
Food Hygiene Knowledge and Practices Among Food Service Providers In Boarding Secondary Schools In The Niger-Delta

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ABSTRACT

In large-scale cooking environments, such as schools, food handling by numerous individuals heightens the risk of contamination, leading to potential health hazards. The World Health Organization (WHO) reports a significant number of deaths attributed to diarrheal diseases caused by consuming contaminated food and water. Although studies on food safety practices in Nigerian schools exist, boarding schools remain relatively understudied in this regard. Given the pivotal role of food service providers in ensuring food safety, it is imperative to assess their knowledge and practices regarding food hygiene, particularly in boarding schools. This research endeavors to evaluate the understanding and implementation of food hygiene practices among food service providers in boarding secondary schools within the Niger-Delta States of Nigeria. The population of the study consisted all food service providers in Federal Government Colleges and missionary schools in the Niger-Delta region of Nigeria. Sample for this study was drawn from four secondary schools comprising two Federal Government Colleges and two missionary secondary schools in the Niger Delta region. Purposive sampling was employed to select two co-educational and two single-sexed secondary schools in the region, with fifteen food service providers selected from each school using the same technique, giving a total of 60 participants for the study. Through structured questionnaires various dimensions of food safety, personal hygiene, adherence to standards, environmental factors, and encountered barriers were explored. Key findings from the study revealed that while providers generally displayed awareness of food safety practices, deficiencies were noted in areas such as consistent use of personal protective gear and handling of leftover food. Adherence to food safety standards varied among providers, with some demonstrating compliance while others faced challenges in implementation. The, barriers to food hygiene practices included staff reluctance to report violations and shortages of trained personnel. while environmental factors such as water quality and proximity to agricultural activities significantly impacted food hygiene risks. The study recommended that there is urgent need for comprehensive training and stringent implementation of hygiene protocols to protect student health and ensure a safe dining environment in boarding schools.

Keywords: Food hygiene, Food safety, Regulatory measures, Socio-Economic Factors

AIMS Research Journal Reference Format:

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1. INTRODUCTION

Foodborne illness remains a persistent global health challenge despite concerted efforts by governments worldwide to mitigate its impact. The school environment, where millions of children are provided meals daily, holds significant influence over young people's food choices and dietary habits. Ensuring that foods and beverages served in schools are healthy, safe, and free from harmful microorganisms is imperative to meet the nutritional needs of students (WHO, 2022). Food hygiene encompasses all conditions and measures necessary to ensure food safety throughout the entire food chain, from production to consumption, while food safety focuses on minimizing hazards that could compromise the health of consumers (WHO, 2020). The World Health Organization (WHO) advocates the "Five keys to safer food" as fundamental guidelines for educating and training food handlers and consumers alike, emphasizing practices such as handwashing, separating raw and cooked foods, thorough cooking, and maintaining safe temperatures (WHO, 2022). These principles underscore the importance of proper food hygiene practices in preventing foodborne illnesses, which contribute significantly to global morbidity and mortality rates.

In the context of schools, where foodborne illnesses pose a significant threat to students' health, food hygiene practices are of utmost importance (Ali, 2023). The World Health Organization estimates that foodborne diseases affect approximately 600 million people annually, resulting in around 420,000 deaths worldwide (WHO, 2022). Poor hygiene practices, inadequate cooking, improper storage temperatures, and contaminated equipment contribute substantially to the spread of foodborne illnesses (WHO, 2022) the simple act of hand washing as well as other safety and hygiene practices are measures of halting the transmission of pathogens causing FBDs (Lokoyi, 2018) Food handling personnel play a critical role in ensuring food safety throughout the production and storage chain. Given the essential nature of food provision in schools and the vulnerability of millions of children to preventable illnesses, there is a pressing need to address food hygiene knowledge and practices among food service providers in boarding secondary schools, particularly in regions like the Niger-Delta where hygiene challenges may be pronounced.

