicates that socioeconomic status and nutrition knowledge play pivotal roles in shaping women's beliefs and readiness to adopt cardiovascular-protective dietary practices. Conversely, perceived barriers and cues to action appear less influenced by socioeconomic indicators, suggesting the presence of external environmental, cultural, or systemic challenges that require targeted interventions.

Keywords: Saturated fat, cardiovascular diseases risk, health belief model, female civil servants, Umuahia North.

Introduction

The Centers for Disease Control and Prevention defines cardiovascular disease as any condition that affects the structure or function of the heart and blood vessels, often resulting from lifestyle factors such as unhealthy foods high in saturated fats, salt, and sugar, physical inactivity, smoking, and excessive alcohol consumption. High blood pressure, high cholesterol, and obesity are also key contributors to cardiovascular disease (CDC, 2022). According to the World Health Organization, cardiovascular disease is responsible for nearly 18 million deaths every year, making it a major public health challenge. In the meantime, developed and developing countries are affected, but low- and middle-income countries, like Nigeria, bear a heavier burden due to limited healthcare resources and increasing risk factors such as unhealthy diets lack of physical activities (WHO, 2021).

In Nigeria, Cardiovascular disease is a growing health concern. Studies show that the prevalence of cardiovascular disease risk factors, such as high blood pressure, obesity, and diabetes, is increasing rapidly, especially among women and Women are implicated (Okeke *et al.*, 2020).

A study conducted in Umuahia, Abia State, found that many women in the region have poor dietary habits, including high consumption of saturated fats from fried foods and processed snacks (Eze *et al.*, 2019). These habits increase their risk of developing cardiovascular disease.

The Health Belief Model (HBM) is a psychological framework that helps explain and predict health-related behaviors. It is based on the idea that people are more likely to take steps to prevent or manage a health condition if they believe certain things (perceived susceptibility, perceived severity, perceived benefits, perceived barriers), have confidence in their ability to make the change (self-efficacy) and

need some kind of trigger, either from within themselves or from their environment, to motivate them to act (cues to action) (Glanz et al. 2018).

Therefore in this study, the health belief model is used in assessing the impact of saturated fat consumption on cardiovascular diseases risk among female civil servants in Abia state. The findings from this research can help in designing targeted nutrition education programs, workplace interventions, and public health policies to reduce the burden of cardiovascular disease among female workers in Abia State and also Nigeria in general.

Materials and Method

Study design

The survey design was a cross sectional study adopted to obtain information on the use of health belief model (HBM) in assessing the impact of saturated fat consumption on cardiovascular diseases risk among female civil servants in Umuahia North local government area, Abia state Nigeria.

Area of study:

The study was carried out in Umuahia North Local Government Area, Abia state, Nigeria. Umuahia North Local Government Area (LGA) is one of the 17 LGAs in Abia State, Nigeria. It is located in the southeastern part of the country and serves as the capital territory of Abia State, hosting the state government administrative headquarters. Umuahia North LGA is a hub of political, economic, and cultural activities in the state, making it a significant area for development and research. Umuahia North LGA is situated in the tropical rainforest zone of Nigeria, characterized by a humid climate with distinct wet and dry seasons (National Population Commission, 2006). The area is densely populated, with a mix of indigenous residents and migrants from other parts of Nigeria. Umuahia North LGA is divided into several political wards and communities, including: Umuahia Urban (comprising the city center and surrounding areas), Afaraukwu, Ibeku, Ndume, Ohokobe, Umuhu and Umuopara. It hosts key state government institutions, including the Abia State Government House, the State House of Assembly, and various ministries and federal parastatals. The study area, Umuahia, is suitable for this research because it has a significant population of female civil workers who lead busy lifestyles, which may influence their dietary habits and health behaviors. Many civil servants in Umuahia rely on convenient, processed, and high-fat foods, increasing their risk of cardiovascular disease (CVD).

Population of the study: The study population include only female civil workers in state and federal ministries and parastatals in Abia State.

Sampling Procedure:

A multi-stage sampling technique was used to select the study sample. In the first stage, Umuahia North was purposefully selected as the study location. In the second stage, stratified sampling was

used to group female civil workers in three different strata which include ministries, departments, and agencies (MDAs). In total, there are approximately 50 government agencies, ministries, and departments in Umuahia North LGA. This number includes state, federal, and local government entities, as well as parastatals and other affiliated agencies. Fifteen (15) Government parastatals and Agencies was selected from each of the ministries, departments, and agencies (MDAs) using balloting without replacement. Finally, twenty two (22) female civil workers were randomly selected from the fifteen (15) Government parastatals and Agencies which make up a total of 330 respondents.

