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FOOD SAFETY PRACTICES OF HOME-BASED ONLINE FOOD SELLERS DURING COVID-19 PANDEMIC IN BILIRAN

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ABSTRACT

The study aims to assess the food safety practices of home-based online food sellers during the COVID-19 pandemic in the province of Biliran. The study employed a descriptive survey design, wherein the quantitative data from online sellers were collected through a structured questionnaire. Data were analyzed using the Statistical Package for the Social Sciences (SPSS). The results of the study revealed that the majority of the online food sellers in the province practice proper food safety measures. Furthermore, the majority of the respondents believe that their level of knowledge regarding food safety practices is sufficient and they possess the necessary resources to implement safe food practices. The findings of the study suggest that there is a need to encourage home-based online food sellers to enhance their knowledge of food safety practices in order to ensure the safety of the food they produce.

INTRODUCTION

Food is essential to fuel humans to perform routine tasks. Food motivates individuals and is the primary driver reason for survival. Food preparation is crucial to good health. Consuming adulterated food could cause a person illness and possibly cause a foodborne outbreak. The current pandemic shows the food system in developed countries has even failed; COVID-19 starts in China's seafood market and spreads throughout the globe and is declared a pandemic in 2020. The world shut-off due to this pandemic, work halted, and businesses close. This result in the mass lay of and many workers left jobless. Many individuals struggle trying to make ends meet. Government exhaust resources to help the economy keep up float and aid people living below the poverty line, and those workers that businesses close down help alleviate hunger during lockdowns and community quarantines. Surviving during this trying time is everyone's main priority. Families that received cash aid from the government rolled the money thru selling food online. The surge of online food sellers has gone up during the onslaught of the pandemic (Treehugger, 2021).

Monitoring food safety is a challenge during COVID-19 since food sold online is made at home which the government has no existing policies and regulations for food sold online. Establishing an online food shop does not require a sanitation permit and the mayor's permit to operate. Food safety challenge arises because anybody could start up a food business online. It is then necessary to evaluate the food safety practices of online food sellers in the province to determine food quality in the market (Asian Institute of Management, 2020).

According to Evans et al. (2020), increased knowledge of current poor food handling dangers could contribute to greater caution in future food handling. Additionally, job experience, a higher level of education, and employee satisfaction predict food safety awareness, attitudes, and practices among handlers (Sirichokcatchawan et al., 2021). Knowledge in proper food safety and preparation could affect the person's observance of proper food safety. To be aware of the proper food safety protocol, training and intervention are essential to observe the standard and suggested attitude towards food preparation.

A study conducted on food handlers in Kuwait revealed that respondents have excellent hygiene skills. However, lack of knowledge in cross-contamination and sanitation and time and temperature regulation for food are areas of concern (Al-Kandari et al., 2019). Another study conducted in Ghana revealed that despite the students' lack of food safety awareness, their food safety practices were generally acceptable, especially their handwashing practices (Tutu et al., 2019). Additionaly, Chen et al. (2019) state that time constraints and a lack of interest were two significant roadblocks in food safety education. Moreover, Gruenfeldova et al. (2019) findings state that roles, years of experience, level of food safety training, and establishments were all found to have significant impact.

Furthermore, Lagerkvist et al. (2021) revealed that respondents' key criterion for edibility was the smell, followed by food presentation, which shows that these practices do not adhere to proper food safety in determining adulterated food which endangers food consumer when ingesting food that is not prepared with quality. The age, gender, and marital status significantly effects on kitchen and personal hygiene are important Hassan et al. (2018) this shows that a person’s behavior and attitudes in food preparation has impacts on the handlers age and gender. However, Moy et al. (2018) revealed that there was no connection found between their food safety practices and their socio-demographic characteristics, year of experience, or area of study. Furthermore, Tabrizi et al. (2017) finds out that some subsections, such as optimum heating/cooling temperature, proper thawing methods, and eating raw egg, there was a low level of understanding and self-reported practice.

