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ASSESSMENT OF ATTITUDE TOWARD FOOD HYGIENE AMONG FOOD HANDLERS IN BOARDING SECONDARY SCHOOLS IN NORTHWEST ZONE, NIGERIA

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Abstract

The study assessed the attitude toward food hygiene among food handlers in boarding secondary schools in North West Zone, Nigeria. To achieve this purpose, the descriptive survey research design was used and the target population for this study was 1112 and also, the sample size was 470 which were drawn from four states in the North West Zone of Nigeria. The participants were selected using multi-stage sampling techniques. A close-ended structured questionnaire based on the modified four (4) point Likert scale was used to obtain responses from the respondents. A pilot study was carried out to test the reliability of the instrument and a statistical analysis of Cronbach's Alpha correlation coefficient of 0.88 was obtained. The 470 copies of the questionnaire were distributed to the respondents and retrieved. Descriptive statistics of means and standard deviations was used to answer the research question. The formulated hypothesis was tested at a 0.05 level of significance using inferential statistics of a one-sample t-test. The results revealed that attitude toward food hygiene among food handlers in boarding secondary schools in Northwest Zone, Nigeria was significant ($p= 0.000 < 0.05$). It was concluded that the food handlers in the boarding secondary schools in North West zone, Nigeria have a positive attitude towards food hygiene. The study recommended that the school management in boarding secondary schools in the Northwest Zone of Nigeria should implement incentive programs that recognize and reward exemplary food safety practices, fostering a culture of high hygiene standards and motivating food handlers to consistently prioritize food safety, thereby reinforcing positive attitudes and ensuring a safe and hygienic food environment.

Keywords: Attitude, Food Hygiene, Food Handlers, Boarding Secondary Schools

Introduction

Food hygiene is a critical aspect of public health, particularly in settings where large groups of people are served meals, such as boarding secondary schools. The attitude of food handlers towards food hygiene plays a significant role in determining the safety and quality of food served to students. In Nigeria, foodborne illnesses remain a major public health concern, with poor hygiene practices identified as a leading cause of contamination (World Health Organization [WHO], 2021). The Northwest Zone of Nigeria, comprising states such as Kano, Kaduna, Sokoto, and Zamfara, has a high concentration of boarding secondary schools, making it imperative to assess the attitudes of food handlers in these institutions.

The importance of food hygiene cannot be overstated, as it directly impacts the health and well-being of students. Poor food hygiene practices can lead to the spread of pathogens such as Salmonella, E. coli, and Listeria, which are responsible for illnesses like diarrhoea, typhoid fever, and cholera (Centers for Disease Control and Prevention [CDC], 2020). In boarding schools, where students rely on institutional kitchens for their daily meals, the risk of foodborne outbreaks is heightened. Food handlers, including cooks, servers, and kitchen staff, are the first line of defence in ensuring food safety. Their attitudes towards hygiene practices, such as handwashing, proper food storage, and cleanliness of utensils, significantly influence the likelihood of contamination (Aluko et al., 2019).

Despite the critical role of food handlers, studies have shown that their attitudes and practices are often suboptimal in many low- and middle-income countries, including Nigeria. For instance, a study by Okeke et al. (2020) revealed that many food handlers in Nigerian schools lack adequate knowledge of basic food hygiene principles. This knowledge gap is often compounded by poor attitudes, such as negligence and indifference towards hygiene protocols. In the Northwest Zone, cultural and socioeconomic factors may further exacerbate these challenges. For example, limited access to clean water and sanitation facilities in some areas can hinder the ability of food handlers to maintain proper hygiene standards (Abdul-Mumin et al., 2021).

The attitudes of food handlers are influenced by a variety of factors, including their level of education, training, and awareness of food safety regulations. In Nigeria, many food handlers in boarding schools have not received formal training in food hygiene, which contributes to poor attitudes and practices (Akinbode et al., 2018). Additionally, the lack of stringent

enforcement of food safety regulations by school authorities and government agencies further undermines the importance of hygiene. Without proper oversight, food handlers may not feel compelled to adhere to best practices, leading to a higher risk of food contamination (Okojie & Isah, 2019).