Sample size determination

The sample size for the study was determined using the Cochran's formula for large or unknown sample size estimation.

$$\text{Sample size} = \frac{Z^2 PQ}{E^2}$$

Where, prevalence of cardiovascular risk among female working staff in MOUAU and ABSU (Umuahia campus) Abia state government establishments in Abia Nigeria is 26% according to an unpublished data (www.mouaurepository.com).

P = estimated proportion (0.5 for unknown)

Q = 1-P (1- 0.26)

E = margin of error (5%) = 0.05

Z= Confidence level score 95% (1.96)

n = sample size

$$n = \frac{(1.96)^2 \times 0.26 \times (0.74)}{(0.05)^2}$$

$$3.8416 \times 0.194$$

$$(0.05)^2$$

$$n = \frac{0.73912384}{0.0025} = 295.6.$$

To calculate for drop out (10% of 295.6) = 29.6. Therefore, 295.6 + 29.6 = 325.2 ≈ 330

Inclusion and exclusion criteria

Inclusion criteria: Adults resident in Abia state aged 18 years and above who are female civil workers in Abia State

Exclusion criteria: Individuals with medical conditions that prevent physical activity, pregnant women civil workers and non-civil worker, male civil workers or visitors to the area.

Preliminary visits

A preliminary visit was made to the selected Local Government Area, and a letter of introduction will be obtained from the Head of Department, Human Nutrition and Dietetics Michael Okpara University of Agriculture Umuahia, Abia state and was given to the chairman or secretary of the civil service commission with respect to the research that was carried out in the area.

Informed consent

Before the collection of data, the participants were informed of the objectives and requirements of the study and given the assurance that every piece of information provided were handled confidentially. They were assured that the data which they would provide would be solely used for research purposes and would be carefully handled, thereby avoiding exposure to a third party. Verbal consent were obtained from the participants before including them for the study.

Data collection

3.6.1 Questionnaire administration

A well-structured validated questionnaire was administrated to the study participants with a clear explanation of what to do. The questionnaire was sectioned into five (5). Section A assessed the personal and socioeconomic characteristics of respondents, section B assessed health status and lifestyle pattern, section C assessed knowledge of foods high in saturated fats, section D assessed the consumption pattern of foods of the respondents, and section E assessed the health belief of female civil servants towards cardiovascular diseases risk.

3.8 Statistical analysis

Information obtained were coded and entered into the computer with the programme, Statistical Package for Service Solution (SPSS), version 22.0. Descriptive statistic such as frequencies, percentages, mean and standard deviation was used to analyze data on the socio demographic and economic characteristics, consumption pattern of foods and health belief of female civil servants towards cardiovascular diseases risk of the respondents. Pearson's correlation was used to determine the relationship between the socioeconomic and demographic, consumption pattern and cardiovascular diseases risk using health belief model. A P-value <0.05 was accepted as statistically significant.

Results and discussion

Table 1a and Table 1b present the socio-demographic characteristics of the 330 study participants. The age distribution shows that the majority were between 31–40 years (36.7%) and 41–50 years (34.2%), indicating that most respondents were in their middle-age working years. Participants aged 20–30 years accounted for 16.7%, while those aged 51 years and above constituted 12.4%. The lower representation of senior and retirement-age groups (12.7% and 6.6%, respectively) echoes national

demographic profiles reported by NBS (2020), where female representation drops significantly in higher age brackets and senior positions and are the smallest segment of the working age.

Most of the respondents were married (66.1%), with singles representing 26.1%, while divorced/separated and widowed participants made up 4.5% and 3.3%, respectively. Household size was predominantly large, with 56.1% reporting 4–6 persons, and 28.5% having 1–3 persons. Larger households (7–9 persons) accounted for 14.8%, while only 0.6% reported living with 10 or more persons. This result is consistent with the findings by Adewoyin et al. (2024) in South-Eastern Nigeria. They observed that moderate-sized households (3-5) representing 55% of their study population are the commonest in urban communities. In terms of ethnicity, the majority were Igbo (77.6%), followed by Yoruba (10.6%), Hausa (6.1%), and other ethnic groups (5.8%). Regarding religion, most participants were Christians (92.7%), while 5.5% were Muslims and 1.8% practiced traditional religions. Work characteristics reveal that 49.1% of respondents worked exactly 8 hours per day, while 27.6% worked more than 8 hours, and 23.3% worked fewer than 8 hours. This pattern of work hour is not new as it mirrors the data reported by ILO (2021) where most urban-employed individuals worked between 7–9 hours daily.

