FOOD HYGIENE PRACTICE OBSERVED BY PRIMARY SCHOOL TEACHERS IN IGBO-ETITII LOCAL GOVERNMENT AREA, ENUGU

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Abstract
The study aimed at investigating the practice of food hygiene by primary school teachers in Igbo–Etiti Local Government Area, Enugu. The survey design was adopted in the study which involved a sample of 415 out of 1011 primary school teachers drawn from 40 out of 81 public primary schools in the area of the study. A multi stage sampling procedure was employed. Data were collected using questionnaire made up of 18-item questions administered using game masters of the selected schools as research assistants. Mean with standard deviation and t-test were used to analyze the data. Results showed that PSTs practice food hygiene to a low extent. It also showed that the practice of food hygiene by teachers is independent of gender and experience. Implications of the study for education and national development were highlighted and recommendations made.

Introduction

The subject of food hygiene is a very important one especially in tropical developing countries such as Nigeria where warmth and dampness together with ignorance of the laws of hygiene make it easy for disease to spread. It is in recognition of this that Obionu (2001) established that the normal atmospheric temperature of tropical countries was ideal for multiplication of micro-organisms which cause food to spoil and lead to food poisoning. The environment becomes unsafe, consequently, food hygiene becomes imperative. Adeoye (1999) observed that our environment was so filthy and unhealthy that our survival was in danger. This danger may be averted through adequate practice of food hygiene.

Food hygiene as described by Ricketts (2000) is the prevention of disease causing organisms from contaminating food thereby making food free from harm for human consumption. Lucas and Gilles (2003) defined food hygiene as the absence of adverse health effect following food consumption. They further explained that these adverse effects may result following the mishandling of food at some points in the chain of production from harvesting,

processing, storage, preparation and consumption. This food hygiene may be conceived as those sanitary measures that aim at preventing the contamination of food during the processing stages of procurement, preparation, storage, serving and consumption.

Procurement connotes the sourcing of food from places such as farms, market, shops and foods depots while preparation entails all organized activities done on food within or outside the kitchen such as washing, peeling, cooking and getting it ready for serving. Kinton and Ceserani (2002) described storage as the different methods employed in protecting food from spoiling before its use. It could be possible that microbial life could lead to food spoilage and deterioration due to improper food hygiene

On food deterioration and spoilage Okonkwo and Obanu (1983) stated that meat kept on retail market tables spoil visibly faster than those displayed on laboratory benches, but that both meat types showed remarkable signs of questionable odour of putrefaction after 12 hours. They attributed this development to the situation existing in the market as an open place full of microbial life. This situation may equally be applicable to other food items that may be similarly exposed. When such food items are eaten under poor hygiene procedures they may generate adverse health consequences such as food borne diseases

Food borne diseases as defined by WHO (2000) are diseases, infection or toxic in nature, caused by agents that enter the body through ingestion of food. The consequences of poor food hygiene or absence of food hygiene is enormous. For instance, WHO (2000) reported that in developing countries, excess of 2 million people (mostly children) die from diarrhea each year. A great proportion of the causes could be attributed to the consumption of food as well as drinking water.

It is obvious that the problem of food contamination generating diseases should attract attention. Firstly, the development runs contrary to the millennium development goals of health for all citizens; and poverty reduction. Secondly, it is a negation of the provision of the National Health Policy. FRN (1996) acknowledged that it is a healthy citizen that can be socially and economically productive at the highest possible level. Without health, economic productivity becomes an illusion and poverty becomes real. It is in the light of these that Benneth and Sofoluwe (2005) argued that it was only through sound programme of food hygiene that the communities can plan for the ultimate building of a strong and healthy population

The issue of food hygiene has certain guidelines. Lucas and Gilles(2003) enunciated the following guidelines as standards for food safety and hygiene:

- Provision of regular supply of portable water;
- Proper disposable of refuse;
- Washing hands before food preparation;
- Storing food out of the reach of pests such as rats, cockroaches, flies;
- Cooking and reheating food before eating;
- Food items, especially vegetables, should be washed and prepared using clean water and utensils;
- Dispose food waste immediately and properly;
- Perishable foods to be stored in a cool, dry place of about 4^0C, and
- Provision of adequate housing.

