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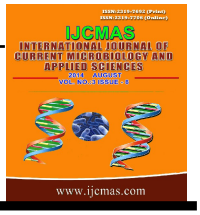

Original Research Article

Case Study of the Street Food Sector in the Metropolitan Areas of a Cameroonian City, Yaounde

H.C.Edima*, R.K.Tem Nnam, T.Awono Enama, D.M.Biloa, and R.Ndjouenkeu

Department of Food Sciences and Nutrition, National Advanced School of Agro-Industrial Sciences, University of Ngaoundéré, P.O. Box 454 Ngaoundéré, Cameroon
**Corresponding author*

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A B S T R A C T

In many developing countries, information on street food vending activities has been found to be greatly lacking. In order to show more light on street food sector, a study was carried out from June to October 2012 in 30 districts of Yaoundé. During this study, information was obtained concerning the street food vendors and their activities by observation and brainstorming, and by interviewing 100 street food vendors using questionnaires. Results show that the major street food consumption points are located around areas of high social activity such as pubs, markets and road junctions. The most consumed street foods are roasted fish, bread, fried dough, roasted beef, roasted or fried plantain and "baton" (fermented cassava roll). The cooking/preparation methods include: boiling, frying, roasting and simple washing. The vendors are mostly women (60.61%), with 74% of them being Christians. For 40% of the vendors, the practice of street food vending is an easy way of earning money. The general hygiene of the vendors is poor. Some of the hygiene malpractices in the street food system are due to: the absence of running water at the vending site, lack of proper toilets, and the lack of demand for quality in terms of hygiene by the consumers. Therefore, there is a need for relevant authorities to regulate the street food sector.

Introduction

The street food sector is said to be on the rise in the developing world, going along with the rapid urbanisation (FAO/WHO, 1996; Sharmila, 2011). In sub-saharan Africa, approximately 1/3 of the population lived in urban areas in 2001, but by 2020, this ratio is predicted to concern half (46.2%) of the population. In Cameroon, Yaounde is experiencing very rapid urbanization. Its population has grown from 812.000 inhabitants in 1987 to about 2.100.000 inhabitants in 2007 (les populations du monde - IDH, 2014). The increase in the food demand inherent to this population growth has led to the development of urban food crafts, which constitute, through street foods, both one of the main feeding source of people and source of income for actors involved. In this respect, the number of people depending on

street foods for their nutritional requirements is significantly high, since street food system offers ready to eat foods, with popular taste and at acceptable cost. In fact, different reasons justify the development of the street food sector: lack of adequate transportation and time which do not allow workers to go home for midday meal; lack of effective system of collective catering; Precarious housing conditions in urban areas, particularly for the most disadvantaged families which do not always favor the preparation of meals at home, bringing thus these people to depend on street food; migration phenomena which leads to the increase in the number of people living alone, often in difficult circumstances and with low incomes (Canet and N'diaye, 1996). Despite the advantages of street foods, there are numerous public health concerns that are associated with the street food sector (FAO, 1993; Sharmila, 2011). In many developing countries such as Cameroon, information on street food vending activities has been found to be greatly lacking. The main objective of this study is to bring out some general information about the hygiene hazards of the street food sector in Cameroon, using a case study of Yaounde, the political capital of the country.

Materials and Methods

The survey was carried out in 30 districts of Yaounde from June to October 2012. It was based on questionnaire filled out after exchanges with actors and visual observations. 100 vendors were interviewed. The questionnaire focused on:

- The identification of the major areas where street foods are consumed,
- The identification of the different types of street foods in Yaounde,
- The determination of the socio-demographic profile of the vendors,
- The motivations of the vendors,
- The evaluation of the hygiene and health of the vendors.

Results and Discussion

Characterization of the street food sector

Major points of consumption and types of street foods consumed in Yaounde

Street foods were found to be concentrated in areas where there were a lot of social activities such as road junctions, bars, motor parks, around universities, around churches, shopping centres, markets and public buildings such as police stations, banks, ministries, petrol stations. In fact, this activity offers to urban populations' ready to eat food with the popular taste at an acceptable cost, likewise the lack of adequate urban transportation and time, prevent many workers, students, schoolchildren, to go home for meals. Due to lack of effective system of catering such as canteens on the workplace, they buy street food at cheap price compared to what they would pay for a restaurant meal or even at home.

