



KNOWLEDGE, ATTITUDES AND PRACTICE OF FOOD SAFETY AMONG FOOD VENDORS IN DIFFERENT AREAS OF RAWALPINDI

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ABSTRACT

Every year, millions of people suffer from food-borne illnesses which are primarily caused by lack of food safety knowledge, attitude and practices among food vendors (KAP model). The aim of this study is to assess these parameters in food vendors in different areas of Rawalpindi. A semi-structured questionnaire which covered all these attributes was used to collect responses from food vendors (n=59). The results showed that most food vendors had adequate knowledge regarding food safety, but perceived knowledge failed to be translated into practices. In conclusion, this lack of implementation needs to be addressed in order to improve food safety among food vendors in different areas of Rawalpindi.

INTRODUCTION:

A common saying goes “Health is wealth”. Food-borne illnesses are a major public health hazard around the world, and are usually attributed to improper food handling and sanitation procedures (1). That being said, food vendors play a very important role in ensuring food safety through their knowledge, attitude and practice regarding food handling (2). Food handlers can be responsible for numerous foodborne diseases in case proper food safety practices are not followed (3). Furthermore, malpractice while cooking food and handling it may cause outbreaks of food related illnesses. Therefore, it is crucial to raise food safety standards in order to stop the development of foodborne infections. (4) Unfortunately, it is of no surprise that many food vendors in the World do not follow proper safety procedures and protocols while dealing with food items, and same is the case for Pakistan (5). Consequently, every year millions of people are affected by foodborne illnesses bought on by eating tainted foods.

According to WHO Statistics, an estimated 600 million – almost 1 in 10 people in the world – fall ill after eating contaminated food and 420 000 die every year, resulting in the loss of 33 million healthy life years (WHO, 2022).

In developing countries like Pakistan, the dangers of contracting food-borne diseases are rising along with the population. Therefore, by using this research, we wish to suggest appropriate corrective steps for improvement of food safety among food vendors. This can be done by the KAP model, which suggests that practice of the food vendors is dependent upon their knowledge (K), and merely having this information directly leads to a change in their attitudes (A). As a result, this leads to an alteration in behavior or practice (P) of the food vendors as well (6)

The objectives of this research are:

To assess the level of Knowledge and their attitudes regarding food preparation, handling among food vendors

To assess the degree of practice of food safety among food vendors

To compare the above-mentioned aspects according to area and educational levels of food vendors

MATERIALS AND METHODS:

In this research, a quantitative cross-sectional survey of food vendors was done. The data was collected from Saddar, Gulraiz, Dhoke Hassu, Commercial Market, Shah Khalid Colony, Banni and Khayabane Sir Syed. The data was collected over a period of 5 days.

The sampling type used was convenience sampling. The population size is 2000 and with a confidence interval of 95%, the sample size is 323. A total of 59 subjects agreed to participate in this research.

A semi-structured questionnaire (5) was used for data collection and it comprised of 33 number of questions. The questionnaire gathered information about the demographics, knowledge, attitudes and practices of food vendors. The questionnaire was first translated to Urdu before the subjects were asked these questions. Each vendor was approached in person and informed consent was gained from every participant before data collection. Male food vendors who were employed in streets and markets of different areas of Rawalpindi were included. Food workers in restaurants, hotels and those not directly involved in preparation of food items were excluded.

The data collected was analyzed by software: SPSS version 21.

As far as literature review was concerned, it was done mainly from google scholar and pubmed. Only articles from the last 10 years were studied.

RESULTS:

Demographic Characteristics:

Figure 1 shows the demographic characteristics of gathered from various food vendors from different areas of Rawalpindi.

Food Safety Knowledge of food vendors:

Out of all the 59 responses gathered, 89.8% agreed that diseases can spread through food items, and 94.9% agreed that germs can contaminate food items if food safety is not observed. Around 66.1% responses stated that germs can grow best in cold food, in contrast to 28.8% who stated that temperature has no effect on germs growth.

Approximately 71.2% food vendors did not know/have their stool exam done, and 91.5% were not vaccinated against typhoid, cholera and Hepatitis A. Almost all food vendors interviewed said that food handlers' hygiene, cleanliness of cooking area and using clean water, raw materials and utensils are altogether effective practices for reducing the risk of food contamination.