Safe food provision in schools is not only a matter of healthcare but also a vital component of educational and societal development (WHO, 2022). Inadequate food safety measures in schools can disrupt education and hinder students' growth and development. Therefore, it is critical to embark on this study thereby safeguarding the health and well-being of students and promoting continued educational advancement in Nigeria.

Problem of the Statement

In boarding secondary schools within the Niger-Delta region, ensuring food safety is paramount due to the extensive food preparation and consumption within these institutions. Despite the pivotal role of food service providers in upholding hygiene standards, a notable gap exists in understanding their comprehension and implementation of food hygiene practices. While studies in various contexts stress the significance of proper food handling to prevent foodborne illnesses (Nascimento, et al., 2023), limited research specifically examines the knowledge and practices of food service providers within boarding schools, leaving a critical void in our understanding of this crucial public health aspect. This knowledge gap is particularly concerning given the potential repercussions of inadequate food hygiene practices.

With millions worldwide suffering from diarrheal diseases annually, a significant portion attributed to contaminated food and water consumption (Eustachio, 2021 and Kristanti, et al, 2023), boarding schools, serving meals to large student populations daily, face heightened risks of foodborne illnesses without stringent adherence to proper hygiene practices. Furthermore, the unique environment of boarding schools presents specific challenges, including limited resources, infrastructure constraints, and the need to cater to diverse student populations, potentially impeding food hygiene practices. Without a comprehensive understanding of these challenges and their implications, interventions to enhance practices may lack the necessary tailoring to address the specific needs of boarding school settings. Thus, bridging this knowledge gap becomes imperative to devise context-specific strategies aimed at bolstering food hygiene practices and curbing foodborne illnesses in boarding schools.

Objectives of the Study

The general objective of this research is to examine food hygiene knowledge and practices among food service providers in boarding secondary schools in the Niger-Delta sub region of the country. The Specific objectives of the study will be:

- i. To examine the food hygiene knowledge and practices among food service providers in secondary schools in the Niger-Delta region of Nigeria.
- ii. To establish stipulated standards for food hygiene practices among secondary schools in this region of Nigeria.
- iii. To compare food safety and hygiene practices among secondary schools in the Niger-Delta region of Nigeria.
- iv. To develop a policy action framework for improvement.
- v. To assess the environmental factors or conditions that can lead to food contamination.

Research Questions

The following research questions guided the study:

5. What are the food hygiene practices of food service providers in boarding secondary schools in the Niger-Delta region?
6. Do food service providers in Niger-Delta boarding schools have knowledge of appropriate food safety, personal and food hygiene practice?
7. Are there food safety standards guiding food service providers in Niger-Delta boarding schools?
8. What are the barriers to food hygiene practices among food service providers in Niger-Delta boarding schools?
9. Are there any environmental factors that can cause poor hygienic food production that contaminate food in boarding schools?

Scope of the Research

The study focuses specifically on boarding secondary schools located within the Niger-Delta region of Nigeria. This region is selected due to its unique socio-cultural and environmental characteristics, which may influence food hygiene practices among food service providers. The participants of the study are food service providers working within the selected boarding secondary schools. These providers are responsible for the preparation, handling, and serving of food to students residing in the boarding facilities.

Significance of the Study

The study on "Food Hygiene Knowledge and Practices Among Food Service Providers in Boarding Secondary Schools in the Niger-Delta" holds multifaceted significance for various stakeholders, including educational institutions, public health authorities, policymakers, and the broader community. By identifying gaps in food hygiene knowledge and practices among food service providers, the study can inform targeted interventions to reduce the risk of foodborne illnesses among students, ultimately safeguarding their health. Additionally, ensuring the safety and hygiene of school meals is crucial for promoting student health and academic performance, thus contributing to a safe and conducive learning environment. The study's findings can guide boarding schools in implementing effective food safety policies and procedures, while policymakers can use this information to develop evidence-based regulations tailored to address specific challenges in the region. Moreover, by adding to the existing body of knowledge on food hygiene practices in educational settings, particularly in the context of boarding schools in the Niger-Delta region, the study provides valuable insights for future research and contributes to advancing understanding of food safety issues in diverse cultural and environmental contexts.

