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Safe Food Preparation Practices of Food Establishments in Catarman, Northern Samar, Philippines: A Qualitative Study

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ABSTRACT

This study anchored on human factors theory, investigated the safe food preparation practices of restaurants in Catarman, Northern Samar. Qualitative research design using phenomenological approach was employed. Four focus groups were conducted composed of restaurant employees assigned in the kitchen and dining areas. Each group discussed eight safe food preparation practices and the factors affecting each practice. The participants have shown a relatively acceptable knowledge on safe food preparation practices, however, unsafe food preparation practices were also reported. The discussed practices and the factors affecting each practice were grouped and tallied. The factors were categorized into: (1)Availability or non-availability of supplies and/or equipment, (2)management-influenced factors, and (3)personal factors. Results suggest a need for training restaurants in conducting hazard analysis. Manuals on safe food preparation standards should also be provided and strictly implemented.

Keywords: *safe food preparation, safe food practices, restaurants, operation and management*

INTRODUCTION

Catarman is the capital town of the province of Northern Samar in the Philippines. The town is fast developing in terms of commercialization. This means a wide variety of ready-to-eat food choices for the community.As an offshoot to commercialization, restaurants and other food providers increased in number.

Various reports worldwide show a number of foodborne illnesses outbreak caused by improper food preparation of food providers (FoodHACCP.com, 2009). It is basic knowledge in food preparation that food served must not only be varied and appetizing but, most importantly, must be safe for human consumption. Observance therefore of safe food practices in food preparation is vital in reducing rate of foodborne incidence (National Health and Medical Research Council, 2003). The need for studies in this area is further stressed due to the significant gap between developed and developing countries when it comes to food safety strategy (Informal Consultation on Strengthening the Surveillance of Foodborne Diseases in the Western Pacific Region, 2014).

The undocumented incidents and increasing number of customer complaints on the safety of food served by small food establishments in Catarman, Northern Samardemands attention from authorities and experts. In order for the Hospitality Management Department of the

University of Eastern Philippines to extend help to micro and small food enterprises in the province, understanding safe food preparation practices of food establishments must be pursued.To be able to effectively deliver the needed impact to the community, it is deemed necessary to take the initial step to understand essentially the current food preparation practices and behaviors of food workers in the locality before any change effort can be successful.

OBJECTIVES OF THE STUDY

1. Determined respondents' food preparation practices in terms of:
   - 1.1 Hand washing;
   - 1.2 Cross-contamination prevention;
   - 1.3 Use of glove;
   - 1.4 Determining food doneness;
   - 1.5 Holding;
   - 1.6 Cooling;
   - 1.7 Reheating;
   - 1.8 Health and personal hygiene.

2. Identified factors affecting food preparation practices of the respondents on:
   - 2.1 Hand washing;
   - 2.2 Cross-contamination prevention;
   - 2.3 Use of glove;
   - 2.4 Determining food doneness;
   - 2.5 Holding;
   - 2.6 Cooling;
   - 2.7 Reheating;
   - 2.8 Health and personal hygiene.

THEORETICAL FRAMEWORK

This study was anchored on human factors theory. Human factors (HF) theory investigate how environmental, organizational, job factors, together with human and individual characteristics impact unsafe acts and how these unsafe acts affect health and safety (Wickens, 1997). The theory postulates that occurrence of human error in the workplace is a sign of a deeper problem in the system. In this study, the different safe-food preparation practices were determined and the factors affecting them were identified, categorized, investigated and analyzed.

This study is also supported by the high-performance work practices (HPWPs) theory. HPWPs hypothesized that workers are capable of continuous improvement and, when motivated, will perform at higher levels(Pfeffer, 1998). HPWPs theory facilitates better understanding of workers operational performance in terms of safety management system,in this case, on food safety practices.

METHODOLOGY

Qualitative research design using phenomenological approach was employed in this study. Focus Group Discussion (FGD) in data gathering was used since the method supplies descriptive qualitative information that is difficult to acquire in other types of data collection. To obtain participants in this study, the researchers personally surveyed and visited all restaurants and food providers with at least five (5) employees in Catarman, Northern Samar. Big food corporations such as established fast food restaurants were not included considering that such restaurants have manuals for standard operating procedures and food safety. The managers or owners were asked if they will allow one or two of their employees as representative in a focus group discussion (FGD) on the safe food preparation practices of food establishments in Catarman. Seven (7) restaurants and one (1) catering establishment agreed to participate. Each establishment allowed two (2) volunteer employees to join the FGD. Four (4) sessions of FGD were conducted. In each FGD, there were four (4) participants coming from different food establishments in each session.

