
Original Research Article

Assessment of the Knowledge of Food Safety Practices Among Food Vendors in Odioma Community, Brass Local Government Area of Bayelsa State, Nigeria

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Abstract: Background: Unsafe food contributes significantly to foodborne diseases, especially in low- and middle-income countries. Ready-to-eat foods sold by street vendors are widely consumed but easily contaminated during preparation, storage or service. The objective of the study is, to assess the knowledge of food safety practices among food vendors in Odio-Ama Community, Brass LGA, Bayelsa State. The method applied for the study was a descriptive cross-sectional design was adopted. One hundred food vendors were sampled using a structured questionnaire covering knowledge of food hygiene, personal hygiene practices, environmental hygiene at vending sites, and factors influencing food safety practices. Data were analyzed using SPSS version 21 with frequencies, percentages, means, and standard deviations. Decision criteria were based on criterion means. The results obtained from the study demonstrated high knowledge of food hygiene principles, with a grand mean = 1.66 against a criterion mean = 1.00. Personal hygiene practices were moderately adequate with grand mean = 2.43 against a criterion mean = 2.00, but deficiencies existed in the use of protective clothing and hair covering. Environmental hygiene was below adequate levels in waste disposal and control of flies/rodents, with a grand mean = 1.96 against a criterion mean = 2.00. Education, training, sanitation facilities, and regulatory inspection positively influenced food safety practices, with a grand mean = 3.30 against a criterion mean = 2.50. In conclusion, food vendors in Odio-Ama have reasonably good knowledge of food safety principles; a significant gap exists between knowledge and practice, particularly in environmental hygiene. It was recommended that targeted training programmes, provision of sanitation infrastructure, and regular health inspections are needed to bridge this gap and reduce foodborne illness risk.

Keywords: Food safety, Knowledge, Food vendors, Hygiene practices, Odio-Ama, Bayelsa State

Introduction

Food safety is a major global public health concern because unsafe food contributes significantly to the burden of foodborne diseases, especially in low- and middle-income countries where regulation and surveillance are often weak (Jaffee et al., 2019). Ready-to-eat foods sold by street and small-scale vendors are widely consumed because they are convenient, affordable and accessible, but they can easily become contaminated at any point during preparation, storage or service (IFAD, 2023). Contamination may occur through poor personal hygiene of food handlers, inadequate handwashing, use of unsafe water, cross-contamination between raw and cooked foods, use of contaminated utensils, or poor environmental sanitation around the vending site (Snyder et al., 2024).

Several studies in Nigeria and other African countries have reported that many food vendors have only moderate knowledge of food hygiene and often demonstrate poor or suboptimal food safety practices, such as handling food with bare hands, not covering hair, not using aprons, and working in environments with flies and poor waste disposal (Azanaw et al., 2019; Onyeaka & Nwankwo, 2021). These conditions increase the risk of foodborne infections like diarrhea, typhoid fever, cholera and other gastrointestinal illnesses, which are among the leading causes of morbidity and mortality, particularly among children.

Despite widespread consumption of street-vended foods in Odio-Ama, there is limited empirical data on vendors' knowledge and practices of food safety. Poor hygiene practices among vendors may expose consumers to foodborne illnesses, increasing public health burden in Brass LGA.

Specific Objectives

1. To determine the level of knowledge of basic food hygiene and safety among food vendors in Odio-Ama.
2. To assess the personal hygiene practices of food vendors in Odio-Ama, including handwashing, use of protective clothing, and general cleanliness during food preparation and service.
3. To evaluate environmental hygiene at food vending sites in Odio-Ama, including waste disposal, availability of safe water and handwashing facilities, and control of vectors such as flies.
4. To identify factors that influence food safety practices among food vendors in Odio-Ama.

Literature Review

Concept of Food Safety Practices

Food safety ensures that food poses no harm to consumers when prepared and eaten as intended. Food safety hazards fall into four main categories: biological hazards like *Salmonella*, *Escherichia coli*, *Staphylococcus aureus*; chemical hazards including pesticides and heavy metals prevalent in Niger Delta waters polluted by oil activities

(Okonko et al., 2019); physical hazards like glass shards or hair; and allergenic hazards from undeclared ingredients.

Sources of Contamination in Street Food Vending

Contamination often stems from lapses in personal hygiene, such as handling food with bare hands or skipping handwashing, alongside cross-contamination between raw and cooked items, lax temperature control, and exposure to environmental pollutants like dust, flies, and wastewater (Azanaw et al., 2019).

Role of Environmental Health Officers

EHOs are responsible for inspection, education, and enforcement of food safety regulations. Challenges faced include institutional, financial, technological, and human resource constraints, especially in riverine communities like Odioma in Brass LGA (Federal Ministry of Health, 2021).

Methodology

Study Design A descriptive cross-sectional design was adopted to describe current food safety practices and related factors among food vendors in Odioma at a single point in time.

