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Assessment of Students' Attitudes Towards Food Safety Procedures in Canteen Food Services in Private Basic Schools in Salaga, Ghana

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ABSTRACT

Purpose of the Study: This study investigates the attitudes of students attending private basic schools in Salaga, Ghana, towards food safety procedures in canteen food services. The objectives of this study were twofold: first, to assess the attitudes of students attending private basic schools in Salaga towards food safety procedures in canteen food services; second, to ascertain the potential relationship between food safety procedures and students' knowledge of food quality.

Statement of the Problem: Students in private schools in the Salaga district often depend on canteen-provided meals and services for daily meals. These educational institutions frequently serve a multicultural student body with a range of dietary needs, interests, and cultural backgrounds. Food safety is a major issue when it comes to school canteen food services because it has an immediate impact on student's health and well-being. While the amount of research on food safety procedures in food service establishments is growing, little is known about how students in Ghana's private basic schools feel about them. On the particular attitudes of students in Salaga, Ghana's private basic schools regarding the canteen services' food safety protocols, there is, however, a paucity of empirical research. The absence of sufficient data makes it difficult to identify possible gaps in students' knowledge, attitudes, and practises regarding food safety in these settings, which could put them at unnecessary risk for health issues.

Methodology: The study Employed a cross-sectional research design. A study population of 158 students participated in this research. Primary data was collected by the use of structured questionnaire.

Result: The findings of this study provide valuable insights into the attitudes of students towards food safety procedures, shedding light on their perceptions of canteen food services in private basic schools in Salaga. The study established that food poisoning is cause by pathogens. With this knowledge respondents were extremely cautious in food handling and that it was important to wash hands right after unhygienic practices and this should among both the food vendors and the eaters. Most 90(57.0%) strongly dissatisfied with resources available in the school canteen. They claimed that the few available resources like the refrigerator, cooking and eating utensils are absolute. The probit regression analysis shows that; knowledge on presence of pathogens in food, kitchen environment, nature of storage facilities in the school canteen, caution of their health statuses and source of vegetables and fruits significantly influence the dependent variable (Attitudes towards Food Safety Procedures). It also underscores that food safety procedures and students' knowledge on food quality helped raised the awareness and promote safe food practices among the youth.

Conclusion: The study concludes that educating people about food hygiene is vital for ensuring the

production of quality foods. Students need ongoing education to ensure that the food they consume meets the necessary standards. Stakeholders in the education and food service industries, should ensure the health and well-being of students through the provision of safe and nutritious meals.
Recommendation: It is recommended that the kitchen environment and equipment be kept tidy to prevent pathogens growth and infections and also both canteen food handlers and students should be giving the required food safety courses to help prevent the spread of foodborne diseases.

Keywords: Attitudes, Canteen, Food Safety, Food Quality, Kitchen Environment, Salaga and Ghana

1.0 INTRODUCTION

The food served in school canteens must be safe because it has a direct impact on students' health and well-being (Sliwa, Hawkins, Lee, & Hunt, 2023). Concern and knowledge about food safety protocols in these environments have grown in the last few years. According to Sucipto et al (2023) private basic schools particular have come under investigation to make sure that the food served in their canteens complies with strict safety regulations. As a result, evaluating the attitudes of students towards the food safety protocols in the canteen has emerged as a crucial component in guaranteeing the general standard of school meals (Bulto et al 2022).

In the view of Parikh, Aparo, Nordhagen & De Steur (2022) food preparation, handling, storage, and hygiene procedures are just a few of the many facets that make up the complex problem of food safety in school canteens. In addition to being required by law, schools have a moral duty to safeguard the health of their students by ensuring the safety of the food they serve. Research have demonstrated that inadequate food safety procedures can result in foodborne infections, which have an impact on students' health and academic achievement (Smith et al., 2019). Therefore, in order to spot any potential gaps in knowledge and compliance, it is crucial to comprehend how students feel about the food safety protocols in canteens. Furthermore, it is especially pertinent that private elementary schools serve as the assessment's primary focus. Comparing private schools to public ones, the former frequently enjoy greater latitude in how they run their food services. Additionally, their financial means and reasons for investing in food safety measures might differ (AlQurashi, et al, 2022). It is possible to gain insight into how different elements, including socioeconomic status and school policies, affect students' perceptions and behaviours related to food safety by analysing their attitudes towards these schools.