Be t t as it may, all these are aimed at prev ting infections or toxic agents from

contaminating food at any point in the chains.

It appears as if the individuals do not take the responsibility of food hygiene seriously. Food is handled anyhow without regard to its implications to their health and the health of the public. To help individuals in this respect, the government puts some checks on the activities of the individuals, groups or organizations as it concerns production of food right through the point of purchase to consumption. In Nigeria, the National Agency for Food, Drug Administration and Control (NAFDAC), established in 1993 as a regulatory body, has its focus on drug monitoring and food manufacturing only. The Environmental Health Officers (EHO) also tend to focus on the structural, operational and personal hygiene aspect of food premises (eating houses). In many tropical countries there is an almost complete lack of regulatory control in relation to food safety and hygiene (Lucas and Gilles, 2003).

It is against this backdrop that the researcher chose to investigate the primary school teachers' food hygiene practices. The choice of primary school teachers was informed by their cardinal position in foundation education, and closeness to the subject at the grassroots whose behavior. are influenced by the teachers

In order to give direction to the study 5 research questions were formulated

1. What are food hygiene practices observed by primary school teachers during procurement?
2. What are the food hygiene practices observed by primary school teachers during preparation?
3. What are the food hygiene practices observed by primary school teachers during storage?
4. What are the food hygiene practices observed by primary school teachers during serving and consumption?
5 To what extent do the teachers' practices of food hygiene depend on gender?

The following *hypothesis* was postulated to guide the study.

1 HO1; There is no statistical significant difference in the mean responses of the Male and female teachers in their extent of practice of food hygiene.

Method

The cross-sectional survey design was adopted for the study . The population for the study comprised of 1011 teachers in the 81 public primary schools in Igbo –Etiti Local Government Area. The sample was 415 teachers drawn using the multi-stage sampling procedure. First stage involved sampling of forty schools using simple random sampling techniques while second stage was sampling of 415 teachers from the selected schools using systematic sampling techniques. Structured questionnaire was the instrument used for data collection. The questionnaire comprised of two sections- A and B. Section A sought information on the demographic data of the respondents such as gender and teaching experience while B comprised of a 4 point rating scale that sought information on the food hygiene practices.

The instrument was validated by three experts and a reliability co-efficient of 0.71 was established using Spearman Brown Rank Statistic. Data collection was done through the assistance of game masters. Copies of questionnaire were delivered to the respondents through the game masters

of the selected schools during one of their game masters meeting at the local government sports office. Through the same medium 369 copies of the questionnaire made of 134 males and 263 female teachers were dully completed and returned given a return rate of 95.7%. Twenty five of the remaining copies of the questionnaire were improperly filled while twenty one were not returned by the respondents. Data were analyzed using mean and standard deviation while t- test statistics was employed in testing the two null hypotheses at .05 level of significance. Mean responses with 2.5 and above were regarded" High extent" while below 2.5 was interpreted as" Low extent" of practice of food hygiene.

Presentation of Data and Result

The data collected for the study was presented and analyzed based on the research questions and hypotheses that guided the study.

Research Question One

What are the teachers food hygiene practices observed during procurement?

Table 1

Mean rating of teachers' response on the food hygiene practices during procurement.

S\N	Items	Gender	N	x	SD	Decision
1	Teachers warn that sales of food in open market posses a potential danger to health of the consumers.	134 262	M F	2.40 2.39	1.03 0.97	LE LE
2	Teachers insist that consumers most check the expiring date of food packaged food before consumption	1.34 2.62	M F	3.10 2.95	0.6 0.71	HE HE
3	Teachers always insist on portable source of water supply.	134 262	M F	2.26 2.32	0.88 0.63	LE LE
4	Teachers do not use water from vendors as it may be a source of food contamination.	134 262	M F	2.20 2.34	0.87 1.02	LE LE
5	Teachers ensure that enhancing soil fertility with excrements Is discouraged as it can contaminate food at procurement stage	134 262	M F	1.09 1.11	0.56 0.55	LE LE
	GRAND MEAN	**134** **262**	**M** **F**	**2.21** **2.22**	**0.78** **0.78**	**LE** **LE**

NB: HE-High Extent **LE- Low Extent**

In the overall table 1 indicated that the food hygiene practices of the respondents during procurement stage were to a low extent. This is shown by the grand mean of 2.21and 2.22 for male and female respectively. It also showed a standard deviation of 0.78 and 0.78 for male and female respectively

Research Question 2

What is the teachers' food hygiene practice observed during preparation ?