2. CONCEPTUAL CLARIFICATIONS

Food Hygiene

Food hygiene is a critical component of public health and safety, ensuring the cleanliness and safety of food from production to consumption (Owusu-Apenten and Vieira, 2022). It encompasses various principles such as personal hygiene, proper food handling, thorough cooking, and maintaining a clean environment to prevent the spread of pathogens and contaminants (Owusu-Apenten and Vieira, 2022). Technological advancements contribute significantly to enhancing food safety measures, from innovative processing techniques to packaging methods (Dey et al., 2022). Exploring the intersection of technology and food hygiene provides insights into addressing emerging challenges in food safety effectively.

Food Hygiene Practices

Food hygiene practices are fundamental in ensuring the safety and quality of our food supply, encompassing measures to prevent contamination and maintain cleanliness throughout the production-to-consumption process (Kopper et al., 2023). These practices are paramount for public health, as contaminated food can lead to various foodborne illnesses with potentially severe consequences. Adhering to proper hygiene practices minimizes the risk of contamination, thereby enhancing the overall safety of the food chain and fostering consumer trust in food safety. Guided by key principles such as personal hygiene, cleaning and sanitation, prevention of cross-contamination, safe food storage, and thorough cooking (Sibisi, 2019), effective food hygiene practices ensure the integrity of the food supply chain. Personal hygiene emphasizes handwashing and cleanliness for those involved in food handling (Priyambodho and Astuti, 2023), while measures like cleaning and sanitation maintain hygienic conditions in food preparation areas. Prevention of cross-contamination involves separating raw and cooked foods and safe food storage and thorough cooking further mitigate risks of contamination (Kopper, 2023). These principles must be consistently applied across all stages of food processing and handling to minimize the incidence of foodborne illnesses.

Personal hygiene, extending beyond cleanliness, encompasses practices crucial for disease prevention and overall health (Overbosch and Blanchard 2023 and Hussain et al., 2018). It plays a pivotal role in reducing infection risks, enhancing self-esteem, and contributing to societal well-being. Education and awareness campaigns are essential in promoting good hygiene behaviors, emphasizing its importance in disease prevention and overall well-being. By embracing good personal hygiene practices, individuals contribute to building healthier and more resilient communities (Glowicz et al., 2023).

2.1 Theoretical Framework

Social Cognitive Theory

Social Cognitive Theory (SCT), pioneered by Albert Bandura (1986) offers valuable insights into understanding and improving food hygiene knowledge and practices among food service providers in boarding secondary schools in the Niger-Delta region. This theory underscores the significance of observational learning, self-efficacy, behavioral reinforcement, and cognitive processes in shaping individual behaviors, which are highly relevant to the context of food safety in educational settings. Observational learning, a core tenet of SCT, highlights the role of modeling and peer influence in acquiring new skills and behaviors. In the context of food hygiene, food service providers can learn best practices by observing and emulating the behaviors of experienced colleagues or role models who demonstrate proper hygiene practices. By promoting a culture of peer learning and mentorship, boarding schools can enhance food service providers' knowledge and skills related to food safety protocols and practices.

The concept of self-efficacy in SCT is particularly pertinent to understanding food service providers' confidence in executing food hygiene practices effectively. By fostering a sense of self-efficacy through training, feedback, and support, schools can empower providers to take ownership of their roles in maintaining food safety standards. Strengthening self-efficacy beliefs can enhance motivation, effort, and persistence in adhering to proper food hygiene practices, ultimately improving the overall safety and quality of school meals.

Behavioral reinforcement mechanisms outlined in SCT underscore the importance of positive reinforcement in promoting desirable behaviors. In the context of food hygiene, recognizing and rewarding food service providers for their adherence to safety protocols can reinforce desired behaviors and foster a culture of compliance. Conversely, addressing gaps in reinforcement and providing continuous learning and improvement.

