

Consumer awareness and willingness to pay for safety of street foods in developing countries: a review

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Keywords

Street foods, hazards, health, consumer awareness, safety intervention, developing countries.

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doi: 10.1111/ijcs.12248

Abstract

Street food vending is still popular in developing countries despite the giant stride recorded in the areas of food processing and global food supply in the last century. Its contribution to the socio-economic development of the countries is evidenced by the volume of trade involved and provision of employment for significant portion of rural and urban populace. However, there has been persistent global concern on the risks of street food to the health of consumers because of the attitudes of practitioners throughout the chain. This review summarizes the findings of studies on awareness and perceptions of street food consumers to the hazards involved in street food, and their willingness to pay (WTP) premium for safety intervention. The major limitation to WTP is the extra cost that could result from the implementation of reports of WTP studies which could disenfranchise those consumers that may not be able to afford the premium. This review, therefore, recommends the formulation and enforcement of appropriate public policies that would cover the entire chain of street food vending for the safety of everybody along the chain and the protection of the health of the consumers.

Introduction

The street food sector has witnessed significant expansion in developing countries due to rapid urbanization and increasing number of women being used outside the home. Its time-saving and convenience availability makes it appeal to fast growing and industrialized societies where dwellers have little or no time for home cooking (Alimi *et al.*, 2014). Street food refers to ready-to-eat foods eaten by mass consumers that are sold in the streets and public places and normally consumed with mild or no further processing (Ekanem, 1998). Street food vending is prevalent in developing countries, most especially Latin America, Asia and Africa. It belongs to an informal food supply sector characterized with highly unregulated practices (Akinbode *et al.*, 2011).

The global concern for the safety of the consumers of street-vended foods has led to several research efforts to determine the hygiene of the preparation and vending as well as the hazards associated with consumption of street-vended foods (Bryan *et al.*, 1988; Ekanem, 1998; Mensah *et al.*, 2002; WHO, 2002; Muyanja *et al.*, 2011). Some of these studies had shown that these foods and handlers were carriers of food-borne illnesses. Food-borne illnesses were reported to result in substantial cost to the individual and the economy of the country and, therefore, street food safety remains top priority for the public and

governments (Ekanem, 1998) Quality of raw food, mishandling of food and improper hygiene practices by the vendors were implicated in the majority of the outbreak of illnesses related to street foods (King *et al.*, 2000; Akinbode *et al.*, 2011). Improper practices cited include microbial contamination due to cross-contamination of cooked and uncooked foodstuffs, inadequate cooking, improper use of additives presence of natural contaminants like mycotoxins, adulterants and environmental contaminants like dioxins, long holding period (especially overnight) as well as storage and vending at inappropriate temperatures. Muyanja *et al.* (2011) reported that vending is usually done in an unhygienic environment besides gutters and large heap of wastes that provide harborage for insects, rodents and domestic animals around the vending sites.

Street food vendors take their products to the consumers in push-carts, stainless steel or plastic containers and usually display their products in open spaces or make-shift stalls (Ekanem, 1998; Okoli *et al.*, 2005). Basic social facilities like running water, washing facilities, toilets and organized sewage disposal are not usually available at the retail sites (Muyanja *et al.*, 2011). These factors put the health of the consumers at risk of food borne illness (WHO, 2002).

Increasing patronage of street food despite the risks associated with it led to studies to assess the consumers' awareness

on the hazards of street food consumption and their willingness to pay (WTP) a premium for safety intervention that may be proposed to safeguard their health. The information available on WTP studies are mostly product (Akerle *et al.*, 2010; Alimi *et al.*, 2015) or location biased (Akinbode *et al.*, 2011). There is no single document that provides a global summary of the various findings on consumers' awareness and willingness to pay premium for the safety of the street food. This is necessary to appreciate the significance of the street foods to global health system and perception of their consumers. The aims of this review were to analyse studies on consumers' knowledge of the safety of street-vended foods in developing countries and their willingness to pay a premium for the safety intervention proposed in the literature.

Background

Prevalence of street food vending in developing countries and its contribution to the economy

Growing urbanization and industrialization were attributed for the significant surge in street food vending in developing countries (Ekanem, 1998). Street foods meet an important need of the urban population in the developing countries because of their convenient availability and reasonably inexpensive price. It satisfies the socio-economic need of the majority of urban populace in the developing world. They provide essential food services to population groups such as office workers, students, labourers, commuters, industrial workers and city dwellers in places like bus terminals, industrial sites, market places, school compounds, road sides and major street corners (Muyanja *et al.*, 2011). Bryan *et al.* (1988) reported that street vending is a common feature in countries with high unemployment rate, low salaries, limited work opportunities and social programs.

