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FOOD SAFETY AND HYGIENIC PRACTICES OF A PUBLIC SCHOOL CANTEEN: INSIGHTS OF COOKERY GRADE 12 STUDENTS

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ABSTRACT

The study showed the knowledge, and practices of the school canteen as observed by grade 12 cookery students in Kalbay National High School, Jose Abad Santos, Davao Occidental. Majority of the food handlers reached tertiary education and reported having a fair knowledge of food safety, and previously attended several food safety trainings, these do not necessarily translate to satisfactory attitudes and practices in food safety. Schools can play an important role in promoting healthy habits. Health promotion messages can be delivered in schools enabling students to develop lifelong attitudes and skills. Poor health can have a detrimental effect on children's quality of life, their performance at school and their success in later life. Research relating to eating behaviors of students is needed for developing healthy life style of students. These researches should account for the personal and environmental factors in and around the schools and the available resources of the school, students, and community. The present study was one of a kind and presented a bird eye view of the situation and the problems that students faced. Much work needs to be done to address the issue. More work is needed on the gender differences, on the choice of food items of girl and boys students, the food value of these items, its impact on students' health, and the social influences on them. There is a need for teachers, educationists, and other stake holders to advocate for the use of healthier foods in and around schools.

Keywords: Food safety, hygienic practices, school canteens, cookery, grade 12

1. INTRODUCTION

For all countries, food safety is a major public health issue. The World Health Organization (WHO) shows that every year 350,000 people in the world die from food poisoning. During manufacture, distribution, and preparation, food may be contaminated at any point. Consequently, Foodborne diseases are widespread and represent a serious health threat, affecting the most severe children, pregnant women and the elderly, in both developed and developing countries. A lot of foodborne disease outbreak occurs in the Philippines.

On average, students spend between 4 and 8 hours per day in school where they consume breakfast, lunch, and/or snacks during class breaks. Accordingly, availability, accessibility, and affordability of foods and beverages in school canteens have a strong influence on diets of school children and adolescents (Welker, Lott, Story, 2016). Previous research revealed that school canteens often provided unhealthy foods and drinks, including deep-fried snacks and sugar-sweetened beverages (Ford Foundation, Rikolto VECO, Gita Pertiwi, Indonesia Berseru, 2019; Suci, 2009; Kristianto, Riyadi, Mustafa, 2013; Driessen, Cameron, Thornton, Lai, Barnett, 2014). Given the crucial role school canteens play in the food consumption patterns of school children and adolescents,16 it is important to understand the school canteens situation and food consumption habits of school children and adolescents at school to promote healthier diets.

For this reason, on August 23, 2014, former President Benigno S. Aquino III signed into law Republic Act (RA) No. 10611 otherwise known as the "Food Safety Act of 2013". Republic Act 10611 works by the principles of food safety to protect human life and health and in the production and consumption of food and protect the interests of consumers through fair food trade practices.

In Davao City, the Davao City councilor expanded the food safety order due to several food poisoning incidents. Before the seller can sell in the Roxas Night Market, they must first meet a particular requirement to be passed explicitly in the Davao Environmental Sanitation Office in the City Government. These requirements are necessary to ensure the safety and cleanliness not only of the food and products they sell but also of the credibility of the sellers themselves, as well as to assure the food safety and proper sanitation of Roxas Night Market to loyal buyers and consumers. (Bual, 2017).

This proposed law will adopt the provisions of the Republic Act 10611, also known as "an act to strengthen the food safety regulatory system in the country to protect consumer health and facilitate market access of local foods and food products" (Colina IV, 2015).The researcher is encouraged to carry out this type of study because she wants to know how the students use the knowledge they have gained about food safety effectively and efficiently (Lee, 2017). The purpose of the existing study is to asses or criticize the learning of the Cookery students in their food practices as food

handlers. It is stated that food handlers play a vital role in ensuring the safeness' of the food so that the consumer of the food will not put into a severe illness.

It shows that the education level, working experience, and safe food handling course had different degrees of impact on food safety knowledge and attitudes of food handlers. The qualitative approach enables the researcher to find sufficient knowledge of Cookery students regarding food safety practices.

The question that has not yet been answered or research in this type of field will somehow be answered because we will be going to extricate rich information in our study. In summary, the researcher evaluates the sufficient knowledge among Cookery students of grade 12 regarding food safety and how do they apply it in reality and help them to improve their skills based on their acquired knowledge.