Moreover, SCT highlights the role of cognitive processes, such as attention, memory, and decision-making, in mediating the relationship between environmental stimuli and behavior. By understanding the cognitive factors influencing food service providers' decision-making processes, schools can tailor interventions to address knowledge gaps, overcome barriers, and enhance the implementation of food hygiene practices. This comprehensive understanding of cognitive processes can inform the design of effective training programs, educational materials, and support systems to promote food safety in boarding secondary schools in the Niger-Delta region.

In summary, Social Cognitive Theory provides a valuable framework for understanding and addressing food hygiene knowledge and practices among food service providers in boarding secondary schools in the Niger-Delta. By leveraging the principles of observational learning, self-efficacy, behavioral reinforcement, and cognitive processes, schools can develop targeted interventions to enhance food safety practices, protect student health, and create a safe and hygienic dining environment.

3. METHODOLOGY

The research employed a qualitative research design to investigate food hygiene knowledge and practices among food service providers in boarding secondary schools in the Niger-Delta region. The population of the study consisted all food service providers in Federal Government Colleges and missionary schools in the Niger-Delta region of Nigeria. Sample for this study was drawn from 4 secondary schools made up of 2 Federal Government Colleges and 2 missionary secondary schools in the Niger Delta region. Purposive sampling was employed to select 2 co-educational and 2 single-sex secondary schools in the region, with 15 food service providers selected from each schools using the same technique, giving a total of 60 participants for the study.

4. DATA ANALYSIS AND PRESENTATION

Research Question 1: What are the food hygiene practices of food service providers in boarding secondary schools in the Niger-Delta region?

| S/N | Items | X | Decision |
|-----|---|-----|-------------------|
| 1 | I always follow strict handwashing procedures before handling and preparing food. | 3.5 | Strongly Agree |
| 2 | Surfaces where I prepare food are regularly cleaned and sanitized. | 3.3 | Strongly Agree |
| 3 | I have a separate storage area for raw and cooked food in my operation. | 2.9 | Agree |
| 4 | I attend regular training on food safety and hygiene practices. | 2.3 | Disagree |
| 5 | I ensure proper temperature checks for the safe storage of perishable foods. | 2.6 | Agree |
| 6 | I consistently use personal protective equipment (PPE) such as gloves and hairnets. | 2.2 | Disagree |
| 7 | My operation has a pest control program in place. | 2.5 | Agree |
| 8 | I have a documented process for handling food allergies. | 2.0 | Strongly Disagree |
| 9 | I welcome health inspections of my food preparation and storage areas. | 2.6 | Agree |
| 10 | I handle and store leftover food in a way that prevents contamination. | 1.8 | Strongly Disagree |

The primary research instrument, a self-structured questionnaire titled "Knowledge of Food Safety, Foodborne Diseases, Personal and Food Hygiene Practice Questionnaire (KFSFBDPHQ)," contained 50 items designed to elicit information on participants' demographic data and dependent variables related to personal and food hygiene practices. The questionnaire utilized a five-point Likert scale to gauge respondents' agreement levels with various statements. Descriptive statistics of mean and standard deviation was used to answer the research questions. Therefore, items with mean ratings of 2.50 and above were considered as agree and those from 2.50 and below were considered as disagree.

The study findings indicate a mixed adherence to food hygiene practices among food service providers in boarding secondary schools in the Niger-Delta region. While some providers demonstrate good practices such as handwashing before food preparation ($X=3.5$), regular surface cleaning ($X=3.3$), and temperature checks for perishable foods ($X=2.6$), significant gaps exist in other critical areas. These include insufficient attendance at food safety and hygiene training ($X=2.3$), inconsistent use of personal protective equipment ($X=2.2$), lack of documented processes for handling food allergies ($X=2.0$), and inadequate procedures for handling and storing leftover food to prevent contamination ($X=1.8$). Overall, these disparities underscore the need for comprehensive training and stricter enforcement of hygiene protocols to mitigate potential health risks to students consuming food from these providers, emphasizing the importance of regulatory oversight and continuous education to maintain high standards of food safety in school settings.