Study Setting: The study was conducted in Odio-Ama, an ancient riverine community in Brass LGA of Bayelsa State, Nigeria. Located at approximately 4°20'N 6°26'E, it is an island community bordered by water bodies including the Atlantic Ocean fringes and St. Nicholas River. The community's economy revolves around fishing, fish farming, canoe carving, and trading. Food vending is integral to local commerce, with vendors operating from makeshift stalls, home-based canteens, or roadside points near jetties.

Population & Sample: The target population was 100 food vendors operating within Odio-Ama Community.

Instrument: A structured questionnaire covering four domains: knowledge of food hygiene, personal hygiene practices, environmental hygiene at vending sites, and factors influencing food safety practices. Knowledge items used Yes/No/Not Sure scale weighted 2/0/1 with criterion mean = 1.00. Personal and environmental hygiene used Always/Sometimes/Never scale weighted 3/2/1 with criterion mean = 2.00. Factors used SA/A/D/SD/U scale weighted 5-1 with criterion mean = 2.50.

Data Collection & Analysis: Direct administration of questionnaires. Data analyzed using SPSS version 21. Descriptive statistics including frequencies, percentages, means, mean deviations, and standard deviations were computed. Decision criteria based on criterion means (Pallant, 2020).

Ethical Issues: Ethical approval obtained. Informed consent secured from respondents.

Results

Knowledge of Food Hygiene

Food vendors demonstrated high knowledge with grand mean = 1.66 exceeding criterion mean = 1.00. All six items were accepted. Highest mean was for “Using clean utensils helps maintain food safety” ($\bar{M}$ = 1.83), followed by “Washing hands before and after handling food prevents disease” ($\bar{M}$ = 1.78). Most vendors correctly disagreed that cooked food can safely be stored at room temperature for more than 6 hours ($\bar{M}$ = 1.31).

Personal Hygiene Practices

Overall moderately adequate with grand mean = 2.43 above criterion mean = 2.00. Handwashing before food preparation ($\bar{M}$ = 2.54), handwashing after handling raw meat/fish ($\bar{M}$ = 2.55), keeping fingernails short and clean ($\bar{M}$ = 2.50), and avoiding cooking when ill ($\bar{M}$ = 2.49) were adequate. However, use of apron/protective clothing and covering hair while cooking/serving fell below criterion mean, indicating inconsistent practice.

Environmental Hygiene at Vending Sites

Most concerning findings with grand mean = 1.96 below criterion mean = 2.00. Three of six items inadequate: availability of functional handwashing facilities, access to potable water, and proper waste disposal. High prevalence of flies and rodents reported. Only cleanliness of cooking/serving areas rated acceptable.

Factors Influencing Food Safety Practices

Education, training, availability of sanitation facilities, and regulatory inspection were generally agreed to positively influence practices with grand mean = 3.30 above criterion mean = 2.50.

Discussion, Conclusion and Recommendations

Discussion

The high knowledge scores align with studies from other parts of Nigeria reporting that food vendors demonstrate reasonable theoretical awareness of food hygiene principles (Emmanuel et al., 2015; Onyeaka & Nwankwo, 2021). The high knowledge likely reflects informal learning through peer interaction and community health outreach rather than formal training, as training levels in Bayelsa remain low at approximately 43%. This underscores a critical observation: knowledge alone does not guarantee safe practice (Azanaw et al., 2019).

The knowledge-practice gap observed in personal and environmental hygiene is consistent with reports from similar Nigerian and West African contexts, where vendors demonstrate sound handwashing awareness but poor compliance with protective clothing requirements, often citing cost, heat, and cultural norms as barriers (Lamin-Boima, 2017; Okojie & Isah, 2014). Environmental hygiene deficiencies reflect infrastructure challenges common in riverine communities like Odio-Ama, where access to potable water and waste management systems is limited.

Conclusion

Food vendors in Odio-Ama possess notably high knowledge of food hygiene principles but demonstrate only moderate personal hygiene practices and inadequate environmental hygiene. Significant gaps exist between knowledge and practice, especially in use of protective clothing, handwashing facilities, water access, and waste disposal. Education, training, sanitation facilities, and regulatory oversight are key determinants of food safety behaviour.

Recommendations

1. Targeted Training: Bayelsa State Ministry of Health and Brass LGA should organize regular, practical food safety training for vendors focusing on bridging knowledge-practice gaps.
2. Infrastructure Support: Provide subsidized handwashing stations, potable water points, and waste bins at major vending clusters in Odio-Ama.
3. Regular Inspection: Strengthen EHO monitoring with quarterly inspections and on-site corrective education.
4. Community Sensitization: Integrate food safety into Bayelsa health plans, addressing oil pollution risks to food sources.
5. Bylaws: Enact LGA bylaws syncing with NAFDAC 2025 for flood-proof vending zones (NAFDAC, 2025).
6. Further Research: Conduct microbiological assessment of foods sold to quantify actual contamination risk.

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