"Study on Assessment of Food Safety and Hygiene Practices among Street Food Vendors in West Delhi"

A dissertation submitted in partial fulfillment of the requirements
For the award of

Post Graduate Diploma in Health and Hospital Management

By

Chander Pal Thakur

International Institute of Health Management Research

New Delhi

April, 2011

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Under the guidance of

Dr. Seema Zutshi Kaul,
Associate Director- Client Solutions,
ORG Centre for Social Research,
The Nielsen Company

Dr. Nitish Dogra,
Assistant Professor,
IIHMR, New Delhi

International Institute of Health Management Research

New Delhi

April, 2011

Certificate of Internship Completion

Date:……..

TO WHOM IT MAY CONCERN

This is to certify that Mr. /Ms. /Dr._____ has successfully completed his internship in our organization from February, 2011 to April, 2011. During this intern he has worked on …….....**.....**
…….

under the guidance of me and my team at ORG CSR at The Nielsen Company.

(Signature)

_____ (Name)

_____ (Designation)

Certificate of Approval

The following dissertation titled **"Study on Assessment of Food Safety and Hygiene Practices among Street Food Vendors in West Delhi"** is hereby approved as certified study in management carried out and presented in a manner satisfactory to warrant its acceptance as a prerequisite for the award of **Post Graduate Diploma in Health and Hospital Management** for which it has been submitted. It is understood that by this approval the under signed do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

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Certificate from Dissertation Advisory Committee

This is to certify that Mr. **Chander Pal Thakur,** a participant of **Post Graduate Diploma in Health and Hospital Management,** worked under our guidance and supervision. He is submitting this dissertation titled **"Study on Assessment of Food Safety and Hygiene Practices among Street Food Vendors in West Delhi"** in partial fulfillment of the requirements for the award of the **Post Graduate Diploma in Health and Hospital Management.**

This dissertation has the requisite standard and to best of our knowledge and no part of it has been reproduced from any other dissertation, monograph, report or book.

Dr. Nitish Dogra,
Assistant Professor,
IIHMR, New Delhi,

Dr. Seema Zutshi Kaul,
Associate Director- Client Solutions,
ORG Centre for Social Research,
The Nielsen Company

Abstract

"Study on Assessment of Food Safety and Hygiene Practices among Street Food Vendors in West Delhi"

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A study was done to assess food safety and hygiene practices among street food vendors in West Delhi. Practices and hygiene status of 100 street food vendors were studied by questionnaire based findings and observations of vending site. Data was entered and analyzed with the help of MS- excel.

Major Findings: It was found that majority of the respondents (33 %) were in the age group of 25+ years i.e. 25 to 34 years and 24 % were illiterate. Around 36 % of the vendors were permanent resident of Delhi and from rest of the respondents 55 % were from Uttar Pradesh only. Ninety percent (90 %) of the vendors were operating full time and 40 % were earning than Rs. 10,000 and above per month. None of the respondents were registered or licensed. Seventy percent were disposing garbage in open lid bins and 16 % were throwing it on the road. With regard to personal hygiene, only 3 % of the vendors were using hand gloves and from rest of the respondents only 2 % were washing hands before and after handling raw or cooked food. Majority of respondents (72 %) had short clean nails and few (4 %) had open wounds present. While observing for the environmental conditions, presence of flies/ mosquitoes was observed in 45 % of the vending sites. Sixty one percent (61 %) of the vendors were using DDA water for drinking and 19 % were washing utensils in open only.

Recommendations: There is need of generating awareness among street vendors and WHO's five keys to safety should be incorporated. Another recommendation can be to implement the policies effectively and proper interventions.

Acknowledgement

I owe a great many thanks to a great many people who helped and supported me in completion of this dissertation. It is an esteemed pleasure to present this study, and I whole heartedly thank each and everyone who helped me in completion of this task.

It is always inspiring to work in a sector which is not much explored and these three months of my internship at ORG Centre for Social Research (The Nielsen Company) were enriching. I sincerely thank **ORG Centre for Social research** for providing me with a golden opportunity to learn from the organization and complete my internship.

I am heartily thankful to my advisor at ORG CSR**, Dr. Seema Zutshi Kaul** for guiding and correcting me through out different phases of the study. She has taken pain to go through the project and make necessary changes as and when needed. I thank and appreciate **Mr. Mukesh Chawla**, ORG CSR for his guidance and support.