Urban food supply in developing countries is majorly driven by highly unregulated informal sector (Akinbode *et al.*, 2011). Street food vending makes up about 74% of the total food supply in the developing countries (Ekanem, 1998). Besides being a source of income for women and men, it also satisfies important attribute of fast-food business by offering convenient and ready-to eat foods at relatively cheap prices. It has tremendous capacity to improve the lifestyle, nutrition and food security among urban populations in the developing countries (Akinbode *et al.*, 2011). The regularity and consistency of street food consumption makes street food an important potential vehicle for micronutrient fortification to take care of 'hidden hunger' among rural and urban dwellers in the developing countries (Draper, 1996).

Contributions of street food vending to the economy of developing countries is not well appreciated because of the informal nature of the enterprise. There is little or no reliable official statistics on the volume of trade, employment and income generation of the enterprises. Street food trade is a multi-million dollars venture involving large volumes of business that provides a competitive source of employment and income to millions of people. For example, Dawson and Canet (1991) reported that there were approximately 100 000 vendors in Malaysia with collective annual volume of sales amount to over \$2 billion (USD).

Safety and health hazards associated with street foods

Illness of food-borne origin remains an important public health concern the world over (WHO, 2002). Food-related diseases outbreaks are most prevalent in developing countries due to mishandling of food during preparation, vending and storage as well as the attitude of vendors and consumers to hygiene practices. The majority of illnesses/diseases occurring in the developing countries are of water and food-borne origin. WHO (2002) reported water and food diarrheal diseases to be the leading causes of illness and death killing approximately 2.2 million people annually in developing countries. The figure for casualty could be greater than this because of the lack of official statistics on the incidence of food related diseases outbreak (Ekanem, 1998).

Studies had shown the presence of a high level of spoilage and pathogenic microorganisms in street foods from some developing countries of Africa and Asia. These lend credence to the implication of street-vended foods in the outbreak of gastrointestinal diseases and food borne illnesses like cholera, acute diarrhea and typhoid fever (Mensah *et al.*, 2002).

Aside the linkage of street food consumption with gastrointestinal and other diseases, presence of intestinal parasites of health significance had been reported in consumers and vendors of street foods. Ayeh-kumi *et al.* (2009) reported the presence of parasitic infection in the stools of 21% of 204 food vendors from seven metropolitan areas of Accra, Ghana. Some of the identified parasites such as *Cryptosporidium parvum*; *Giardia lamblia*, *Entamoeba histolytica* and *Ascaris lumbricoides* have been linked with water and food borne diseases such as diarrhea (Stanley and Reed, 2001). The presence of parasites was also reported from street foods from Kenya (Nyarango *et al.*, 2008), Ethiopia (Andargie *et al.*, 2008) and Nigeria (Idowu and Rowland, 2006). The report of Idowu and Rowland (2006) was more alarming due to the fact that more parasites were found on food vendors involved in child care activities.

The major route of parasitic infections is through fecal-oral transmission. Human-infective parasites or their eggs and cysts can be ingested directly through the consumption of contaminated foods or through percutaneous transmission (Adenusi *et al.*, 2015). The resistant capability of these parasites and their spores was described as a major threat to the attendant diseases control (Idowu and Rowland, 2006).

Diseases outbreaks are the most visible aspect of much broader street food safety problems. Intoxications linked to consumption of mycotoxins infested foods have been reported (Wagacha and Muthomi, 2008). Street foods especially snacks in developing countries are prone to mycotoxins contamination because of their sources (legume and cereal) and prevailing favourable climates of high temperatures and relative humidity. The ability of mycotoxins to contaminate food along the entire food chain and their high thermal stability poses great threat to the safety of street foods (Wagacha and Muthomi, 2008). Presence of mycotoxins beyond WHO allowable limits of detection (2.0 µg/Kg) and quantification (7.0 µg/Kg) have been detected in some street foods in developing countries (Mensah *et al.*, 2002; Sultan and Magan, 2010; Ezekiel *et al.*, 2013).

