

SOCIO-ECONOMIC PROFILE AND FOOD SAFETY KNOWLEDGE OF STREET FOOD VENDORS IN OZAMIS CITY, MINDANAO, PHILIPPINES

Wiliva B. Galapia- Andoy^{1,*}, Jose S. Valmorida²

¹University of Science and Technology of Southern Philippines, Lapasan, Cagayan de Oro City, Mindanao, Philippines

²Central Mindanao University, Bukidnon, Mindanao, Philippines

*For correspondence; Tel. + 63(88 856 1738) local 146, E-mail: wiliv79@yahoo.com

ABSTRACT: *The study examined the socio-economic profile and food safety knowledge of the street food vendors as well as the street food vending practices in Ozamis City. Data were gathered from 54 street food vendors who are found in nearby college campuses, cotta area and cathedral using survey questionnaires collected through personal interviews. Findings revealed that street food vendors were relatively young at 20-30 years old, mostly male who had secondary education, and mostly into stationary type of vending with an income of Php 100-400 per day. Street food vendors operate only in strategic locations such as school vicinities, roadside, church vicinities and transportation terminal. In general, the study revealed that street food vendors have shown a sufficient knowledge on the standards of health and personal hygiene, food handling, and food contamination. However, knowledge regarding food regulation is not established. The findings suggest for a continuous food safety education to diminish gap and improve the knowledge of vendors pertaining to food regulations and thereby improve the safety of street food operations in the area.*

Key words: food safety, level of knowledge, Ozamis City, street food vendors

1. INTRODUCTION

Compiled, covering various aspects relating to food safety knowledge among the street vendors. These consisted of three categories, i.e., (i) demographic data, (ii) street food preparation practices, and (iii) level of knowledge on food safety practices among street food vendors. The questionnaire was originally written in English, but was translated into vernacular language (Cebuano) for easy comprehension of the respondents. Research assistants were utilized during data gathering. Interviews were conducted and informed consent was also secured from the respondents. Urban population dynamics have promoted in the number of street food vendors throughout the world [1]. However street food is faced with serious health problem issues [2] specifically foodborne illness which is considered to be a public health threat. Pathogenic microorganisms have also been detected in street foods [3- 6]. In addition to the existing pathogenic strains, new pathogens are still more likely to appear in novel food vehicles [7]. Majority of the studies have shown that street food vendors exhibited poor in practicing the standards of food safety [8-14]. In the Philippines, Republic Act No. 10611 aims to strengthen the food safety regulatory in the country to protect consumer health and facilitate market access of local foods and food products. It also emphasized the role of the local government unit in monitoring the street food sale, including ambulant vending. However, a noticeable increase of street food vendors in the country who sell both raw and cooked food items are not regulated and which operate haphazardly without being monitored as to what and how foods are prepared [15]. A study conducted in Ozamis City, Philippines revealed that pathogenic strains of microorganisms are present in street vended foods [16]. Food safety education is therefore necessary to reduce the incidence of foodborne illness that correlates with certain legislation. For such to become effective, food safety knowledge determination is important. Thus, the need to examine the city's street food vendors' perception on food safety by focusing on their awareness on food safety practices

is imperative. Information gathered from the study could be used by the health officers and quality inspectors for proper policy making regarding regulating safe street food standards within the city.

2. EXPERIMENTAL DETAILS

2.1 Sampling Plan

A total of fifty four (54) street food vendors which are all located in the strategic sites in Ozamis City were considered as respondents of the study over a period of three months during summer (March-May). They were identified based on the census made by the researchers during the initial visit at the vending sites. Major strategic areas of Ozamis City were selected sites for the study, namely: a) Cotta area, b) nearby school campuses, and c) Cathedral. These sites are located in the urban center in which most people congregate.

2.2. Questionnaires

A structured questionnaire and a checklist were

2.3 Statistical Analysis

Results were analyzed by using SPSS version 13.0 and MS Excel. Descriptive statistics such as means, frequencies, percentage and rank of the study variables were used to display the results

3. RESULTS AND DISCUSSION

The study was conducted in the City of Ozamis, Misamis Occidental which is nestled at the entrance of Panguil Bay in Northern Mindanao, Philippines. The city is not quite up to the mark from point of view of drainage and sanitation and thus it is important to make regular surveys of safety and hygiene of street food being served in the city for early identification of emerging food safety issues. A study conducted confirmed that emerging pathogens have been found in street foods of the City [16].