I would like to express my sincere thanks to **Dr. Nitish Dogra**, Assistant Professor, IIHMR New Delhi, whose encouragement, supervision and support from the preliminary to the concluding level enabled me to develop an understanding of the topic and hence complete my study. I pay sincere regards to **Dr Sandeep Bhalla**, Ex. Associate Professor at IIHMR, New Delhi for his continuous guidance and support. I sincerely thank **IIHMR, New Delhi** as whole to provide me opportunity to work in health research sector.

Lastly, I offer my regards to my family, friends for their love and support and also to all those who supported and participated in any respect during the completion of the project.

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Abbreviations

CBO	Community Based Organization
FAO	Food and Agricultural Organization
IEC	Information Education Communication
NASVI	National Association of Street Vendors
NGO	Non Government Organization
NDMC	New Delhi Municipal Corporation
WHO	World Health Organization

PART I

Internship Report

Organization Profile

ORG Centre for Social Research
(A Division of the Nielsen Company)

ORG-MARG is part of the Nielsen network of companies in over 100 countries and **ORG Centre for Social Research** is the social research division of The Nielsen Company.

The ORG CSR Advantage

The advantage that ORG CSR has over all its domestic competitors is that apart from having an ISO 9002 certification for data management, it is simply the largest multi-disciplinary research organization in India in terms of manpower and field network, as well as being the one of the oldest.

ORG (Operations Research Group) was set up nearly four decades ago by Dr. Vikram Sarabhai and had notched up an impressive array of projects, emerging in the process as a leading agency for development research and policy planning. Four enterprising research professionals had created MARG in 1983, quickly established it as among the largest agencies in India. These two

entities, known as the erstwhile ORG_-MARG, were formed in 1995. Today, as ORG CSR, the company is uniquely placed to leverage its leadership status in three of our functional divisions, viz. retail measurement services (where Nielsen is the final word across over 100 countries), customized market research and social research, with free movement of professionals and knowledge across the three division based on client specific needs.

The breadth and depth of ORG CSR's infrastructure and services in India and South Asia are unparalleled. The company operates through many different information 'windows' – consumer and retail; quantitative and qualitative; syndicated and customized (client-specific) data; one-off, periodic and continuous studies.

The ORG Centre for Social Research operates through 10 fully equipped branch offices and field offices in 150 locations spread across the length and breadth of India. ORG CSR accounts for just over half the total number of people employed in the market research industry in South Asia. This formidable size and infrastructure means, quite simply, just one thing to our clients: *better information than is available anywhere else.*

Wide-ranging skills: Professionals with ORG CSR include specialists in the areas of social sciences, economics, demography, statistics, urban development, transportation, engineering, agricultural and natural science, planning, energy and environment, anthropology, industrial and chemical engineering, marketing, management, communications and computer applications.

Research Methodology: One of the important strengths of ORG CSR is its continuous concern and endeavour towards development of appropriate research designs and methodologies to study and explore particular dimensions of human behaviour, environment, social change, marketing practices and media trends... Working with a variety of methodologies, the attempt is to ensure that the final research design and outcome is a holistic one. The specific areas where ORG CSR has made a pioneering contribution are retail store audit, readership studies, social and techno-economic evaluation, new product launches, welfare and environmental impact studies, systems studies in urban development and water resources and communications strategy development, education studies, family planning and energy surveys, crop surveys and forecasting and opinion polls.

Types of Services: ORG CSR Private Limited offers services in almost all fields of development planning and management - from the conceptualisation of projects, programmes and strategies to final implementation... Today ORG CSR functions as a premier centre for consumer and development studies offering a wide spectrum of services – retail measurements, consumer research, industrial market research, media tracking, social research, environmental research and behavioural and attitudinal research.

Besides being an independent evaluating agency, ORG CSR serves as a source for policy ideas and specialised expertise. Senior professionals of the company are associated with several high level working committees, expert groups and study teams on issues of significance at various levels.

Survey research requires the generation of primary data, with larger studies calling for nation-wide surveys. At ORG CSR, these are met by drawing upon the skills of survey methodology as well as on the experience of the permanent field staff, spread over the entire nation. We are credited with introducing original survey research methodologies appropriate to the Indian environment over three decades ago.

The main strength of the organization is its array of professionals with multi-disciplinary expertise, including sociology, anthropology, economics, demography, population sciences, statistics, nutrition, education, geography, agriculture, psychology, urban/regional planning, rural development, agricultural, natural resource management, energy, forestry, environment, management, rural marketing and bio sciences.