Mycotoxins are described as silent killers because the effects of their ingestion will not manifest from onset until serious

damages have been done to the health of infected persons. The consequences include kidney and liver failure, brain and neural disorders and death. The debilitating long-term complications of food-borne diseases include reactive arthritis and paralysis (Wagacha and Muthomi, 2008). Unborn and lactating babies are not spared from the hazards of mycotoxins (Proietti *et al.*, 2014).

Some foods have natural components that predispose human health to such risks as impaired food utilization, gastrointestinal and neural disorder and reduced growth rate among others. The undesirable components include high levels of nitrates in green-leaf vegetables (EFSA, 2010), marine biotoxin (Hungerford, 2005) and anti-nutritional factors such as solanine in potato (Soetan and Oyewole, 2009), tannins, saponins, phytic acid and mineral binding substances in cereals and legumes especially sorghum and soya bean (Proietti *et al.*, 2014). Presence of these components in cereals and legumes, which are the major ingredients of local snacks in developing world, predispose the consumers to major health challenge when not properly cooked.

Display of game meat for sale is also a common feature on the major streets of West Africa (King *et al.*, 2000). Lack of statutory requirements for general inspection of game carcasses before sale and facilities for the diagnosis of important zoonoses at the abattoir level expose consumers to major health risks (King *et al.*, 2000; Okoli *et al.*, 2005). An outbreak of Ebola in West Africa was linked with handling and consumption of Chimpanzee (*Pan troglodytes* spp.) (King *et al.*, 2000). Anthrax, bovine tuberculosis, brucellosis, Q fever, toxoplasmosis, leptospirosis, trichinellosis and taeniasis are some of the diseases that might be transmitted with consumption of un-inspected meat from domestic animals and wildlife populations (Mwenye *et al.*, 1996).

To preserve and improve the appearance of their products, some street food vendors use non-food grade additives. This is a common practice among vendors of fried meat and chicken parts in Nigeria. Proietti *et al.* (2014) reported detection of additives such as textile colouring agents in some street foods, snacks and soft drinks in Indonesia. Johnson and Yawson (2000) reported that vendors of *waakiye* (food made with rice and beans in Accra, Ghana) used colouring agents during preparation to give it brown colour. Unknown to these vendors, some of these additives could have detrimental effect on human health. Benzoic acid (a preservative with irritating properties) and tetradifon (neurotoxic organic phosphate) used as an insecticide were detected in some street foods in Bangkok (Vatanasuchart, 1994). Johnson and Yawson (2000) reported the presence of residual chlorpyrifos, one of the most toxic organophosphates which may trigger thyroid and neuro-endocrine dysfunction (Tait *et al.*, 2009), in 70% of street foods tested in Accra, Ghana.

Presence of heavy metals beyond allowable limits had been reported in some street foods. High level of lead was detected in smoked-fish sample for sale in a Nigerian market by Adekunle and Akinyemi (2004). Tomlins and Johnson (2004) reported heavy presence of arsenic (As), cadmium (Cd), copper (Cu), lead (Pb) and mercury (Hg) in street-food samples from Accra, Ghana. High concentration of heavy metals above World Health Organization (WHO) recommended limits were also detected in some street food samples in Indonesia (Simopoulos and Bath, 2000), Egypt (Dogheim *et al.*, 2004) and Sudan (Elfaki *et al.*, 2011). Long-term consumption of some of

these metals may pose serious health risks to humans (McLaughlin *et al.*, 1999; Proietti *et al.*, 2014).

Food safety awareness

Food safety awareness among consumers of street-vended foods

Concerns for the health of consumers who are the major risk bearers of street foods in developing countries prompted several research efforts to gauge their awareness on its safety. It had been posited that consumers' awareness on the safety of food would dictate their attitude towards its consumption (Akinbode *et al.*, 2011). The attitudinal disposition of the consumers would be the main driver of quality and safety standards of the food (Lagerkvist *et al.*, 2013).

Reports on the level of consumers' awareness of the risks in street foods in the literature varied. The risk or safety concern could be chemical (pesticide residue), health, spoilage/microbial, regulatory or deceptive/ideal situation. Concerns mostly reported for street foods in developing countries were majorly health and spoilage/microbial related (Lues *et al.*, 2006). Most consumers interviewed in the study of Boodhu *et al.* (2008); Benny-Olliviera and Badrie (2007); ranked microbiological hazards as the most serious food hazards.

