

Sanitary Practices of Street Food Vendors: A Cross-sectional Comparative Study, Lahore, 2023

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ABSTRACT

Background: Street food is an important source of nourishment for many in urban areas. However, any compromise in hygienic practices can render it unsafe for human consumption. The objective of this study was to assess the sanitary practices of street food vendors and their relation to the sociodemographic profile, in Lahore

Subjects and methods: This was a cross-sectional comparative study conducted in Lahore, Punjab for 6 months after ethical clearance. Street vendors from areas around Ameer ud Din Medical College, which are densely populated with a multitude of offices and hostels, were included in the study after informed consent. Convenience sampling and a predesigned questionnaire were used by the researchers to collect data from 288 vendors. Demographic variables and vending practices were studied and compared using chi-square test. For data entry and analysis SPSS version 23 was used.

Results: The average age of the vendors was 34.6 years. 286 (99.3 %) were males, 195 (67.7%) were married and 138 (47.9%) had vending experience of less than 5 years. 60 (21%) had education of graduate and above level. 209 (76%) had a monthly income below 50,000 rupees. 61 (21.2%) had a good vending practices score, i.e. a score of 75% and above based on water usage, usage of sanitary toilet facilities, hand washing and nearby environment of the vending site. There was no significant association between sanitary practices and sociodemographic variables.

Conclusion: Most vendors did not have a good vending practices score. Sanitary practices of the vendors had no relation with gender, marital status, education, work experience or monthly income of the vendors.

Keywords:

Sanitary practices, street food vendors

INTRODUCTION

WHO defined street food as "ready to eat food and beverages prepared and/or sold by vendors and hawkers especially in the streets and other similar places, for immediate or late consumption, without further processing and preparation".¹ Street food are popular among the population due to convenience, accessibility, and attractiveness. It also becomes a source of income for the poor urban population in many developing countries.² Street food vendors usually join the informal sector because it usually requires a low capital investment and has negligible taxation. Only in a few developing countries, such as Vietnam, street food safety is regulated by national law.³ It is estimated that 2.5 billion people worldwide consume street food each day.^{3,4} In South Asian countries like India, Pakistan, Bangladesh, Bangkok, Thailand and Indonesia, street food remains an important part of the diet of working class people.⁴ In Pakistan especially, low-cost street food is preferred by the low and middle income class

people due to prevalence of poverty.⁵ The safety of food is dependent on various factors including the quality of raw materials, the food preparation area, the supply of water and the handling and storage conditions.⁶ The fact that street food vendors mostly belong to and have access to the underprivileged local infrastructure in general, there is a lack of hygienic facilities, no proper training about food cleanliness, poor sanitation and limited knowledge of personal hygiene, food safety and delivery, hence posing potential health problems.⁷ One of the major problems seen in the 21st century is that street food delivery is not at par with health standards, and it is posing serious threats to life.⁸ Even though food vendors are increasing day by day, there is a lack of proper guidelines and awareness programs on food safety practices. Potentially infective organisms are frequently found in street foods, for example, *Campylobacter* species (raw or cooked) resulting in high comorbidities in the major cities of Pakistan including Lahore, Islamabad, and Faisalabad.⁹ Lahore is one of the biggest cities of Punjab, Pakistan, and is well known for its street food. Not only locals, but people from other cities and provinces, and even the travelers from worldwide, visit Lahore to try its street food. In Lahore, vending stalls are everywhere, including bus