Table 1b shows that 37.0% of the respondents had spent 3–5 years in service, followed by 28.5% with 6–8 years, 22.4% with more than 9 years, and 10.9% with 0–2 years. The group with over 9 years in service could represent seasoned staff often occupying higher service roles.

Educational attainment was generally high, with 83.3% reporting tertiary education. Only 11.2% had secondary education, while 3.0% and 2.1% had no formal education and primary education, respectively. Respondents with no formal education or only primary education were few, reflecting improved educational access in the region. Salary was identified as the main source of income for 46.1% of participants, while 33.0% combined salary with business income. Business alone accounted for 18.5%, and 2.4% indicated other sources. NBS (2021) reported that formal employment remains a key income source in urban Nigeria. The 33.0% combining salary and business income indicates a growing trend of diversified income streams, particularly among working adults, as documented in studies by Odoh, et.al (2019). Surprisingly, only 58.5% of participants had access to health insurance while 41.5% did not. This reflects the national struggle with universal health coverage, where the National Health Insurance Scheme (NHIS) has not achieved full penetration. In terms of economic status, more than half earned ₦91,000 and above (59.1%), followed by 25.2% earning ₦71,000–₦90,000. Only 6.1% earned between ₦51,000–₦70,000, and 9.7% earned ₦30,000–₦50,000 monthly. The lower salary is an indication of the minimum wage salary obtainable in Nigerian civil service.

Tables 2a and 2b present the health status and lifestyle behaviours of the 330 study participants.

A vast majority (98.5%) of respondents reported no cigarette smoking history, indicating a generally low prevalence of tobacco use in the study population. This aligns with the World Health Organization (WHO, 2021) which observed that smoking rates among adults in Nigeria remain relatively low, particularly among educated and urban populations. Alcohol consumption was also relatively low, with majority (74.5%) reporting no use of alcoholic beverages, while 25.5% indicated they consumed alcohol.

Regarding family medical history, 50.9% reported no family history of cardiovascular diseases, whereas 15.2% indicated a positive family history. Notably, 33.9% were unsure of their family history, suggesting possible gaps in health literacy or inadequate communication within families about medical conditions. This pattern of health literacy is similar to the report by Awotide and Awoyemi (2016) where about 30% of female civil servants could not confirm their family health history due to lack of record-keeping or health illiteracy. Participants' medical check-up patterns showed varied frequencies. Only 7.0% reported undergoing weekly checkups, while the highest proportion (26.1%) attended quarterly. Others reported yearly (25.5%), twice yearly (23.6%), or monthly (17.9%) health evaluations. This distribution highlights a moderate level of engagement with preventive healthcare services.

Most participants (92.4%) reported eating primarily at home, reflecting reliance on home-prepared meals. Meal frequency varied, with the majority (54.2%) eating three times daily, followed by 27.6% who ate twice daily. These patterns are consistent with Ojo et.al (2022) who found that most Nigerian adults consume two to three meals daily depending on income level, occupation, and health awareness.

Preferred cooking methods were dominated by boiling (65.5%), a healthier method compared to frying, which accounted for 15.8%. Steaming (13.6%) and roasting (5.2%) were less common but still represented healthier choices. Okafor and Ekakiete (2020) noted boiling and steaming as the healthier and culturally dominant cooking methods in Nigerian households.

Regarding dietary fat consumption, 40.0% consumed foods high in saturated fats 3–4 times per week, while 38.5% did so once weekly. Only 1.5% reported never consuming such foods. Though, 68.8% incorporated healthy fat sources such as nuts, avocados, and olive oil into their meals, high consumption of saturated fats among the female civil servants is worrying. A study by Okafor and Ekakiete (2020) also observed that more than 50% of their study participants consume saturated fats. The findings reflect an improvement in nutrition education.

Consumption of processed or fast foods was relatively frequent, with 37.6% consuming them once weekly and 35.8% consuming them 3–4 times weekly. A smaller proportion (12.4%) consumed such foods daily. These figures reflect a moderate to high intake, which can negatively impact health if not

balanced with proper nutrition. The rising of fast-food outlets in Nigerian urban centers has led to increased consumption of processed foods particularly among working adults. The health implication includes rising obesity, hypertension, and metabolic disorders.