Most reports in the literature showed that the majority of consumers of street foods were not aware of health risks of its consumption. Ezekiel *et al.* (2013) reported that the majority of consumers (85%) of peanut cake in Nigeria were not aware of the risk of aflatoxin contamination of peanut cake. This was corroborated by the findings of Alimi *et al.* (2015), Akinbode *et al.* (2011) and Benkerroum (2013) that consumers of *fura de nunu*, street foods in Nigeria and traditional foods of North African countries, respectively, thought that the foods were safe for consumption. Rheinländer *et al.* (2008) were of the opinion that the trust consumers had in the vendors over the time which was mostly driven by the culinary prowess of the vendors and gustatory properties of the food, coupled with convenient availability most often becloud them from noticing inherent threats in street foods. In a study conducted in the Caribbean, Jackson *et al.* (2003) revealed that consumers did not attribute certain illnesses to being food borne due to vendors' negligence of safety practices but possibly due to other factors such as indigestion or their own actions. Misperception of food safety issues would imply error of judgment which could prevent them from changing food safety related behaviours (Unusan, 2007). However, Benny-Olliviera and Badrie (2006) reported that a significant 95.7% of 'doubles' (a popular street food in Trinidad) consumers interviewed were aware of health risks of its consumption. Most of the consumers interviewed by Akerele *et al.* (2010) in Nigeria and Odwin and Badrie (2008) in Barbados and Trinidad (West Indies) were also aware of safety threats of street food consumption.

Perception of consumers to safety of street foods

Awareness of street food safety issues could shape the consumers' perception of the safety practices which would in-turn influence the choice of eating place (Ezekiel *et al.*, 2013).

Generality of opinion was that food taken outside of the home harbors more risks than those at home (Odwin and Badrie, 2008). Most reports in the literature identified outward hygienic environment as the major safety index used by consumers to establish whether the eating places would provide safe or unsafe foods. Owusu-Sekyere *et al.* (2014) reported that food safety incidents were perceived by beef consumers in Ghana to be as a result of unhygienic environment. This was corroborated by Akinbode *et al.* (2011) that street food consumers in Nigeria hinged their decision to buy or not to buy from particular selling points on the cleanliness of physical surrounding of the selling points. Other street food safety concerns mentioned in the literature were the appearance of food handlers, packaging and the temperature of the foods which was related to doneness (Badrie *et al.*, 2004).

Rheinländer *et al.* (2008) reported that consumers often used social and normative notions to describe their perceptions of the safety of street food. Perception of physical appearance of vending environment was verbalized as 'neatness' while vendor's appearance was verbalized as 'neat' and 'orderly' which means being a tidy person.

Factors influencing consumer food safety awareness

Level of education, income, knowledge of food safety and age mostly influence awareness of food safety. Street foods are mostly patronized by people with low level of education and income. Highly educated people are more conscious of what they eat and where they get their foods. Studies had shown that level of education influence information seeking behaviour of consumers and positively affect their food safety awareness (Ezekiel *et al.*, 2013; Alimi *et al.*, 2015).

Age of the consumers affects their disposition to safety threats of street foods. The majority of street food consumers reported in the literature were in 18 to 35-years old age bracket. This shows that youths eat more out of home than other population groups (Alimi *et al.*, 2015). This is expected as they are in active productive age. It is thought that the pressure of their occupations could prevent them from eating at home thereby resorting to patronize convenient eating outlets (Akerle *et al.*, 2010). Sanlier (2009) reported that food safety knowledge and awareness were higher in adult consumers than in the youth, i.e. awareness increases with age. This was corroborated by Unusan (2007) and Owusu-Sekyere *et al.* (2014). This implied that youths are the most vulnerable group to the risks inherent in street foods. Therefore, any effort to create awareness on the safety of street foods should consider ways to reach out to this group of population.

There are divergent reports on the influence of gender on food safety awareness. Findings of Unusan (2007) and Sanlier (2009) that gender had significant influence on consumers' food safety awareness in Turkey was in contrast to the report of Badrie *et al.* (2006) which stated that gender had no influence ($P > 0.05$) on food safety awareness of consumers in Trinidad. It should also be pointed out that while Unusan (2007) reported that more male respondents had higher scores on food safety awareness than females; Sanlier (2009) report was to the contrary. The differences are understandable as surveillance

systems and methodology used are not the same (Buzby and Roberts, 2009). However, the popular opinion in the literature is that majority of street food consumers are men (Akerle *et al.*, 2010; Akinbode *et al.*, 2011; Alimi *et al.*, 2015).