The literature showed that many individuals have less awareness of food handling and proper food safety practices. Although some pose an understanding, certain areas need to address cross-contamination, thawing, and reheating food and storage. Age, marital status, and gender have impacted the way individual's attitude in dealing with food. Higher education has shown a positive attitude in food safety practices. In times of COVID-19, hygiene and sanitation are very important due to the risk of virus transmission. Sanitation and frequent handwashing are a few of the many ways to combat the spread of the virus. Previous studies address food safety practices during the usual time. Studies regarding the food safety of online food sellers selling food have not been a thing before the surge of the COVID-19 virus (Kasaya & Kariuki, 2018).

Online e-commerce has been booming due to the movement restrictions and health protocol imposed by the government. Most of the studies conducted were during pre-COVID that there are no hindrances and restrictions protocol to be followed. Nowadays, people are getting more anxious about cleanliness and safety due to the virus and protocols that need to

adhere. Although vaccines have arrived in only a few are on the priority list for herd immunization, the rest of the population is at risk of contracting the virus. It is then essential to address online sellers' current food safety practices if they observe proper food safety practices during the COVID-19 era (Shah & Prasad, 2020).

The researcher will reach out to the province's online food page to determine the current number of online food sellers in Biliran. Upon determining the number of respondents, questionnaires will be sent online or by mail depending on their preference or if the protocol will allow a face-to-face interview. Respondents will then be requested if they are willing to be observed when preparing the food. The Sanitary office will be tap to ensure that people observing are professional and expert in food safety.

The purpose of this study is to examine the food safety practices of home-based online food sellers during the COVID-19 pandemic in the province of Biliran. The study will focus on identifying the types of food safety practices that home-based online food sellers are using during the COVID-19 pandemic, the challenges they are facing, and the strategies they are using to address food safety issues. The study will also investigate how the current pandemic has impacted the food safety practices of home-based online food sellers in the province. Data for this study will be collected through semi-structured interviews with home-based online food sellers. The results of this study will provide valuable insights into the food safety practices of home-based online food sellers during the COVID-19 pandemic in the province of Biliran and will help inform policy decisions and public health interventions.

METHOD

The study is design as quantitative descriptive type using the purposive methods. Respondents are home-based online food seller who prepared, cooked and deliver food purchases to their customers. The research locale of this study is the Province of Biliran in the Philippines. This region is made up of 8 municipalities, with Naval City being the provincial capital. It is located in the Eastern Visayas Region and has a population of over 200,000 people. The province has a rich history of fishing and agriculture and has recently seen an increase in home-based online food sellers due to the Covid-19 pandemic. This study will focus on the food safety practices of these online food sellers in the Province of Biliran. This research will investigate the knowledge, attitudes, and practices of these food sellers, as well as the challenges and opportunities they face in providing safe food. The research will also explore potential measures that can be taken to ensure food safety for these sellers, such as providing training and education, implementing regulations, and improving infrastructure.

The research respondents of the study are home-based online food sellers in the province of Biliran. The participants were purposively selected through a snowball sampling method. The research respondents were individuals who sell and deliver food online via social media platforms such as Facebook and Instagram. The study participants had to meet the following criteria: (1) they must be engaged in selling and delivering food online via social media

platforms; (2) they must have been selling food online for at least three months; (3) they must be located in the province of Biliran; and (4) they must be willing to answer the survey.

The research respondents provided their demographic information, as well as their food safety practices during the COVID-19 pandemic. The data collected from the research respondents were used to analyze the food safety practices of home-based online food sellers during the pandemic in the province of Biliran.

The researchers will distribute questionnaires to the respondents through email or mail, depending on the preferences chosen. Upon retrieving the questionnaires, researchers will ask permission to conduct an actual observation with the experts from the Sanitary Office Department of Naval to avoid a biased study. A checklist will be given to the officers observing the respondents. After the observation, results from the experts will then be triangulated to the questionnaires' result to determine the reliability of the responses.

Descriptive statistics will be used to summarize the demographic characteristics of the respondents. An independent t-test, and ANOVA will be to perform to determine whether the food handlers' food safety practices differed in demographic characteristics; and to determine whether there were significant differences between their self-reported and observed food safety practices**.**

RESULT AND DISCUSSION

This section presents the data gathered and the sequential organization of areas based upon the survey questionnaire presented in the appropriate tables flowed by the corresponding interpretation.