3.1 Socio-economic Profile of Street Food Vendors

A closer look of the street food vendors in other studies revealed that the mean age is between 21-40 and most have relatively low education [10,13,17]. These findings are consistent with the findings in Ozamis City where majority fell into the age range of 20-30 years old and more than half (76%) of the respondents finished secondary education only.

Furthermore, majority also of the vendors were male which is quite contrast to most of the countries other than the Philippines, viz Thailand, Nigeria and Ghana[10,17,19]. Only Muinde & Kuri[13] and Chuodhury [12] reported that majority of the vendors surveyed were male.

The overall participation of street food vendors who are single is high in Ozamis City (54%). The respondents were comprised of a considerable number of married street food vendors (46%). In terms of the mode of selling, street food vendors are classified into stationary and ambulatory. The study revealed that 59% of the vendors were stationary while the remaining 41% were into the ambulatory type of vending. Similar observations have been reported where most street food vendors are stationary for they are paying a certain rent [15]. However, some street food vendors are ambulant and do not stay at the same place at all times [20].

The street food trade is an important income generating activity for both men and women in the city. Majority of these vendors (74%) have a daily income that ranges from Php 100-400. The local government of Ozamis City required street food vendors to procure health certificates from the city health office to control and ensure the health of the street food vendors but only 50% of the vendors had completed this requirement. The lack of funds and non-awareness were cited as some of the reasons for non-compliance of health certificates. Related study had been conducted from other country like Ghana and review had been published that majority of the vendors lacked health certificates [21]. As emphasized, municipalities and authorities have difficulty in controlling the large numbers of street vending operations, mainly because of their diversity, mobility and their temporary nature [22].

Table 1. Socio-economic profile of street food vendors in Ozamis City

S. No	Category	Sub Category	Food Vendor (N=54) Frequency/(%)	Rank
1	Age	<30 years old	38(70%)	1
		31-40 years old	8(15%)	2
		>40 years old	8(15%)	2
2	Gender	Male	31(57%)	1
		Female	23(43%)	2
3	Civil status	Single	29(54%)	1
		Married	25(46%)	2
4	Educational attainment	Primary level	5(9%)	3
		Secondary level	41(76%)	1
		Tertiary	8(15%)	2
5	Income per day	Php 100 - 499	40(74%)	1
		Php 500 - 899	6(11%)	3

		Php 900 and above	8(15%)	2
6	Vending practices	Ambulant	22(41%)	2
		Stationed	32(59%)	1
7	With health certificate	Yes	27(50%)	1
		No	27(50%)	1

Street Food Vending in Ozamis City

Most of the vendors in the city operate only from selected strategic locations such as at school vicinities (56%), roadside (46%), cathedral church vicinity (30%), port terminal (19%), near the market place (7%) and te airport (4%) serving diverse types of foods (Total percentage does not equate to one hundred percent due to multiple responses by ambulant vendors). In Ozamis, where distances are not so great, vendors are dispersed in these locations.

Street food vendors in Ozamis City, especially those engaging into ambulatory type have the privilege to vend foods at any location within the city proper. There were no restrictions as far as vending location is concerned. However, a good number of street food vendors congregate near church vicinities and port terminal during weekends in which people are also expected to congregate by church goers and travelers. Furthermore, it was found out during the survey that no unit either permanent or semi-permanent had license under the city government office.

Table 2. Locations where street foods are vended in Ozamis City

No.	Category	Frequency	Percentage	Rank
1	By the road side	25	46	2
2	Near the market place	4	7	5
3	At the school vicinity	30	56	1
4	At the transportation terminal	10	19	4
5	At the airport	2	4	6
6	Near churches	16	30	3

Level of knowledge on Food Safety Practices of Street Food Vendors in Ozamis City

Health and Personal Hygiene

Street food vendors are knowledgeable about the basic standards on health and personal hygiene. Street food vendors agreed that procurement of health certificates from the city health office and wearing of personal protective equipment are imperative to protect the food from any type of hazards that might be present during handling and display. In a similar study findings revealed that street food vendors have no knowledge of the need of soap and a need for rewashing after handling money [10]. This however is in contrast with the findings in Ozamis City whereby the importance of hand washing in a sanitary manner was established among street food vendors. Hand-washing is very important because the hands are considered the most important vehicle for transfer

of microorganisms from feces, nose, skin and other parts of the body into food [22].

