

## **FOOD HYGIENE AND EXERCISES AMONG FOOD DEALERS**

**BY**

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### **ABSTRACT**

The study investigated food hygiene and exercises among food dealers in public Secondary schools in Oyiibo West Local Government Area of Rivers State. The study was motivated by concerns about the health risks associated with poor food handling, inadequate personal hygiene, improper environmental sanitation, and unsafe food storage among dealers operating within school premises. The study adopted a descriptive survey research design. The population comprised 843 teachers and 186 food dealers in 52 public Secondary schools, giving a total population of 1,029 respondents. A sample of 548 respondents was used, consisting of 362 teachers selected from 35 public Secondary schools through simple random sampling and the entire population of 186 food dealers. Data were collected using a structured interview schedule and questionnaire containing 44 items arranged into four clusters. The instruments were face-validated by three experts in Measurement and Evaluation and Home Economics, while a Cronbach Alpha reliability coefficient of 0.60 was obtained. Four research questions and one null hypothesis guided the study. Percentages were used to answer research questions one to three, while mean and standard deviation were used for research question four. A criterion level of 50% was adopted for the first three research questions and 2.50 for the fourth, while t-test was used to test the hypothesis at 0.05 level of significance. The findings revealed that food dealers needed to maintain clean kitchen and selling areas, use clean water, wash food items before cooking, protect food from rodents and flies, use covered food containers, and purchase fresh and unexpired food items. The study also identified regular bathing, handwashing with soap, wearing clean aprons and caps, proper oral hygiene, and appropriate respiratory hygiene as important personal hygiene exercises. Environmental hygiene exercises included the use of covered waste bins, regular cleaning of kitchens and stalls, proper food storage, removal of ashes and wastes, and regular inspection of vending premises. The study further found that food committees, medical screening and routine check-ups, orientation and seminars, hygiene education, adequate kitchen facilities, instructional materials, proper separation of raw and cooked foods, and water disinfection were important approaches for improving food hygiene exercises. The t-test result showed no significant difference between the mean ratings of food dealers and teachers regarding approaches for enhancing food hygiene exercises; hence, the null hypothesis was accepted. The study concluded that proper food, personal, and environmental hygiene exercises are essential for protecting school children from food contamination and food-borne diseases. It recommended regular monitoring of food dealers, periodic health checks, and continuous hygiene education and seminars for dealers and other stakeholders.

**Keywords:** Food Hygiene, Food Vendors, Personal Hygiene, Environmental Sanitation, Food Safety, Food-Borne Diseases

## **INTRODUCTION**

The need to strengthen food safety and hygiene exercises is a fundamental public health concern for all for the prevention of food borne diseases. World Health Organization (WHO) (1999) defines food as any substance, whether processed, semi processed or raw which is intended for human consumption. In a similar view, Akande (2002) defines food as any substance, prepared and eaten by people to take care of their physiological needs. Also, Ohiokpehai (2004) describes food as any thing liquid or solid material which when taken and digested can provide the body with nourishment. It can be deduced from the above definitions that food is any substance eaten that can provide the body with its needs. It follows that food as a basic human need must be wholesome and safe. This is because good and adequate food promotes good health while poor and adulterated food substances are potential hazards to human health.

Food adulteration is a major public health problem which affects the quality of life of people specially school children. Food borne diseases are serious health hazards and major causes of morbidity and mortality in the developing countries of which Nigeria is one. Bhat (2005) reveals that incidence of food borne diseases outbreak is due to micro-organisms like salmonella, campylobacter jejuni or Norwalk virus. For instance, microbiological examination of various food items served by the food dealers in various parts of India indicated the presence of micro-organisms. According to Ankleshwaris (1999) food adulteration here refers to mixing of food with other substances that may be harmful to human consumption by food dealers.