Table 1. Demographic Profile of Respondents According to Gender

Gender	f	%
Male	38	38.0
Female	62	62.0
Total	**100**	**100.00**

This table provides demographic data on the gender of home-based online food sellers in the province of Biliran during the COVID-19 pandemic. It is evident from the table that 62% of these home-based online food sellers are female, while 38% are male. This finding is consistent with previous research, which has found that women are more likely to be involved in home-based online food selling due to their ability to multitask and manage their time more effectively while caring for their families (Li et al., 2020). Furthermore, this finding suggests that women may have an increased role in providing food security during the pandemic.

The implications of this finding are twofold. Firstly, this finding implies that women may have an increased role in providing food security during the pandemic, especially in rural areas where access to food may be limited. Secondly, this finding also suggests that more support should be provided to female home-based online food sellers to ensure their safety and well-

being during this difficult period. This could include providing them with access to resources such as protective equipment and training, as well as the necessary support to help them manage the additional workload associated with their home-based business.

Table 2. Demographic Profile of Respondents According to Marital Status

Marital Status	f	%
Single	96	96.0
Married	4	4.0
Total	**100**	**100.0**

This table shows the marital status of 100 home-based online food sellers in the province of Biliran during the COVID-19 pandemic. 96% of the sellers are single while 4% are married. This implies that the majority of the sellers are single individuals who are likely to be younger and may not have the same level of financial resources, experience, or access to food safety education as their married counterparts.

This finding is consistent with previous studies that have found that single individuals are more likely to lack knowledge and training in proper food safety practices than married people. For example, a study conducted by Afolayan et al. (2020) found that single food handlers had lower knowledge scores than married food handlers on food safety and hygiene practices. This suggests that home-based online food sellers who are single may need additional education and training on food safety in order to ensure the safety of their products.

Table 3. Demographic Profile of Respondents According to Educational Attainment

Educational Attainment	f	%
High School	5	5.0
College	95	95.0
Total	**100**	**100%**

The research respondents of the study are home-based online food sellers in the province of Biliran. The participants were purposively selected through a snowball sampling method. The research respondents were individuals who sell and deliver food online via social media platforms such as Facebook and Instagram. The study participants had to meet the following criteria: (1) they must be engaged in selling and delivering food online via social media platforms; (2) they must have been selling food online for at least three months; (3) they must be located in the province of Biliran; and (4) they must be willing to answer the survey.

The research respondents provided their demographic information, as well as their food safety practices during the COVID-19 pandemic. The data collected from the research respondents were used to analyze the food safety practices of home-based online food sellers during the pandemic in the province of Biliran.

Table 4. Demographic Profile of Respondents According to Food Safety Training

Food Safety Training	f	%
With Training	44	44.0
Without Training	56	56.0
Total	**100**	**100.0**

This table shows the results of a survey on the food safety practices of home-based online food sellers during the COVID-19 pandemic in the Province of Biliran. It reveals that 44% of the respondents have undergone food safety training, while 56% have not. This indicates that there is room for improvement when it comes to food safety training for home-based online food sellers.

The findings of this survey are supported by recent research that indicates that food safety training is essential for food businesses, including those that are home-based. For instance, a study conducted by Azhar et al. (2020) found that food safety training can help reduce the risk of food-borne illnesses and other health-related threats. This suggests that food safety training is an important part of operating a successful and safe home-based food business.

The implications of these findings are clear: there is a need for greater food safety training for home-based online food sellers in the Province of Biliran. This is particularly important during the COVID-19 pandemic, when proper food safety measures are even more important for ensuring the health and safety of consumers. Therefore, it is necessary for local authorities to provide food safety training to home-based online food sellers in order to protect the health and safety of their customers.

Table 5. Demographic Profile of Respondents According to Age

Age	f	%
18-25 years old	96	96.0
26-36 years old	1	1.0
36-45 years old	3	3.0
46 and up	0	0.0
Total	**100**	**100%**

The results of this table indicate that the majority of home-based online food sellers in the province of Biliran during the Covid-19 pandemic are aged 18 to 25 years old, making up 96% of the total. This implies that younger individuals are more likely to take advantage of the opportunities presented by the pandemic and start an online food business to generate an additional income.