Table 2 Mean rating of teachers' responses on the food hygiene practices during

SN	Items	N	Gender	$\bar{X}$	SD	Decision
6	Teachers heat leftover food before consumption.	134	M	3.61	0.85	HE
		262	F	3.72	1.01	HE
7	Teachers ensure adequate kitchen accommodation for good food handling	134	M	2.36	0.77	LE
		262	F	2.39	0.76	LE
8	Teachers kept their kitchen out of bounds to strangers.	1.34	M2	2.12	1.12	LE
		262	F	2.10	1.09	LE
9	Teachers always ensure adequate refuse disposal around their kitchen.	134	M	2.60	.55	HE
		262	F	2.58	.57	HE
10	Teacher wash their food items before Preparation.	134	M	3.11	0.86	HE
		262	F	3.15	0.84	HE
	Grand mean	134	M	2.76	0.83	HE
		262	F	2.99	0.85	HE

In the over all, table 2 showed a high extent (2.76 and 2.84)of food hygiene practices for male and female during preparation. The standard deviation showed 0.83 and0.85 for male and female respectively.

Research Question Three

What is the teachers' food hygiene practice during storage?

Table 3

Mean rating of teachers' responses on the food hygiene practice during storage.

S/N	Items	n	Gender	$\bar{x}$	SD	Decision
11	Teachers store perishable food item at a given temperature	134	Mj	1.10	0.81	LE
		262	F n	1.15	0.63	LE
12	Teachers ensure the control of animal pest in food store to prevent food contamination.	134	M	3.10	0.66	HE
		262	F	3.12	0.71	HE
13	Teachers store food in sleeping rooms.	134	M	2.34	1.03	LE
		262	F	2.38	1.07	LE
14	Teachers protect their stored food from insect pest and rodents.	134	M	3.10	0.66	HE
		262	F	3.12	0.69	HE

In overall, table 3 showed that the food hygiene practices of teachers during storage is low (2.41 and 2.44) for male and female respectively. The standard deviation showed 0.83 and 0.85 for male and female respectively.

Research Question Four

What is the food hygiene practices observe by teachers during serving and consumption ?

Table 4

Mean rating of teachers response on their food hygiene practice during serving and consumption

S/n	Items	N	gender	$\bar{X}$	SD	Decision
15	Teachers insist on medically fit individual for handling food during public gathering.	134	M	0.43	0.43	LE
		262	F	1.84	0.48	LE
16	Teachers always wash their hands after using toilet and before eating.	134	M	2.51	1.21	HE
		262	F	2.56	1.19	HE
17	Teachers wash hands and food items during serving to avoid food contamination	134	M	3.10	0.86	HE
		262	F	3.14	0.72	HE
18	Teachers always insist on appropriately dressed individual while handling food in public of gathering	134	M	1.90	0.41	LE
		262	F	1.82	0.36	LE
	Grand mean	134	M	2.36	0.72	LE
		262	F	2.18	0.68	LE

In overall, table 4 indicated that the food hygiene practices observed by teachers during serving and consumption is low (2.36 for male and 2.19 for females). the standard deviation was 0.72 and o.68 for male and female respectively.

Summary of t-test on teachers' extent of practice of food hygiene based on gender

Gender	n	$\bar{X}$	SD	df	t-cal	t-crit	P	Decision
Mde	134	244	0.78	394	0.317	1960	.05	Accepted
Female	262	246	077					

Since the t-calculated (0.317) is less than the critical value (1.960) the null hypothesis is accepted and the alternative rejected. This means that the teachers' level of practices of food hygiene is not dependent on gender.