Food vending helps in providing essential services to many of the urban inhabitants such as site workers, labourers, street dwellers, market traders as well as school children. Food dealers according to Lathan (1997) are small scale entrepreneurs normally seen in a simple set up facilities or stalls in public places in order to provide quick and cheap services to the people. The food dealers operate both in urban and rural schools, where they set-up their stalls adjacent to the schools or operate under a nearby tree. They provide different food varieties like rice, beans, okpa, agidi, ice cream, snacks among others. People who patronize such foods are more interested in their convenience than their safety and hygiene.

Food vending is increasingly becoming popular perhaps due to some vital roles it plays such as providing of quick and cheap food services to the people as well as creating employment opportunities for women. Ohiokpehai, (2004) while acknowledging the vital role played by food dealers to the city dwellers observes that such foods can pose significant health hazards to the people due to the dealers lack of food hygiene exercises.

Liu (2007) describes hygiene as a science that is concerned with environmental cleanliness of an individual or group or organization members to maintain healthy living. In this study hygiene is seen as all efforts towards ensuring good surrounding in order to prevent the occurrence of diseases or other health hazards. Thus hygiene entails keeping once environment to avoid the ill-health of disease for a healthy living in the society. Muinde (2005) observes that food vending plays important role in the cities and towns of many developing countries in meeting the demands of the city dwellers. Millions of people are fed daily with a wide range of foods that are relatively cheap and easily accessible regardless of the status of the food they eat from the dealers.

dealers are not regulated by the local council health authorities, thus they operate without any monitoring of what they prepare and how they prepare them. Yet, they are found operating in the Secondary school premises where school children fall the victim of buying the food. Simoons (2006) assert that school children exposed to poor and unhygienic diets not only experience poor health but also retarded academic development. Simoons also states that body first uses energy to maintain critical organs functioning. It appears that poor families spend proportionately more of their income buying food from food dealers. Unfortunately, these cheaper foods are generally the least nutritious. They are often fatty-oily foods, high in salt and sugar and un-hygienically prepared. The food stuffs as a result of poor storage are contaminated and vending of such food to school children and other people endangers their health.

Agba (1994) observes that unhygienic exercises by food dealers expose children to diseases like vomiting, abdominal pains, diarrhea and other forms of health risks in the environment. Although school children

enjoy food from these food dealers, in many cases the food is of poor quality and it poses a serious health risk to the school children. Food dealers provide the bulk of these children snacks, breakfast, lunches in many schools in Oyigbo west LGA. Agba (1994) states that some of the Secondary schools are located at far away from the children homes, hence most of them leave early for school without breakfast, thus they depend most of the time on foods sold around the premises by these dealers. Agba also observes that the food dealers use dirty water to wash their plates and pour out dirty water around their surrounding. Some of them equally appear in dirty clothes, and unkept hair.

The unhygienic exercises in the preparation, cooking, serving and storage of food often lead to the contamination of food with pathogens and substances, that result in infection and diseases in the person that eats the food especially school children. These unhygienic exercises by food dealers in the schools expose the pupils who eat their food to the risk of contamination of diseases like diarrhea, constipation among others. As a result the researcher is interested in finding out approaches needed to enhance the hygiene exercises of food dealers in public Secondary schools in Oyigbo west LGA of Rivers State.

### **Research design**

The design for the study was descriptive survey. A descriptive survey design is one in which a group of people or items are studied by collecting and analyzing data from only a few people considered to be representatives of the entire group. The design was considered appropriate in carrying out this study because it facilitated the collection of data systematically from a sample of the population, (Nworgu 2006).

### **Area of the study**

The study was carried out in Oyigbo LGA. It has a total of 52 public Secondary schools. The inhabitants are mainly traders, Igbo speaking and farmers with mixture of Hausa settlers. The inhabitants also include civil servants and a good number of small scale businesses located in many areas of the zone. It is this unique nature that makes food vending business very lucrative. Hence, the need to carry out the present study in the zone to ensure good hygiene exercises by food dealers.

Source: LGEA 2011/12 Zonal Office, Oyigbo LGA

### **Population of the study**

The population of the study comprised all the teachers in the 52 public Secondary schools in the Education Zone and food venders that operate in the schools. Available records indicate that there are 843 teachers and 186 food dealers operating in the area.