Physical activity patterns showed moderate engagement. The highest proportion (33.6%) exercised once weekly, while 20% exercised 3–4 times weekly. Notably, 15.8% reported no physical activity, while 17.3% exercised only in response to weight gain. Daily engagement in exercise was reported by 13.3% of participants.

Table 3 presents findings on the participants' knowledge of saturated fat sources, health risks, healthier alternatives, and recommended dietary guidelines. Overall, the results reveal moderate knowledge, with notable gaps in several key areas.

A majority of respondents demonstrated strong awareness of where saturated fats are commonly found, with 87.3% correctly identifying the appropriate food group. Similarly, 80.0% correctly recognized that consuming foods high in saturated fats increases the risk of heart diseases, showing good understanding of the link between diet and cardiovascular health.

However, knowledge declined in more detailed or technical questions. For instance, only 54.5% correctly defined saturated fats, while 50.3% identified foods low in saturated fats. These results suggest that although participants understand general concepts, more nuanced dietary knowledge remains limited. The lack of knowledge about saturated fats was also observed by Okafor and Ekakiete (2020).

Regarding healthier alternatives to saturated fats, 69.1% of the respondents selected the correct option, indicating moderate awareness of healthier substitutes such as unsaturated fats or plant-based oils.

Nonetheless, only 47.6% correctly identified the recommended daily limit of saturated fat intake for adults. Likewise, only 47.0% recognized foods that are high in saturated fats, and just 41.7% correctly identified health conditions linked to frequent consumption of saturated fats. These lower scores highlight critical gaps in practical and guideline-related nutrition knowledge.

The overall knowledge grading revealed that 44.5% had average knowledge (50–74%), 28.8% had poor knowledge (0–49%), and only 26.7% demonstrated good knowledge (75–100%). This distribution indicates that although some respondents possess strong nutritional knowledge, a significant proportion lack essential understanding of saturated fats and their associated health risks. Collectively, the findings show that while basic awareness of saturated fats and their health implications is relatively high, detailed knowledge—particularly regarding dietary guidelines, specific food classifications, and health consequences—remains insufficient. These gaps emphasize the need

for targeted nutrition education initiatives focused on reducing saturated fat intake and promoting heart-healthy dietary practices.

Table 4 provides an overview of the respondents' consumption patterns across major food groups based on the Food Frequency Questionnaire (FFQ). The findings demonstrate varying levels of dietary diversity, with some food categories being consumed more frequently than others.

Vegetables were the most frequently consumed food group, with 77.0% of respondents reporting daily or weekly intake. This suggests relatively good adherence to dietary recommendations emphasizing vegetable consumption. Fat and oils were also widely consumed (68.9%), reflecting their common use in meal preparation within typical Nigerian diets.

Fruits followed closely, with 67.9% reporting regular intake. Despite being a nutritious food group, the remaining 32.1% reported rare or no consumption, indicating room for improvement in fruit consumption patterns. Legumes were consumed regularly by 66.5% of respondents, suggesting moderate inclusion of plant-based protein sources in their diets. Roots and tubers were consumed regularly by 63.1%, showing that they remain a staple carbohydrate source. However, 36.9% rarely consumed them, possibly due to substitution with cereals or processed foods. Animal and animal products were regularly consumed by 60.6%, while a considerable 39.4% rarely consumed them. This may reflect economic constraints, personal dietary preferences, or health considerations. Cereals and cereal-based products had the lowest frequency of regular consumption at 54.9%, with 45.1% rarely consuming them. Given that cereals constitute a major carbohydrate source in many diets, this finding may indicate dietary shifts toward alternative staples or variations in socioeconomic access.

Overall, the FFQ results indicate that most respondents consume vegetables, fruits, and legumes frequently, suggesting moderate dietary quality. However, the relatively high proportion of participants rarely consuming key food groups—particularly cereals, animal products, and fruits—highlights potential nutritional gaps. These variations point to the need for targeted dietary interventions aimed at promoting balanced and diverse consumption patterns for improved health outcomes.

Table 5 presents respondents' perceptions regarding cardiovascular disease (CVD) risk using the six major constructs of the Health Belief Model (HBM). Overall, the findings show that female civil servants demonstrate moderate to high awareness of CVD risks, benefits of dietary changes, and confidence in adopting healthier dietary habits, although some barriers remain prevalent.