The participants' age profile ranges from 19-24.The educational backgrounds of participants are high school graduates, college working students, and college graduates. The participating food establishments offer different food products and the service type employed varies from self-service, to canteen type service, buffet for catering service, to table service. All participants have been employed for more than three (3) months in their current work. Nine (9) participants were kitchen staff and seven (7) were dining crew that are also tasked to perform food plating, assembling, drink preparation and garnishing.

During FGD, the researchers served as moderator and secretariat. The moderator posed questions guided by the seven identified food preparation practices from the study conducted by Green and Selman (2005). Clarifications on some topics discussed were asked by the moderator especially topics brought out in relation to standards in food-safety management and Hazard Analysis and Critical Control Point (HACCP) system. All responses were noted by taking detailed minutes of the FGD. For an organized and clear data presentation, the responses were tabulated. The participants discussed eight (8) practices – hand washing, glove use, cross contamination prevention, determining food doneness, holding, cooling, reheating and health and personal hygiene. The last practice was added as it has cropped up during FGD as one of the common practices mentioned by all groups.

After reviewing the transcript of all FGD sessions, responses were coded and tabulated according to each topic and identified category. The researchers conducted an unannounced visit and dined in as customers for observation purposes. All participating restaurants allowed the researchers to do an ocular check of the food preparation and counter areas. The researchers recorded the actual practices during the visit and these observations were used to enrich the findings and discussion of the study.

FINDINGS AND DISCUSSION

The knowledge of the participants in safe food preparation practices is relatively acceptable based on their discussion during the FGD. There were studies conducted on the safe practices of food workers that suggest food workers tendency to be biased in their reporting of good practices in food handling rather than practicing them (Oteri *et al.,* 1989) (Omemu, 2008).

However, respondents also reported some practices that may be considered hazardous in Hazard Analysis Critical Control Point (HACCP) system, such as using chopping board for meat to chop vegetables and fruits; failure to calibrate holding equipment; not checking food temperatures; determining food doneness by mere appearance and smell of the food; thawing in sink area at room temperature; reheating food items without measuring the internal temperature of the dish; and holding cooked food in stainless containers in room temperature.

For purposes of discussion, the factors affecting safe food practices among restaurants in Catarman were categorized into: (1) Availability or non-availability of supplies or equipment; (2) management-influenced factors; and (3) personal factors. Noting that responses of the participants may be subject to their personal biases, the researchers visited the participating establishment and conducted observations during actual operation to validate the ideas and responses discussed during FGD. Green and Selman(2005) cited availability of supplies as management-influenced factor; however, the researchers decided to put it in a separate category as it appears to be the most common factor affecting the different safe food preparation practices that merits separate discussion.

Respondents have frequently mentioned the non-availability of hand gloves, soap, tissue, towel, sanitizer, utensils, cook wares, and food thermometers. The availability of these supplies and tools are determinants to ensure compliance to standard of safe food preparation practices. As in the case of hand washing, though respondents have sufficient knowledge on the importance of hand washing, it was observed and documented that hand soap and wash sink area were not in place to ensure compliance. The lack of hand washing supplies and gloves create a negative effect on food preparation practices (Kendall, Melcher, & Paul, 2000). Some participants openly shared that hand washing supplies are not available due to management's cost saving program.

For establishments whose allotted employees' hand washing area is the kitchen sink, the compliance to hand washing procedure become a challenge to food workers, especially when the business volume is high or during peak hours when the sink is full of soiled dishes and pots. This finding supports the human factor theory that work practices ultimately resulting to higher tendency to commit mistakes leading to increase risks, are due to combined factors of overload, underestimating the risks involved, and other environmental and organizational factors such as absence or insufficiency of tools for the task involved (Goetsch, 2015). Participants also admitted that their establishment does not have food thermometers. This implies that food establishments in Catarman, Northern Samar are lenient in controlling and monitoring temperatures to ensure food doneness and guarantee food safety.

Insufficiency or absence or presence of equipment or facility in food preparation areas such as small kitchen area, commissary, and sub-standard preparation table impact safe food preparation practices. This finding affirms the study of Green and Selman (2005) which identified structural environments, including equipment and resources, as one of the most consistently identified factors impacting food preparation practices among workers and managers.

In terms of management-influenced factors, the researchers included in this category the following: high business volume; management emphasis; lack of training; and establishment of procedures. High business volume is one of the factors identified by the FGD participants affecting hand washing, glove use, determining food doneness, cooling and heating practices.