### **Sample and sampling technique**

The sample size for the study was 548. This figure comprised all the 362 teachers from 35 selected public Secondary schools using simple random sampling technique and the entire population of 186 food dealers operating in the schools. Since the entire population of both the teachers and dealers were used, no sampling was carried out.

### **Instrument for data collection**

The instrument for data collection included a research structured interview schedule and questionnaire. It was arranged into 3 sections. Section I provided demographic data of the respondents, section II requested for the respondents to complete the questionnaire while section III contained 44 items arranged into four clusters A, B, C and D. Cluster A, B and C were based on personal, food and environmental hygiene exercises needed by food dealers and are were based on yes and no responses while Cluster D was based on questionnaire on a 4 point scale of Strong Agree (SA), Agree (A) , Disagree (D) and Strong Disagree (SD). Cluster D elicited information on approaches for enhancing hygiene exercises of food dealers.

### **Validation of the instrument**

The structured interview and questionnaire were face-validated by three experts in the field of Measurement and Evaluation and Home Economics who considered their appropriateness and suitability for the study. Their views and corrections were duly included in the construction of the final draft of the instruments for the study.

### **Reliability of the instrument**

Atrial-testing procedure was used to establish the reliability of the instrument. The instrument was administered to twenty respondents drawn from

within the population, not the direct respondents. The reliability of the instrument was determined using Cronbach's Alpha correlation coefficient. The value of the reliability estimated was 0.60. This value showed that the instrument was reliable for the study.

#### **Method of data collection**

The structured interview was administered directly by the researcher while the two instructed research assistants directly distributed and collected the questionnaire from the respondents in their schools after completion. The idea was to ensure proper and

accurate interview and high return rate of the questionnaire.

#### **Method of data analysis**

Percentage was used in analyzing research questions 1, 2 and 3 while mean and standard deviation were used in analyzing research question 4. The benchmark for acceptance level for questions 1, 2 and 3 was 50% and above while 2.50 was used for question 4. Any percentage score and mean score below the benchmark were rejected while t-test analysis was used in testing the stated hypothesis at 0.05 level of significance.

**Table 1: Percentage ratings of the food dealers on the needed food hygiene exercises to operate in public Secondary school in Oyigbo west LGA. N = 186**

| S/N | Items                                                             | Responses |      |    |      |
|-----|-------------------------------------------------------------------|-----------|------|----|------|
|     |                                                                   | Yes       |      | No |      |
|     | The following are food hygiene exercises needed by food vendor:   | F         | %    | F  | %    |
| 1   | keeping kitchen areas clean                                       | 160       | 86   | 26 | 13.9 |
| 2   | using clean water in cleaning utensils                            | 120       | 64.5 | 66 | 35.4 |
| 3   | buying fresh foods such as fruits and vegetables without bruises  | 110       | 59.1 | 76 | 40.8 |
| 4   | sweeping selling premises daily                                   | 140       | 75.3 | 46 | 24.7 |
| 5   | washing food items before cooking                                 | 150       | 80.6 | 36 | 19.3 |
| 6   | keeping animal/chickens away from where food items before cooking | 130       | 69.9 | 56 | 30.1 |
| 7   | buying canned foods that have not expired                         | 150       | 80   | 36 | 19.3 |
| 8   | displaying food with cover                                        | 140       | 75.3 | 46 | 24.7 |
| 9   | keeping food free from rodents                                    | 160       | 86   | 26 | 13.9 |

The data on table 1 above indicated that all the 9 items have been accepted by the food dealers as the needed food hygiene exercises as follows: 160 (86%), 120 (64.5%), 110 (59.1%), 140 (75.3%), 150 (80.6%), 130 (69.9%), 150 (80%), 140 (75.3%) and 160 (86%).

#### **Research Question Two**

What are the personal hygiene exercises needed by food dealers to operate in public Secondary schools in the zone?