Food Handling & Food Contamination

Results showed that street food vendors are abreast about food handling standards. It was already established among street food vendors that it is not safe to utilize defective packages during vending and that that stale or expired food is hazardous to use for food preparation. Aside from that, it is also established among street food vendors that utensils used for food preparation cannot be adequately washed by a quick rinsing but by a thorough cleaning and sanitizing procedures. Food handlers should have the requisite knowledge and skills in food handling [8]. Street food vendors also agreed that foods should be stored under controlled conditions. Grilled foods under ambient condition are also considered as unsafe by the respondents. Food safety in street food vending is always challenged because of food borne microorganisms of which the respondents agreed that such organisms cannot be totally destroyed in grilled, chilled, or warmed food. Street food vendor assent that safe and wholesome foods cannot be prepared by utilizing used and untreated water. In congruence with other studies [24, 10] street food vendors in the City were also aware of biological, chemical, and physical contaminants during vending

Table 3. Level of knowledge on food safety practices of street food vendors

K. No.	Category	Mean	Qualitative Description	Level
1	Health and personal hygiene	3.80	Agree	Knowledgeable
2	Food handling	3.99	Agree	Knowledgeabl
3	Food contamination	4.13	Agree	Knowledgeable
4	Food regulation	3.50	Undecided	No knowledge
5	Waste management	4.39	Agree	Knowledgeable

In addition to these contaminants, the respondents agreed that it is not safe to eat food that has been exposed to pests, dirty surfaces nor foods which contained hair or staple wire even if these are removed prior to consumption. It is also recognized among street food vendors, that when preparing food, it is not adequate to just rinse soiled chopping boards and knives with water or just wiping soiled hands with cloth prior to touching cooked food.

Food Regulation & Waste Management

The level of knowledge on food regulation is not established among street food vendors. The said regulations were the stipulations of the Philippine Decree 856 “Code on Sanitation of the Philippines” and Republic Act No. 10611 “An Act to Strengthen the Food Safety Regulatory System in the Country to Protect Consumer Health and Facilitate Market Access of Local and Food Products and for Other Purposes” with its implementing rules and regulations known as the “Food Safety Act of 2013”. The respondents’ knowledge, however on waste management however is established. Street food vendors were also aware that improper storage and collection of waste can contaminate foods.

It was also clear among street food vendors that waste must be disposed off sanitarily at least once a day or as often as

necessary to avoid contamination. Similar observations have been reported for vendors from a representative urban campus in the Philippines; however, vendors were shown to be not too knowledgeable on waste management in contrast to the present findings [23].

4. CONCLUSIONS

Based on the findings, the following conclusions are hereby drawn: street food vendors in Ozamiz City, Philippines are relatively young; comprised mostly of men; have secondary education and mostly into stationary type of vending with an income of Php 100-400 per day. They operate only from strategic locations such as at school vicinities, by the roadside, cathedral church vicinity and port terminal during weekends where people like church goers and travelers are also expected to congregate. Street food vendors in Ozamis City have sufficient knowledge on the standards of health and personal hygiene, food handling, waste management and food contamination. However, knowledge regarding food regulation is not established.

An initiative to recognize and control the street food industry in the city by preparing appropriate regulations is desirable. If regulations are already in place, proper monitoring if these regulations are consistently followed by the vendors is necessary. The provision of continuous food safety education is recommended to diminish gap and improve knowledge on food regulation among street food vendors. This could be accomplished by relevant authorities in providing training and seminar on food safety.

5. REFERENCE

[1] Rane, S. Street vended food in developing world: hazard analyses. *Indian Journal of Microbiology*, 51(1), 100-106 (2011)

[2] Dawson, R. J., & Canet, C. International activities in street foods. *Food Control*, 2(3), 135-139 (1991)

[3] Ross, M., & Guzewich, J. Evaluation of risks related to microbiological contamination of ready-to-eat food by food preparation workers and the effectiveness of interventions to minimize those risks. *FDA White Paper, FDA, CFSAN* (1991)

[4] Cho, J. I., Cheung, C. Y., Lee, S. M., Ko, S. I., Kim, K. H., Hwang, I. S., & Kim, K. S. Assessment of microbial contamination levels of street-vended foods in Korea. *Journal of Food Safety*, 31(1), 41-47(2011)

[5] Bhat, R. V., & Vasanthi, S. Food safety in food security and food trade. *Mycotoxin Food Safety Risk in Developing Countries IFPRI. Brief*, 3. (2003)

[6] Muleta, D., & Ashenafi, M. Salmonella, Shigella and growth potential of other food-borne pathogens in Ethiopian street vended foods. *East African medical journal*, 78(11), 576-580 (2001)

[7] Tauxe, R. V. Emerging foodborne pathogens. *International Journal of Food Microbiology*, 78(1), 31-41(2002)

[8] Buted, D. D. R., & Ylagan, D. A. P. Street food preparation practices. *Asia Pacific Journal of Education, Arts and Sciences*, 1 (2).