As discussed by the participants during FGD, high business volume causes the food worker to sacrifice standard procedures. This indicates that food establishments prioritize fast delivery of service over food safety. When it comes to determining food doneness, establishments are not particular with following correct temperatures. Cooks do not use timer in cooking. Doneness is determined more often by looking at the appearance of the dish being cooked.

Another management-influenced factor often identified by the participants is management emphasis on observing safe food preparation practices. Management emphasis refers to manager's constant reminder and knowledge of the standards and polices of the establishment. Management emphasis is a factor that impacts hand washing, cross-contamination, glove use, and health and personal hygiene practices. As confirmed in the study of Arendt (2013), current and future managers recognized their role as the enforcer of food safety standards. Some of the management-influenced factors in cross-contamination practices that were noted are separating raw ingredients from cooked or ready-to-eat food during food preparation; separate storage area for raw and ready-to-eat food; tongs were used in plating cooked food. These practices were effectively practiced by food workers if the manager exercises strict monitoring of establishment's procedures and standards.However, there was an instance where the chopping board for cooked meat is the same with fruits and vegetables.

Participants whose managers are graduates of food-related courses, or were trained in food management, or possesses national certification in food and beverage from Technical Education and Skills Development Authority believed that their restaurants demonstrate a higher consciousness of safe food preparation standards and over-all hygiene and sanitation within the work place. During discussion, participants credit knowledgeable managers for their strict monitoring and compliance to the standard set by the restaurant and supportive in the implementation of restaurant policies. This finding supports the conclusion of Pragle *et al.* (2007) that the absence of support from managers and coworkers for safe food practices like hand washing was believed to negatively influence practice.

Participants also believed that management does not provide adequate and formal trainings on safe food preparation. The knowledge that participants have were learned from school, or when their attention is called by their manager or owner, or in instances were customer would complain on food-related concerns such as hair on food served, cold food, undercooked chicken or poor taste and quality of food served. This finding supports the finding of Arendt (2013) on food safety practices and managers' perceptions on workers desire to learn variety of food safety topics such as avoiding cross contamination, appropriate use of hand gloves, understanding food code guidelines to warrant and improve their confidence in managing restaurants.

As was found out during visit, food handler extents of knowledge on holding temperatures were very poor. None of the workers knew what temperature danger zone is, or the ideal temperature for each type of storage. Disregard on the importance of monitoring temperature was also found in some studies conducted on food preparation practices. The study of Panchal *et al.* (2013) showed only two percent of the food handlers knew the correct temperature to which hamburgers or other ground beef items such as meatloaf should be cooked.

In terms of holding practices, it was apparently observed that food workers do not know the correct temperature of holding equipment. None of the workers were able to give the correct temperatures. The same observation was made on the lack of knowledge of workers on correct temperature for cold equipment. None of the workers know what is meant by calibration and how it is done.

Factors such as food preparation procedure, time between preparation and cooking, type of task to be performed and ingredients used were categorized as under establishment-imposed factors whose compliance to standard safe food preparation practices is management-influenced. The same findings were discussed in the study of Green and Selman (2005) identifying many factors as heavily influenced by management and stated that managers often impact whether workers are provided with food safety training and restaurant procedures that support food safety.

Personal preferences among workers whether to wash hand or just use sanitizer,parching of hands if washed too often, and extensiveness of experience in the restaurant business were classified as personal factors that can negatively or positively impact compliance of food workers to safe food preparation practices. In the study of Clayton *et al.* (2002), it was found out that even if food workers appear to have knowledge on safe food preparation practices, it does not necessarily mean that they practice the same. As noted during restaurant visits, some kitchen workers were not wearing hairnet and apron, some were in slippers and some were not in uniform.

All food establishments visited have passed the sanitation inspection of the local government of Catarman, Northern Samar. This means food establishments in Catarman are compliant with the regulatory requirements imposed by the local government unit, but, unsafe practices were still reported and observed. This finding suggests a leniency on the part of inspection officers or may also be explained by the lack of motivation of workers to really follow the standard. The high-performance work practices theory, postulates that motivated workers perform at higher levels (Pfeffer, 1998). The result implies low motivation among food workers to observe safe food preparation practices.