While the "school food environment" encompasses not only the canteen but also the food options within and outside the school, such as street vendors, this article focuses particularly on school canteens. We aimed at assessing the current status of school canteens, particularly focusing on its design, implementation, monitoring, and policy environments. We also made an attempt to determine the knowledge, attitude, and behaviors of school children and adolescents, their parents, and key stakeholders related to healthy foods and beverages and school canteens in general.

The purpose of this study was to determine the knowledge of the Cookery students in grade 12 on food practices, specifically, in performing the process of proper food sanitation. The researchers aimed in observing the student's ability in preparing the cooking area, the materials they are going to use, and the ingredients of the school canteen. Their understanding of personal hygiene and practices would also be examined, through interviews, as it is considered a part of the proper sanitation process.

In the study of Fung, Wang, Menon (2018), food is essential to life. Hence, food safety is a human right. Billions of people are at risk of unsafe food. Millions of people become sick while hundreds and thousands of people die yearly. In the 21st century, food safety issues have not decreased. Local outbreaks can turn into international emergencies due to the speed of and range of product distribution. The severe foodborne disease incidences occurred in every continent. Food safety depends on science and equitable law enforcement. Periodically, news laws and regulations must be an act to further project a continuing supply of food products that are secure and wholesome for the health and wellness of the people (Rahman, 2012).

Food safety may be a key public health concern. Food handlers play a vital role in guaranteeing food safety throughout the chain of storage, process production, preparation, and selling. In the study of Bas, Ersun, & Kivanc (2006), the researchers evaluated the hygiene, attitude, and practices of food handlers' in food Business in turkey. It shows that some food handlers in Turkish food business most likely have lack of knowledge in terms of food hygiene and possibly in their own personal cleanliness, as well that may result of food contamination that can cause illness to the consumer.

As well as stated by Ismael et al., (2015) that in spite handlers may be aware of the need for personal hygiene, some instances they do not understand critical aspects of personal hygiene such like cleaning work surface and control food temperature value while cooking and so as to prevent foodborne illnesses, their mentors need to access and improve student's knowledge, personal hygiene and the hygiene practices on food safety to consumers.

Subsequently, In Mandal et al. (2011), foodborne pathogens are substances such as parasites or bacteria in food that cause illness and others are toxins that can cause food poisoning, and in severe cases, it can cause death. The growing case in this matter increases the demands of safe food preparation and supply. In the study of Bosque (2018), there are different types of food contaminations and food can be contaminated due to the improper sanitation or handling of the food. These are the Biological Contaminants, Chemical Contaminants, Physical Contaminants, and Cross Contaminations. The cleanliness, cooling temperature, and food storage are also considered as part of it also.

Moreover, in Wolfram T. (2017), the sources of many food poisoning are bacteria, viruses, and parasite, usually due to improper handling of the food. Most common foodborne pathogens that are discovered in food are Salmonella, Clostridium Perfringens, Campylobacter, Staphylococcus Aureus, E.coli, Listeria Monocytogenes, Norovirus, Toxoplasma gondii. According to most of the studies, common microbiological contamination of food appeared in food and drink institutions due to contaminated food contact surfaces, weak personal hygiene practices, and improper storage temperature (Schlegelová, 2010).

Moreover, In Ravishankar et al. (2010), cross-contamination of foodborne pathogens from raw meats like ready to eat food has caused major outbreaks of foodborne diseases to prevent it we must first wash the knife and cutting board separately with running water after cutting raw food.

In the study of Fung, Wang, Menon (2018), the food chains start from farm to pork/plate while challenges include microbial, chemical personal and environmental hygiene. According to (Pattron D., 2004), food safety is of maximum

distress in the twenty-first century. Food service establishments are sources of food borne illnesses and food handlers contribute to food borne illness outbreaks.

Personal Hygiene

According to Zeru (2007) and Genete (2002), poor personal hygiene often results to foodborne illness which means that food handlers' knowledge and handling practices need to be improve. Studies on the conditions of food and drink establishments have been minimal in Ethiopia. Hlortsi & Owusu-Kwarteng (2017), stated that since food is handled by many individuals, there is a possible increase in the chances of food contamination due to improper handling. Deliberate or accidental contamination of food during large scale production might endanger the health of consumers and have very high impact in a country. The researchers concluded that the institutional food-handlers have eligible knowledge in food safety but this does not mean into strict hygienic practices during processing and handling food products.