According to the type of food, there are wide varieties as shown in Figure 1**,** *with* fried dough, roasted or fried plantain, roasted plums, meat (roasted, fried or boiled), fish (roasted, fried or boiled), bread and "baton" (fermented cassava roll) being the most consumed categories. Considering the processing forms of street foods (Fig. 2), the roasted process appears in majority, particularly for meats (beef, chicken, fish and pork) and plantain, while tubers and eggs are preferably boiled. It should be noted that boiled practice applies also for

pork for almost 50% of vendors.

The actors of street food system

The religious affiliation of the vendors is important because some religion proscribes some food or the way they are processed. Pork for instance is forbidden in Muslim religion and animal has to be slaughter according to a precise ritual. Yaounde is a cosmopolitan city with diverse religions, but the vast majority of these populations is Christian this can explain why Most of the vendors are Christians (Fig. 3a).

According to their age, up to 80% of vendors are between 21 and 40 years old with very few below 20 and above 50 (Fig. 3b). This distribution is quite normal since, the activity requires some energy to fulfil in terms of preparation and serving of foods, which can be carry out mainly by active population. Meanwhile, it should be noticed that during school holiday, school children are involved in the activity during this period as described by FAO (1994). In fact, in families with low economic income, involvement of children during holiday is to contribute to their school fees at the resuming of school. Moreover, about 60.61% of the vendors are women, meaning that men are less involved in street food vending in Yaounde. In fact, this is in relation with the social organisation and behaviour of groups from which people belong. The scale of values which characterize a given group influences the particular ways they conceive their activities and their specific organizational methods. The street food vendor and especially, the stakeholders of the whole sector display behaviours strongly inspired by the cultural dimensions, and which determine specific operating schemes. One of the main elements going along with that dimension is the gender factor: it is mainly a women's activity. In Cameroon, there is traditionally a clear separation of women's activities and men's activities in the production work: Cooking and feeding is a female activity. That's why street food activity, considered as a feeding activity was initially undergone by women. But since the activity has become a profit making endeavour, men are progressively involved in it, which justify a significant presence of about 40% of men in the activity.

With reference to the marital status of vendors, 48.48% of the vendors are married (Fig. 4). It should be note that, many vendors have entered the field of street food firstly to ensure the food needs of their families, but it became an important source of money for families as this is used by the vendors to support their family needs.

According to the level of education, 38% of actors are not received any formal education; 31% have managed a primary school level, and 15 % went to secondary school (Fig. 5).These results confirm those of Canet and N'diaye, (1996) who found that the majority of people involved in the street food sector in Africa have receive little education. Indeed, the street food sector is a significant source of financial activity in urban areas, especially for people whose level of education is not very high and who might not easily find another job.
Moreover, up to 97% of the actors has not received any training on food safety, which comply with the assertion of WHO (1996, 1997) indicating that the low level of education makes the training of vendors on good hygienic practices and HACCP principles too difficult. This may be considered as a risk for the consumers, since vendors could unintentionally introduce hazards in food. Despite their low education, these vendors are usually responsible for large families. In fact, some vendors have 2

to 10 children who usually go to school under their responsibility (Fig. 6). As early state some of these vendors were married and were receiving support from their spouses or husbands. Moreover, 26.53% of the vendors did not have any extra responsibility.

Concerning their motivations, 40.40% of the vendors do the vending business because they see it as an easy way to earn money (Fig. 7). The fact that none of the vendors reported to be involved in the business because he or she had received training on their activities, appears as a significant limits of the system in term of risk for the food safety towards the consumers; meaning that the activity appears exclusively as profit driven, with low possibility of safety control.

Indeed, studies conducted on street food by FAO, (1990, 1996) and Dawson and Canet (1991) report the use of raw materials and ingredients of poor microbiological quality or decaying, non-potable water in beverages or as ice, unauthorized or improper quantity of food additives, crockery and unsuitable packaging in contact with food or inadequate cleaning of foods. Ultimately, this profit driven attitude of street vendor can lead to the introduction of hazards in food thus compromising the health of consumers.

General hygiene and health of the vendors

In order to be able to bring out the hazards associated with street foods in Yaounde, it was necessary to evaluate the general hygiene practices of the vendors and also the raw materials used in the preparation of foods. Figure 8 recapitulates some main hygienic hazards associated to vendors' skin and their malpractices.