Research Question 2: Do food service providers in Niger-Delta boarding schools have knowledge of appropriate food safety, personal, and food hygiene practices?

| S/N | Items | X | Decision |
|-----|---|-----|----------------|
| 11 | I am aware of the recommended cooking temperatures for different types of food. | 2.8 | Agree |
| 12 | I can identify common signs of foodborne illnesses. | 2.9 | Agree |
| 13 | I receive regular training sessions on food safety. | 2.9 | Agree |
| 14 | I am aware of the potential risks associated with cross-contamination. | 2.6 | Agree |
| 15 | I have access to informational materials on proper food handling practices. | 2.7 | Agree |
| 16 | I am knowledgeable about the importance of proper food storage. | 3.3 | Strongly Agree |
| 17 | I stay updated on the latest food safety guidelines. | 2.9 | Agree |
| 18 | I can articulate the proper procedures for cleaning utensils and equipment. | 2.7 | Agree |
| 19 | I actively seek continuous education on food safety. | 2.8 | Agree |
| 20 | I am aware of the proper disposal methods for expired or contaminated food. | 2.7 | Agree |

The study's findings reveal a generally positive level of awareness and understanding among food service providers in Niger-Delta boarding schools regarding appropriate food safety, personal, and food hygiene practices. Providers demonstrate familiarity with recommended cooking temperatures

(X=2.8), ability to identify signs of foodborne illnesses (X=2.9), and access to regular training sessions on food safety (X=2.9). However, there are areas where knowledge could be strengthened, notably in understanding the risks of cross-contamination (X=2.6) and articulating proper procedures for cleaning utensils and equipment (X=2.7). These findings underscore the importance of continuous education and training to enhance food safety measures and mitigate the risk of foodborne illnesses among students, emphasizing the need for ongoing efforts to improve knowledge and application of food safety practices within boarding school food service environments.

Research Question 3: Are there food safety standards guiding food service providers in Niger-Delta boarding schools?

| S/N | Item | X | Decision |
|-----|---|-----|----------------|
| 21 | I adhere to national food safety standards in my food preparation. | 2.6 | Agree |
| 22 | I follow written guidelines and protocols for food handling. | 2.9 | Strongly Agree |
| 23 | I have a designated staff member responsible for overseeing food safety compliance. | 2.6 | agree |
| 24 | I regularly update my food safety policies according to industry standards. | 2.2 | Disagree |
| 25 | My food preparation area undergoes periodic inspections for compliance. | 3.1 | Strongly Agree |
| 26 | I have a documented process for reporting and addressing food safety violations. | 2.8 | Agree |
| 27 | I track and trace the source of food products used in my operation. | 2.9 | Agree |
| 28 | I follow guidelines for proper labeling and dating of food items. | 2.2 | Disagree |
| 29 | I provide my staff with resources outlining relevant food safety standards. | 2.7 | Agree |
| 30 | I have a contingency plan in case of a foodborne illness outbreak. | 2.8 | Agree |

The findings reveal a mixed level of adherence and implementation of food safety standards among food service providers in Niger-Delta boarding schools. While some providers indicate adherence to national food safety standards (X=2.6), utilization of written guidelines for food handling (X=2.9), and designation of staff responsible for overseeing compliance (X=2.6), notable gaps exist in other areas. These include the lack of regular updates to food safety policies according to industry standards (X=2.2), following guidelines for proper labeling and dating of food items (X=2.2), and provision of resources outlining relevant food safety standards to staff (X=2.7). However, positive indicators include undergoing periodic inspections for compliance (X=3.1), having documented processes for reporting and addressing violations (X=2.8), tracking and tracing the source of food products (X=2.9), and having contingency plans for foodborne illness outbreaks (X=2.8).