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terminals, railway stations, construction sites, schools and hospital premises and almost in every residential area of the city. However, the vendors are not registered and there is negligible check and balance regarding health status of individuals before starting food business, and quality and safety of delivered food which implies that these individuals maybe the potential carriers of communicable diseases, which pose serious threats to community health.¹⁰ The safety of street foods depends on the food handling and dispensing practices of the street food vendors. If these habits are not according to hygienic guidelines, then this can adversely affect the quality of food that is sold by the vendors and affect health of the consumers. A local study on street vendors from Rawalpindi described that 75% of respondents used tap water for preparing food. Majority of the vendors were aware about food contamination resulting from wrong vending practices.¹¹ One regional study done in Bangladesh stated that knowledge and attitude scores among street vendors was comparatively higher as compared to practice scores with education having significant effect on vending practices.¹² Another study from India concluded that 94% vendors did not know about use of gloves that reduced contamination of food. However, level of education had a significant association with food safety practices with a p value of less than 0.05.¹³ One more on vending practices of street vendors found that majority of vendors were females. It revealed a significant association between gender and sanitary vending practices. The majority of vendors were well aware of safe practices and hazards of unsafe practices.¹⁴ This study aims to get an idea about street food vending practices in Lahore, Pakistan as there is limited information available on this aspect. The objective is to assess the sanitary practices of street food vendors in terms of demography, level of education, years of vending and income level of the vendors.

SUBJECTS AND METHODS

This is a cross-sectional comparative study carried over 6 months duration from December 2023 to June 2024. Urban areas of Lahore city were evaluated. The sample size calculated was 288 using a prevalence of 25% (for illiterate vendors using soap and water to wash hands after using the toilet)¹¹ and convenience sampling was used.¹⁵ All street vendors with mobile carts or vans willing to participate in the study excluding sellers of fresh fruits and vegetables were included in the study.

SPSS program version 23 was used for data analysis. Frequencies and percentages for categorical

variables like gender, age categories, marital status, years of vending categories, education level, nearby environment, income, water used for cooking, water used for washing dishes, hand washing and toilet use. The questionnaire used for data collection was adopted using variables that had been studied in previous similar studies. The questionnaire had a section of sociodemographic variables including age, gender, marital status, duration of food vending in years, level of education and monthly household income. The second section had questions about water used for cooking and washing dishes, availability of handwashing and toilet facilities, handwashing before handling food and an observation of the nearby environment of the vending site. Categories were developed for good or bad vending practices based on scores for individual practices. One point was awarded for each good vending practice including use of filtered water for cooking and tap water for washing dishes, availability of hygienic toilet and handwashing facilities, washing hands before food handling and a clean environment surrounding the vending site. Individual scores were calculated for each vendor. Vendors having less than 75% score considered as having poor vending practices and those having 75% or more score categorized as having good vending practices.¹⁹ Tables and charts were used for data presentation. Also, Chi-square test used for looking at relationship between, gender, marital status, education level, income, number of years of vending and vending practices. A p-value of less than 0.05 considered as significant.

RESULTS

The mean age of the participants was 34.6 years with an age range from 17 to 77 years. 2 of the participants were female and 286 of the participants were male. 195 (67.7%) of the participants were married and the rest were unmarried. 138 (47.9%) of the participants had vending experience of less than 5 years while 52.1% had vending experience of more than 5 years. 21% of the vendors had graduate and above level education while 4 of the vendors were uneducated. 209 (76%) of the vendors had a monthly income of below 50,000 rupees. 79 (24%) had a monthly income above 50,000 rupees. (Table 1) 75 vendors (26%) used filtered water for cooking and 10 of them purchased water used for cooking from other vendors. 203 of them, making up 70.5% used tap water for preparation of food and 99% used tap water for washing dishes. In the case of 150/288 vendors, the surrounding area of the vending site was clean. 73 (25.3%) vendors said they practiced

open defecation, 107 (37.2%) used public toilets and 108 (37.5%) used washrooms and toilet facilities available at adjacent shops (Figure 1). The range for total vending score was from 0 to 5 with a minimum score of 0 and a maximum score of 5. The average score obtained by the vendors was 2.5. 227/288 (78.8%) of the vendors obtained a score of less than 75% categorized as poor vending practices. 61/288 (21.2%) of the vendors had a score equal to or above 75% categorized as good vending practices. (Figure 02) 61/225 (27.1%) males had good vending practices scores. None of the 2 female vendors had a good vending practices score. Chi-square gave a p-value of 0.62 for gender and vending practices score which was not significant.