The personal hygiene of the vendors is very important as this could serve as possible sources of contamination or hazards during the preparation and sale of street foods. Indeed, Tambekar *et al*. (2011) showed that a good personal hygiene can significantly reduce the level of microbiological contamination of street foods. In this respect, the survey showed that, 32% of street food vendors wore jewellery during their vending activity. The wearing of jewellery by the vendors can be source of physical hazard if these get into the food being sold in the course of preparation or serving. Jewellery such as rings could also indirectly help in the introduction of microbiological hazards in food as they will prevent the proper washing of hands. Results also show that up to 60% did not cover their heads. This mal practice could lead to the introduction of hair as well as microbiological hazards in food. Only women cover their heads with a scarf to protect their hair not for hygienic reasons.

In addition, when the vendors were asked whether or not they did sustain injuries at times while working, 47% of those who sell meat and fish reported that, injuries were common. 81% of the vendors did not cover their wounds properly in cases of cuts, bruises and burns. They reported that if the wound is not deep such as when wounded by fins of fish, they will simply wash the spot and continue with their work. Others declared that when they are wounded, they simply fold the wound with a piece of cloth and continue with their activity. However, 19% of the vendors said they had first aid boxes and that when they sustained injuries such as burns and cuts, they use these medical kits. The fact that up to 81% of those who sustained frequent injuries did not treat their wounds well could be due to lack of facilities for treatment and partly to negligence. This attitude of the vendors

could be a potential source of hazards as the food can be contaminated with the blood of the vendors.

The observation of nails shows that up to 33% of the vendors kept dirty nails. These dirty nails could harbour microorganisms which could contaminate food given that 51.55% of the vendors served food with their bare hands. The dirty nails of the vendors could therefore serve as a source of microbiological hazards which could lead to the contamination of the food. From visual observation, the vendors were divided into two groups: those that wearing clean clothes and those wearing dirty clothes. The later represented 54%. The wearing of clean clothing can significantly reduce the degree of contamination of food (Tambekar *et al*., 2011).

Concerning unhygienic behaviour at the vending site**,** it was found that 80.41% of the vendors carried out certain mal practices such as talking over food, handling food with their hands without washing them after touching money and other dirty objects. Moreover, the vendors were questioned on whether or not they had toilets which they could use. 32% reportedly did not have access to proper toilets at their vending sites. This was alarming as these vendors most likely used unauthorised places as toilets (Fig. 9).

The constant use of roadsides by many vendors was a cause for concern as these could serve as reservoirs for food contaminants. Also bar toilets mostly used by those selling roasted fish, pork and soya in front of bars were found to be generally dirty with no washing water and/or soap in some cases. Some of the vendors used rivers as toilets. This calls into question the washing of hands after the use of these toilets. Questioned on this issue, 69% of vendors were found not to wash hands regularly after the use of toilets. This, coupled with the fact that the toilets used by the vendors were generally in a questionable state of hygiene, means that food sold by the vendors could be contaminated. The vendors were thus questioned on their hand washing methods to see if they washed their hands well after the use of toilets. Various responses were obtained (Fig. 10).

Food handling practices of the vendors

In most case, the food handling practices represent a source of hazards. About 75% of the vendors were found to frequently display their food without covering it, exposing the food at roadsides where vehicles and pedestrian pass by raising dust which can be a source of all types of hazards, dangerous for the consumer's health who eat the food. The fact that most vendors serve their foods with bare hands and coupled with the fact that they don't wash their hands regularly after handling dirty objects represent a major risk.

The keeping of leftover food for later sale was another critical point in the control of the hazards associated with the street food sector as some of the vendors did not have refrigerators. It has also been noticed that refrigerators are turned off by some vendors in order to economise power. Therefore the resale of leftover food should not be encouraged as this could lead to food poisoning of street food consumers.

