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FOOD SAFETY KNOWLEDGE, ATTITUDE & PRACTICES OF FOOD HANDLERS IN THE DIFFERENT SCHOOL CANTEENS IN SAN JOSE NORTH DISTRICT, OCCIDENTAL MINDORO, PHILIPPINES

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ABSTRACT: The study aims to evaluate the food safety knowledge, attitude and practices (KAP) of food handlers from the different elementary school canteens in San Jose North District, Occidental Mindoro.

Descriptive research design was employed in this study. It was conducted in the in Murtha, San Jose, Occidental Mindoro on July 2018-January 2019. The respondents were the 25 food handlers in the different canteens inside and outside the elementary schools in San Jose North District, excluding the IP schools. Inform consents were secured prior to the conduct of the study. Survey was prepared based on validated questionnaires used in similar studies in other countries (Bas, Temel, Ersun, &Kivanc, 2005; Buccheri et al., 2010; Tokuc et al., 2009). Descriptive statistical tools such as mean and frequency were used in the study. Result shows that the food handlers' are young with an average age of 36.3 years old, literate with 11 years in formal schooling and have 'moderate' experience in food handling averaging 6.48 years. Further, they have a "moderate" knowledge level on food safety. They show a "positive" attitude towards food safety but "seldom practice" food safety activities.

Keywords: proper hygiene, hand washing, food handling, food safety, canteens

I. INTRODUCTION

Food safety program have been become increasingly necessary due to technological advances in food and agricultural sector and also due to social changes in introducing new food habits .In the past, food was consumed by those who produced it or by their immediate neighbors. Increased world production, urbanization, industrialization and migration have however introduced new food safety problems into our food supply (Fray, 2006).

Food handling practices has received an increasing attention in the Philippine due to a number of factors 1) a respectable proportion of the food establishment are all of small and medium scale, where there is strict implementation of food safety 2) consumers wider choices but usually not so knowledgeable on the production, storage handling processes of the available commodities.

Food naturally contains bacteria and some food may contain food poisoning bacteria. Foods need to be handled correctly to ensure that they do not become contaminated and that the bacteria already in the food do not have an opportunity to grow. It is important to keep raw food totally separate from cooked or ready-to-eat foods (Victorian Food Act, 2014). Food spoilage is actually caused by tiny invisible organisms called bacteria. Bacteria live everywhere we live that may cause for us to get any kind of sickness (Alfaro, 2012). While food safety is about handling, storing and preparing food to prevent infection and helps to make sure that our food keeps enough nutrients for us to have a healthy diet. Unsafe foods and water means that it has been exposed to dirt and germs, or may even be rotten, which can cause infections or diseases such as diarrhoea, meningitis, etc (Futter, 2012).

Rennie (1995) suggested that food safety knowledge influences food safety attitudes and could lead to changes in behaviors. Such information is important in designing training modules and targeted mitigation strategies to advance food safety for food handlers. However, food safety knowledge, attitudes and practices in food service establishments in San Jose North District, Occidental Mindoro have not been reported.

Information on food safety knowledge attitudes and practices of institutional foodservice has been identified as an important gap in food safety research (Ababio&Lovatt, 2015). Thus, this study will bridge the knowledge gap and would highlight areas that need critical attention. The purpose of this research is to

evaluate the food safety knowledge, attitudes and practices of food handlers and generate baseline data for evidence-based improvements which will enable institutional foodservice operators to develop, implement and maintain effective food safety management systems.

Objectives of the Study

This study aims to:

1. Determine the food safety knowledge of food handlers in the different canteens in San Jose North District, Occidental Mindoro.
2. Determine the food handlers' attitude towards food safety.
3. Determine the food safety practices of food handlers.

Methodology

Descriptive research design was employed in this study. It was conducted in the in San Jose North District, Occidental Mindoro on January-June 2019. Permission from the school heads and barangays were sought prior to the conduct of the study. In addition, informed consent was asked from the respondents of the study.