The implications underscore the need for more consistent and comprehensive implementation of food safety standards among providers in Niger-Delta boarding schools. Strengthening areas such as policy updates, labeling practices, and staff training could enhance overall compliance and mitigate potential risks of foodborne illnesses, emphasizing the importance of continuous monitoring, improvement, and adherence to established food safety protocols in school food service operations.

Research Question 4: What are the barriers to food hygiene practices among food service providers in Niger-Delta boarding schools?

| S/N | Item | X | Decisions |
|-----|--|-----|-------------------|
| 31 | Adequate financial resources are allocated for regular maintenance of my food preparation area. | 2.7 | Agree |
| 32 | My staff feel empowered to report any observed food safety violations without fear of reprisal. | 2.1 | Disagree |
| 33 | There is a shortage of qualified personnel trained in food safety and hygiene in my operation. | 2.1 | Disagree |
| 34 | I face challenges in sourcing high-quality, safe ingredients for food preparation. | 2.2 | Disagree |
| 35 | My food preparation area is equipped with modern appliances facilitating proper food hygiene. | 2.9 | Agree |
| 36 | Time constraints during meal preparation impact our ability to follow thorough food safety practices. | 2.0 | Strongly Disagree |
| 37 | Communication channels for disseminating food safety information to staff are inadequate. | 2.1 | Disagree |
| 38 | I face challenges in implementing and enforcing food safety policies consistently. | 2.3 | Disagree |
| 39 | My staff receives sufficient breaks and downtime to maintain their energy and focus on food safety. | 2.7 | Agree |
| 40 | There is a lack of awareness among my staff about the potential consequences of poor food hygiene practices. | 1.9 | Strongly Disagree |

The findings regarding barriers to food hygiene practices among food service providers in Niger-Delta boarding schools highlight a diverse range of challenges. While some providers report adequate financial resources for maintenance (X=2.7) and well-equipped preparation areas (X=2.9), significant barriers exist, including staff feeling disempowered to report violations (X=2.1), shortages of qualified personnel trained in food safety (X=2.1), time constraints during meal preparation impacting food safety practices (X=2.0), inadequate communication channels for disseminating food safety information (X=2.1), challenges in implementing and enforcing policies consistently (X=2.3), and a lack of awareness among staff about the consequences of poor hygiene practices (X=1.9). Addressing these barriers is crucial for enhancing food hygiene practices among providers in Niger-Delta boarding schools, emphasizing the need to empower staff, address personnel shortages, provide adequate resources and time, improve communication channels, ensure consistent policy implementation, and raise awareness about the importance of food safety.

Research Question 5: Are there any environmental factors that can cause poor hygienic food production and contaminate food in boarding schools?

| S/N | Item | X | Decisions |
|-----|--|-----|-------------------|
| 41 | My food preparation area is located in an area prone to pest infestations, posing a risk to food hygiene. | 1.8 | Strongly Disagree |
| 42 | Adequate waste disposal facilities are available to prevent environmental contamination. | 3.4 | Strongly Agree |
| 43 | Climate conditions in the region affect the storage and preservation of perishable foods in my operation. | 2.0 | Strongly Disagree |
| 44 | I have measures in place to address water quality issues that may impact food hygiene. | 2.1 | Disagree |
| 45 | The surrounding environment of my food preparation area is free from sources of pollution that could contaminate food. | 3.2 | Strongly Agree |
| 46 | Adequate ventilation systems are in place to maintain air quality in my kitchen. | 3.1 | Strongly Agree |
| 47 | I face challenges in maintaining a consistent power supply, impacting refrigeration. | 2.0 | Strongly Disagree |
| 48 | Proximity to agricultural activities poses a risk of pesticide contamination in the food I prepare. | 1.8 | Strongly Disagree |
| 49 | I have a waste management system that minimizes the risk of foodborne illnesses. | 2.6 | Agree |
| 50 | The geographical location of my food operation influences the availability and freshness of food ingredients. | 1.8 | Strongly Disagree |

The findings concerning environmental factors influencing hygienic food production and contamination risks in boarding schools present a varied landscape. While some providers demonstrate satisfactory waste disposal facilities (X=3.4), a pollution-free environment (X=3.2), and adequate ventilation (X=3.1), notable concerns exist in other domains. These include challenges in addressing water quality (X=2.1), maintaining consistent power supply affecting refrigeration (X=2.0), and potential hazards from agricultural activities (X=1.8) and geographical limitations impacting ingredient freshness (X=1.8).