Water used by the vendors

Water is one of the most important ingredients used by street food vendors. It is also used for the washing of equipment, and for drinking. The source of drinking water is diverse (Fig. 11) and has been found to be directly linked with the quality of the water**.**

Figure.1 Type of street food sold in Yaounde

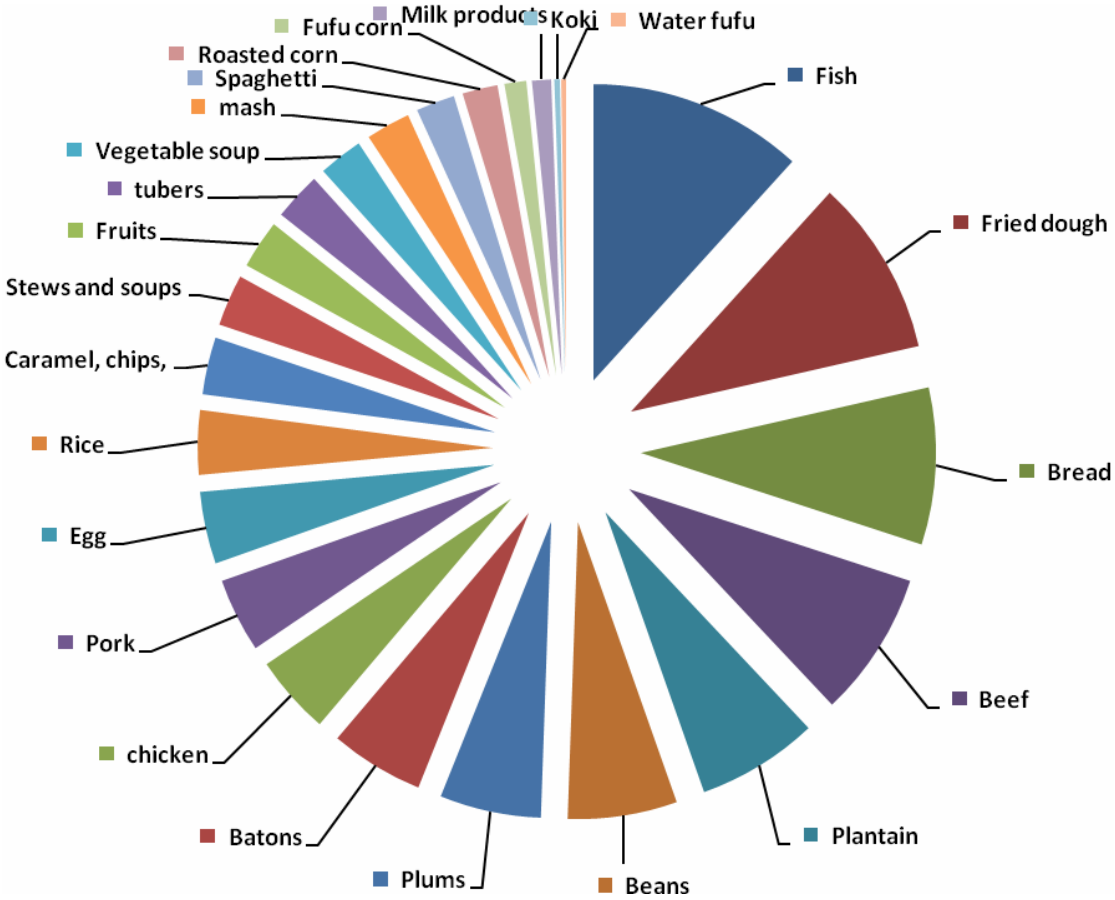


Figure.2 Variability of processing form of some street food types

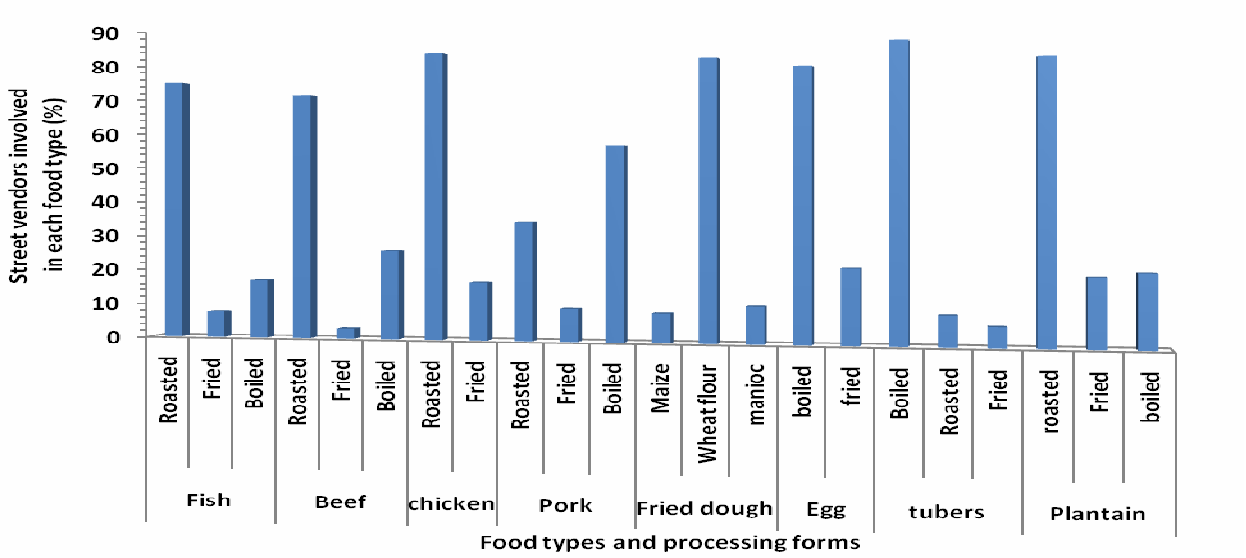


Figure.3 Religion affiliation (a) and age (b) of street food actors

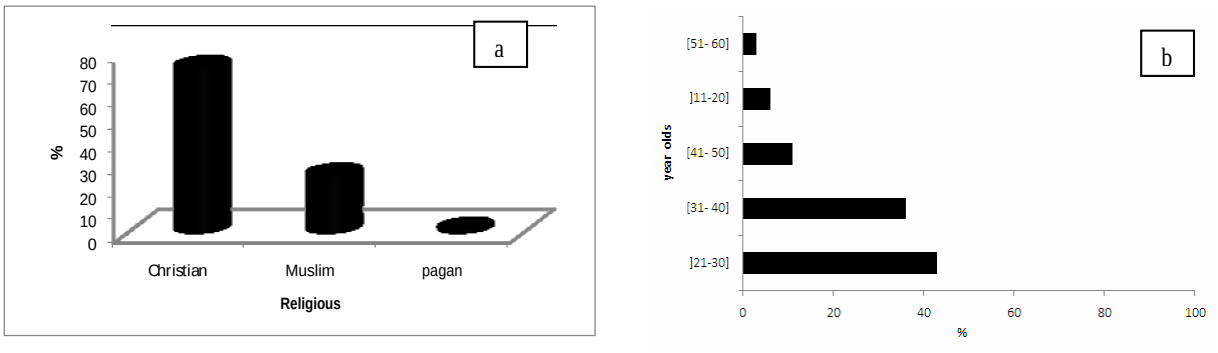


Figure.4 Gender distribution (a) and the civil status (b) of the street food vendors