While 21/93 (22.6%) were unmarried and 40/195(20.5%). Married vendors had good vending practices score. Chi-square for marital status and vending practices gave a p-value of 0.40 which was not significant. 24/136 (17.6%) of vendors with less than 5 years of work experience as street vendors had a good vending practices score. 35/150 (23.3%) of vendors with equal to and greater than 5 years' experience as street vendors had a bad vending practices score. The p-value for years of vending and score was 0.11 which was not significant. 16/59 (27.1%) of vendors with undergraduate-level education had good vending practices. 43/227(18.9%) of the vendors with graduate and above level education had good vending practices scores. The p-value for level of education and vending practices score was 0.23 which was not significant. 38/207 (18.4%) of the vendors with a monthly income of less than 50,000 rupees had a good vending practices score. 21/79 (26.6%) of the vendors with a monthly

income of 50,000 rupees and above had a good vending practices score. The p-value for monthly income and vending practices score was 0.21 which was not significant (Table 2).

Table 1: Sociodemographic of the street vendors

Characteristics	Frequency	Percentages
Gender		
Male	286	99.3
Female	2	0.7
Marital Status		
Married	195	67.7
Unmarried	93	32.3
Education		
Graduate and above	60	20.8
Undergraduate	224	77.8
Uneducated	4	1.4
Years of Vending		
<5 years	138	47.9
>5 years	150	52.1
Monthly Income in rupees		
<50,000	209	72.6
>50,000	79	27.4

Table 2: Cross-tabulation of vending practices category and sociodemographic variables

Characteristics	Vending Practices Category		p-value
	Good	Poor	
Gender			
Male	61	225	0.62
Female	0	2	
Marital Status			
Unmarried	21	72	0.40
Married	40	155	
Years of Vending			
< 5 years	24	112	0.11
≥5 years	35	115	
Level of Education			
Undergraduate	16	43	0.23
Graduate and above	43	184	
Monthly Income in Rupees			
<50,000	38	169	0.21
≥50,000	21	58	