A total of 67.8% expressed positive beliefs that their dietary habits—particularly intake of saturated fats—could place them at risk for CVDs. The mean score (2.11 ± 1.44) suggests moderate perceived vulnerability. Although most respondents believe their lifestyle increases their risk, 40% still do not

feel personally at risk, indicating a potential gap between general awareness and personal risk acknowledgment.

The perceived severity of CVDs was high, with 72.8% indicating awareness that cardiovascular diseases can lead to serious, long-term health consequences. The mean score (2.20 ± 1.43) reflects a strong recognition of the seriousness of heart-related conditions. Respondents understand that such conditions can impair their ability to work and negatively affect quality of life.

Perceived benefits recorded one of the highest positive responses (76.2%), indicating that the majority believe reducing saturated fat intake and choosing healthier fats can lower their CVD risk. With a mean score of 2.41 ± 1.44 , respondents show strong belief in the positive outcomes of healthy dietary practices.

Approximately 66.3% reported difficulty avoiding foods high in saturated fats due to cost, availability, and limited time or knowledge for preparing healthier meals. The mean (1.81 ± 1.25) indicates that perceived barriers are significant, suggesting that structural and environmental challenges hinder consistent practice of heart-healthy behaviors.

A moderate proportion (64.5%) agreed that external prompts such as advice from health professionals, media campaigns, or discussions with family influence their dietary decisions. The overall mean (1.84 ± 1.31) shows moderate readiness to act, indicating that more frequent and targeted cues may enhance motivation.

Self-efficacy had the highest positive response rate (78.5%) and mean (2.40 ± 1.29), demonstrating that most respondents feel confident in their ability to limit saturated fat intake, read food labels, and make healthier choices when dining out. This suggests a strong internal capacity to adopt preventive behaviors if environmental barriers are minimized.

Respondents show high perceived severity and high perceived benefits, indicating good understanding of the consequences and advantages of positive dietary changes. Self-efficacy is strong, suggesting that most women believe they can implement healthier choices. Perceived barriers remain significant, highlighting cost, availability, and time as major obstacles. Perceived susceptibility is moderate, showing that while most understand CVD risk, a portion does not internalize it personally. Cues to action are moderately influential, implying room for stronger public health messaging

Table 6 presents the correlation between selected socioeconomic variables (education and income), knowledge about foods high in saturated fat, and the constructs of the Health Belief Model (HBM) as they relate to cardiovascular disease (CVD) risk among respondents. Overall, the findings show that education, income, and knowledge significantly influence perceptions of CVD risk and preventive behaviors.

High Education Level

A significant positive correlation was observed between education level and four HBM constructs: These results indicate that individuals with higher education levels are more likely to acknowledge their vulnerability to CVDs($r = 0.136$, $p = 0.014$), understand the seriousness of the disease($r = 0.280$, $p = 0.001$), recognize the benefits of reducing saturated fat intake ($r = 0.190$, $p = 0.001$), and believe in their ability to adopt healthier eating behaviors($r = 0.227$, $p = 0.001$). However, education was not significantly associated with cues to action ($r = 0.096$, $p = 0.082$), suggesting that external reminders or prompts do not necessarily depend on educational attainment.

High Income

Income showed strong and highly significant positive correlations. These findings imply that individuals with higher income levels are more aware of their risk for CVD ($r = 0.183$, $p = 0.001$) and are more likely to perceive the seriousness of cardiovascular diseases($r = 0.331$, $p = 0.001$). They also tend to recognize the benefits of healthy dietary choices($r = 0.309$, $p = 0.001$) and exhibit greater confidence in their capacity to make appropriate dietary changes($r = 0.297$, $p = 0.001$). Income, however, did not correlate significantly with perceived barriers ($r = 0.084$, $p = 0.127$) or cues to action ($r = 0.015$, $p = 0.793$), indicating that access to health messages and the challenges faced in adopting healthier diets may not be determined by income alone.