These findings are in line with previous studies conducted in other countries. For instance, a study conducted in the United States on the entrepreneurial activities of adults in the age group of 18-25 years old during the Covid-19 pandemic found that the number of business owners in this age group increased significantly (Dai, 2020). This suggests that younger adults are more likely to take up entrepreneurial activities during times of economic uncertainty.

Overall, the results of this table demonstrate that the majority of home-based online food sellers in the province of Biliran during the Covid-19 pandemic are young adults. This implies that younger individuals are more likely to take advantage of the opportunities presented by the pandemic and start an online food business.

Table 6. Food Safety Practices towards Personal Hygiene

Indicators	WM	Description
I wash my hands for at least 20 seconds with soap and running water	4.64	Always
I wash my hands before and after preparing food	4.91	Always
I wash my hands after sneezing and coughing	4.49	Always
I wash my hands after handling the garbage	4.87	Always
I wash my hands after using the toilet	4.93	Always
I cover my mouth when sneezing or coughing	4.79	Always
I wear clean apron and clothing when preparing food	4.55	Always
I wear clean hairnet when preparing food	4.38	Always
I changed my clothing and apron when they get dirty	4.71	Always
I remove any jewelry (rings,bracelets,chains,earrings etc.)	4.69	Always
AWM	**4.70**	**Always**

The table above presents the results of a survey on the food safety practices towards personal hygiene by home-based online food sellers during the COVID-19 pandemic in the province of Biliran. The survey used a 5-point Likert scale that ranges from ‘Always’ to ‘Never’. The results indicate that the respondents ‘Always’ engage in all the food safety practices towards personal hygiene. The respondents’ average weighted mean (AWM) score was 4.70, indicating that they ‘Always’ follow food safety practices towards personal hygiene.

The results of this survey are consistent with the findings of previous studies that emphasize the importance of personal hygiene in ensuring food safety. For example, a study conducted by Storz (2022) found that personal hygiene is an important factor in preventing food contamination. The study found that improper washing of hands and inadequate cleaning of utensils can lead to the spread of foodborne illnesses. These findings suggest that proper hygiene and sanitation practices should be observed in order to ensure food safety.

In light of these findings, it is important to emphasize the importance of following food safety practices towards personal hygiene. This is especially important for home-based online food sellers, who are at greater risk of food contamination due to the lack of a professional kitchen. Home-based online food sellers should ensure that they follow proper food safety

practices, such as washing their hands before and after handling food, covering their mouths when sneezing or coughing, wearing clean aprons and clothing when preparing food, and removing any jewelry. Furthermore, it is also important for home-based online food sellers to ensure that their kitchens and utensils are properly cleaned and sanitized. By emphasizing the importance of food safety practices towards personal hygiene, home-based online food sellers can help ensure that their food is safe for consumption. This is especially important during the COVID-19 pandemic, when the risk of food contamination is higher. Therefore, it is important to ensure that food safety practices are followed in order to protect public health.

Table 7. Cross-Contamination Prevention and Sanitation

Indicators	WM	Description
I clean my working area before and after food preparation	4.91	Always
I use the same knife to cut raw meat or poultry and vegetables	4.28	Often
I sanitized knives used for raw foods before using them for other types of food.	4.71	Always
I use different chopping boards for raw meat, poultry,breads,fish and fresh vegetables and fruits.	4.47	Always
I use sanitizers when washing service utensils (plates, mugs, spoons.)	4.59	Always
I wear my aprons when I go in the restrooms.	4.15	Often
I talk, sing, whistle during my preparation/cooking/packing.	4.20	Often
I eat during my preparation/cooking/packing	4.08	Often
I handle money during my preparation/cooking/packing	4.10	Often
I use my cellphone during my preparation/cooking/packing	4.10	Often
I use gloves when handling raw foods	4.50	Always
I change gloves between handling of raw and ready to eat foods	4.55	Always
I use protective clothing (Apron) when handling raw foods	4.58	Always
I use cap when I handle foods	4.30	Always
I use cap and mouth cover/spit guard/mask during handling of food.	4.50	Always
AWM	**4.40**	**Always**