Directives from CDC (2020a), FSAI (2020), UNICEF (2020) and research conducted by Soares (2012) emphasized that hand washing for at least 20 seconds is a paramount practice in food preparation to prevent contamination. People never or sometimes remove their jewelry when preparing food. Pieces of jewelry may harbor bacteria, and so wearing them even during food preparation may contribute to the contamination of the ingredients (Fagernes & Lingaas, 2009; Patel, 2018). This malpractice may pose risk of causing foodborne diseases.

In the production and/or preparation stage, any kind of jewelry may have the possibility of falling into the food that could be a choking hazard and may result in biological contaminants. Even if jewelry may not necessarily cause injury to the client, being able to find any foreign object in one's food could be a very distressing experience. Almost half of the participants practice when preparing food at home like washing hands before and after preparing food, washing hands after handling garbage, covering mouth when sneezing and coughing, and changing clothing and apron when they get dirty, which are sometimes practiced.

With these ratings, it is apparent that the participants practice proper hygiene; a finding that is supported by studies, which found out that food handlers at home prioritize in food preparation (Adane et al., 2018; Moy et al., 1997; Ncube et al., 2020; Woldt, 2015). Giving importance is required to ensure that food is safely prepared and brought to the consumers. Poor hygiene is a contributory factor (Azanaw et al., 2018; Carstens et al., 2019), and its consequences may result even in death among consumers (Feltes et al., 2017; Fung et al., 2018; WHO, 2020c).

Taking the findings into consideration, it could be concluded that online purchasing of home-cooked food products may not necessarily be safe, as half of the participants are not observing proper hygiene. Improving the proper hygiene the food handlers at home is necessary as this may contaminate the food they prepare for their consumers during the phases of food supply chain. Only through training, requiring a permit, mandatory onsite monitoring during preparation, and providing online infographics that can be posted in conspicuous places can help in avoiding or in putting a halt to cases of food handling malpractices. Proper hygiene is a must for every food handler to keep away the bacteria and germs that can prevent food borne diseases.

Food Service

Food service establishments are sources of food borne illnesses and food handlers contribute to food borne illness outbreaks (Olson SL, MacKinon L, Goulding J, Bean N, Slutsker L, 1993–1997). According to WHO (1989), food handling personnel play an important role in ensuring food safety throughout the chain of food production and storage. Mishandling and ignoring of hygienic weigh on the part of the food handlers can cause pathogenic bacteria to meet food and, in some cases, survive and it can cause multiple numbers of illness to cause in the consumer.

According to Gomes et al (2014), the food handler education in hotels should have a compulsory of instructive material (booklet) to develop further training knowledge in the hotel sector. Microbial indicators, such as mesophilic aerobic bacteria, coliforms at 35 and 45C were examined in utensils, adornments, food handler hands and ready for consumption foods should be having various or adverse conditions and routine task in an industrial kitchen environment. The microbiological analysis clearly should be demonstrated to obtain safe food beside for providing some examples to be inserted for any teaching materials such as a guidebook, focusing on food handlers who work on hotels would provide them enough knowledge.

As reported by Arendt et al. (2013), in terms of securing the safeness of the food, the food service manager is also the person in charge for making sure employees follow safe food handling practice so consumers do not become sick from unsafe food and what would make managers more effective in their role. Most major thematic categories identified by the managers in this study included role identification, food safety training, manager effectiveness, and understanding why safe food practices are not followed can help operators delegate accordingly. Making sure that the food served to customers is safe for consumption is a precedence for retail service operators such as the hospital, schools, catering,

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and also should aim on developing manager effectiveness, role understanding, and training to promote a safe food climate.

Foodservice institutions are sources of foodborne diseases and food handlers contribute to foodborne malady outbreaks. Mishandling and disrespect of hygienical measures on the part of the food handlers might alter unhealthful microorganism to return into contact with food and in some cases survive and multiply in sufficient numbers to cause malady within the shopper. Poor personal hygiene often contributes to a foodborne ailment that indicates that food handlers' information and handling practices must be improved. The hands of food service workers will be vectors within the unfold of foodborne diseases due to poor personal hygiene or cross-contamination. Therefore, Educated Government offices must implement sustenance Medical supplier to stay energetic to anticipate foodborne ailments and consider treating illness with safe eating routine. With the new technological advances, new regulations must be enacted to protect a continuing supply of food products that are safe and healthy for the health and wellness of people. The nourishment makers, wholesalers, handlers and sellers bear essential duty while customers must stay careful what's more, educated. Government offices must implement sustenance wellbeing laws to defend open and singular wellbeing. Medicinal suppliers must stay energetic to anticipate foodborne ailments and may consider treating illnesses with safe eating routine treatment under legitimate therapeutic (Fung, Wang & Menon, 2018). Therefore, to lessen foodborne illnesses, it is critical to gain assimilation of the knowledge and practices of food handlers (WHO, 2000).