Knowledge Score

Knowledge about foods high in saturated fats was significantly related to almost all HBM constructs: These results suggest that higher knowledge enhances individuals' recognition of their susceptibility to CVDs($r = 0.159$, $p = 0.004$), increases their perception of disease severity($r = 0.377$, $p = 0.001$), strengthens their belief in the benefits of modifying dietary fat intake($r = 0.361$, $p = 0.001$), and improves their confidence in executing heart-healthy behaviors. Knowledge also shows a weaker but significant association with cues to action($r = 0.130$, $p = 0.018$)*, indicating that individuals who understand saturated fat risks are more responsive to health messages. The only construct that did not reach statistical significance was perceived barriers ($r = 0.106$, $p = 0.055$), suggesting that knowledge alone may not eliminate structural or socioeconomic barriers to healthy eating.

Table 1a: Socio-demographic characteristics of the study participants

Variables	Frequency (F)	Percentage (%)
Age		
31 to 40 years	121	36.7
41 years and above	113	34.2
20 to 30 years	55	16.7
51 and above	41	12.4
Total	330	100.0

Marital status		
Married	218	66.1
Single	86	26.1
Divorced/Separated	15	4.5
Widowed	11	3.3
Total	330	100.0
Household size		
4-6 persons	185	56.1
1-3 Persons	94	28.5
7-9 persons	49	14.8
10 persons and above	2	0.6
Total	330	100.0
Ethnicity		
Igbo	256	77.6
Yoruba	35	10.6
Hausa	20	6.1
Others (please specify)	19	5.8
Total	330	100.0
Religion		
Christianity	306	92.7
Islamic	18	5.5
Traditional	6	1.8
Total	330	100.0
Hours spent at work		
Equals 8 hours	162	49.1
Greater than 8 hours	91	27.6
Less than 8 hours	77	23.3
Total	330	100.0

Table 1b: Socio-demographic characteristics of the study participants

Variables	Frequency (F)	Percentage (%)
Number of years in service		
3-5 years	122	37.0
6-8 years	94	28.5
>9 years	74	22.4
0-2 years	36	10.9
Prefer not to say	4	1.2
Total	330	100.0
Level of education		
Tertiary education	275	83.3
secondary education	37	11.2
No formal education	10	3
Primary education	7	2.1

Prefer not to say	1	0.3
Total	330	100.0
Major Source of income		
Salary	152	46.1
Both (Salary and Business)	109	33
Business	61	18.5
Others (please specify)	8	2.4
Total	330	100.0
Access to health insurance		
Yes	193	58.5
No	137	41.5
Total	330	100.0
Average monthly income		
N 91,000 and above	195	59.1
N 71,000 – N90,000	83	25.2
N30,000 – N50,000	32	9.7
N51, 000 – N70,000	20	6.1
Total	330	100.0

Table 2a: Health status and lifestyle pattern

Variables	Frequency (F)	Percentage (%)
Cigarette Smoking Status		
No	325	98.5
Yes	5	1.5
Total	330	100.0
Alcoholic drink consumption		
No	246	74.5
Yes	84	25.5
Total	330	100.0
Family history of cardiovascular diseases		
No	168	50.9
Unsure	112	33.9
Yes	50	15.2
Total	330	100.0
Diagnosis of Non-Communicable Diseases		
High blood pressure		
Heart disease		
High cholesterol		
Diabetes		
Stroke		

Medical checkup Frequency		
Quarterly	86	26.1
Yearly	84	25.5
Twice Yearly	78	23.6
Monthly	59	17.9
Weekly	23	7.0
Total	330	100.0

Table 2b: Health status and lifestyle pattern (Contd.)

Variables	Frequency (F)	Percentage (%)
Eating at home		
Yes	305	92.4
No	25	7.6
Total	330	100
Number of times meals are eaten in a day		
3 times	179	54.2
Twice	91	27.6
4 times	45	13.6
Once	13	3.9
Above 4 times	2	0.6
Total	330	100
Preferred cooking method		
Boiling	216	65.5
Frying	52	15.8
Steaming	45	13.6
Roasting	17	5.2
Total	330	100
Frequency of Consumption of foods high in saturated fats		
3-4 times a week	132	40.0
Once a week	127	38.5
Daily	35	10.6
Less than once a week	31	9.4
Never	5	1.5
Total	330	100.0
Incorporating sources of healthy fats in meals (e.g., avocados, nuts, olive oil)		
Yes	227	68.8
No	103	31.2
Total	330	100.0
Consumption frequency of processed or fast foods		
Once a week	124	37.6
3-4 times a week	118	35.8
Daily	41	12.4