Nonetheless, positive signs such as effective waste management systems (X=2.6) indicate efforts to counteract environmental risks. These findings underscore the need for concerted efforts to tackle issues like water quality, power reliability, and agricultural proximity to safeguard food hygiene standards in boarding schools. Continuous monitoring and adaptation strategies are essential to sustainably uphold food safety amidst evolving environmental dynamics.

5. DISCUSSION OF FINDINGS

The research on food hygiene practices in Niger-Delta boarding schools revealed several key findings. Providers showed awareness of food safety practices but had gaps in consistent use of personal protective equipment and handling leftover food. This highlights the importance of ongoing education for maintaining hygiene standards. Additionally, there were mixed levels of adherence to food safety standards, indicating a need for consistent application of protocols across all operations to minimize foodborne illness risks. Barriers such as staff feeling disempowered and time constraints during meal preparation were identified, emphasizing the need for targeted interventions to address systemic issues. Environmental factors played a significant role in contamination risks, with challenges like water quality issues and inconsistent power supply posing risks. Proactive measures are necessary to mitigate these risks and ensure food safety. The implications of these findings for student health and safety are substantial, underscoring the need for comprehensive training and strict implementation of hygiene protocols. Continuous monitoring is crucial to safeguard against foodborne illnesses and contamination outbreaks, ensuring a safe dining environment for students in boarding schools.

6. CONCLUSION

The findings of this study shed light on the state of food hygiene practices among food service providers in Niger-Delta boarding schools. While there are positive indicators of awareness and understanding of food safety practices, such as adherence to certain standards and utilization of guidelines, significant gaps and barriers exist that compromise the overall effectiveness of food hygiene efforts. Challenges such as inconsistent policy implementation, environmental factors like water quality issues and power supply reliability, and a lack of awareness among staff about the consequences of poor hygiene practices pose significant risks to the health and safety of students consuming food from boarding school providers. Despite these challenges, the study highlights opportunities for improvement, including the need for ongoing education and training programs, stronger enforcement of hygiene protocols, targeted interventions to address barriers, and proactive measures to mitigate environmental risks. By addressing these findings through collaborative efforts between stakeholders, including food service providers, regulatory authorities, and the broader school community, it is possible to enhance food hygiene practices and ensure a safe and healthy dining environment for students in Niger-Delta boarding schools. Continued research and monitoring are essential to track progress, identify emerging challenges, and inform evidence-based interventions aimed at promoting food safety and safeguarding public health in school settings.

7. RECOMMENDATIONS

In line with the findings of the study, the following recommendations were drawn:

1. Implement comprehensive and regular training programs on food safety and hygiene practices for food service providers in Niger-Delta boarding schools to enhance their knowledge and skills in maintaining high standards of food hygiene.
2. Strengthen enforcement mechanisms to ensure consistent adherence to national food safety standards and guidelines among food service providers, including regular inspections and monitoring of compliance.

3. Address barriers to effective food hygiene practices, such as staff empowerment, personnel shortages, time constraints, and communication challenges, through targeted interventions and support mechanisms.
4. Invest in infrastructure improvements, such as upgrading waste disposal facilities, enhancing water quality management systems, and ensuring consistent power supply for refrigeration, to mitigate environmental factors that can impact food hygiene in boarding school operations.
5. Foster a culture of continuous improvement and accountability in food hygiene practices by promoting awareness among food service providers about the consequences of poor hygiene practices and encouraging active participation in ongoing quality improvement initiatives.

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