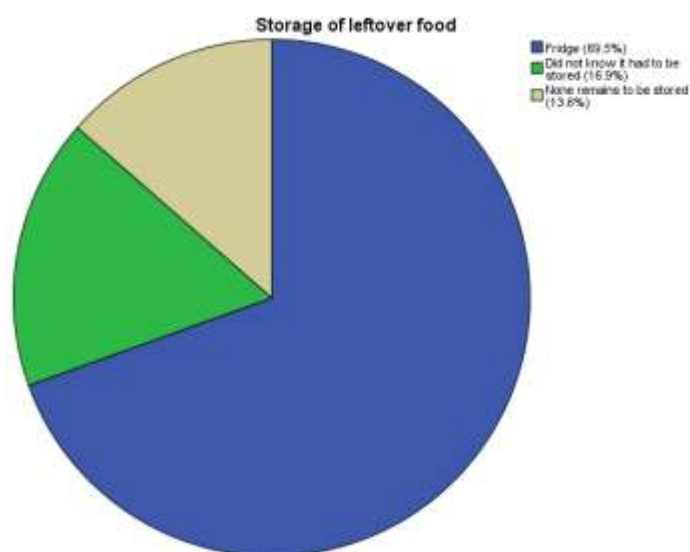
Table 1. demographic characteristics of food vendors

Demographic characteristic	Variable	Frequency	Percentage
Age	Under 18	8	13.6
	19-35	36	61.0
	36-50	8	13.6
	50 or above	7	11.9
Location	Saddar	6	10.2
	Gulraiz	4	6.8
	Dhoke Hassu	4	6.8
	Commercial Market	14	23.7
	Shah Khalid Colony	9	15.3
	Khayabane Sir Syed	12	20.3
	Banni	10	16.9
Level of education	None	15	25.4
	Primary School	7	11.9
	Middle School	9	15.3
	High School	24	40.7
	University	4	6.8
Current job tenure	Less than 1 year	9	15.3
	1-3 years	4	6.8

		3-5 years	7	11.9
		More than 5 year	39	66.1
Any relative doing this job as well	Yes		32	54.2
	No		27	45.8

Food safety attitudes of food vendors:

Everyone evaluated agreed that handling food safety is an important part of their jobs. 89.8% responded that food prepared too much in advance can be harmful and 74.6% responded that defrosted food should not be refrozen. The following pie chart shows where food vendors mostly stored their leftover food:

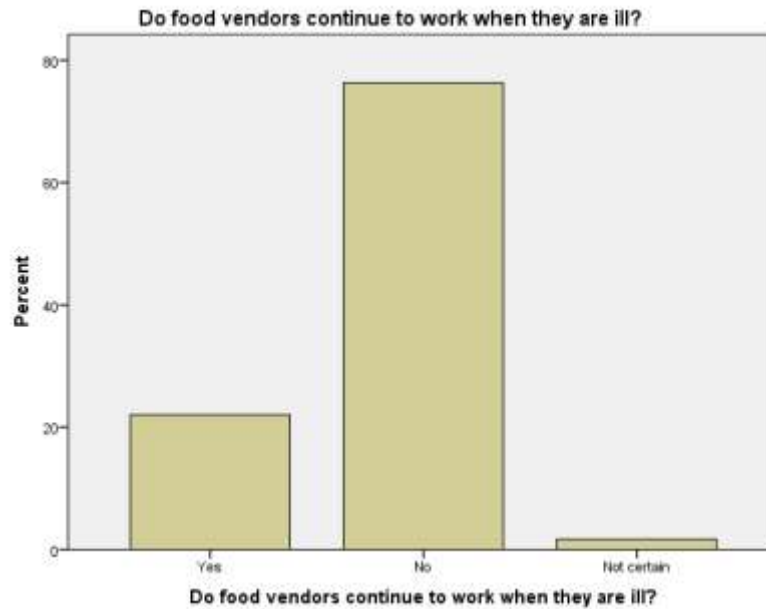


Now regarding questions related to freezing, approximately 93.2% agreed that the temperatures of refrigerators should be checked at regular intervals and that the refrigerators should function at least 4 degrees Celsius (67.8%). About 61% responded that storing food in refrigerators do not kill microbes/germs when food is stored in them.

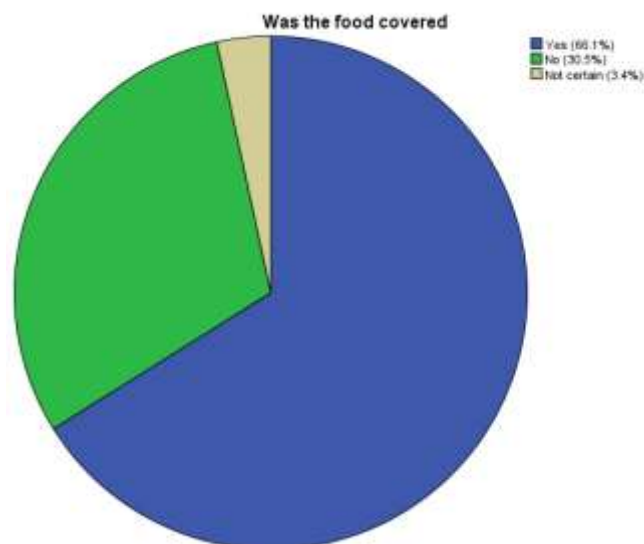
Around 50.8% agreed that food should not be handled if they have cuts or abrasions in their hands, although 44.1% said that it is harmless to do so.