Observed FSP shows very poor practice of adherence to guidelines and indicated that the food handlers at home failed to account for potential health risks. Nevertheless, there are some aspects that need improvement. Rule number 14c.2 of the DA-DOH (2015) states that a food business that is found to be non-compliant with food safety regulations shall ensure to perform adequate and appropriate corrective and preventive actions – a rule that is not conducted during this pandemic as unessential mobility and/or transportation are not permitted.

The need for mandatory food safety training is a necessary consideration in securing permits, especially now that the growth of food handlers in the Philippines during this pandemic continue to follow an upward trend. Authorities should not only require certifications and trainings, but should also propose enabling policies monitor and ensure the quality of food products sold online. The researcher also examined the significant difference of the observed FSP to the four dimensions. According to Medeiros et al. (2017), actual FSP of food handlers should also be evaluated in order to ensure that food prepared meets quality standards. Findings from the expert observers show that the participants demonstrated unacceptable practices in food preparation like inadequate preparation, cross contamination, insufficient processing and poor hygiene. This finding contradicts the self-reported practices of the participants, which generated an overall positive result. The observed FSP of the participants stressed that the food handlers failed to apply standard ways of keeping food safe. Participants' failure to adopt appropriate FSP may have been caused by their low perception of risks as regards hand hygiene, inappropriate infrastructure of units or work overload, and prioritizing other activities over the observance of FSP (da Cunha et al., 2014), this is possible as they prepare and cook at home so they may have other priorities other than focusing on the food they sell online. Apparently, participants in this study reported only what they believed is their own assessment as regards to their FSP, resulting in differences from the ratings provided by the experts during their onsite observations and field notes.

In the study conducted by Souza et al. (2018), the same finding was drawn—although the food handlers selling their products reported that they meet food safety standards, the observed values reveal otherwise. Therefore, the conduct of a food safety training specifically intended for untrained food handlers is imperative (Samapundo et al., 2015, 2016) so that these sample could develop a positive culture relating to food handling and preparation (Rebouças et al., 2016).

Physical Conditions and Management of School Canteens

Canteens in many elementary schools, particularly those catering to low socio economic families, only had 1 food stall and did not have a dedicated area to eat and sit. Meanwhile, other schools, especially secondary schools, had multiple canteens with more than 1 vendor. In general, canteens paid less attention to hygiene and sanitation. The schools catering to students from higher socioeconomic groups had better canteens, which were larger, better ventilated, located in permanent buildings, and generally cleaner than those in low socioeconomic schools.

In principle, school canteen management falls under the responsibility of the principal. In prac tice, however, direct management of the school canteen is often delegated to a teacher. Limited formal structures or school rules were in place, and often no dedicated canteen supervisor was appointed, especially in West Lombok. Monitoring and supervision of canteens did not seem to happen in a regular and structured manner nor was it properly documented. As an exception, the principal of the comparison school in Jakarta had selected a group of students to monitor the canteen daily.

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The health center staff interviewed in all study locations claimed they regularly monitored food safety and hygiene of school canteens in their catchment area and provided counseling on healthy snacks to the canteen vendors. This was confirmed by the school canteen management and canteen vendors.

Availability of Healthy Food Items

Complete meals were commonly sold by canteen vendors in secondary schools only. Snacks sold in all schools mainly comprised deep-fried and packaged snacks containing high levels of sugar, salt, saturated fat, and food additives for preservation, coloring, and/or flavoring. Vegetables as part of a complete meal were sold in almost all secondary school canteens in the study locations, but the amounts and diversity were limited. Fruits were commonly available in Davao del Sur.

Although plain drinking water was sold in many schools, the most common beverages were sweetened iced tea and sugary instant drinks. Street vendors in the vicinity of the schools were another source of foods and beverages, albeit of poor nutritional and sanitary quality. Elementary school students were particularly dependent on the street vendors, However, as the street vendors did not sell on school premises, they were beyond the authority of the school management.