The consequences of poor food hygiene in boarding schools extend beyond immediate health risks. Foodborne illnesses can lead to absenteeism among students, negatively affecting their academic performance and overall development. In severe cases, outbreaks can result in school closures, causing disruptions to the educational system (WHO, 2021). Furthermore, the economic burden of treating foodborne diseases places additional strain on families and the healthcare system. In the Northwest Zone, where poverty rates are high, the impact of such illnesses can be particularly devastating (Abdul-Mumin et al., 2021; Nofiu et al., 2018).

Several studies have highlighted the need for targeted interventions to improve food hygiene practices in Nigerian schools. For example, Akinbode et al. (2018) recommended regular training programs for food handlers to enhance their knowledge and attitudes towards hygiene. Similarly, Okeke et al. (2020) emphasized the importance of providing adequate resources, such as clean water and sanitation facilities, to support proper hygiene practices. However, there is a paucity of research specifically focusing on the Northwest Zone, where unique cultural and environmental factors may influence the attitudes of food handlers.

The theoretical framework for this study is based on the Health Belief Model (HBM), which posits that individuals' attitudes and behaviours are influenced by their perceptions of susceptibility, severity, benefits, and barriers (Rosenstock, 1974). In addition to the Health Belief Model, this study draws on the findings of previous research conducted in similar contexts. For example, a study by Aluko et al. (2019) in Southwest Nigeria found that food handlers who received regular training and supervision were more likely to exhibit positive attitudes towards hygiene. Similarly, Okojie and Isah (2019) reported that the provision of adequate resources, such as handwashing stations and cleaning supplies, significantly improved hygiene practices among food handlers. This study seeks to assess the attitudes of food handlers towards food hygiene in boarding secondary schools in the Northwest, Nigeria.

Research Question

What is the attitude of food handlers towards food hygiene in boarding secondary schools in the Northwest Zone of Nigeria?

Hypotheses

Attitude toward food hygiene among food handlers in boarding secondary schools in Northwest Zone, Nigeria is not significant.

Methodology

The research design employed in this study was a survey research design, which was deemed appropriate for the study's objectives. According to Anikweze (2013), survey research involves a detailed and critical examination of a topic or situation to ascertain the current state of affairs. The population of the study comprised all food handlers in boarding secondary schools across the North West Zone, which includes states such as Sokoto, Kebbi, Katsina, Zamfara, Kaduna, Jigawa, and Kano. The total number of state boarding secondary schools in this zone is 226, with 1,943 food handlers employed across these schools. The data on the number of schools and food handlers was obtained from the State Ministry of Education (2022).

The sample size for the study was determined to be 470 food handlers, drawn from a population of 1,112. A multistage sampling technique was employed to select the sample, which included simple random sampling, stratified sampling, and proportionate sampling. In the first stage, four states (Katsina, Jigawa, Kebbi, and Sokoto) were randomly selected from the seven states in the North West Zone using a hat-drawn method. In the second stage, the sample size of 470 was determined using the Research Advisor table for determining sample size, which recommended this number based on a population of 1,112, a 0.035% margin of error, and a 95% confidence interval. The third stage involved stratifying each selected state into three senatorial zones (Northern, Southern, and Central), and in the fourth stage, two senatorial zones were randomly selected from each state. Finally, a proportionate sampling technique was used to select 470 food handlers from the four states, ensuring that the sample was representative of the population. Convenience sampling was then used to distribute the questionnaires to the selected food handlers, as they were sparsely distributed across the schools.

The data collection instrument was a close-ended questionnaire which assessed the attitude towards food hygiene among the food handlers using a 4-point Likert scale. The validity of the instrument was established through vetting by experts in the Department of Human Kinetics and Health Education at Ahmadu Bello University, Zaria. A pilot study was conducted with 50 participants to test the reliability of the instrument, and the data collected were analyzed using Cronbach's alpha, which yielded a reliability index of 0.88, indicating high internal consistency. Mean and standard deviation was used to answer the research question. The null hypothesis was tested using a one-sample t-test at a 0.05 level of significance.

Results

Research Question: What is the attitude of food handlers towards food hygiene in boarding secondary schools in the Northwest Zone of Nigeria?