1. Sectoral expertise

Over the years, ORG CSR has developed expertise in survey methodologies in the following sectors:

- Health, AIDS, Nutrition and Family Planning
- Population and Development
- Education
- Social Security and Welfare

- Gender Issues
- Income Generation and Rural Development
- Social Communication
- Environment and Natural Resource Management
- Micro Planning and Enterprise Development

2. Research methodology

Our research methods involve specially developed techniques in areas such as:

- Quantitative research
- Qualitative research
- Participatory Rural Appraisal
- Participatory / micro planning

Considering its expertise in social systems research, ORG CSR is recognized as one of the WHO/ICMR collaborative centers and we have set up the Sexual Health Resource Centre (SHRC) for DFID, in India. It is also actively assisting other nodal national and international agencies like DNES, NDDB, IDRS, UNICEF, SIDA, CIDA, ILO, USAID, The World Bank, DFID/ODA, WFP, UNDP, etc.

3. Wide range of studies

ORG CSR is the largest multi-disciplinary social research unit in the sub-continent, both in terms of staff strength as well as in terms of areas of operations. The range of assignments undertaken over period has helped us to develop competencies in a variety of types of studies across key development sectors.

Nature of work experience in HEALTH AND FAMILY WELFARE

- Behavioural Surveillance Surveys
- National behavioural survey among general population and high-risk groups
- KABP studies on HIV/AIDS/STIs and condom usage

- Monitoring and evaluation studies on national AIDS programmes
- Economic aspects of chronic diseases
- Evaluation of targeted intervention programmes
- Advocacy studies on STD/HIV/AIDS prevention in school programmes
- Establishment and running of Sexual Health Resource Centre (SHRC)
- Studies on communication needs assessment
- Mapping of High Risk Group populations
- All India Family Planning Surveys
- National Family Health Surveys
- Studies on rural and urban health infrastructure
- Reproductive and Child Health facility surveys
- Studies on safe motherhood, child survival and immunization
- Social marketing of condoms
- Evaluation of national programmes on blindness, tuberculosis and diabetics
- Studies on People Living With HIV/AIDS
- Implementation of zinc supplementation programme
- Development and establishment of Computerised management Information System (CMIS) for National AIDS Control Organisation
- Studies on health financing
- Training needs assessment of health functionaries
- Accessibility surveys of health and family welfare services

Nature of work experience in RURAL DEVELOPMENT

- Evaluation of government programmes
- Concurrent monitoring of programmes of Ministry of Rural Development
- Socio-economic impact assessment of programmatic interventions
- Poverty assessment, profiling and micro planning studies
- Techno-economic feasibility of income generating activities
- Institutional capacity assessment

- Beneficiary need assessment and communication need assessment for programme design
- Situation analysis and benchmark surveys for formative research
- Social audits through participatory rural appraisal and Quantitative Participatory Appraisals
- Vulnerability assessment and food security mapping
- Preparation of area development plans
- Assessment of micro finance activities and grading of Self Help Groups
- Market assessment, trade research and demand estimation for sub-sector development
- Consumer satisfaction surveys
- Computerised MIS design for physical and financial performance monitoring
- Evaluation of Panchayati Raj

Nature of work experience in WATER SUPPLY AND SANITATION

- Performance evaluation of water supply and sanitation projects
- Baseline surveys for project design
- Water tariff designing based on WTP measurements for WATSAN services
- Evaluation studies on community based Operations & Maintenance of water supply infrastructure
- Water demand assessment studies
- Technical audits of WATSAN projects
- Techno-economic feasibility on water conservation and surface runoff harvesting methods
- Socio-economic surveys of consumers
- Institutional development and capacity building studies
- MIS design for project monitoring
- Action research and demonstration projects (Indira Gandhi Nahar Project)

Nature of work experience in EDUCATION

- Impact assessment and cost benefit analysis of innovative programmes like Lok Jumbish and Akalavya
- Evaluation of District Primary Education Program
- NGO evaluation studies
- Evaluation of Total Literacy Campaign, Post – Literacy Campaign, Continuing education and Non – formal Education
- Dropout measurements through cohort analysis
- Learner achievement tests for assessing Minimum Levels of Learning
- Cluster evaluation of key education indicators
- Mid-day meal programme assessment
- Evaluation of Operations Blackboard programme
- Studies in design of pedagogy and usage of communication equipment
- Development of Education MIS
- Impact assessment and design of vocational education programmes
- Situation analysis of girl child seeking education
- Terminal assessment surveys