In this study, the respondents were the 25 food handlers in the different canteens inside and outside the elementary schools in San Jose North District, excluding the Indigenous Peoples elementary schools. The inclusion criteria was all persons involved in food handling for at least one year while the exclusion criteria was non-responsive food handlers.

Survey form was prepared based on the validated questionnaires used in similar studies in other countries (Bas, Temel, Ersun, & Kivanc, 2005; Buccheri et al., 2010; Tokuc et al., 2009). Descriptive statistical tools such as mean and frequency were used in the study.

II. RESULTS AND DISCUSSION

Profile of the food handlers in the different canteens in San Jose North District, Occidental Mindoro

The food handlers were female (100%), young with a mean age of 36.30 ranging from 15-53 years old. The dominance of females in the catering business could be attributed to their traditional food preparation responsibilities at the home (Ackah et al., 2011). Similar studies have reported a higher proportion of females to males in catering establishments (Buccheri et al., 2010).

They are literate with an average years spent in formal education of 11 years. This was noteworthy because workers who have no formal education and incomplete basic school education are less likely to properly follow procedures on safe handling of food (Clayton, Griffith, Price, & Peters, 2002). The food handlers could be classified as experienced food handlers with a mean of 6.8 years spent in food service.

Table 1. Profile of the food handlers.

Profile	Mean	Range
Age	36.30 years old	15-53 years old
Number of years spent in formal education	11.00 years	6-14 years
Number of years spent as food handlers	5.24 years	1-20 years

Food safety knowledge of food handlers in the different canteens in San Jose North District, Occidental Mindoro

Food safety is a shared responsibility between governments, industry, producers, academia and consumers that requires a multi-sectoral effort (WHO, 2016).

Food safety knowledge of food handlers in the different canteens in San Jose North District, Occidental Mindoro was determined through a test. The scoring criterion for the answers was one point for each correct answer and zero point for each incorrect answer. Practical knowledge was considered acceptable when the score was 10 or more (>50%). Thus, food safety knowledge was acceptable with an average score was 11/19 or 57.89%.

Regarding cleaning and disinfection, the majority of the respondents (more than 65%) correctly answered statements 5, 8 and 11, which refer to the importance of order, hygiene and sanitation procedures. Osaili et al. (2017) indicated that food handlers knew the correct procedure for cleaning and sanitizing food contact surface.

Table 2. Food safety knowledge of food handlers.

Knowledge	Responses (%)	
	True	False
1. Correct hand-washing reduces the risk of food contamination.	94.74	5.26
2. A food handler with vomiting and diarrhea can continue working without notifying his supervisor.	31.58	68.42
3. In the washbasins it is enough to have water and liquid soap.	78.94	21.06
4. Work clothes are white because the dirt is easily distinguishable.	94.74	5.26
5. Cleaning and disinfection can be done in a single step by mixing detergent and chlorine.	21.06	78.94
6. Droplets produced by sneezing can spread bacteria from the nose and mouth through the air to food.	94.74	5.26
7. It is correct to leave the establishment with work clothes.	52.63	47.37
8. Utensils can be stored and cleaned the next day.	31.58	68.42
9. The correct way to thaw a food is on the table.	78.94	21.06
10. Food and cleaning products can be stored together as long as they are labeled.	00.00	100.00
11. Order and hygiene prevent the presence of pests (rodents, flies, etc).	100.00	0.00
12. Flies can contaminate food and utensils through vomiting and fecal	100.00	0.00
13. Chlorine can be fractionated in soda bottles.	78.94	21.06
14. In the skin of people there are usually bacteria.	31.58	68.42
15. Rings and other personal adornments accumulate dirt and can be a physical hazard if they fall into a food.	78.94	21.06
16. While you work you can chew gum because it stays in your mouth and there is no contact with your hand.	94.74	5.26
17. If you need to cough or sneeze, cover your mouth then handwash.	78.94	21.06
18. Operational cleaning can be done with the hose during processing or when there is exposed product.	94.74	5.26
19. Proper hand-washing can be done in 5 s.	94.74	5.26
Over all score 11/19 or 57.89%		

Note: The correct answers appear in bold.