The Theory of Planned Behavior by Ajzen (1991) is to better understand how an individual's attitudes, subjective norms and perceived behavioral control may impact their disposition to perform a proper food safety, sanitation, and hygienic practices. The Theory of Planned Behavior (TPB) has been utilized extensively in an effort to understand what factors motivate behavior towards these food practices.

There are three major constructs that predict someone's intention. They are attitude, subjective, and perceived behavioral control.

Attitude. Attitude is a person's overall evaluation of what it would be like to perform a particular behavior. In other words, attitude represents the degree to which a behavior or action is positively or negatively valued. They are influenced by what I think will happen as a result of performing behavioral beliefs and how much they value that thing happening that's outcome evaluation. In general, if a person has an unfavorable attitude toward a particular behavior, the less likely it is that the person will engage in that behavior.

Subjective Norm. The degree to which the person feels social pressure to perform the behavior. What this suggests is that people consider the perceptions of significant others when deciding whether to engage or not to engage in a certain behavior. We expect that the more unsupportive an individual's subjective norms are of intentional food contamination, the less likely will be an individual's intention to contaminate food.

Perceived Behavioral Control. It is the person's perception of the extent to which performing a behavior is under his/her control and typically is measured by ratings of the ease versus difficulty of performing the behavior. Basically, perceived behavioral control should be associated with intentions because a person is less likely to perform a behavior that is perceived to be outside of their control. In the current study, it is expected that a lack of perceived behavioral control will dissuade individuals from intending to engage in food contamination.

2. METHODS

The qualitative research is on the participants' interviews to gather data to understand the life of the participants and their everyday living in a society (De Vos, 1988). The qualitative approach focuses only on the qualities of human behavior. (Ferreira, Mouton, Puth, Schurink and Schurink,1988). It aims the people action and their every action throughout their own daily living to gather data, to evaluate, not to generalize them rather than to understand and to interact the meanings and intentions that underlie only in the humans everyday living (Bailey,1987, Bogdan and Taylor,1975, De Vos 1998, Taylor,1975, Ferreia et al. 1918).

Qualitative design deals with data primarily focus on the use of verbal languages and derive meaning from its participants' point of view and also understand and to give an intention of participants life (Bless & Higson -son,1995, De Vos 1998). This study aims through the objective experiences of the participants on the process of interviewing in collecting facts, information, and their everyday living. (Marshall &Rossman,1995). Furthermore, the outline that the qualitative approach is to research its respondents uniquely suited for the information about their self and finding facts cannot give more explanation or farther more knowledge.

The researchers approached and invited prospective participants to participate in the study after they had been selected. The information sheet was given to them so that they can have the knowledge of their right to refuse participation and that participation was voluntary. They were also made aware of their right to withdraw from participating in the interview when they declined to participate. The researchers chose 15 participants who are enrolled in Cookery students of the Technical Vocational (TechVoc) strand specifically the Grade 12 aged 16 to 19 year-olds who spontaneously gave their approval to Interviews.

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In this research, the data was collected through face-to-face individual interview. As stated by Ferreira at al. (1988), interviewing is that the most vital information assortment instrument. The interviews were semi-structured, that is a listing of queries and problems to be mentioned was ready before the interview. The semi-structured interview gave an area for longing for clarification and additional discussion of vital and relevant problems that arose throughout the interviews. Wherever necessary, questions were detailed to suit a specific participant. Face-to-face interview changes the analysis to scan the non-verbal communication and reactions, that proven to be useful within the analysis of knowledge.

The interviews were audiotaped and later transcribed. This was proven to a valuable facet in rapport building between the researcher and therefore the participants because it was evident that a number of the participants appeared inspired by the researcher's non-judgment perspective towards them. At the identical time, the researchers were cautious of the emotional involvement that might "have an effect on the validity and therefore the responsibility of the info "(Ferreira, et al., 1988). Bogdan and Taylor (1975) add that it is the interviewers' responsibility to make an environment within which participants can feel comfortable enough to speak freely and brazenly. This was achieved by permitting participants to require part in selecting an acceptable and contributory venue for the interviews.

Since the participants are grade 12 cookery students, the interviews took place in the residence of the participants. Those who are minors were accompanied or in presence was an adult of the family. Triangulation of the data was done through three types of data were analyzed: data collected through personal interviews, data of observations written in the field notes; and data taken from the literature of the study.