Less than once a week	30	9.1
Never	17	5.2
Total	330	100.0
Physical activity or exercise		
Once a week	111	33.6
3-4 times a week	66	20
Whenever I add weight	57	17.3
Not at all	52	15.8
Daily	44	13.3
Total	330	100.0

Table 3: Knowledge of the participants about foods high in saturated fats

Knowledge Question	Correct Responses		Incorrect Responses (n = 330)	
	F	%	F	%
Which food group is saturated fats most commonly found in?	288	87.3	42	12.7
Consuming foods high in saturated fats increases the risk of heart diseases?	264	80.0	66	20.0
Which of the following is a healthier alternative to saturated fats?	228	69.1	102	30.9
What are Saturated Fats?	180	54.5	150	45.5
Which of the following is low in saturated fat?	166	50.3	164	49.7
What is the recommended daily limit of saturated fats intake for adults, according to most dietary guidelines?	157	47.6	173	52.4
Which of the following foods are high in saturated fats?	155	47.0	175	53.0
Which of these health conditions are linked to frequent consumption of saturated fats?	138	41.7	192	58.3
Knowledge Grade				
Average (50-74)	147		44.5	
Poor (0-49)	95		28.8	
Good (75-100)	88		26.7	
Total	330		100.0	

Table 4: Summary of consumption pattern of the respondents

Food Groups	Mostly Consumed (%)	Rarely Consumed (%)
	(Daily, Weekly and 3times Weekly)	(Rarely and Never)
Vegetables	77.0	23.0
Fat And Oil	68.9	31.1

Fruits	67.9	32.1
Legumes	66.5	33.5
Roots And Tuber	63.1	36.9
Animal And Animal Products	60.6	39.4
Cereals And Products	54.9	45.1

Table 5: Health belief model of female civil servants towards cardiovascular diseases risk.

Variables	Positive Responses	Negative Responses	Mean ± SD
	F (%)	F (%)	
A PERCEIVED SUSCEPTIBILITY			
I believe that eating foods high in saturated fat puts me at risk for cardiovascular diseases (e.g., heart attack, stroke).	237(71.8)	93(28.2)	2.32 ± 1.52
I think people with my lifestyle are likely to develop heart problems if they eat too much saturated fat.	236(71.5)	94(28.5)	2.23 ± 1.46
I feel personally at risk of developing cardiovascular diseases due to my current eating habits.	198(60.0)	132(40.0)	1.77 ± 1.35
Total	224(67.8)	106(32.2)	2.11 ± 1.44
B PERCEIVED SEVERITY			
Cardiovascular diseases can lead to serious health problems, disability, or even death.	240(72.7)	90(27.3)	2.24 ± 1.46
If I developed heart disease, it would significantly affect my ability to work and enjoy life.	241(73.0)	89(27.0)	2.18 ± 1.40
The consequences of cardiovascular diseases are severe and long-lasting.	240(72.7)	90(27.3)	2.19 ± 1.42
Total	240(72.8)	90(27.2)	2.20 ± 1.43
C PERCEIVED BENEFITS			
Reducing the intake of saturated fat can help lower my risk of heart disease.	266(80.6)	64(19.4)	2.56 ± 1.34
Choosing healthier fats (like olive oil or nuts) over foods like fried or processed meats benefits my heart health.	248(75.2)	82(24.8)	2.34 ± 1.43
A heart-healthy diet can improve my overall well-being and energy levels.	240(72.7)	90(27.3)	2.34 ± 1.54
Total	251(76.2)	79(23.8)	2.41 ± 1.44
D PERCEIVED BARRIERS			

It is difficult to avoid foods high in saturated fat because they are common in my regular meals.	215(65.2)	115(34.8)	1.86 ± 1.33
Healthier food options are often more expensive or less available where I shop or eat.	227(68.8)	103(31.2)	1.82 ± 1.21
I don't always have the time or knowledge to prepare meals with low saturated fat.	214(64.8)	116(35.2)	1.76 ± 1.21
Total	219(66.3)	111(33.7)	1.81 ± 1.25
E CUES TO ACTION			
I would be more motivated to avoid foods high in saturated fat if my doctor or health professional recommended it.	206(62.4)	124(37.6)	1.76 ± 1.32
Media messages and public health campaigns remind me to limit saturated fat in my diet.	206(62.4)	124(37.6)	1.78 ± 1.31
When family or friends talk about heart health, it makes me think about my food choices.	227(68.8)	103(31.2)	1.97 ± 1.31
Total	213(64.5)	117(35.5)	1.84 ± 1.31
F SELF-EFFICACY			
I feel confident in my ability to reduce the amount of saturated fat in my meals.	257(77.9)	73(22.1)	2.42 ± 1.30
I know how to read food labels to check for saturated fat content.	254(77.0)	76(23.0)	2.33 ± 1.29
Even when eating out, I feel capable of making heart-healthy food choices.	266(80.6)	64(19.4)	2.45 ± 1.29
Total	259(78.5)	71(21.5)	2.40 ± 1.29