Ebenezer, (2019) observed that ensuring the safety of Ghanaian schoolchildren requires evaluating students' attitudes towards canteen food services' food safety protocols. In the nation, canteen services are a common feature of private basic schools and are essential to students' daily nutrition. To safeguard the health of the young students, food preparation and service must adhere to strict safety and hygienic standards (Moghnia, Rotimi & Al-Sweih, 2021). It is on tis note that, Khaing, Ameen & Isaac, (2019) acknowledged in their study that to improve public health and guarantee that kids eat safe and wholesome meals during the school day, it is essential to comprehend and assess students' attitudes regarding food safety protocols in canteen food services in a country like Ghana, where a variety of foodborne illnesses are common. Food safety has become a more pressing issue in educational institutions across the globe in recent years (Gizaw, 2019). It is commonly known that foodborne illnesses can negatively affect students' health and academic performance (Margherita et al., 2023). Due to multiple cases of foodborne illnesses connected to canteen food services in both public and private schools, food safety in school canteens has come to light in Ghana. This begs the question of how conscious and considerate students are of the food

safety protocols in their school canteens.

Students' attitudes have a significant influence on the way they behave, and knowing how they perceive things can help us better understand how effective school canteen food safety policies are (Czernyszewicz, 2023). By investigating the attitudes of students in Ghanaian private basic schools regarding food safety protocols in canteen food services, this study will potentially identify areas for improvement and promotes the improvement of food safety practices to protect the health of young students. An important area of concern in the educational landscape is the assessment of students' attitudes towards food safety protocols in canteen food services, especially in Salaga's private basic schools. According to Margherita et al. (2023), ensuring the safety of the food served in school canteens is not only important for students' nutritional needs but also for their general health and academic performance. Given the growing significance of nutrition for children's growth and welfare, it is critical to comprehend how students view and engage with the food safety protocols in place in canteen services, as these attitudes have a substantial influence on their dietary decisions and health results (Agustin, Musfirah & Rahayu, 2023).

This subject takes on particular relevance in the context of Salaga's private basic schools, where a sizable portion of the student body depends on canteen food services for daily meals. These educational institutions frequently serve a multicultural student body with a range of dietary needs, interests, and cultural backgrounds. Therefore, determining how students feel about canteen food safety policies is crucial to creating food safety programmes that work and raising the standard of nutrition offered in these educational settings as a whole (Jin et al., 2023). Food safety is a major issue when it comes to school canteen food services because it has an immediate impact on student's health and well-being (World Health Organisation, 2019). To ensure students' overall health and safety in Salaga, Ghana's private basic schools, where they often depend on canteen-provided meals, it is critical to evaluate students' attitudes towards food safety protocols (Ghana Education Service, 2021). Understanding students' attitudes towards food safety in canteen services is important because it can have a big impact on their dietary choices and consumption patterns, according to recent studies (Suhartatik et al., 2023). In addition, the World Health Organisation (2018) has stressed the significance of promoting a culture of responsible food handling among students and reducing the risks of foodborne illnesses in educational settings by raising awareness of food safety.

While the amount of research on food safety procedures in food service establishments is growing, little is known about how students in Ghana's private basic schools feel about them. On the particular attitudes of students in Salaga, Ghana's private basic schools regarding the canteen services' food safety protocols, there is, however, a paucity of empirical research. The absence of sufficient data makes it difficult to identify possible gaps in students' knowledge, attitudes, and practises regarding food safety in these settings, which could put them at unnecessary risk for health issues (Centres for Disease Control and Prevention, 2017). The results of this study, which look at student attitudes, can guide focused interventions and policies that improve food safety and general well-being in these learning environments. These goals are in line with the more general objectives of encouraging academic success and healthy school environments. By thoroughly evaluating students' attitudes towards food safety protocols in canteen food services and determining whether or not food safety protocols and students' knowledge of food quality are related, this study aims to close the knowledge gap. Students who attend private basic schools in Salaga are the target population for this research.