Based on Douglas Ezzy Professor of Sociology at the University of Tasmania (2000), the results were analyzed by describing the method of data analysis, it's a way of analyzing the data by organizing it into categories on the basis of themes, it can also have similar features. The procedures of the researcher are primarily designed and reduce by categorizing the large quantities of data into more meaningful interpretation (Singleton,1997).

The steps that are used by the researcher was developing themes were it well informed. Marshall & Rossman (1989) in De Vos (1998) it also includes the following procedures: Organizing Data: The transcribed data was repetitively browse through for the researcher to be acquainted with the information.

This is a phase, where creativity and analytical thinking skills are essential. The researchers took note of several recurring ideas and patterns of belief from the research participants, which could be a great help in understanding the results as a whole. These were set as the themes and patterns. Next, the said ideas and patterns were grouped according to what clearly identifies one as distinct to another. The groups formed were then called categories.

These categories were then analyzed. Pieces of papers with themes and supporting evidence were written and posted in a large board. Discussions on the relevance and grouping of the categories followed. The categories were later presented to professors steeped in qualitative research for critique and comments.

Thematic analyses, as in grounded theory and development of cultural models, require more involvement and interpretation from the researcher. Thematic analyses move beyond counting explicit words or phrases and focus on identifying and describing both implicit and explicit ideas within the data, that is, themes. Codes are then typically developed to represent the identified themes and applied or linked to raw data as summary markers for later analysis. Such analyses may or may not include the following: comparing code frequencies, identifying code co-occurrence, and graphically displaying relationships between codes within the data set.

The researcher utilized the Purposive Sampling Technique in terms of collecting data. Purposive sampling is also known as judgment, selective or subjective sampling. It is a sampling technique in which researcher relies on his or her own judgment when choosing members of population to participate in the study. (Dudovskiy, 2018). The researcher purposively selected participants who are in line in our study which is the Cookery students in Grade 12.

3. RESULTS

Food safety, and hygienic practices of the school canteen as observed
by grade 12 cookery students

The participants clearly explained that food safety is becoming increasingly important in one's life, especially in the context of food handlers. They were aware that foodborne illness, a result of not following the basic food safety practices, constitutes a significant burden both economically and socially on the society and their health systems. When asked about different food sanitation practices, the participants were straightforward with their answers. Presented in the following are the key themes formulated after the interview extracts. Infusion of related literature were also shown as well as the quotations. Related studies were also provided to support the findings of the study.

Practice 1. Personal cleanliness. All of the participants mentioned that food safety starts from the food handlers. They believed good personal hygiene is vital for both health and social reasons. First, they urged that it entails keeping the

hands, head and body clean so as to stop the spread of germs and illness to the foods they are handling. Second, good personal hygiene was believed to benefit their own health and impact the lives of those around them.

Practice 2. Cooking, holding and serving procedures. All of the participants mentioned ways to preserve quality of foods. These were thought to be useful when serving customers for immediate service. One of the prominent ways was reheating of foods. They agreed that reheating can be an alternative way of keeping foods fresh.

Practice 3. Equipment and other contamination. Materials, as well as the machines used in cooking and preparing foods are potential sources of contamination. The participants spoke the importance of cleaning these to promote sanitation not just in the work area but also in the foods prepared. They believed that maintaining the facility and equipment clean would ensure the safety of foods served to customers.

Practice 4. Food safety related to food. Many participants reported that in order to maintain the quality of food, it should be preserved. Hence, knowing the proper food sanitation techniques would ultimately increase the shelf life of food.

Practice 5. Food safety related to food handlers. The participants perceived themselves as the primary carrier of food contaminants. They viewed themselves as potential source of bacteria that can harbor diseases from the environment and pass to the foods they are handling. With this, they believed that they have the greatest responsibility of preventing contamination among any others. They mentioned that acquiring enough knowledge about the sanitation practices would mean considering the safety of the customers involved.

Practice 6. Food safety related to customer. Noteworthy finding of this research question was the involvement of customer in the reason of the participants in knowing the food sanitation practices. It was observed that most of the participants realized that the foods they prepared, cooked and served are all for the customers who want to be satisfied with their hunger and thirst. They mentioned that what the customers see on the food handler would mark an embarking impression not only on the foods and the establishment, but most importantly on the food handlers.