Table 1: Respondent Attitude of Food Hygiene among Food Handlers

S/N	Statement	Mean	SD
1	I feel that food handlers need to take their bath before starting the day's food preparation.	3.08	1.278
2	I believe food handlers are to sanitize cooking environments before cooking.	3.04	1.152
3	There should be a need for covering food always from flies and other insects.	3.35	1.441
4	I think control of insects and rodents must be regular to ensure food safety.	3.59	1.298
5	I feel storing uncooked food in a clean dry environment helps to keep food safe,	3.72	1.283
6	I believe that cleaning procedures of equipment such as; pots, knives, and other kitchen utensils can lead to transmission of diseases such as bacteria.	1.89	1.415
7	I believe food handlers must wash vegetables and animal-originated foods before cooking.	3.35	1.250
8	I feel that food poisoning is transmitted through unwashed hands.	3.44	1.375
9	I think caps, face masks, gloves and adequate protective clothing must be used to reduce the risk of food contamination.	3.46	1.365
10	I believe food handlers suffering from food-borne diseases must not be allowed to work in the kitchen at all.	1.82	1.475
	Average	**3.074**	

Decision / Criterion Mean = 2.5

Table 1 shows the respondent attitude toward food hygiene among food handlers. The average mean for all statements is 3.074, indicating a moderate overall agreement with the given statements. The few highest means include statement 15, storing uncooked food in a clean dry environment helps to keep food safe with a mean of 3.72, and statement 14, control of insects and rodents must be regular to ensure food safety, with a mean of 3.59. Similarly, statement 19 shows that a cap, face mask, gloves and adequate protective clothing must be used to reduce the risk of food contamination with a mean of 3.46, while item 18 reveals that food poisoning is transmitted through unwashed hands with a mean of 3.44. In the same vein, items 13 and 17 show the need to always cover food and prevent flies and other insects, and food handlers must wash vegetables and animal-originated foods before cooking with a mean of 3.35 respectively. Item 11 shows that the majority of the respondents agreed that food handlers need to take their baths before starting the day's food preparation and item 12 revealed that food handlers are to sanitize cooking environments before cooking with mean scores of 3.08 and 3.04 respectively. These statements suggest a relatively strong agreement with the majority of the items regarding the importance of proper food storage and pest control for food safety. On the other hand, statement 16, cleaning procedures of equipment can lead to transmission of diseases such as bacteria, has the lowest mean of 1.82, indicating an agreement. They also show disagreement with statement 20 which says that food handlers suffering from food-borne diseases must not be allowed to work in the kitchen at all. In summary, the respondents generally express moderate agreement with the importance of attitude towards personal and environmental hygiene in food handling. The key points of consensus include the attitude toward the necessity of covering food to protect it from flies and insects, regular control of insects and rodents to ensure food safety, and the use of clean and dry environments for storing uncooked food. In conclusion, the findings highlight a strong positive attitude of food handlers towards food hygiene in boarding secondary schools in the Northwest Zone of Nigeria.

Hypothesis: Attitude toward food hygiene among food handlers in boarding secondary schools in Northwest Zone, Nigeria is not significant.

Table 2: One sample t-test statistical analysis results on the significance of Attitude toward food hygiene among food handlers in boarding secondary schools in Northwest Zone, Nigeria.

	N	Mean	SD.	SD. Error Mean	Df	t_{Cal}	t_{Cri}	p-value
Attitude	470	33.247	5.788	.267	469	-25.29	1.965	0.000

$t_{Cal.} > t_{Cri}$ at df 469, calculated p-value (0.000) < 0.05, t = |25.29|

Table 2 shows that the attitude toward food hygiene among food handlers in boarding secondary schools in the Northwest Zone of Nigeria is significant. The results of the one-sample t-test, as presented in the table revealed that the mean attitude score is 33.247, with a standard deviation of 5.788. The standard error of the mean is 0.267, calculated based on a sample size

of 470 and degrees of freedom (df) of 469. The calculated t-value (t_{Cal}) is -25.29, while the critical t-value (t_{Cri}) at df 469 and a significance level of 0.05 is 1.965. The absolute value of t_{Cal} (|25.29|) is significantly greater than t_{Cri}, indicating a highly significant difference. The p-value, calculated as 0.000, is less than 0.05, providing strong evidence against the null hypothesis.