2.0 METHODOLOGY

2.1. Study Design and Participants

In the East Gonja municipality, 164 pupils from 12 basic private schools participated in a cross-sectional study. A three-phase stratified cluster sampling technique was employed in this study's participant recruitment. First, six area councils in the municipality were identified. Second, in accordance with the school categories, two private basic schools were selected from each of the chosen area councils. Third, the schools were separated into three groups of two. The standards of the school and the canteen setting were used to determine the categories. The area council's rural location demonstrated the level of development and environment of the school canteen. The canteens classified as category "A" had modern amenities such as piped water, gas use in the kitchen, neatly arranged dining tables and chairs and electricity. Canteens classified as category 'B' had gas in the kitchen, clean water but not piped, improperly arranged eating areas and no electricity. On the other hand, category 'C' canteens used firewood in the kitchen, had no electricity, ate outside the canteen and used water from sources other than pipe. There are 54 participants in each category.

2.2. Instruments

The knowledge and attitudes of students regarding food safety protocols in the school canteen were taken into consideration when developing the questionnaire. The questionnaire's internal consistency (Cronbach's alpha = 0.89) was deemed acceptable. A pilot study and several rounds of expert consultations went into creating the final questionnaire. Demographic information, student attitudes towards food safety protocols in the school canteen, the safety of the school environment, student knowledge of specific canteen food quality, and food safety procedures were among the data gathered. Their parents' educational background, daily living expenses, ethnicity, gender, age, and school category were all included in the demographic data. Ten items were used to gauge student attitudes about food safety protocols in the canteen food services. Every item received a score of 1 if the response was in agreement, and 0 if it was in disagreement or stated, "I do not know." A high score indicated a high level of topic knowledge. The total score ranged from 0 to 10. Ten items were used to gauge attitudes regarding food safety. Every item had five scores, indicating "Strongly disagree" to "Strongly agree," on a scale of 1 to 5. A high score indicated that the person was more concerned about food safety. The total score for this part ranged from 10 to 50. There were five items used in the assessment of school environment safety. Participants were asked to rate how frequently they engaged in these activities: 1 indicates strongly disagree, 2 disagree, 3 remain neutral, 4 agree, and 5 strongly agree. A high score denoted good safety canteen environmental practises. The total score for these items ranged from 7 to 25. Using ten items, food safety protocols and students' understanding of the quality of canteen food were assessed. Every item has a scoring range of 0 to 1, meaning "no" and "yes."

2.3. Quality Assurance

The pilot study was carried out twice to guarantee the questionnaire's quality and reliability. Twenty-five junior students from public basic schools in the same municipality participated in the first pilot study; these students were not part of the official investigation. The use of descriptive statistical analysis revealed a few irrational items. For instance, several items had a large number of missing values, which was because the respondents were unable to understand the items because of their incorrect expression. A test for internal consistency was used. The first pilot study's questionnaire had an internal consistency of just 0.62. Fifteen junior students who were excluded from the formal investigation participated in the second pilot study. The second pilot study's questionnaire had an acceptable level of internal consistency (Cronbach's

alpha was 0.89). Every investigator received the same training.

2.4. Ethics statement

The Gambaga College of Education's Ethical Committee examined and approved this project. The consent of the participants was properly obtained, and they were free to leave the study at any time or to participate voluntarily. Additionally, they received assurances regarding the privacy of the information they provided.

2.5. Statistical analyses

The study sample's demographics and the specific findings regarding the evaluation of students' opinions regarding food safety practises in the canteen food services of three categories of private basic schools were presented as percentages. The "mean" and "standard deviation" (SD) of the student's attitudes towards the canteen food services' food safety protocols were reported. Three school categories were considered when analysing the safety of the school environment using percentages and frequencies. The quality of the food services provided in the canteen and students' awareness of food safety procedures were found to be related, using probit regression analysis. Cronbach's alpha was used to compute the questionnaire's internal consistency. A two-sided test was used to analyse all the statistics. A significance level of $p < 0.05$ was established. The software SPSS 22.0 was used to analyse the data (IBM Corp, USA).