Insights of grade 12 students regarding food safety, and hygienic practices
of the school canteen

The following are insights of grade 12 cookery students:

Insight 1. Washing of hands. Working in a school canteen means you need to keep food safety in mind at all times. To begin with, your hygiene plays a big role in how you keep foods safe for children to eat. Always, always wash your hands before you touch food, before and after you prepare meals, and after you have served the children. Additionally, always wash your hands thoroughly after using the toilet and before going back into the kitchen. You can't just run your hands under the tap either.

To properly wash your hands, make sure the water is warm. Then, soap up your hands thoroughly, being sure to get between the fingers and under the nails. Then rinse thoroughly and dry with paper towels, not a towel. Fabric will harbor bacteria and can transfer it to you thus transferring it back to the food.

Insight 2. Keeping the Canteen Clean. The second part of food safety in a school canteen is keeping the space itself clean and free of bacteria. Never allow the room to become a habitat for pests of any type. They spread germs and will be attracted to any foods that are left out or open. You should use food safe pest control, keep doors and windows sealed and shut and dispose of garbage properly.

Insight 3. Handling Properly of Potentially Hazardous Foods. Certain foods are considered high risk, and they need to be handled properly. The following is a list of foods that you need to be extra cautious with: seafood, anything containing dairy, raw eggs, Cooked rice, Readily packed salads, Raw meats, and Pasta.

Insight 4. Defrosting Foods Properly. Many people don't thoroughly understand how to defrost foods, especially meats, and handling items the wrong way can result in bacteria growth. You have a couple of different options for defrosting foods. The first rule of thumb is to never ever defrost by placing the meats in a container of hot water. The outside edges of the food will reach the danger zone while the center is still frozen. This will result in a bacteria breeding ground.

Insight 5. A School Canteen needs a food safety supervisor. One of the most important things you should do in your school canteen is to hire a food safety supervisor. She or he can also double up as a canteen manager or supervisor. Not only is it a smart decision, but also it is required by law. This type of supervisor will have training and certification to handle all food safety actions in your school canteen.

Insight 6. School canteens are places of food safety. A school canteen must be a clean and safe environment. Children are quite susceptible to food-borne illness and you must take the proper steps to always ensure all foods are safe for consumption.

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That means practising safe personal hygiene for all staff members, knowing how to properly store foods, how to keep foods at the proper temperatures, and how to maintain a cleanliness.

4. DISCUSSIONS

As examined in the above interview extracts, it is clearly stated that personal hygiene plays a significant role in food sanitation. This concurs to the findings of Ismail, Chik, Muhammad, and Yusoff (2016), concerning the importance of hygienic practices to food safety in Shah Alam Selangor, Malaysia. The study recommended that in order to prevent food borne illnesses, food owners need to improve and access food handler's knowledge, personal hygiene and the hygiene practices on food safety to customer. Another study also recommended the management to select healthy and clean food handlers and ensure that they conduct enough hygienic trainings (Akabanda, Hlortsi, & Owusu-Kwarteng, 2017). Furthermore, the study revealed that food handlers must be held responsible for personal hygiene so that the food that they handle remains wholesome.

Aside from acquiring proper hygienic practices, proper handwashing was thought to be one of the most significant steps in achieving personal cleanliness, thereby, preventing cross-contamination from handler's hands to foods. The participants were cognizant that harmful bacteria present on the hands can be removed by proper hand washing techniques.

Handwashing and food safety have been associated in many studies. For instance, Brown et al. (2018) found out that the spread of germs from the hands of food workers to food caused outbreaks in which food was contaminated by food workers. Moreover, the study suggested the need for proper handwashing to reduce germs on workers' hands as well as to reduce the spread of germs from hands to food and from food to other people. Handwashing was also found out to preserve the food to three times its spoilage time (Strohbehn, Sneed, Paez, & Meyer, 2018). Increasing the frequency of handwashing has a direct impact on food safety in terms of preservation time and quality of food according to the same study. This study implies the significance of handwashing in the part of food handler and in the part of the foods being served.

Another noteworthy finding is the eating and drinking practices of food handlers at work. They mentioned that it is not good to eat and drink in food preparation and service areas. They believed that they should eat and drink in designated areas only, never in the work area. Eating was not allowed in the production and service areas.

This finding agrees with those of Kibret and Abera (2012), concerning the rules governing the designated areas for drinking and eating of employees of food establishments. According to the study, customers often perceived employees eating foods inside the establishment as somewhat eating their own ordered food and that the level of trust of the customer decreases as the frequency of this happening increases. This finding implies that eating and drinking practices of food handlers, not just affect their image on the part of customer, but also the food they are handling. Proper management and designation of eating and drinking areas should be strictly observed.