Table 1.*Practices discussed by the participantsand the factors affecting each practice and the number of groups that discussed each practice and factor.*

Practices	No. of Groups	Factors affecting:	No. of Groups
Hand washing		**Hand washing**	
▪ Wash hands before preparing food.	4	▪ High business volume (Peak hours).	4
▪ Wash hands after visiting the restroom.	4	▪ Availability of hand gloves.	4 4
▪ Wash hands after touching some body parts like hair or mouth when sneezing.	4	▪ Availability of soap, tissue or towel.	4
▪ Wash hands after eating.	3	▪ Accessibility/Availability of wash sink	2
▪ Wash hands after taking a break.	1	▪ Management emphasis.	1
▪ Sanitizing instead of washing hands.	1	▪ Availability of sanitizer. ▪ Personal preference. ▪ Allergy/dries hand.	1 1

Practices	No. of Groups	Factors affecting:	No. of Groups
Cross-contamination prevention		**Cross-contamination prevention**	
▪ Wash hands after preparing meat and other raw ingredients, use of hand glove.	4	▪ Hand glove availability.	4
▪ Clean work surfaces, chopping board, utensils and equipment before use.	4	▪ Manager's constant reminder (managers with food background are more mindful of preventing cross-contamination).	4
▪ Raw meats and poultry are kept in a separate plate from other food items during preparation.	4	▪ Lack of knowledge.	3
▪ Separate storage compartment for raw meat and poultry from other food items in the chiller/freezer.	2	▪ Small kitchen/food preparation space.	2
▪ Use tongs and other utensils when handling cooked food to prevent hand contact.	2	▪ Type of products/ingredients prepared.	2
▪ Sanitize work surfaces after operation.	2	▪ Existence of a commissary that prepares food.	2
▪ Chopping board used to chop meats should be washed before it can be used to chop vegetables and fruits.	1	▪ Not enough inventory of utensils and cook ware such as chopping board, knife, and ladle.	2
▪ Separate chopping boards for raw meat and cooked meat.	1	▪ Lack of stainless steel preparation table.	2
Glove use		**Glove use**	
▪ Wash hand with every glove change.	3	▪ High volume of business.	4
▪ Change glove when damaged.	3	▪ Availability of glove.	4
▪ Change glove when dirty.	3	▪ Management emphasis.	4
▪ Use glove when handling cooked food.	2	▪ Comfort in using glove.	3
▪ Glove use not necessary if hands are washed properly before operation.	1	▪ Hand washing and availability of sanitizer.	3
		▪ Task to be accomplished like if food being handled is raw, no need for gloves.	1
Determining food doneness		**Determining food doneness**	
▪ Determine doneness by appearance and color.	4	▪ High volume of business.	4
▪ Determine doneness by	3	▪ Following standard procedure prescribed by	3

Practices	No. of Groups	Factors affecting:	No. of Groups
cooking time. ▪ Determine doneness by smell. ▪ Determine doneness by tasting if possible.	 3 3	the establishment like following cooking time. ▪ Unavailability of thermometer. ▪ Lack of training. ▪ Experience	 3 3 3
Holding ▪ Does not calibrate holding equipment temperature. ▪ Use of display cabinet chillers to hold chilled food items such as cakes and vegetable salad. ▪ Cooked food placed in stainless containers in room temperature. ▪ Stir held foods periodically.	 4 2 2 1	**Holding** ▪ Lack of training. ▪ Equipment availability/unavailability. ▪ Lack of knowledge as to correct holding temperatures. ▪ Food preparation procedure such as made to order food. ▪ Thermometer not provided in the establishment. ▪ Food quality.	 4 4 4 3 3 2
Cooling ▪ Does not check food temperatures. ▪ Thawing frozen food in chillers. ▪ Thawing/cooling frozen meat and chicken in shallow container. ▪ Cooling frozen raw meats to be cooked immediately in kitchen sink area at room temperature.	 4 3 3 3	**Cooling** ▪ Lack of training. ▪ Unavailability of thermometer. ▪ High volume of business. ▪ Unavailability of equipment such as microwave oven. ▪ Working space. ▪ Time between preparation and cooking.	 3 3 2 2 2 2
Reheating ▪ Does not reheat food. ▪ Reheat food before placing in holding *bainemarie.* ▪ Reheat only once. ▪ Food to be reheated are stored in the chiller. ▪ Leftovers are separated from newly cooked or fresh products.	 3 1 1 1 1	**Reheating** ▪ Lack knowledge on the effect/consequences of reheating. ▪ High volume of business. ▪ Unavailability of thermometer. ▪ Type of food to be reheated. ▪ Restaurant procedure.	 3 2 2 2 2
Health and Personal Hygiene ▪ Takes a bath before going to work.	 4	**Health and Personal Hygiene** ▪ Management emphasis. ▪ Health regulations and	 4 4

Practices	No. of Groups	Factors affecting:	No. of Groups
▪ Keep nails short and clean. ▪ Manicured nails not allowed. ▪ Updating of health clearance from municipal health office. ▪ Wearing of hairnet ▪ Jewelries not allowed for kitchen staff. ▪ Personal hygiene discussed during orientation. ▪ Wearing of proper uniform with apron in the kitchen. ▪ Kitchen staff with cuts or open wound are not allowed to handle food.	4 4 4 3 3 3 3 3	inspection. ▪ Establishments' policy.	4