Table 6: Relationship between socioeconomic and demographic characteristics, knowledge of foods high in saturated fat and cardiovascular diseases risk using health belief model.

Health Belief Constructs						
Variable s	Perceived susceptibility	Perceived severity	Perceived benefits	Perceived barriers	Cues to action	Self- efficacy
	r(p)	r(p)	r(p)	r(p)	r(p)	r(p)
High Educatio n Level	0.136(0.014) *	0.280(0.001)**	0.190(0.001)**	0.137(0.012) *	0.096(0.082)	0.227(0.001)**
High Income	0.183(0.001) **	0.331(0.001)**	0.309(0.001)**	0.084(0.127)	0.015(0.793)	0.297(0.001)**
Knowled ge Score	0.159(0.004) **	0.377(0.001)**	0.361(0.001)**	0.106(0.055)	0.130(0.018) *	0.325(0.001)**

****Correlation is significant at the 0.01 level (2-tailed)
0.05 level (2-tailed).**

***Correlation is significant at the**

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Data availability

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The author(s) declare that it is not applicable.

Consent for publication

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Competing interests

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References

1. Adewoyin, I.B., Adepoju, S.O., Falegan, A.V., Alausa, S.O and Fayomi, I.F. (2024). Gated estates development in the hinterlands: a case study of Iseyin –Ibadan corridor, Oyo State Nigeria. International journal of built environment and earth science; Vol.5 (4) 115-124 E-ISSN 3027-1606 P-ISSN 3027-0049
2. Awotide, B.A. and Awoyemi, T.T. (2016). The impact of improved agricultural technology adoption on sustainable rice productivity and rural farmers' welfare in Nigeria: Inclusive Growth in Africa. Routledge Pub; 232-253.
3. CDC (2022). Chronic disease indicators: Cardiovascular disease definition. <https://www.cdc.gov>. U.S. Centers for disease control and prevention.

4. Eze, J. I., Okoye, O. I., and Edeh, H. C. (2019). Palm oil consumption and cardiovascular health risks in Nigerian adults: A cross-sectional study. *Nigerian Journal of Clinical Practice*, 22(10), 1376–1384. https://doi.org/10.4103/njcp.njcp_212_19
5. Glanz, K., Rimer, B. K., and Viswanath, K. (Eds.). (2018). *Health behavior: Theory, research, and practice* (5th ed.). Jossey-Bass.
6. ILO (2021). Working time. International labour organization. [https:// www.ilo.org](https://www.ilo.org)
7. NBS (2020). The 2020 statistical report on women and men in Nigeria by National Bureau of Statistics: www.nigerianstat.gov.ng/elibrary
8. NBS (2021). The 2021 statistical report on income earning. www.nigerianstat.gov.ng.
9. Odoh, N.E., Nwibo, S.U., Eze, A.V. and Igberi, C.O. (2019). Farm and non-farm income diversification activities among rural households in southeast, Nigeria. *Journal of agricultural extension* 23(2): 113-121
10. Ojo, C.I., Adekoya, A.S. Ijaya, O.B. and Opelami, O.A (2022). Total energy intake and frequency of food consumption in relation to body mass index of adult population in Nigeria. *International journal of innovative science and research technology*: vol 7(7)
11. Okafor, V.N. and Ekakiete, F. (2020). Knowledge of healthy oil, consumption pattern and preferences for cooking among university students, Ibadan, Nigeria.
12. Okeke, C., Nwosu, C. and Eze, C. (2020). Community-based health interventions in Nigerian markets: Opportunities and challenges. *Journal of Community Health*, 45(4), 789–798.
13. World Health Organization (2021). Data on smoking rates in Nigeria. National prevalence- WHO/World Bank data.
14. World Health Organization. (2021). Guideline: Saturated fatty acid and trans-fatty acid intake for adults and children. <https://www.who.int/publications/i/item/9789241550093>

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