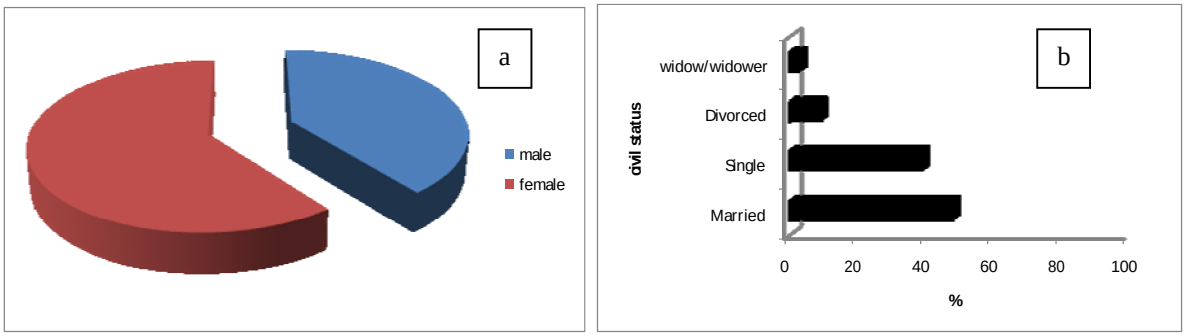


Figure.5 Level of education of the street food vendors

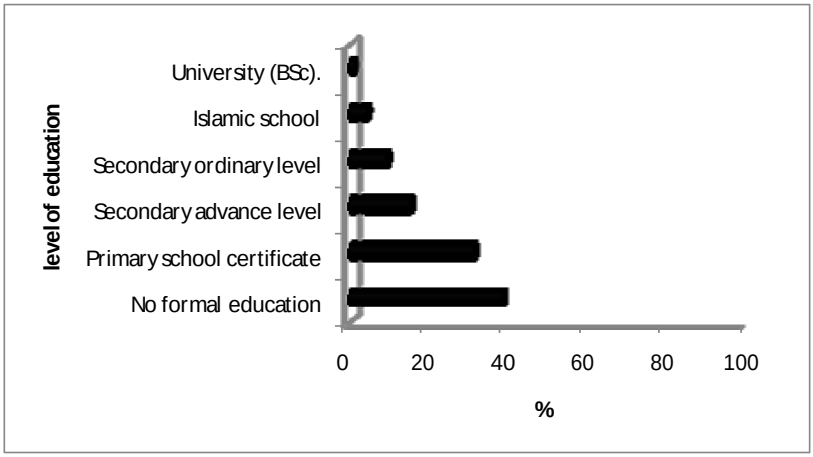


Figure.6 Number of children or siblings taken care of by each vendor

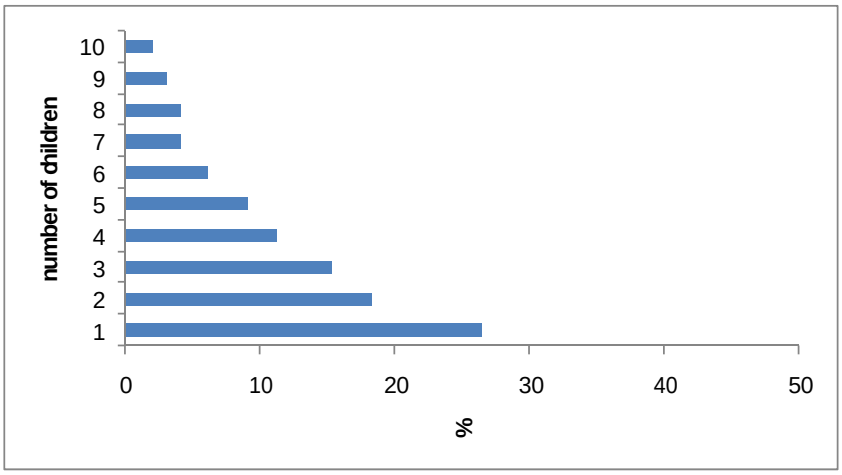


Figure.7 The reasons (in %) why the vendors engage in their particular vending activities

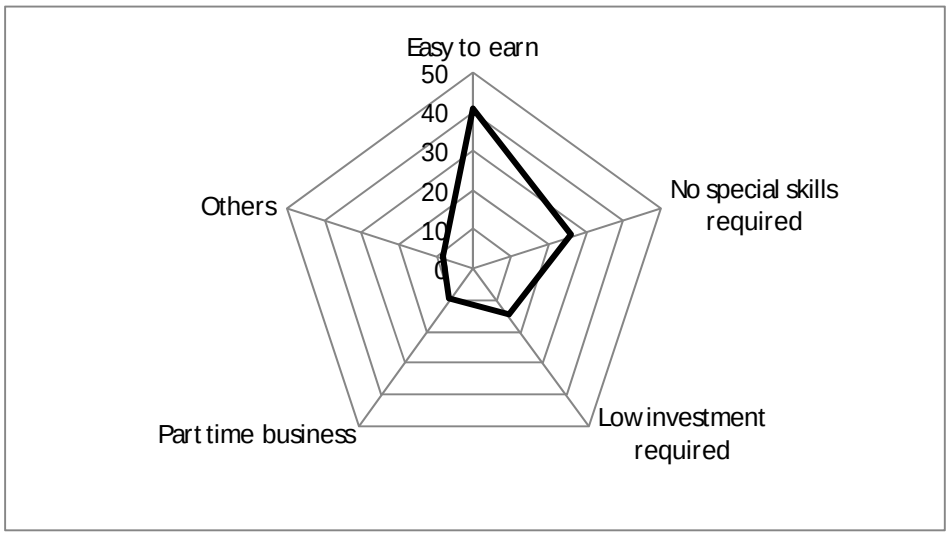
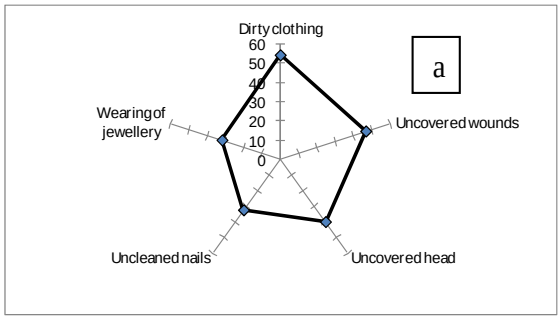