Reheating of foods is one way of preserving leftovers. As stated by the participants, no set parameter was used in reheating the foods. According to Hanes (2012), reheating of foods involves heating factors to kill any bacteria which may have grown on the food in the fridge. These factors include setting the heat to steam hot until it reaches to 165° F. Furthermore, to retain moisture and ensures that food will heat all the way through, she added that the leftover should be covered to reheat. She noted that sensual observation such as smelling or looking the foods can be helpful but reheating is the most important way of preserving leftover foods. This finding clearly implies that there is a need to revisit the practices of the students in terms of reheating the foods. Further lectures should be done to increase the level of knowledge of food handlers about preserving of foods, especially reheating the leftovers.

The significance of cleaning the equipment used in food delivery must obviously be evident in all aspects. Jin-Park and Hee-Kim (2016) contended that sanitation of equipment and instrument used for cooking has significant impact on the number of contaminations generated by the food establishments in South Korea. Accordingly, bacterial growth is less likely to happen if equipment and instruments are monitored, evaluated, and cleaned in daily basis.

Food safety and sanitation are important parts of the food industry. Accordingly, food sanitation is a discipline describing handling, preparation, and storage of food in ways that prevent foodborne illness. This includes a number of routines that are outlined in the previous research question. While there are a lot of practices of sanitation, the reasons behind those sanitation techniques should not be overlooked. All of the participants spoke about how food sanitation practices learned from school reshaped their thinking. They provided ingenious reasons why food sanitation is vital to learn to avoid potential hazards. In the context of the participants, the importance of knowing food sanitation was related to foods served, food handler and customer.

Personal hygiene is an important step toward food safety in the food canteen. If you prepare foods while your hands are dirty or you are ill, then you could be taking risks with the health of the children.

Any foods that are on display for self-service should either be packaged in sealed wrapping or should have proper serving utensils such as tongs or spoons. Students should never have reason to directly touch any food in order to transfer it to their plate. Foods on display for self-service should be kept in the proper heat or cold units throughout the time that they are available. Food should never be left on a benchtop or in an environment with no temperature control.

Students' knowledge, attitude, and behaviors toward healthy foods and beverages as well as their school canteen are important aspects of this study. Most students at all education levels had limited knowledge of unhealthy foods, which they said include foods high in sugar, fat, monosodium glutamate, and artificial sweeteners. On the other hand, the students understood "balanced nutrition" as consumption of a balanced combination of carbohydrates, proteins, fats, vitamins, and minerals. They also mentioned the effect of food preparation on nutritional content.

5. CONCLUSIONS

Awareness of food safety and food hygiene is very important in all human beings, which includes school canteen operator and food handlers in term of the food safety in the school canteen. Cases of food poisoning in schools can also be avoided if existing legislation are complied with by all food handlers in the school canteen. Moreover, the factor that influencing awareness and situation at school canteens in terms of food safety issues such guidelines, monitoring, awareness and campaign, also knowledge must be focused and complied from time to time by food handlers, the school canteen operator, school principal and others. Therefore, effective management of school canteens and human health with the enforcement, adoption legislation, non-legislation as well as guidelines then ensure a perfect human health to address the problem of food safety in school canteens and cause food poisoning cases.

Availability of adequate and quality physical and human resources is crucial to ensure quality service of a food establishment. This study found that system gaps in school canteen management hinder provision of good quality service. Essential facilities provided by the school for running a canteen is very minimal. Although school canteen operators are allowed to bring their own equipment, lack of proper housing and space prevent improvement of the quality of services. Identified gaps can be addressed through proper planning and implementation. Education authorities need to realize the importance of school canteens as a place of potential health promotion among school children.

The canteen managers may attend in-service training program related to canteen management, thereby update themselves on the latest trends and innovation to make their own school canteens more productive and attractive to varied customers.

The canteen management may conduct a monthly maintenance of their facilities and post list of rules and regulations, such as self-busing, and proper disposal and segregation of garbage, which will help them improve the orderliness and cleanliness of the canteen.

The school management may also implement a study about having a healthy food choice toward the awareness and knowledge in promoting a healthy eating habit among all students. The school canteen staffs may initiate feedback mechanism to continuously improve its services offered to entire school stakeholders.

Further study may be undertaken using different variables to validate the results of the present study. Also, the possibility of making the scope wider such as province-wide.

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