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Student Research

Impact of health education intervention on food safety and hygiene of street vendors: A pilot study



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ABSTRACT

Background: Street foods are major source of food to millions of people. However, these are frequently associated with food-borne illnesses. It is imperative that street food vendors are educated to maintain hygiene and hence safety of food. With this background, a pilot study was undertaken to assess the impact of health education intervention on food safety and hygiene of street vendors. The aim of this study was to assess impact of health education intervention on food safety of street vendors.

Methods: It was a before and after study conducted in twenty street vendors of an urban area. Tool based on Bureau of Indian Standards (BIS) 2012 was prepared with scoring system to rate hygiene and sanitation of street vendors (score 0–156). Health education was given to all and scores of these vendors on same tool were reassessed after four weeks.

Results: Mean age of the study subjects was 35 ± 13.2 years. Highest score attained in BIS tool for food safety was 104 out of 156 (66.6%). No vendor was found to have achieved excellent score. Reasons for poor score were poor condition of vending cart, location, lack personal hygiene and incorrect and unsafe food handling practices. After intervention, it was observed that there was no significant improvement in overall score of vendors. However, scores in domains of personal habits, hygiene and food handling practices improved significantly after intervention ($p < 0.05$).

Conclusion: The street vendors do not meet required standards given by BIS for food safety. Health education alone can only partly improve food safety practices of street vendors.

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Introduction

Street food is consumed each day by an estimated 2.5 billion people around the world owing to its virtue of easy availability and economic nature.¹ Nearly two thirds (74%) of the member states of World Health Organization (WHO) have reported street vended food to be a significant part of their urban food supply.² Street foods are commonly sold in low and middle income countries and the type of food varies according to the socioeconomic status of buyers and food habits of the residents. India being a developing country and a large population in urban region is transient, street vendors not only play a major role in providing food for the transient and working population but also serve as a source of livelihood for these vendors.

Street food is defined as the food supplied by the vendors for immediate consumption or later use without further processing or preparation.³ Street food, by definition, is sold in busy public areas like pavements, school premises, beaches, rail and bus stations on a stand, cart or kiosk.⁴ The socioeconomic role of the street food sector in terms of its potential for employment creation, and provision of food at affordable cost to lower income groups in the cities has been documented.⁵

Street vendors selling food are often poor, uneducated and untrained. They are often ignorant about food hygiene, which are the conditions and measures necessary to ensure the safety of food from production to consumption. Lack of adequate food hygiene can lead to food-borne illnesses due to improper food handling practices and in extreme events, even death of customer.⁶ All cases of food borne diseases (FBD) are not reported or documented; however, FBD Burden Epidemiology Reference Group (FERG) of WHO reported an estimated 582 million cases of 22 different enteric FBDs and 351,000 associated deaths at global level. African countries recorded highest FBD burden followed by South East Asian Region.⁶ In India, National Centre for Disease Control under Integrated Disease Surveillance Programme (IDSP) reported more than 200 food poisoning outbreaks till 36th week of 2015 and this is the second highest cause of alerts/outbreaks of diseases consecutively for last 4 years.⁷

Focusing on the challenges of food safety at all levels WHO dedicated the World Health Day theme "From farm to plate, make food safe" on 7th April 2015.⁸ To ensure the protection of people against hazard of unsafe food, various stake holders have a role to play, viz. food handlers, food business operators (FBO), consumers, policy makers and the govt. In this context, Food Safety and Standards Authority of India (FSSAI), an agency of the Ministry of Health and Family Welfare, Government of India, was established under the Food Safety and Standards Act (FSSA, 2006) in 2008.⁹ The functions of FSSAI are to lay down the food safety standards and guidelines, provide technical advice to Central Govt. and state govt. on policy making and conduct training programmes for the people involved in food business. It also aims to promote general awareness about food safety and food standards. It focuses on food safety on the entire food chain. Another agency which plays a vital role in this regard is Bureau of Indian Standards (BIS) which has recently developed Indian standards for food safety of street vendors in India.¹⁰

Considering these facts, a study was conducted to assess the conformance of street vendors to BIS for food safety and hygiene practices. Street food vendors were educated about food safety and hygiene practices by one to one counselling and the impact of this intervention was assessed.

Materials and methods

It was a before and after study conducted in twenty street vendors of an urban slum Wanowrie, Pune which has a total population of about 18,000. The street food vendors in the area were identified. There were about 70 street food vendors in the area. The current study is a pilot study for which the minimum sample size required is 10% of the parent study. The sample size calculated with 50% assumed prevalence of satisfactory food safety practices by street vendors, 10% error of margin and 5% level of significance for the parent study comes out to be 97. So a minimum sample of 10 was adequate for the study. However, a sample of 20 was taken. Vendors above the age of 18 yrs and those who consented to participate were included. Food vendors with a permanent stall were excluded from the study. The vendors who qualified the criteria were numbered and sample was drawn by computer generated random number table. The total duration of study was four months. BIS guidelines for street vendors were converted into a score based questionnaire (score 0-156). This tool comprised of 12 domains, namely raw material, transportation, reception and storage of inputs, vending location, vending cart, utensils and cutting tools, hygienic practices, personal hygiene and habits, food preparation, cooking, handling and serving of food, disposal of waste, pest control and training on food safety. There were no ethical issues in the study. Each vendor was visited at least three times at different times to inspect the cart and study all the processes in detail and thereafter given a baseline score under each domain and its sub-domains. Data on socio-demographic profile were also obtained. The overall baseline score was also calculated for each vendor. Health education intervention was carried out in two phases. In the first phase, two sessions of one to one counselling tailor made to suit requirements of each vendor were held for 30 min, each by the principal investigator. In second phase, laminated posters in Hindi on do's and don'ts of food safety were displayed. Endline data were collected on same tool after 4 weeks interval. SPSS 20 (IBM Statistics) was used for data analysis.

Results

The mean age of the study subjects was 35 ± 13.2 years. Half of them were migrants from states of UP and Bihar. The mean working experience of these vendors was 7.1 ± 2 yrs. None of them was illiterate. Majority (60%) of the vendors were educated till Xth standard and 2 were graduates. Their average income per day was $\text{Rs } 287.5 \pm 150$. Nearly half of them (45%) were addicted to tobacco and 10% consumed alcohol. Only 2 of them had received training before.

The highest score attained in BIS tool for food safety was 104 out of a maximum of 156 (66.6%). The mean baseline score

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