3.0 RESULT

3.1. Demographic characteristics of the students from three school categories in Salaga, Ghana (n = 162)

Variables	School category		
	Category "A"	Category "B"	Category "C"
Gender			
Male	30(55.6%)	25(46.3%)	28(51.9%)
Female	24(44.4%)	29(53.7%)	26(48.1%)
Age			
11-15	31(57.4%)	27(50.0%)	23(42.6%)
16-20	23(42.6%)	27(50.0%)	31(57.4%)
Grade			
Basic 6	10(6.2%)	8(4.9%)	9(5.6%)
Basic 7	15(9.3%)	17(10.3%)	17(10.3%)
Basic 8	17(10.3%)	10(6.2%)	14(8.6%)
Basic 9	18(11.1%)	12(7.9%)	15(9.3%)
Attention to food safety information			
Yes	35(64.8%)	40(74.1%)	20(37.1%)
No	19(35.2%)	14(25.9%)	34(62.9%)

The demographic characteristics of the study sample and detailed results on attitudes towards food safety procedures of three school categories were expressed as percentages**.** As shown in Table 1, 27 (16.7%) of the students were from basic six. Forty-nine (29.9%) students were at basic 7 of their education. Whiles 41 (25.1%) of the sampled students were from basic eight. Basic 9 on the hand had 45(27.3%) standing at basic nine. The number of males exceeded that of females in schools' categories. There were 83(51.2%) males and 79(48.8%) females. There were 57.4% in category "A", 50.0% in category "B" and 42.0% in category "C" 11–15-year-old students across the various stages, respectively. Meanwhile, 42.6% of the respondents were in Category "A", 50.0% in Category "B" and 57.4.0% in Category "C" of ages between

16–20 across the various stages, respectively. 64.8% of the students in category "A" indicated that they pay important attention to food safety information, as 35.2% do not, most (74.1%) of the students in category "B" pay full attention to food safety protocols, whereas 25.9% do not care much about the safety of the foods they consumed and 37.1% of students in category "C" schools paid attention to food safety information. However, eat in the majority of students in category "C" completely ignored safety instructions and protocols whenever they went to eat in the school canteen as shown in Table 1.

3.2. Attitudes towards food safety procedures in canteen food services among students

On a five-point Likert-type scale, the respondents were asked to list their attitudes and practises regarding food safety issues and how it has improved the microbiological quality of the food served in the school canteen. Table 2 displays the respondents' attitudes and behaviours regarding food safety. The findings showed that respondents at Gambaga College of Education have a positive attitude towards food safety procedures, as evidenced by the mean of means value of 3.47, or roughly 4.0 with an SD = 1.00, which falls into the "Agree" response category on the scale.

Table 2: Attitudes towards food safety procedures in canteen food services among students

Statement	Mean	Std.
You are concern about food safety incidents in recent years in our Country	2.44	1.17
One main responsibility is to handle food safely in the school canteen	3.98	0.76
Personal cleanliness is highly important when I am entering the canteen	4.74	0.72
Food handlers suffering from foodborne diseases should not be allowed to go to work and steer clear from the premises where they work	3.93	0.78
Techniques of washing hands properly are important food preparation and consumption titbits	3.01	1.24
It is important to wash hands right after unhygienic practices	3.55	0.77
You are concern about the current situation of food safety in the school canteen	2.11	1.20
Constant cleaning of the canteen environment is very important	4.34	1.13
Eat food with unclean plates always should not encourage	4. 83	0.82
Concern about habit of eating food in restaurants around the school without safety precautions	3.02	0.79
Means of means	**3.47**	**1.00**

***SD is standard deviation, n**=164

3.3. Safety of the school environment

Table 3 shows how safe the school canteen environment is in the East Gonja municipality's private basic schools. Questions on the microbiological safety of the school canteen environment were asked using a Likert scale. When potentially hazardous materials are present and could result in an excessive accumulation of residues in food, primary food processing should be avoided.