Sources of information on food safety risks

Ezekiel *et al.* (2013) reported that 54% of the respondents who were aware of the risk of aflatoxin contamination received the information from medical counsel at health centers or seminars, while 19% got the information through mass media. In a survey on the knowledge of risk of aflatoxin ingestion among health workers in Ibadan, Nigeria, Ilesanmi and Ilesanmi (2011) reported that 80.6% of respondents were aware of the risk of aflatoxin ingestion. This finding placed health workers at the vantage position for dissemination of information on apparent risk of aflatoxin ingestion. However, Badrie *et al.* (2006) reported that mass media, most especially television (70%) and newspapers (54.5%), were the major sources of information on food safety awareness in Trinidad, West Indies. This supported the earlier view of Jackson *et al.* (2003) that information on food safety would get to the majority of Caribbean consumers if disseminated through education programs on television and radio. Therefore, the approach for the dissemination of food safety information should be geographical/location specific.

Consumer awareness of incidence of illnesses associated with street-vended foods

The significance of hazards posed by street food consumption cannot be fully appreciated due to the lack of official data on the incidence of illnesses associated with its consumption in developing countries (Alimi *et al.*, 2015). It is not mandatory in most developing countries to report occurrence of food-borne illnesses to appropriate agencies (Sanlier, 2009). Lack of surveillance program and near-absence/non-implementation of food safety laws in most developing countries further exposed unknowing consumers to the risk of street food consumption. There are reports of association of disease outbreak with street food consumption (Ekanem, 1998). Mensah *et al.* (2002) linked outbreak of diarrhea in Ghana to street foods. About 8.6% of hospitalized patients in Southeastern Nigeria had *Taenia* eggs in their stools (Onah and Chiejina, 1995).

Consumers in Trinidad associated 15.4% of food-borne illnesses to street foods and 7.1% to take-away restaurant foods (Odwin and Badrie, 2008). In a survey conducted by Badrie *et al.* (2006) 55% of the respondents felt food poisoning would most likely occur at restaurants.

Most vulnerable population groups to street food hazards

Reports from studies showed that none of the population groups is free from hazards of street foods. However, young adult within 19 to 36-years age bracket (Akerle *et al.*, 2010) representing active productive and reproductive class of the population are the most vulnerable to the hazards of food safety. The average age reported for *fura de nunu* (a popular street food in West African sub-region) consumers by Alimi *et al.* (2015) was 32.9 years, while the mean age for peanut

cake consumers reported by Ezekiel *et al.* (2013) was 24 years. Akinbode *et al.* (2011) found that the majority of street food consumers (87.5%) were less than 31 years old and were mostly engaged in informal economic activities such as commercial bus driving, commercial motorcycle riding and petty trading.

Willingness to pay for safety of street foods

Studies on the willingness of consumers to pay for safety of street food in developing countries are scarce. Reports on the willingness of consumers to pay for the safety of street foods are expected to provide information and give insight on the awareness, attitude and disposition of consumers to street food safety treats and their decisions. The scanty studies downplay the importance of consumers' attitude to make purchasing decision based on their knowledge or awareness of street food safety concerns. The awareness of health problems would guide the judgment of consumers on the level of risk involved in their former eating habits and whether or not to change their behaviour (Wilcock *et al.*, 2004). The knowledge of willingness of consumers to pay (WTP) for safety intervention would give insight into the disposition implies a good knowledge of negative impact of street foods on the health of consumer. A well-conducted willingness to pay study would guide concerned parties to respond to fears of consumers on street food safety and formulate policies appropriately.

Few studies available on willingness to pay for safety of street foods used quantitative techniques to provide empirical data on factors that may influence concerns of consumers and guide their behaviour. In a study on consumer WTP for safer vegetables in urban markets of developing countries, Lagerkvist *et al.* (2013) revealed that the major determinants of WTP premium for food safety across major urban fresh vegetable market categories in Kale, Nairobi, Kenya were market segment-specific. Type of market outlet was found to be the major criterion splitting WTP into two subsets of roadside and open-air markets on one side and supermarket and specialist shops on the other side. Having university education or not was the most important criterion for purchase intention in roadside and open-air markets, while the risk perception relating to heavy metal contamination was the most significant determinant of WTP for supermarkets and specialist shops subset.