Figure.8 Sources of hygienic hazards associated to vendors' skin (a) and their practices (b)



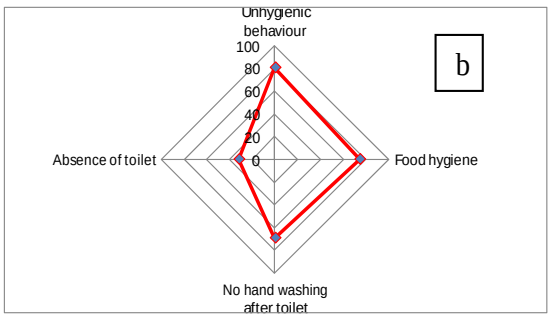


Figure.9 The type of toilet used by the vendor

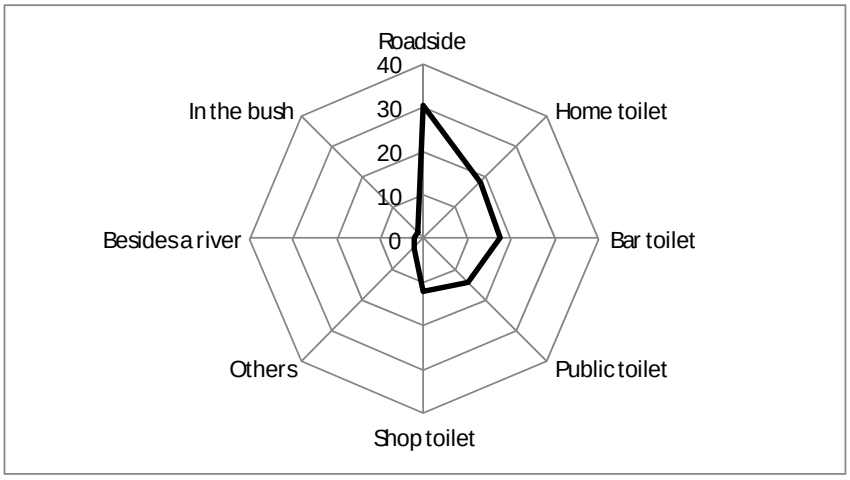


Figure.10 Material used for washing hands

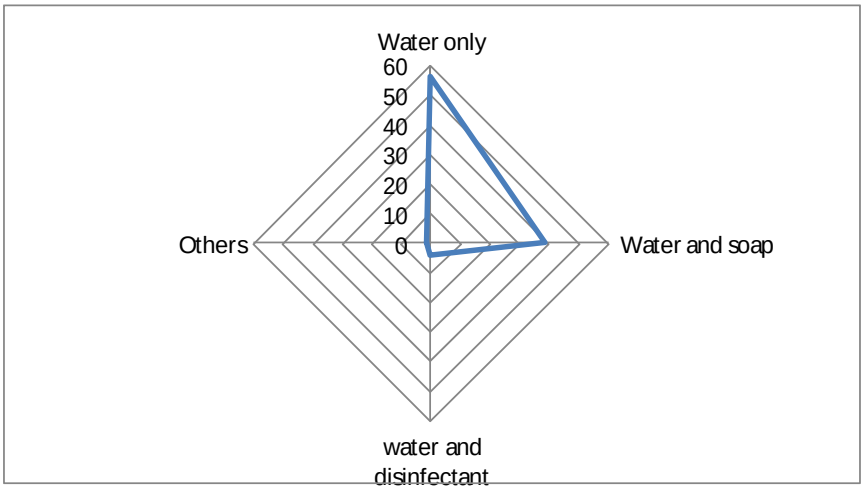


Figure.11 Source of water offered for drinking

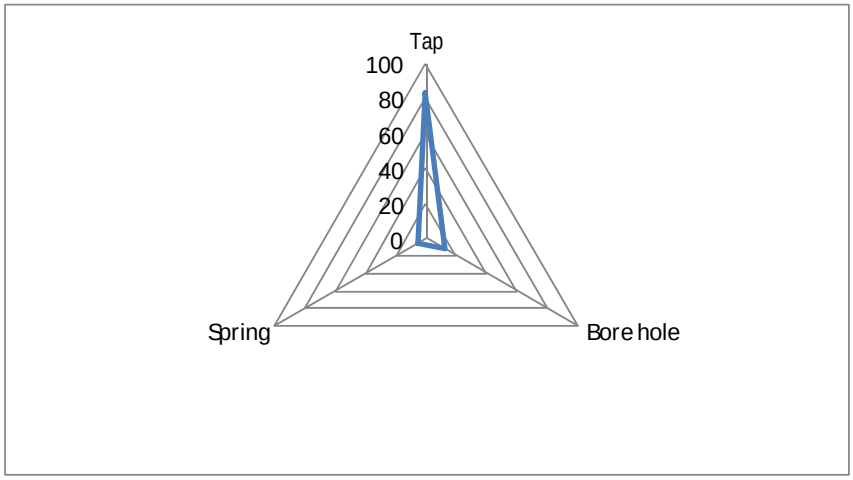
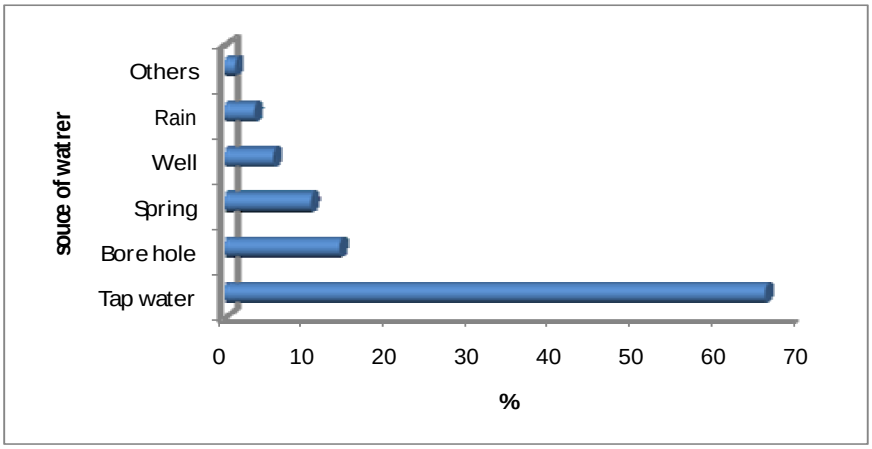


Figure.12 Source of water used for the washing of equipment and crockery



Water from boreholes and taps have been found to be relatively safe for drinking whereas surface waters such as those from springs and streams have been found to be often contaminated with faecal coliforms (Mwangi, 2002). However in some cases where there are frequent incidences of pipe bursts, and where pipelines pass through drainage or sewage systems, tap water can become contaminated. The drinking of spring water may serve as a possible source of microbiological hazards as this water is open to environmental conditions. Not all the vendors washed their equipment at the vending site. Figure 12 shows the various sources of the water used by the vendors.

The fact that 65.52% used tap water and 13.79% used borehole water was reassuring. However the usage of spring and well water was a cause for concern as these sources of water have been found in previous studies to be contaminated with faecal coliforms (Mwangi, 2002). Thus these can serve as sources of microbiological hazards in street vended food.

Malpractices during food activities

During the cooking of food, some malpractices observed included: the repeated use of frying oil, the use of chemically treated wood by some of those who roast beef**,** the cooking of food several hours before it is transported to the selling point. During the transportation of the food, it was noticed the transportation in open and dirty containers, which could lead to the contamination of the food by dust particles. During the sale of street foods, malpractices included the handling of food without washing of hands, the use of water storage containers that are difficult to clean which may lead to the growth of microorganisms on the walls of the containers and the blowing of air into a plastic paper to open and parcel food with it.

Acknowledgement

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