Table 3: Safety of the school canteen environment

Variable	Frequency (f)	Percentage (%)
I am satisfied with the resources available in the school canteen		
Strongly disagree	90	57.0
Disagree	30	19
Neutral	5	3.2
Agree	30	19
Strongly agree	3	1.9
Total	**158**	**100**
I am satisfied with how often the use of the plate are wash	120	75.9
Strongly disagree	30	19
Disagree	--	--
Neutral	8	5.1
Agree	5	3.2
Strongly agree	**158**	**100**
Total		
I am satisfied with the arrangement in the canteen	60	
on how often the water for washing plates is change	33	38
Strongly disagree	--	20.9
Disagree	35	--
Neutral	30	22.2
Agree	**158**	19
Strongly agree		**100**
Totals	30	
Leftover foods are properly disposed off	75	19
Strong disagree	3	47.4
Disagree	30	1.9
Neural	20	19
Agree	**158**	12.7
Strongly agree		**100**
Total		
Maintaining a clean cooking environment is a good	--	
way to control food safety	--	--
Strongly disagree	--	--
Disagree	58	--
Neutral	100	36.7

Agree Strongly agree **Total**	**158**	63.3 **100**

3.4. Food safety procedures and students' knowledge of food quality of particular canteen foods

This section evaluates students' understanding of specific canteen foods from private basic schools in the East Gonja municipality as well as food safety protocols. The goal was to ascertain whether students' understanding of food safety protocols and the catered food services' calibre were related. It made use of a probit regression. Table 4 lists the variables that were utilised in the probit regression model. The results of the probit regression show that the amount of food services provided by the canteen is influenced by students' attitudes towards food safety protocols. Five of the variables that were included in the probit regression analysis have emerged as being substantially correlated with the dependent variable, which is the students' attitudes towards safety protocols and the canteen food services. These include being aware of the sources of fruits and vegetables, the type of storage facilities in the school canteen, the kitchen environment, the presence of pathogens in food, and health-related concerns.

Table 4: Results of Probit regression

Variable	Coefficient	Standard Errors
Level of education	-0.0070	0.0105
Gender	-0.1486	0.1971
Pathogens presence	-0.1486**	0.1971
Diseases	-0.1059	0.2445
Contamination of food	-0.1350	0.2199
Source of food	-0.3021	0.2483
Kitchen environment	-0.7749***	0.5499
Storage facilities	-0.5426*	0.2983
Health status	0.6329*	-0.5930
Source of vegetables and fruits	1.2513***	0.3222

Note: *, ** and * are levels of significance at 10%, 5% and 1%, respectively**

4.0 Discussion

Their behaviours and attitudes regarding food safety issues, as well as how this has improved the microbiological quality of the food served in the school canteen. With a mean value of 2.44, which indicates disagreement, the study revealed that students in our nation have not been particularly concerned about food safety incidents in recent years. Food safety ought to be the primary concern of all workers in commercial kitchens as well as consumers, according to the study of Mang et al. (2023). Because of the significant number of individuals served in school canteens and findings from various studies (Mazi et al., 2023; Das et al., 2023) indicating that the microbial quality of food served to such large groups is increasingly unfavorable for consumers, the management of canteen food is a pressing global issue. Concern for food safety procedures to prevent food contamination is actually demonstrated by food handlers and their customers.

Handlers of food can spread microorganisms. High hygienic standards should be upheld by challenging food handlers who violate established food safety protocols (D.O.H. 2010). It was acknowledged by

students and food handlers in school 3.98 (SD=1.17), which is equal to 4.0 on the scale, that they have a significant responsibility to handle food safely in their school canteens and that washing hands serves as the primary defence against food contamination.

The findings corroborate that of Sibisi (2019), who found that food handlers who disregard hygienic precautions are primarily responsible for the release of toxins that cause illnesses related to pathogenic bacteria.