CONCLUSIONS AND RECOMMENDATIONS

It can be concluded from the findings of this study that FGD participants showedan acceptable knowledge on safe food preparation practices in hand washing, cross-contamination prevention, glove use and personal hygiene. However, relatively low knowledge in determining food doneness, holding, cooling and reheating were observed among employees of food establishment in Catarman, Northern Samar. As observed during visits to the different food establishment, some practices that were reported during FGD were not constantly done or not done at all in the actual operation. Managers or owners should be strict in monitoring and imposing compliance to safe food practices. To be able to do this, food establishments should come up with their own hazard analysis and critical control point system. Restaurants should draft and implement their own manuals and policies on safe food preparation.

The lack of knowledge on cross-contamination prevention, different cooking and storage temperatures, and their effect to food doneness and overall safety of the food served warrants training and education on these topics. The expertise of the University of Eastern Philippines, Department of Hospitality Management can be utilized for extension services. Still, training intervention such as developing hazard analysis and critical control point system can only be successful if other identified management-influenced factors will be addressed.Food establishment should come up with standard proceduresin food preparation andprovide tools and equipment to facilitate observance of safe food preparation practices. Serious training should be conducted to increase the technical know-how of food workers and develop the correct mind-set on the importance of preparing safe food.

The findings of this study are applicable only to food establishments in Catarman, Northern Samar that participated in the FGD. However, the data may help food establishments, local government units and educators in the field of food management to come up with manuals to

aid the operation of micro and small restaurants and catering businesses in the area. The local government may be guided as to designing programs that would help educate and, at the same time, regulate the food safety compliance and upgrade the quality standards of restaurants in Catarman, Northern Samar.

Further research may also be conducted such as including managers, customers, and local government officials responsible for regulating food safety as respondents.

REFERENCES

i. *FoodHACCP.com*. (2009). Retrieved April 9, 2017, from 2009 Foodborne Outbreak Information: http://www.foodhaccp.com/out0609.htm

ii. (2014). *Informal Consultation on Strengthening the Surveillance of Foodborne Diseases in the Western Pacific Region.* Manila, Philippines: World Health Organization, Western Pacific Office.

iii. Arendt, S. a. (2013). *Food Safety Practices and Managers' Perceptions: A Qualitative Study in Hospitality*. Retrieved from Digital Repository @ Iowa State University: http://lib.dr.iastate.edu/aeshm_pubs

iv. Clayton, D. C. (2002). Food handler's beliefs and self-reported practices. *Int. J. Env. Health, 12*, 25-39.

v. Goetsch, D. L. (2015). *Occupational Safety and Health for Technologists* (8th ed.). Sydney: Pearson.

vi. Green, L. a. (2005). Factors Impacting Food Workers' and Manager's Safe Food Preparation Practices: A Qualitative Study. *Food Protection Trends, 25*(12), 981-990.

vii. Kendall, P., Melcher, L., & Paul, a. L. (2000). Factors affecting safe food handling practices in restaurants. Unpublished study. *Department of Food Science and Human Nutrition*.

viii. Maya Kitchen Culinary Arts Center. (2007). *Managing A Food-Safe Kitchen: A Guide on Sanitation for Food Service Professionals.* Makati City: Anvil Publishing, Inc.

ix. National Health and Medical Research Council. (2003). *NHMRC Dietary Guidelines for Australian Adults. A Guide to Healthy Eating.*

x. Omemu, A. A. (2008). Food Safety Knowledge and Practics of Food Vendors in the City of Abeokuta, Nigeria. *Food Control, 19*, 396-402.

xi. Oteri, T., & E.Ekanim. (1989). Food Hygiene Behavior among Hospital Food Handlers. *Public Health, 103*, 153-159.

xii. Panchal, P., Pierre, B., & Dworkin, M. (2013). Food Safety Knowledge Among Restaurant Food Handlers in Neuchatel, Switzerland. *Food Protection Trends, 33*(3), 133-144.

xiii. Pfeffer, J. (1998). *The Human Equation: Building Profits by Putting People First.* Boston, MA: Harvard Business School Press.

xiv. Pragle, A., & Harding, A. (2007). Food Workers' Perspectives on Handwashing Behaviors and Barriers in the Restaurant Environment. *Journal of Environmental Health, 69*(10), 27-32.

xv. Wickens, J. C. (1997). *Flight to the Future: Human Factors in Air Traffic Control.* Washingto, D. C.: National Academy Press.