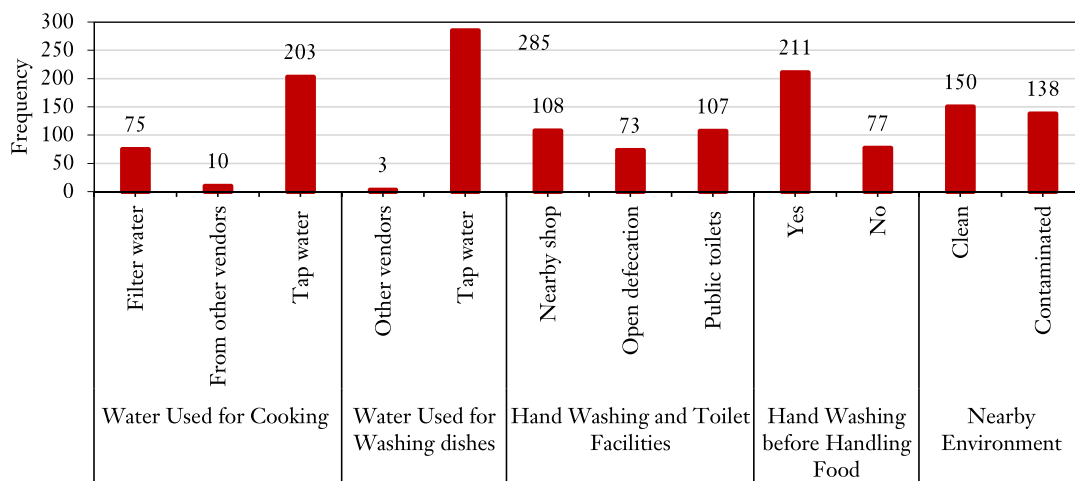


Figure 1. Frequency of sanitary practices of street food vendors in Lahore

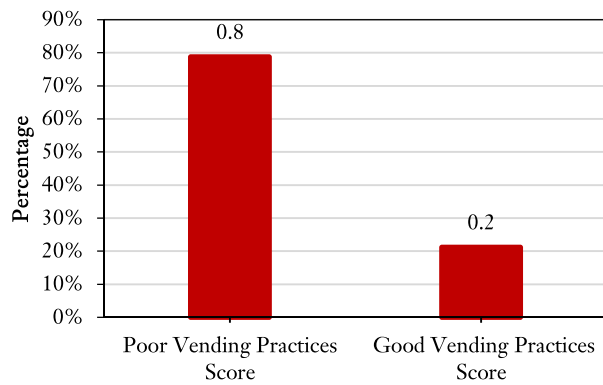


Figure 2: Vending practices score

DISCUSSION

The mean age of the participants was 34.6 years with an age range from 17 to 77 years compared to another Lahore based study in which 37% of the participants were between 11 to 20 years of age.¹⁶ 2 of the participants were female and 286 of the participants were male as compared to a study in South Africa where the majority of the participants (90.2%) were female.¹⁷ 195 (67.7%) of the participants were married and the rest were unmarried while in a Tanzania-based study, 41 % of the vendors were married.¹⁸ 138 (47.9%) of the participants had vending experience of less than 5 years while 52.1% had a vending experience of more than 5 years while in the Zanzibar study, 59.2% of the vendors had less than 5 years of vending experience.¹⁹ 21% of the vendors had graduate level education while 4 of the vendors were uneducated. 209 (76%) of the vendors had a monthly income of below 50,000 rupees in our study while in another Lahore-based study the monthly income was below 10,000 rupees for 69% of the vendors.²⁰ 75 vendors (26%) used filtered water for cooking and 10 of them purchased water used for cooking from other vendors. 203 of them, making up 70.5% used tap water for cooking of food and 99% used tap water for washing dishes whereas in another similar study done in Vietnam only 31.3% of the vendors had excess to potable water.²¹ In the case of 150 vendors, the surrounding area of the vending site was clean and for 138 of them, the nearby environment was dirty while in the previous Lahore based study, the surrounding environment was dirty in 73% cases.²⁰ In our study, 73 of the vendors making up 25.3% practiced open defecation and the rest either used public toilets or any washrooms available in nearby shops. This is in comparison to a previous Lahore based study in which 91% of the vendors did not wash their hands with soap after going to the toilet.¹⁶ 27.1% males had a good

vending practice score whereas none of the 2 females had a good score. In another study in Ethiopia being female was significantly associated with good hygienic practices amongst street vendors.¹⁴ 22.6% of married vendors had good vending practices score. 20.5% of unmarried vendors had a good score. In the Ethiopia study, street food vendors' hygienic practices were better in married vendors.¹⁴ Years of food vending had no significant relation with vending score in our study. In another study food vending experience had a significant relation with vending practices.²² In this study, 27.1% of vendors with undergraduate level education had good vending practices whereas only 18.9% of vendors with graduate and above level education had good vending practices scores. The relationship between education level and vending practices was not significant with a p value of 0.23. In the study in Northern Ethiopia, vending practices of street vendors were significantly associated with education status.²² Only 18.4% of vendors with a monthly income less than 50,000 rupees had a good vending practices score. 26.6% of vendors with a monthly income of 50,000 rupees and above had a good vending practices score. However, the relationship between income and vending practices was not significant compared to the Ethiopian study in which vending practices were significantly associated with monthly income.²²

CONCLUSION

Majority of the street vendors in our study were male and most of them were married. The average age was 34.6 years. Almost half of the vendors had vending experience of less than 5 years. 43 (21%) of the vendors had an education level of graduate and above. Only 79 (24%) of the vendors had a monthly income of 50,000 rupees or above. 75 (26%) of the vendors used filtered water for cooking. 203 (70.5%) used tap water for cooking and 285 (99%) used tap water for washing dishes. 150 (52.2%) of the vending sites had a clean surrounding environment. 73 (25.3%) of the vendors practiced open defecation. 211 (73.3%) of the vendors said they washed their hands before handling food. 61 (21.2%) of the vendors had a good vending practices score. There was no significant relation between the vending practices score and the sociodemographic profile of the vendors.

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