**Table 2: Percentage ratings of the food dealers on personal hygiene exercises needed for them to operate in public Secondary schools. N = 186**

| S/N | Items                                                               | Responses |      |    |      |
|-----|---------------------------------------------------------------------|-----------|------|----|------|
|     |                                                                     | Yes       |      | No |      |
|     | The following are personal hygiene exercises needed by food vendor: | F         | %    | F  | %    |
| 10  | bathing on regular basis                                            | 140       | 75.3 | 46 | 24.2 |
| 11  | wearing clean clothes always                                        | 100       | 53.7 | 86 | 46.2 |

|    |                                                     |     |      |    |      |
|----|-----------------------------------------------------|-----|------|----|------|
| 12 | wearing apron and cap regularly                     | 120 | 64.6 | 66 | 34.9 |
| 13 | washing apron and cap regularly                     | 100 | 53.7 | 86 | 46.2 |
| 14 | washing hand with clean water and soap after toilet | 106 | 57.0 | 80 | 43.0 |
| 15 | using clean towel after washing hands               | 110 | 59.1 | 76 | 40.9 |
| 16 | not painting finger nails                           | 120 | 64.6 | 66 | 34.9 |
| 17 | not spitting and coughing while selling food        | 150 | 80.6 | 36 | 19.2 |
| 18 | using handkerchief during sneezing                  | 130 | 69.9 | 56 | 30.1 |
| 19 | not smoking while selling food                      | 140 | 75.3 | 46 | 24.2 |
| 20 | Cleaning mouth and teeth with brush daily           | 160 | 86   | 26 | 13.9 |
| 21 | covering open wounds with neat dressing             | 110 | 59.1 | 76 | 40.9 |

Table 2 had frequencies and percentages of 140(75.3%), 100 (53.7%), 120 (64.6%), 100 (53.7%), 106 (57.0%), 110 (59.1%), 120 (64.68), 150 (80.6%), 130 (69.9%), 140 (75.3%), 160 (86%) and 110 (59.1%), indicating that the 12 items are the needed personal hygiene exercises.

### Research Question Three

What are the environmental hygiene exercises needed by food dealers to operate in public Secondary schools in Oyigbo west LGA zone?

**Table 3: Percentage ratings of the food dealers on environmental hygiene exercises needed for their operation in public Secondary schools. N = 186**

| S/N | Items                                                                     | Responses |      |    |      |
|-----|---------------------------------------------------------------------------|-----------|------|----|------|
|     |                                                                           | Yes       |      | No |      |
|     | The following are environmental hygiene exercises needed by food dealers: | F         | %    | F  | %    |
| 22  | not allowing people urinate around the selling premises                   | 130       | 69.9 | 56 | 30.1 |
| 23  | having a standard waste bin                                               | 100       | 53.7 | 86 | 46.2 |
| 24  | covering waste bin always                                                 | 150       | 80.6 | 36 | 19.3 |
| 25  | removing ashes after cooking regularly                                    | 120       | 64.5 | 66 | 35.5 |
| 26  | having enough store for food items                                        | 110       | 59.1 | 76 | 40.9 |
| 27  | using insecticide around the stores                                       | 120       | 64.5 | 66 | 35.5 |
| 28  | often washing the kitchen                                                 | 100       | 53.7 | 86 | 46.2 |
| 29  | washing plates after use                                                  | 140       | 75.2 | 46 | 24.7 |
| 30  | inspecting stall premises daily                                           | 160       | 86   | 26 | 13.9 |

All the 9 items on table 3 which include: 130 (69.9%), 100 (53.7%), 150 (80.6%), 120 (64.5%), 110 (59.1%), 120 (64.5%)m 100 (53.7%), 140 (75.2%) and 160 (186%) have been accepted by the food dealers as the needed environmental hygiene exercises.

### Research Question Four

What other approaches are needed to enhance the hygiene exercises of food dealers in public Secondary schools in the zone?