Discussion

This study generates information on the extent of practice of food hygiene by primary school teachers in Igbo- Etiti Local Government Area of Enugu State. The finding generally revealed that the extent of practice of food hygiene by the teachers in the area of the study is low. This findings run contrary to the expectation of the researcher who had expected high extent of practice of food hygiene from teachers. This result challenges the quality and integrity of primary school teachers as the bedrock of grassroot education because example is better than precepts

Table 1,2,3,4 showed that items 1, 3, 4 5,7,8,11 and13 had low mean ratings below 2. 5. It is interesting to note that items 2,6,9,10,12and 14 attracted high mean ratings of 3.10. This observation is not surprising because the activities of the Enugu State Waste Management Authority(ENSWAMA) and National Agency For Food Drug Administration And Control (NAFDAC) may have contributed immensely in the increase in the teachers' level of practice in that direction.

However, the poor practice of teachers of sourcing of food and water from open market and vendors (item 1 and 4) that could be source of food contamination calls for concern . This is because the open market is full of microbial lives that facilitate food spoilage (Okonkwo and Obanu, 1983). Again, it is indicative (table 1, item 3) from the result of the study that the teachers do not always insist on good source of water supply. This finding runs contrary to the guideline by Lucas and Gilles (2003) on the provision of potable water supply as a standard for food hygiene Also result in table 2 (item 8) shows that the teachers permit strangers in their kitchen . Although keeping the kitchen out of bounds to the strangers may be seen as a religious practice as documented by Ejifugha (1999), it could prove a meticulous step towards protecting food from contamination during preparation .

Assembling people from diverse epidemiological backgrounds accounts for the reason why only medically certified fit individuals should handle food during public gathering. It can be seen from the mean responses of the teachers (table 4 item 1) that they do not insist on medical fit person to handle food during public gatherings . The consequences of this poor practice would be food borne diseases. Food borne diseases have been known to be responsible for high mortality and morbidity rate especially among children (WHO , 2000). These children are taught by the teachers who are expected to influence their behaviour especially as it pertains to food hygiene .Again mortality and morbidity among the teachers as a result of infections from food contamination could reduce productivity. This could be through repeated absenteeism from school(work) which leads to man -hour loss.

Specifically, WHO (2000)reported that in developing countries like ours, excess of 2 million people (mostly children) die from diarrhoea each year. A great proportion of the cases could be attributed to the consumption of food as well as drinking water.

Implications of the Study

The primary school teachers are entrusted with the responsibility of grassroot development of pupils and they occupy a cardinal position in laying a sound foundation for education. This is why the federal government of Nigeria enunciated the need for a highly motivated, conscientious and effective staff at all levels of education including primary school (FRN, 2004).

Nwabuisi (2008) believed that quality of education depend on the value and quality of the implementer. It then follows that the level of knowledge and extent of practice of teachers suggest what their products' level would be. This is because the teachers' level of practice is expected to influence that of the pupils. So, it becomes pertinent that extent of practice of food hygiene by teachers be addressed so as not to produce pupils who are bankrupt in the practice of food hygiene. If the goal of primary education is to inculcate permanent literacy (FRN, 2004) leaving these teachers at their present level of practice is tantamount to perpetuating the wrong type of value.

Primary school teachers will facilitate the spread of health information, knowledge and practice to other members of the society. This will in turn reduce the incidence of food poisoning , wastage of fund in treating preventable diseases; man-hour loss due to illnesses, absenteeism and improved quality of health of individuals. All these will ultimately lead to reduction in poverty and diseases contributing to national development and achievement of national MDGs of vision 2020.

Conclusion

Through sound programme of food hygiene the nation can plan for ultimate building of a strong and healthy population with resistance to diseases(Bennett and Sofolowe,(2005). A healthy nation will reap a strong economy , but without good health, economic productivity becomes illusive and poverty becomes real. The primary school teachers as the character molders at the foundation need quality health so as to enable them face the challenges of carrying out their daily responsibility efficiently and effectively for the purpose of achieving national development. If this is lacking the implication will be that national development through Educational empowerment will be reduced.

Recommendations

On the bases of the findings of the study the following recommendation were made.

1. Teaching of health education in primary schools should be intensified.
2. Food regulatory agencies like NAFDAC should sponsor public enlightenment campaign against poor sanitary habits about food handling.
3. Seminars and workshop should be organized for primary school teachers so as to enhance their knowledge of food hygiene.

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