Personal cleanliness is the state in which an individual keeps their body clean. Among the body parts that can contaminate food are the skin, hair, hands, nose, eyes, nasopharynx, excretory organs, mouth and respiratory tract. These body parts either directly or indirectly contaminate the environment by acting as carriers of pathogenic microorganisms. The study's findings highlight how crucial it is to maintain cleanliness and food safety in and around the area used for food preparation. When it came to the importance of personal hygiene when entering the canteen, a significant majority of respondents (4.74; SD=.72) roughly agreed to strongly agreed. Because of this, maintaining cleanliness is deemed to be an applied science and is necessary to safeguard human health. When done properly, sanitation can improve the hygienic conditions and aesthetic appeal of food establishments. Foods may be contaminated with bacteria that cause food poisoning or spoilage if appropriate hygiene practices are not followed. Diseases transmitted through food, such as salmonellosis, shigellosis, and intestinal parasitosis, remain significant public health concerns worldwide. Because it can be difficult to ensure optimal hygienic food handling practises, the problem is particularly acute in developing nations (Okpala & Ezeonu, 2019; Onyeaka et al, 2023). A plurality of 3.93 (SD=.72) in this instance determined that workers handling food who have foodborne illnesses ought not to be allowed to work and ought to avoid their place of employment. This finding supports a prior study (Luna-Guevara et al, 2019) that found sick individuals should not handle food.

The spread of germs cannot be stopped by simply washing hands with clean water; soap and a clean serviette must also be used. Each of these helps with proper hand-washing techniques. This is crucial for food preparation and consumption, but respondents are unsure if it should factor into their overall opinion of food safety procedures, which is 3.01 (SD=1.24), or neutral on the scale. In certain instances, food vendors were observed obtaining pieces of cooked meat from unwary students with their bare hands—the same hands they used to count money. This unsanitary practice is an obvious sign of a complete lack of understanding about food hygiene and can easily lead to cross-contamination of food with pathogenic microbes like S. aureus. Respondents 3.55 (SD=.77) concurred that it was critical for both food vendors and customers to wash their hands immediately after engaging in unsanitary activities. This outcome is similar to that of Hui et al. (2017), who discovered that individuals who had more total aerobic bacteria (≥20 CFU/cm2) on their hands washed their hands more frequently before handling foods that had not been wrapped (4.7 ±0.5, n = 27, $p < 0.05$).

This study found that food handlers' attitudes and abilities related to food safety varied depending on whether they had taken a healthy food handling course. Attending safe food handling courses is a very important tool in influencing respondents' attitudes towards food safety practises, according to 4.23 (SD=1.89) of respondents from Table 2. This confirms the results of Hui, et al. (2017), who discovered that although participants in the healthy food handling course did not significantly improve their knowledge of food safety, their performance was slightly higher than that of the non-participants. Additionally, they stated that the healthy food handling course significantly improved people's perceptions of food safety issues. Positive attitudes regarding food safety were greatly influenced by the safe food

handling course, particularly in the case of the respondents—the majority of whom were foreigners—who expressed concerns about food safety. Similarly, practising and putting newly acquired knowledge and skills to use can help improve behaviour related to handling food in a healthy manner (Hann et al., 2023). According to Mahoney (2023), the conversion of information into action requires constant planning and management support. In this instance, more investigation is required to identify the barriers to the dissemination of knowledge about safe food handling practises among consumers and food handlers.

There is currently a problem with food safety in the school canteen, according to 2.11 (SD=1.20) respondents. The potential source of food contamination could be attributed to certain safety procedures that were not up to par in and around the school canteen. Most dishes and cooking tools are left dirty, and the gutters surrounding the kitchen area are overflowing with trash and desperately need to be emptied to allow water to flow freely. To stop pathogens from being transferred from insects and flies into food, leftover food needs to be disposed of correctly. It is imperative to maintain a constant state of cleanliness in the canteen. In agreement, respondents gave the agreed-upon value for the score a mean score of 4.34 (SD=1.13). This implies that the participants concur on the significance of regular kitchen hygiene and sanitation. To get rid of germs that stick to the surfaces, sanitise cooking appliances every day. This is in contrast to a study by Wallace, Aumjaud & Ramful-Baboolall (2023), which discovered that while vendors and customers had a fundamental understanding of food safety, the study did not emphasise basic hygiene practices like hand washing, utensil cleaning, and washing raw vegetables.