**Table 4: Mean ratings of the responses of the respondents on approaches needed to enhance the hygiene exercises of food dealers in public Secondary schools. N = 548**

| S/N | Items                                                                                                | Overall X | Overall SD | Remarks        |
|-----|------------------------------------------------------------------------------------------------------|-----------|------------|----------------|
|     | The following are approaches needed to enhance the hygiene exercises of food dealers:                |           |            |                |
| 31  | setting up food committee in public Secondary schools                                                | 2.87      | 0.73       | Agree          |
| 32  | the food committee should inspect the food before they are sold to children                          | 2.73      | 0.69       | Agree          |
| 33  | food dealers should undergo medical checkup before permitted to sell in schools                      | 2.89      | 0.74       | Agree          |
| 34  | food dealers should go for routine medical checkup at least once a year                              | 2.65      | 0.63       | Agree          |
| 35  | food dealers should be given orientation on hygiene exercises on their admittance to sell the school | 3.15      | 0.96       | Strongly agree |
| 36  | pupils should be educated on the need to eat healthy foods                                           | 2.99      | 0.78       | Agree          |
| 37  | schools children should not buy food from food dealers who appear dirty                              | 2.98      | 0.80       | Agree          |
| 38  | kitchen should be build and cited in area that is free from odours                                   | 2.87      | 0.75       | Agree          |
| 39  | cooking equipment should be adequate for its intended use                                            | 3.15      | 0.96       | Strongly agree |
| 40  | developing food hygiene and instructional manual                                                     | 3.21      | 0.94       | Strongly agree |
| 41  | use of striking poster and carbon programs                                                           | 3.75      | 0.71       | Agree          |
| 42  | cooked food should be kept well separated from raw food to reduce the risk of cross-contamination    | 2.92      | 0.76       | Agree          |
| 43  | water should be disinfected to avoid water borne disease                                             | 3.02      | 0.90       | Strongly agree |
| 44  | seminars should be organized for food dealers at least once a term in schools                        | 3.27      | 0.98       | Strongly agree |

The data presented on table 4 above revealed that the respondents agreed to 9 items which had mean values and standard deviation as follows: 2.87 (0.75), 2.73 (0.69), 2.89 (0.74), 2.65 (0.63), 2.99 (0.78), 2.98 (0.80) 2.87 (0.75), 3.75 (0.71) and 2.92 (0.76) as being approaches needed to enhance the hygiene exercises of food dealers. The other 5 items with the following data: 3.15 (0.96), 3.15 (0.96), 3.21 (0.94), 3.02 (0.90), and 3.27 (0.98) were strongly agreed by the respondents. These findings indicated that the 14 items on table 4 were the approaches needed to enhance the hygiene exercises of food dealers.

### **Hypothesis Testing**

Hypothesis one (Ho1)

There is no significant difference between the mean ratings of food dealers and teachers with regard to approaches for enhancing hygiene exercises of food dealers in public Secondary schools in Oygbo west LGA.

**Table 5: The t-test analysis of the mean ratings of food dealers and teachers with regard to approaches for enhancing hygiene exercises of food dealers in public Secondary schools in Oyigbo west LGA.**

| S/N | Group       | X    | SD   | N   | df  | t-cal | t-tab | Level ofsign | Remarks |
|-----|-------------|------|------|-----|-----|-------|-------|--------------|---------|
| 1   | Fooddealers | 2.99 | 0.78 | 186 | 546 | 1.63  | 1.96  | 0.05         | Accept  |
| 2   | Teachers    | 3.23 | 0.74 | 362 |     |       |       |              |         |

The t-test analysis presented in table 5 above revealed that the t-calculated value (t-cal) of 1.63 is less than the table value (t-tab) of 1.96 at 0.05 level of significance and at 546 degree of freedom (df). This shows that there is no significant difference in the mean ratings for food dealers and teachers with regard to approaches for enhancing hygiene exercises of food dealers in public Secondary schools in Oyigbo west LGA. Therefore, the hypothesis of no significant difference for the study is accepted.