Food handlers' attitude towards food safety in the different canteens in San Jose North District, Occidental Mindoro

Food handlers showed a positive attitude towards food safety with a mean of 4.60. Tan et al (2013) also indicated positive attitudes of food handlers in most of the evaluated aspects.

Substantial numbers of food handlers were "undecided" about the thermometer settings of refrigerator and freezers should be checked at regular interval (mean=2.62). Failure to perceive such an important food handling risk may be an impediment to successful implementation of food safety control measures in institutional food service. Multiple freeze-thaw cycles have been reported to allow microbes that can cause food spoilage or illness (Schmidt & Rodrick, 2003).

Table 3. Food handlers' attitude towards food safety.

Attitude	Mean	Interpretation
Safe food handling is an important part of my job responsibility.	4.23	Agree
Learning more about food safety is important to me.	4.23	Agree
Raw food should be kept separated from cooked food.	3.72	Agree
Toxic chemicals and cleaning solutions should be stored away from the food preparation area.	4.32	Agree
Defrosted food should not be refrozen.	2.47	Disagree
The thermometer settings of refrigerator and freezers should be checked	2.62	Undecided

at regular interval.		
Food handlers with abrasion or cuts on hands should not touch unwrapped food.	2.87	Undecided
Food handlers suffering from foodborne illness and other illness should not be permitted to work in the food preparation area.	3.64	Agree
It is necessary to use anti-bacterial soap when washing hands.	4.62	Strongly Agree
Storage of food by refrigeration kills harmful microbes or germs.	3.52	Agree
Grand Mean	4.60	Agree

Legend: 0.50-1.50=Strongly disagree; 1.51-2.50=Disagree; 2.51-3.50=Undecided; 3.51-4.50=Agree; 4.51-5.50=Strongly agree

Food handlers' food safety practices in the different canteens in San Jose North District, Occidental Mindoro

The importance of food safety practices in the prevention of food borne illnesses cannot be overemphasized. Table 4 shows the responses of food handlers concerning their food safety practices. It was found that the self-reported practices of the food handlers were rated as "often" with a mean of 4.14.

Hand washing is a critical food safety practice that was "always" practiced by the respondents. It was also encouraging to note that they wash their hands with antibacterial soap after doing some activities. The importance of regular hand washing with antibacterial soap was substantiated in a study by Toshima et al. (2001), who found that anti-bacterial soap had greater efficacy (>95%) in reducing total coliform counts on hands even with shorter washing times.

Table 4. Food safety practices of food handlers.

Practices	Mean	Interpretation
Check integrity of food package before use	4.73	Always
Check shelf life of food before use	4.82	Always
Thaw food at room temperature	4.41	Often
Cook/serve food when sick	2.05	Sometimes
Separate utensils for raw and cooked food	4.18	Often
Wash food contact surfaces with soap	2.45	Sometimes
Wash hands with antibacterial soap	4.51	Always
Wash hands before cooking/serving	4.64	Always
Use proper attire when serving and cooking	4.64	Always
Use clean clothes to mop dining tables & utensils	4.73	Always
Use disposable tissue when sneeze/cough+handwash	4.36	Often
Grand Mean	4.14	Often

Legend: 0.50-1.50=Never (0% of the time); 1.51-2.50=Sometimes (20% of the time); 2.51-3.50=Seldom (50% of the time); 3.51-4.50=Often (70% of the time); 4.51-5.50=always (100% of the time)

III. CONCLUSIONS

The study concluded that food handlers' have "moderate" food safety knowledge, which is within the "acceptable" level. They showed a "positive" attitude towards food safety. However, they "seldom practice" the different food safety activities.

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