Food safety practices of food vendors:

Around 98.3% people claimed that they washed hands before handling food, and another 89.8% food vendors claimed that they used an antibacterial soap to do so. The following bar chart shows the distribution of what food vendors do when they are ill/sick:



Around 96.6% food vendors claimed that they used separate utensils for dealing with raw and cooked food, and 94.9% checked the expiry of food products before using them. Around 88.1% of the subjects used disposable tissues while sneezing or coughing, and also washed their hands afterwards. Approximately 62.7% people used disposable utensils, and the other 37.3% did not. The non-disposable utensils were mostly washed separately (28.8%). As for a proper uniform, hand gloves and headcaps, unfortunately 93.2% of the subjects lacked it on observation. The following pie chart shows that whether the food was covered or not on observation:



Around 96.6% claimed to have access to a nearby toilet, and 96.6% trimmed their nails every week. Approximately 98.3% subjects did not have any lice, and all of the food vendors questioned did not have any carbuncle or boil on their hands.

DISCUSSION:

Although the results of the research were satisfactory, yet when observed there was little emphasis on enhancing the hygienic conditions.

Most of the vendors were from high school and those who did not have any education at all were mostly doing this job for more than 5 years, that is the reason why they both had adequate knowledge regarding food safety as shown by the results. Furthermore, food vendors from developed areas like Commercial market had better food hygiene practices as compared to food vendors from less developed areas like Dhoke Hassu. Food safety knowledge is very strongly linked with the level of education of food vendors as evident from previous researches (7–10)

Previous studies (11) show that if people are committed to their Religion's principles, Religion can be an effective and efficient way to deal with sanitation difficulties. that is the reason why there was little difference between the illiterate and literate groups' practices for general sanitation, such as nail trimming and hand washing.

Many claimed that they washed their hands with soap and had a toilet nearby, showing that adequate sanitation was observed as it should be (12). As for utensils, most of the food vendors used disposable utensils, and those who had non disposable utensils, washed them separately. Furthermore, none of the food vendors had any lice or carbuncles. This all shows good practice of the food's vendors.

Although many food vendors had adequate knowledge regarding food handling, a very few of them were vaccinated against typhoid, cholera and hepatitis A and had not get their stool exam done. Food safety attitude is a crucial component of food safety and can successfully prevent the occurrence of diseases that are transmitted through food (13). Unfortunately, in contrast to the knowledge, the attitude and practice of food vendors was different to some extent, like many food vendors were not wearing proper uniforms and one third of the vendors did not have their food covered. Majority of the vendors did not work when ill, but some still continue to do so, and The International Code of Practice of food hygiene suggests that sick or ill food handlers should not be permitted to work within the food premises. Furthermore, some did not know that food had to be stored in order to keep it safe from contamination.

This lack of implementation may also be linked with the fact that there is no accountability and lack of surveillance programs in third World Countries like Pakistan, especially in small setups like with food vendors. This also may be due to lack of resources due to poverty, which eventually leads to not getting vaccinated, not getting your stool exams done, working even though you are ill for money and to support families, not taking adequate measures to protect food from germs like buying aprons etc. This problem can obviously be tackled by regular surveillance programs at food vendors level and awareness about the potential hazards of not practicing food hygiene. This awareness can be increased by posters and advertisements about what can be done to promote food

safety and what are the health risks for the population if these measures are not taken. Furthermore, vaccination programs should be implemented, especially for people handling food. Screening for food borne illnesses can also be done, and free treatment should be widely available for these diseases. Poverty, of course, also needs to be taken care of as it plays a major role in lack of implementation of these practices.

This study also highlights the root cause of lack of implementation of food safety practices, as evident by the results. Although this problem is universal, third world Countries like Pakistan are especially affected by this because of the reasons mentioned above. This study also shows that although the literacy rate of Pakistan is not that high, people still have adequate knowledge about basic food safety practices mainly due to Religion playing a huge role in promoting general hygiene of a person, which is also evident by some other researches, and due to the demographics of these food vendors, who are mainly from high school doing part time jobs to support their families. Other articles show that there is a lack of knowledge of food safety among food vendors. But in Pakistan, it seems to be the opposite.

CONCLUSION:

Although most of the food vendors had adequate knowledge regarding food safety, but there was lack of implementation and it needs to be addressed in order to improve food safety.

LIMITATIONS:

Ideally, with the population size of 2000, the sample size should be 323. But due to lack of resources, only 59 agreed to participate in the research. Furthermore, this research only covered some areas of Rawalpindi. Food workers in restaurants, hotels and those not directly involved in preparation of food items were excluded.