### Summary of Findings

The following findings were made:

1. Food hygiene exercises needed by food dealers include: keeping kitchen areas clean, using clean water in cleaning utensils, buying fresh foods such as fruits and vegetables without bruises, sweeping selling premises daily, washing food items before cooking, keeping animal away from where food is stored, buying canned foods that have not expired, displaying food with cover and keeping food free from rodents.
2. Personal hygiene exercises needed by food dealers include: bathing on regular basis, wearing apron and cap regularly, washing hand with clean water and soap after toilet, using clean towel after washing hands, not painting finger nails, not spitting and coughing while selling food, using handkerchief during sneezing, not smoking while selling food, cleaning mouth and teeth with brush daily and covering open wounds with neat dressing.
3. Environmental hygiene exercises needed by food dealers include: not allowing people urinate around the selling premises, having a standard waste bin, covering waste bin always, removing ashes after cooking regularly, having enough store for food items, using insecticide around the store, often washing the kitchen, washing plates after use and inspecting stall premises daily.

4. Approaches needed to enhance the hygiene exercises of food dealers include: setting up food committee in public Secondary schools, the food committee should inspect the food before they are sold to children, food dealers should undergo medical check up before permitted to sell in schools, food dealers should go for routine medical checkup at least once a year, food dealers should be given orientation on hygiene exercises on their admittance to sell in school, pupils should be educated on the need to eat healthy foods, school children should not buy food from dealers who appear dirty, kitchen should be built and cited in area that is free from odours, cooking equipment should be adequate for its intended use, developing food hygiene and instructional manual, use of striking poster and carton programs, cooked food should be kept well separated from raw food to reduce the risk of cross-contamination, water should be disinfected to avoid water borne diseases and seminars should be organized for food dealers at least once a term in schools.

Furthermore, the t-test analysis for the formulated hypothesis indicated that there was no significant difference between the mean ratings of the food dealers and teachers with regard to the approaches for enhancing hygiene exercises of food dealers in public Secondary schools in Oyigbo west LGA.

### Conclusion

From the findings of this study, the following implications have emerged for Oyigbo west LGA, Rivers state Ministries of education, health, parents and head teachers and to children in the public Secondary schools in the state: Food is one of the physiological needs of an individual; hence it is critical and central to human existence and development. It therefore, becomes imperative that food procurement, preparation and service must be hygienically handled especially with regard to food dealers in both urban and rural areas including public Secondary schools.

The state Ministry of Education through the Ministry of Health is better placed to legislate on matters of food vending operations in the school system. This becomes important to ensure that appropriate food hygiene exercises are adhered to, by dealers to save the innocent school children and members of the society from food diseases that may arise due to poor and unhygienic conditions on the part of the food sellers. The school authorities themselves are expected to ensure that food dealers in their schools maintain a high level of food, personal and environmental hygiene exercises where they serve customers. Thus, the head teachers of schools can liaise with sanitary inspectors to regularly monitor the food dealers and their food hygiene exercises in their areas of operation, be it in the schools or in the streets of the town.

Parents can on their own reduce the tendency of allowing their wards to buy food from the dealers by giving them prepared food in food flasks to be taken to schools.

### **Recommendations**

Based on the findings, the following recommendations were made

1. On food hygiene exercises, food dealers should ensure storage of food items to prevent food poisoning and contamination through rodents and other bacterial.
2. On the personal hygiene exercises of the food dealers, headmasters and teachers should ensure that food dealers maintain high personal cleanliness in the school premises they operate.
3. On environmental hygiene, government through its health workers should monitor the activities of the food dealers with a view to ensuring compliance with food hygiene exercises.
4. Seminars and workshops should be organized periodically to sensitize the food dealers and the general public on the importance of food hygiene exercises and the danger of avoidance of the exercises.
5. It is therefore, the opinion of this researcher that seminars on food hygiene be regularly organized not only for food dealers but to the entire stakeholders in food service operations

in the society. The principals, teachers, food dealers, health workers and non-governmental bodies should collaborate to contribute in ensuring that appropriate food hygiene exercises are maintained in the society for the benefit of all.

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