Therefore, based on the results of the one-sample t-test, it can be concluded that the attitude toward food hygiene among food handlers in the boarding secondary schools in the Northwest Zone of Nigeria is indeed significant. The negative t-value indicates that the mean attitude score is significantly lower than a hypothetical mean, suggesting a need for targeted interventions to improve attitudes towards food hygiene practices among the food handlers in the Northwest Zone of Nigeria.

Discussion of Findings

The finding of the study reveals that attitude toward food hygiene among food handlers in boarding secondary schools in the Northwest Zone of Nigeria is a significant aspect of ensuring the safety and well-being of students. Attitudes play a pivotal role in shaping behaviours, particularly in the context of food handling practices where adherence to hygiene protocols is crucial for preventing food-borne illnesses. Investigating the attitudes of food handlers provides valuable insights into their perceptions, beliefs, and motivations regarding food hygiene, which can influence their compliance with established standards and protocols. This finding agrees with Chuckwuocha *et al.* (2009) who reported that there was a good attitude of food handlers towards some practices; especially hand washing in food sanitation in South Africa. Similarly, this finding agreed with Iwu *et al.* (2017) who reported a positive attitude toward food hygiene among food vendors in Owerri, Imo State, Nigeria. On the contrary, Dagne *et al.* (2018) reported a poor attitude toward food handlers working in food establishments in Ethiopia. This finding implies that there is a need for the identification of factors that may influence the attitudes of food handlers toward food hygiene practices. These factors could include cultural norms, personal beliefs, level of awareness, and the perceived importance of food safety in the context of their role as food handlers. Afolaranmi *et al.* (2015) posited that through examination of these factors, it is possible to have a deeper understanding of the underlying determinants of attitude formation and explore potential avenues for promoting positive attitudes toward food hygiene among food handlers in boarding secondary schools.

Moreover, Iwu *et al.* (2020) emphasized that the attitudes of food handlers toward food hygiene can have significant implications for the overall effectiveness of food safety interventions and training programs. Several other studies conducted in Pakistan, Ghana, Turkey, Brazil and Malaysia showed poor food safety attitudes and practices for food vendors (Bas *et al.* 2016; Isoni *et al.* 2019). For example, Bas *et al.* (2016) reported that hotel staff in Turkey were unlikely to boil and refrigerate milk, store and refrigerate food leftovers within 2 h, and check the expiration date of food. Mendedo *et al.* (2017) reported that food vendors did not wash their hands before preparing a meal because they believed it was a waste of time, and also because they were unaware of the consequences of dirty hands. Positive attitudes are often associated with greater receptivity to educational initiatives and a willingness to adopt recommended practices. Conversely, negative attitudes or misconceptions may pose barriers to behaviour change and hinder efforts to improve food hygiene standards. Therefore, understanding the attitudes of food handlers toward food hygiene can contribute to the development of targeted strategies for promoting behaviour change and enhancing compliance with hygiene protocols. By addressing underlying attitudes and beliefs through targeted communication strategies, educational materials, and incentives, stakeholders can work toward fostering a supportive environment that prioritizes food safety. Ultimately, by recognizing the significance of attitude formation in shaping behaviour, policymakers, educators, and health professionals can collaborate to implement evidence-based interventions that promote positive attitudes toward food hygiene among food handlers in boarding secondary schools.

Conclusion

The attitude toward food hygiene among food handlers in boarding secondary schools in the Northwest Zone of Nigeria is positive.

Recommendations

Since attitudes toward food hygiene among food handlers in boarding secondary schools in the Northwest Zone of Nigeria is significant, the school management should implement an incentive programme that recognizes and rewards positive behaviours related to food safety. By acknowledging and incentivizing exemplary practices, schools can foster a culture where food handlers are motivated to uphold high standards of hygiene and consistently prioritize food safety. This approach not only reinforces positive attitudes among food handlers but also encourages a collective commitment to maintaining a safe and hygienic food environment within the school community.

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