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Original Article

A microbial study on water used by street food vendors and microbial flora found on their hands, in a densely populated urban area of Vadodara, Gujarat

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ABSTRACT

Introduction: Street vended food is not only appreciated for their unique flavours, convenience and the role which they play in the cultural and social heritage of societies, it also becomes important and essential for maintaining nutritional status of populations.

Method: Vendors were chosen randomly for obtaining various samples. Samples were taken after informed consent. Sterile swabs were used to collect sample from the palms, fingers and area between fingers from both the hands of the individuals preparing or contacting the food. Water samples were collected in sterile containers using aseptic precautions. Samples were inoculated on suitable culture media and subjected for identification after obtaining growth.

Result: Total of 14 water samples and 28 swabs were collected from 14 different street vendors. Average of 1100 cfu/ml of water sample was isolated. Organisms isolated from water samples were Pseudomonas spp. E coli and Klebsiella. From the swabs taken from both the hands, major organism isolated was Coagulase negative staphylococci followed by Staphylococcus aureus and E coli.

Conclusion: Quality of food offered by street vendors directly affects the health of a person and population in general. Our study shows poor quality of hand hygiene maintained by street vendors as well as poor quality of water used for preparation of food, which may affect quality of food provided.

Keywords: food quality, hand hygiene

INTRODUCTION

Street food, which has become a sort of cultural phenomenon and identity of the specific area it comes from, owing to the mass globalization brought upon by the internet, which has lead to overwhelming increase in the popularity and appeal of such “on demand” foods.

Food borne illness is a major international health problem and an important cause of reduced economic growth.[1]

Relatively large proportion of ready to eat food is sold in streets in developing countries.[2] India, being a developing country accounts for both the explosive increase in people eating street food and unsatisfactory conditions

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regarding said food.

Street vended food is not only appreciated for their unique flavors, convenience and the role which they play in the cultural and social heritage of societies, it also becomes important and essential for maintaining nutritional status of populations.[3]

Street foods are ready-to-eat (RTE) foods and beverages prepared on the street and sold along the streets by vendors and hawkers or prepared at home, transported from home and consumed on the streets without further processing.

These foods are now popular in the developing countries due to economic changes, population growth and urbanization. However, there are a number of factors that can result in food borne diseases; these may include failure to cook food thoroughly, holding food at ambient temperature optimal for bacterial growth, poor handling, storage and transportation of cooked foods, lack of hygienic practices, among others.

The water used in preparing such food often comes from unreliable sources and/or storages. Similarly unnoticed is the importance of the hand hygiene of the vendors who prepare, handle and dispense such foods, which obviously plays a huge role in the contamination and the resulting community acquired infections.

Hence, these two huge and neglected contributors in the epidemiology of street food borne diseases are chosen in this study, and henceforth all discussion has been concentrated on these topics.

Aim

To Assess hand hygiene of street vendors and Quality of water used for preparation of food by street vendors

Objectives

1. To collect samples of water used by street food vendors
2. To collect swabs from the hands of the vendors
3. To isolate and identify microorganisms found in the samples.

METHODOLOGY

Study design: This study was a cross sectional study assessing quality of hand hygiene and water used for preparing food by street vendors.

Study population:

Adult street vendors and/or personnel in food stalls of street foods including chaats (panipuri, bhel, puff and related foods), vendors operations on lorries and vendor selling water-based foodstuffs.

Inclusion criteria:

Vendors present in the area and giving informed consent for collection of sample.

Exclusion criteria:

Vendors not giving informed consent for collection of sample.

The confidentiality of the records of all the participants has been maintained.

Ethical consideration:

The study was commenced only after getting approval from Institutional Ethics Committee.

Sample collection and processing:

A specific area with suitable number of street food vendors was selected in a densely populated urban part of the city. Vendors were chosen randomly for obtaining various samples. Vendors were explained the purpose of the study and its implications. Samples were taken after informed consent. Sterile swabs were used to collect sample from the palms, fingers and area between fingers from the individuals preparing or contacting the food. Water samples from containers used to store water for food preparation were collected in sterile containers using aseptic precautions. The samples were transported to the Clinical Microbiology laboratory under aseptic condition.