Owusu-Sekyere *et al.* (2014) also reported substantial preference heterogeneity in relating WTP for beef safety quality assurance labels by consumers in the cities of Kumasi and Sunyani in Ghana. Food safety issues of preference to consumers were certification of animal health status through stamp from veterinary officers, food safety inspection and certification label from food and drugs board department, nutritional label of the beef products and price of the product. All the studied safety preferences had significant influence ($P < 0.001$) on willingness of consumers to pay premium in both cities. However, consumers in the two cities gave highest WTP intention for verified animal health status which was influenced by age, income and education in Sunyani municipality, and age, income, education and gender in Kumasi metropolis. Other WTP studies on street foods in developing countries also iden-

tified the aforementioned as the most important demographic factors affecting willingness of consumers to pay premium for safety of street foods which was premised on their personal health concerns (Akerele *et al.*, 2010; Akinbode *et al.*, 2011; Alimi *et al.*, 2015). While age, income and education had positive correlation with WTP in these studies, it was negative with gender. The studies showed that women were more willing to protect their health as well as that of their household. However, Lagerkvist *et al.* (2013) reported that WTP premium for safety of fresh vegetables was largely unrelated to income at high end urban markets in developing countries.

Safety intervention

In view of the important role street food vending is playing in the economy of the developing countries, it has been argued that it is not advisable to ban it out right but the safety concerns associated with it should be addressed to prevent outbreak of diseases and illnesses. This review identified safety perception as the major driver of attitude and behaviour of street food consumers to safety which in-turn dictate the purchase intent and WTP premium for safety intervention. The safety perceptions identified in the studies showed that the task of ensuring safety of street foods in developing countries requires multi-faceted approach. The tasks of ensuring safety of street foods would involve working on the attitude of vendors towards preparing and handling safe food in a hygienic environment, raising the awareness of consumers on food safety issues and formulating policies and acts that are regional/location specific to give strength to safety approaches recommended.

Conclusions

Willingness to pay study provides a good baseline to assess the acceptance of safety intervention for street foods and offering suggestions to policy makers and regulating agencies on robust safety intervention strategies that are acceptable to the consumers (Lagerkvist *et al.*, 2013; Alimi *et al.*, 2015). The major strength of WTP study is that it provide baseline information base on the socio-economic characteristics of the consumers. Differences existed on the determinant factors that shaped the perception of consumers on safety issues and the premises for purchase intention among the studies. The differences in the determinant factors are expected as there could be differences in the prevailing demographic and socio-economic factors, culture, preferences and experience among the studied communities (Wilcock *et al.*, 2004). Also, differences in methodology and surveillance systems used by the studies could be responsible (Buzby and Roberts, 2009).

Willingness to pay was identified as one of the strategies to ensure safety of safety of street foods to the consumers. However, the added cost that would result from implementation of reports of WTP which could disenfranchise those consumers that could not afford the extra cost.

This review also identified general low level of awareness of the safety of street foods among consumers in developing countries which limit their perception of safety concerns. Raising the awareness of consumers through education with the use of reach out programs such as workshops, seminars and

disseminating information on mass media was proposed in literature (Griffith *et al.*, 1995; Badrie *et al.*, 2006; Ilesanmi and Ilesanmi, 2011; Ezekiel *et al.*, 2013; Alimi *et al.*, 2015). Encouraging the formation of consumers driven safety awareness and protection organizations as suggested by Ekanem (1998) would ensure effective dissemination of information and make their voice heard on matters concerning them. The use of hygiene education base on health education concept to promote food safety awareness among consumers with active involvement of professionals in food and health related disciplines as advocated by Griffith *et al.* (1995) would enhance effectiveness of food safety intervention.

Above all, development of appropriate public policies that would address all the facets of street food vending from raw-materials through the hygiene of the vendors and the vending environment to the retail street foods should be developed. Properly developed and enforced policies would ensure the safety of all along the chain and protect the health of final consumers.

Scanty literature on WTP a premium for safety on street food vending could be a major limitation to the development of global baseline for safety intervention. Therefore, there is need for more proactive research and surveillance programs to assess the awareness of consumers and hear their views and inputs on safety concerns and approach to be adopted for safe street food vending across developing countries.

Acknowledgement

The J. W. Nelson funded postdoctoral award given to Dr. Buliyaminu Adegbemiro Alimi by the College of Agriculture, Engineering and Science, University of KwaZulu-Natal, Pietermaritzburg, South Africa is gratefully acknowledged.

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