The table above provides data on the food safety practices of home-based online food sellers during the Covid-19 pandemic in the province of Biliran. Overall, the results show that the participants in the study generally practice good food safety, with an average weighted mean (AWM) of 4.40 out of 5, indicating that the practices are “Always” performed. In particular, the respondents “Always” cleaned their working area (4.91), sanitized knives (4.71), used different chopping boards for raw and cooked food (4.47), and used sanitizers when washing service utensils (4.59). The respondents also “Often” used the same knife to cut raw meat or poultry and vegetables (4.28), wore aprons when in the restroom (4.15), talked, sang and whistled during preparation/cooking/packing (4.2), ate during preparation/cooking/packing (4.08), handled

money during preparation/cooking/packing (4.10), and used their cellphone during preparation/cooking/packing (4.10).

These results are consistent with previous studies that have found that proper food safety practices are essential for minimizing the risk of foodborne illnesses. For example, a study by Zhang et al. (2019) found that good food safety practices, such as handwashing and wearing gloves, were associated with a decreased risk of foodborne illness. Similarly, a study by Lee et al. (2019) found that proper food safety practices, such as using different chopping boards for raw and cooked foods and using sanitizers when washing service utensils, were associated with a decreased risk of foodborne illness. The results of this study suggest that home-based online food sellers in the province of Biliran are taking the necessary steps to ensure food safety and minimize the risk of foodborne illnesses.

Table 8. Food Preparation

Indicators	WM	Description
I practice first in first out when handling food	4.41	Always
I keep raw food separated from cooked and ready to eat foods	4.57	Always
I properly clean the food storage area before storage	4.79	Always
I check the refrigerators temperature before before storage	4.44	Always
I store cooked foods in the refrigerator separately with labels	4.54	Always
I left the left overs at room temperature for a few hours and then freeze them	4.11	Often
I thaw frozen meat, fish and poultry using running water	4.22	Often
I use appropriate thermometer in checking the temperature of the food	4.01	
I inspect raw materials before buying and using them in my food products	4.60	Always
I check food expiry dates	4.80	Always
I label my food products as to its ingredients	4.85	Always
I label my food products as to its allergy risks	4.40	Always
AWM	**4.48**	**Always**

This table illustrates the food safety practices of home-based online food sellers during the COVID-19 pandemic in the Province of Biliran. Overall, the respondents have a high level of awareness and practice of food safety, with the average weighted mean (AWM) being 4.48, which corresponds to the category of 'Always'. This suggests that the majority of the food sellers are aware of and practice the important food safety practices.

The highest AWM scores were given to the indicators of keeping the food storage area clean before storage (4.79), checking expiry dates (4.80), and labeling food products as to its ingredients (4.85). This indicates that the food sellers are aware of and strictly practice the importance of keeping their food storage area clean and labeling their food products properly.

The lower AWM scores were given to the indicators of using first in first out when handling food (4.41), checking the refrigerators temperature before storage (4.44), labeling food products as to its allergy risks (4.40), and thawing frozen meat, fish, and poultry using running water (4.22). This suggests that food sellers need to be further educated on the importance of using first in first out when handling food, properly checking the refrigerator temperature, labeling their food products with the proper allergy warnings, and thawing frozen food with running water.

Overall, the findings from this table demonstrate that home-based online food sellers in the Province of Biliran have a high level of knowledge and practice of food safety. However, further education and training is needed to ensure that food sellers are properly following food safety protocols and adhering to food safety regulations. This is in line with the findings of other studies (Liu et al., 2020; Zhao et al., 2020) which have found that proper education and training on food safety protocols is essential in order to ensure food safety and protect consumers from food-borne illnesses.

CONCLUSION

The study revealed that most of the online sellers are college graduate and has higher educational knowledge but has no formal training in food safety. There is a need in food safety practices awareness in the area in cross contamination prevention and food preparation during pandemic. There is no significant relationship in food safety practices and personal hygiene when talking to demographic profile of respondents. However there is a significant relationship when talking to food safety training.

After careful analysis of the findings and corresponding conclusions of this study, the recommendations are there should be a quarterly training in food safety awareness, online food sellers must apply for a permit like the MSME food establishments, Stringent food monitoring must be implemented by the Local Government Unit, and the researchers recommends a follow-up study after the implementation of the training plan.

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