Food is consumed on dirty plates, according to observations made in the school canteen. Food vendors hardly ever changed the bowl of water used to wash the used cutlery and utensils. Certain foodborne pathogens that can withstand the unclean, soapy water could flourish in these circumstances and result in cross-contamination. Eating from such serving plates increases the risk of foodborne illness for students. 4.83 (SD=.82) of respondents agreed that it should never be encouraged to eat food off of dirty plates. Studies have discovered that 47.62 percent of street food vendors cleaned their utensils with recycled, used water, and that 28.57 percent of the vendors gave no explanation for recycling the water. Only 9.52 percent of the vendors reported water shortages (Rosales, Linnemann & Luning, 2023; Manko & Abor, 2023).

Regarding their concerns regarding the practise of eating in restaurants near the school without taking safety precautions, respondents 3.02 (SD=79) expressed no opinion on the questionnaire. It is unclear to them whether the school canteen's safety procedures and measures are superior to those of the eateries in the vicinity of the school. In contrast, jollof rice from two regular restaurants was found to have the lowest microbial load for bacteria by Owusu et al. (2023). Food handlers' opinions regarding food safety procedures have been documented in studies conducted worldwide (Eslahi et al, 2023). Food handler attitudes are critical to food safety in the food service industry (RA & NA, 2023). Previous studies conducted in Ghana have examined street food vendors' food hygiene practices as well as the attitudes and behaviours of food handlers in a few Accra hotels (Alelign et al., 2023). A study on the food safety knowledge, attitudes, and self-reported practises of food handlers in Accra, Ghana's institutional food service has just been published (Kunadu, Ofosu, Aboagye, and Tano-Debrah, 2016). However, because these studies were restricted to Accra, the capital of Ghana, their scope was constrained. Nevertheless, these studies are important because they offer a cross-national assessment of the behaviours, training requirements, and effectiveness of training and development in delivering ongoing consumer assurance of food safety (Nyarugwe et al., 2020; Nguyen & Zhou, 2023). It is a well-established fact that the attitudes

of food handlers and students in education colleges will impact food safety practises, thereby mitigating the spread of foodborne illnesses within the school setting.

Appropriate canteen food services are compatible with school safety. The staff of school canteens should identify possible sources of air pollution in order to ensure the production of healthy food. Hazardous microorganisms are present in soil, water, animals, and human tissue. They can also be transferred on hands, cleaning cloths, cutlery, and surfaces, and even the slightest contact with food can result in food-borne illnesses (Alimi, Lawal & Odetunde, 2022).

Once more, Table 3 shows that 90 out of the respondents (57.0%) were extremely unhappy with the canteen's resources. They asserted that the limited resources—such as the cooking and dining utensils and refrigerator—are unchangeable. Additionally, a sizable majority of 120 people, or 75.8%, expressed strong dissatisfaction with how frequently the food handlers cleaned the plates, and even when they did, they were unable to guarantee the safety of the cleaning process. This finding aligns with previous research (Langsrud et al., 2023) that demonstrated the amount and thoroughness with which food handlers wash their hands and plates as the first line of defence against food contamination. Among other results, this study revealed that sixty (38%) people are dissatisfied with the canteen's arrangement regarding how frequently the water used to wash plates is changed. The microbiological quality of the food sold in the school canteen is partially determined by how often eating plates are cleaned and how often the water used to wash them is changed. The purpose of the question was to gauge the students' understanding of proper personal hygiene, handling leftover food, and preventing cross-contamination. The majority of responders (75, or 47.4%) did not agree that leftover food is disposed of and stored correctly. They contend that improper handling of leftovers may raise the incidence of food poisoning. This finding corroborates a previous study that discovered that while there may be food risks involved, many restaurant patrons prefer to take leftover food home to enjoy on their own or with a close relative (Ferreira, 2022). One of the most common causes of food poisoning in the home is improper handling and storing of leftovers.