RECOMMENDATIONS:

Food vendors should properly cover the food

Food vendors should wear headcaps, gloves and aprons

Food vendors should be properly vaccinated against typhoid, cholera and hepatitis A

REFERENCES:

1. Rifat MA, Talukdar IH, Lamichhane N, Atarodi V, Alam SS. Food safety knowledge and practices among food handlers in Bangladesh: A systematic review. Vol. 142, Food Control. Elsevier Ltd; 2022. <https://www.sciencedirect.com/science/article/pii/S0956713522004558>
2. Lee HK, Abdul Halim H, Thong KL, Chai LC. Assessment of food safety knowledge, attitude, self-reported practices, and microbiological hand hygiene of food handlers. Int J Environ Res Public Health. 2017 Jan 10;14(1). <https://www.mdpi.com/1660-4601/14/1/55>
3. Sultana, A., Awan, A. and Tehseen, I., 2013. Sanitation practices among food handlers working in street restaurants in Rawalpindi, Pakistan. Rawal med j, 38(4), pp.425-7. https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=.+Sanitation+practices+among+food+handlers+working+in+street+restaurants+in+Rawalpindi%2C+Pakistan&btnG=

4. Galgamuwa LS, Iddawela D, Dharmaratne SD. Knowledge and practices of food hygiene among food handlers in plantation sector, Sri Lanka. *International Journal of Scientific Reports*. 2016 Nov 24;2(12):304. <https://scholar.google.com/scholar?q=intitle:Knowledge%20and%20practices%20of%20food%20hygiene%20among%20food%20handlers%20in%20plantation%20sector%2C%20Sri%20Lanka>
5. Ahmed MH, Akbar A, Sadiq MB. Cross sectional study on food safety knowledge, attitudes, and practices of food handlers in Lahore district, Pakistan. *Heliyon*. 2021 Nov 1;7(11). [https://www.cell.com/heliyon/fulltext/S2405-8440\(21\)02523-8](https://www.cell.com/heliyon/fulltext/S2405-8440(21)02523-8)
6. Insfran-Rivarola A, Tlapa D, Limon-Romero J, Baez-Lopez Y, Miranda-Ackerman M, Arredondo-Soto K, et al. A systematic review and meta-analysis of the effects of food safety and hygiene training on food handlers. Vol. 9, *Foods*. MDPI AG; 2020. <https://www.mdpi.com/2304-8158/9/9/1169>
7. Vo TH, Le NH, Le ATN, Tran Minh NN, Nuorti JP. Knowledge, attitudes, practices and training needs of food-handlers in large canteens in Southern Vietnam. *Food Control*. 2015 Nov 1;57:190–4. <https://www.sciencedirect.com/science/article/abs/pii/S0956713515002170>
8. McIntyre L, Vallaster L, Wilcott L, Henderson SB, Kosatsky T. Evaluation of food safety knowledge, attitudes and self-reported hand washing practices in FOODSAFE trained and untrained food handlers in British Columbia, Canada. *Food Control*. 2013 Mar;30(1):150–6. <https://www.sciencedirect.com/science/article/abs/pii/S0956713512003660>
9. Souza CVS de, Azevedo PRM de, Seabra LMAJ. Food safety in Brazilian popular public restaurants: Food handlers' knowledge and practices. *J Food Saf*. 2018 Oct 1;38(5). <https://onlinelibrary.wiley.com/doi/full/10.1111/jfs.12512>
10. Derso T, Tariku A, Ambaw F, Alemenhew M, Biks GA, Nega A. Socio-demographic factors and availability of piped fountains affect food hygiene practice of food handlers in Bahir Dar Town, northwest Ethiopia: A cross-sectional study. *BMC Res Notes*. 2017 Nov 28;10(1). <https://link.springer.com/article/10.1186/s13104-017-2965-2>
11. Adu-Gyamfi S. Religion and Sanitation in a City in Ghana: A Conundrum? [Internet]. Available from: <https://ssrn.com/abstract=3211389>.
12. Dudeja P, Singh A, Sahni N, Kaur S, Goel S. Effectiveness of an intervention package on knowledge, attitude, and practices of food handlers in a tertiary care hospital of north India: A before and after comparison study. *Med J Armed Forces India*. 2017 Jan 1;73(1):49–53. <https://www.sciencedirect.com/science/article/abs/pii/S0377123716301344>
13. Al-Shabib NA, Mosilhey SH, Husain FM. Cross-sectional study on food safety knowledge, attitude and practices of male food handlers employed in restaurants of King Saud University, Saudi Arabia. *Food Control*. 2016 Jan 1;59:212–7. <https://www.sciencedirect.com/science/article/abs/pii/S0956713515002650>