[9] Samapundo, S., Climat, R., Xhaferi, R., & Devlieghere, F. Food safety knowledge, attitudes and practices of street

- food vendors and consumers in Port-au-Prince, Haiti. *Food Control*, 50, 457-466 (2015)
- [10] Lin, W. Y., & Yamao, M. Street foods safety in Yangon: A case study on street food vendors' socio-economic and production aspects. *International Review of Research in Emerging Markets and the Global Economy (IRREM)*. *International Research Journal 1* (5)(2014)
- [11] Hanashiro, A., Morita, M., Matté, G. R., Matté, M. H., & Torres, E. A. Microbiological quality of selected street foods from a restricted area of São Paulo city, Brazil. *Food control*, 16(5), 439-444 (2005)
- [12] Choudhury, M., Mahanta, L., Goswami, J., Mazumder, M., & Pegoo, B. Socio-economic profile and food safety knowledge and practice of street food vendors in the city of Guwahati, Assam, India. *Food Control*, 22(2), 196-203.(2011)
- [13] Muinde, O. K., & Kuria, E. Hygienic and sanitary practices of vendors of street foods in Nairobi, Kenya. *African Journal of Food, Agriculture, Nutrition and Development*, 5(1). (2005)
- [14] Lues, J. F., Rasephei, M. R., Venter, P., & Theron, M. M. Assessing food safety and associated food handling practices in street food vending. *International Journal of Environmental Health Research*, 16(5), 319-328.(2006)
- [15] Hilario, J. S. An evaluation of the hygiene and sanitation practices among street food vendors along Far Eastern University (FEU). *International Journal*, 3(2), 604-615 (2015)
- [16] Canini, N. D., Bala, J. J. O., Maraginot, E. N., & Mediana, B. C. B Evaluation of street food vending in
- [23] Food and Agriculture Organization. (1995) Codex Alimentarius. General requirements (food hygiene) FAO, Rome, 1995. 188-192.
- [23] Patricia V. Azanza, Corazon F. Gatchalian, Melba P. Ortega, M. Food safety knowledge and practices of street food vendors in a Philippines university campus. *International Journal of Food Sciences and Nutrition*, 51(4), 235-246(2000)
- Ozamiz City. *Journal of Multidisciplinary Studies*, 1(1). (2013)
- [17] Nicolas, B., Razack, B. A., Yollande, I., Aly, S., Tidiane, O. C. A., Philippe, N. A., & Sababénédjo, T. A. Street-vended foods improvement: Contamination mechanisms and application of Food Safety Objective Strategy: Critical review. *Pakistan Journal of Nutrition*, 6(1), 1-10 (2007)
- [18] Idowu, O. A., & Rowland, S. A. Oral fecal parasites personal hygiene of food handlers in Abeokuta, Nigeria. *African health sciences*, 6(3), 160-164. (2006)
- [19] Mensah, P., Yeboah-Manu, D., Owusu-Darko, K., & Ablordey, A. Street foods in Accra, Ghana: how safe are they? *Bulletin of the World Health Organization*, 80(7), 546-554.(2002)
- [20] Freese, E., Romero-Abal, M. E., & Solomons, N. W. The street food culture of Guatemala City: a case study from a downtown, urban park. *Archivos latinoamericanos de nutricion*, 48(2), 95-103.(1998)
- [21] Ackah, M., Gyamfi, E. T., Anim, A. K., Osei, J., Hansen, J. K., & Agyemang, O. Socio-economic profile, knowledge of hygiene and food safety practices among street-food vendors in some parts of Accra-Ghana. *Internet journal of food safety*, 13, 191-197.(2011)
- [22] World Health Organization. Health surveillance and management procedures for food handling personnel. WHO Technical Report Series, 785 Geneva p 52.1996. (1989)