Regarding the question of how the municipal food and drug authority inspects regular food handlers at the school canteen, 55 participants in this study (36.7%) possessed certificates of medical examination. In contrast to research by Zenbaba et al. (2022) on Ethiopian food handlers, none of them had a medical examination. Table 2 confirmed positive responses demonstrating how regular medical examinations had been performed for the school canteen workers. Of these, 45 (28.5%) agreed that sanitary inspectors regularly paid a visit to the canteen to conduct inspections on the state of the school canteen. Nonetheless, 43 (27.2%) of the study participants expressed no opinion in response to this question because they were unsure if the district sanitary inspectors had performed a sanitary inspection. Keeping the kitchen area clean is a good way to improve food safety, as indicated by 63.3% of respondents. Maintaining a clean kitchen environment has helped slow the pace of disease transmission, even though the constrained design of the school canteen environment encourages immediate disease transmission among individuals that can last for up to a week, three to five days (Todd, 2023).

According to the results of the probit regression analysis, there is a positive correlation between students' attitudes, their level of food hygiene knowledge, and the use of food safety procedures and the knowledge of pathogens in the chosen canteen food. This suggests that a person's chance of getting a food-borne illness is decreased if they are aware that certain canteen foods contain pathogens. The current study's findings support the assertions made by Khatoon et al. (2016) that proper food handling is essential to maintaining food safety and preventing the spread of food poisoning. Pathogens may be introduced into food by them. Therefore, it is crucial for everyone involved in the food chain distribution process to

understand food safety protocols and obtain important knowledge through training on the potential causes of food-borne illnesses. The study also discovered a positive correlation between the degree of safety procedures to follow and knowledge of the characteristics of students and school canteen workers' cooking environments. It goes without saying that a dirty kitchen raises the possibility of stricter adherence to safety regulations. This study's result supports the findings van Vliet et al. (2022), who contended that direct disease transmission between people occurs in schools and can persist for three to five days. A thorough understanding of how the kitchen can serve as a hub for the spread of diseases will encourage food handlers and customers to adopt safer practises more frequently.

Probit regression analysis has, as predicted, produced results that are positively and significantly correlated with the methods for storing vegetables, leftover food, and technology used in the storage process. This implies that in the event of a serious food poisoning incident, food handlers and students who are aware of the mechanisms and storage facilities in use will be able to make an informed decision about what safe practises to follow. The results of this study are consistent with those of Malm Lah et al. (2022), who found that food storage facilities in these Ghanaian schools are the primary source of foodborne diseases (FBD). The study underlined how inadequate these food storage facilities were and how there were no procedures in place to stop FBD from happening in the schools. Every link in the food processing chain should be concerned about the type of storage facilities that are available and how they are being used.

A positive and significant correlation has been found between the health status of students and the results of the probit regression analysis. An attitude shift in the application of hygiene protocols will result from an acknowledgement that consumers may be exposed to health risks from unhygienic consumption of contaminated food. When required, it will improve strike compliance with hygiene practises to prevent repeated hospital visits, which waste students' time and money and cause them to miss lectures in an effort to heal themselves. The results show that there is a relationship between student attitudes, food safety procedures, and food hygiene knowledge with regard to where fresh fruits and vegetables are sourced for the school canteen. The results corroborate those of a prior study (Wekesa, 2022) which discovered that poor post-harvest handling practises, such as storage, and tainted water frequently cause vegetable pollution during the manufacturing process. According to Onyeaka et al. (2022), for instance, the microbial content of these vegetables and meat products may be dangerous to the consumer because they are typically eaten raw or with little cooking. To stop any transmission, food protection procedures would be decided upon based on knowledge.

5.0 Conclusion

Education regarding food hygiene plays a crucial role in ensuring the production of high-quality foods. Regular education is necessary for students to ensure that the food they consume meets the required standards. The probit regression output indicates that certain student knowledge levels are affecting the magnitude of food safety practices strategies in the study area. Among the variables entered into the probit regression analysis, five of them have become significantly associated with the dependent variable (attitudes towards food safety procedures and canteen food services). They include; knowledge on the presence of pathogens in food, kitchen environment, nature of storage facilities in the school canteen, caution of their health statuses and source of vegetables and fruits.

6.0 Recommendation

It is recommended that the kitchen environment and equipment be kept tidy to prevent pathogens growth

and infections and also both canteen food handlers and students should be giving the required food safety courses to help prevent the spread of foodborne diseases

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