Nature of work experience in WOMEN AND CHILD DEVELOPMENT

- Work pattern of women and impact on health and nutrition
- Changing role of women and impact on demographic behaviour
- Estimation of female labour force
- Communication Needs Assessments for Integrated Child Development Scheme (ICDS)
- Evaluation of pulse polio
- Cost effective therapeutic supplementation of ICDS
- Micronutrient fortification studies
- Situation analysis of child labour in various industries
- Population socialization among adolescents
- Multi Indicator Cluster Surveys

Scope of Work during Training:

At ORG CSR I was placed as a Project Trainee during internship period of 3 months from February 2011 to April 2011. This allowed me to gain an insight into the research sector. My training at ORG CSR helped me in understanding various aspects of health and social care research.

Work Allocated:

- Data Interpretation
- Analysis Plan
- Report Writing
- Attending Training of Trainers
- Questionnaire formatting
- Report Designing
- Field Work

Involvement with the Projects:

- A baseline Research for India, Nepal and Bangladesh- Emphasis- Study for Care Nepal
- Labour Demand study in Carpet Industry- Study for Macro International
- KAP study on Polio and RI- Round 2- Study for UNICEF, India

Reflective Learning:

- Understanding different aspects of Health Care Research
- Understanding of specific information and research needs in public sector
- Report writing skills
- Survey designing
- Team work and co ordination of work
- Understanding components of field briefing and training of trainers

PART II

Dissertation on

"Assessment of Food Safety and Hygiene Practices among Street Food Vendors in West Delhi"

Chapter 1 Introduction

India is one of the world's major food producer, only second to the largest food producer i.e. China. It has the potential of being the biggest with food and agricultural sector. In the middle of global slowdown, food industry has maintained a positive growth, growing to 13.7 percent from levels of 6.7 percent in 2004- 05. (Mc Kinsey and Company)

According to the India Food Report 2008 prepared by leading markets data provider, Research and Markets, the Indian food industry was estimated at over $182 billion, accounting for about two-thirds of the country's total retail sector. This market is expected to grow to $300 billion by 2015 and to $344 billion by 2025. The 'India Food Report 2008', reveals that *the total amount of investments in the food processing sector in the pipeline for the next three years is about US$ 23 billion.*[1]

The major portion of this food processing segment (90%) is still unorganized (Finjovian Advisory Services). Rapid transformation in the lifestyle of Indians, particularly those living in urban India, has resulted in dramatic increase in the demand for processed food. The main reason why processed food is more in demand in urban area because it gives an option against standing in kitchen for long hours to get food to eat. Growth in working women's population and prevalence of nuclear families with double income are other trends causing this change in the lifestyle of Indians. Urban sector attracts a large number of people for employment opportunities and this result in settlement in outer areas of cities and developments of sub- urbs and which consequently leads to growing informal sector. The term "informal sector" has been widely applied to describe loosely organized and often non-enumerated economic activities in the rapidly growing cities of the developing world. Informal sector may be defined *as economy that is not taxed, monitored by Government or included in any gross national product, unlike formal sector*.

As India is fast growing developing country, it also faces this problem of heavy migration from rural to urban areas in search of employment. This has forced many changes in the food habits of the people. Increasing population demands labor force and thus increased non- organized sector. As such, there has been a surge in such activities; **Street Food Vending** is one among these

activities. Mainly in metropolitan cities, street vended food has become an integral part of the urban life and culture.

According to National Policy on Urban Street Vendors, 2004, a **Street Vendor** *is broadly defined as a person who offers goods for sale to the public without having a permanent built up structure but with a temporary static structure or mobile stall (or head load). Street vendors may be stationary by occupying space on the pavements or other public/private areas, or may be mobile in the sense that they move from place to place carrying their wares on push carts or in cycles or baskets on their heads, or may sell their wares in moving trains, bus etc.*[2]

Due to vast number of vendors, which is growing day by day, it is difficult to control or keep a check on facilities provided by them and also to keep a track of services and facilities they are getting from the government side. To solve this problem, many steps have been taken in this concern. One of them is formation of National Association of Street Vendors (NASVI). NASVI was registered in 2003 under societies registration act, 1860 *to bring together the street vendor organizations in India so as to collectively struggle for macro-level changes which had become imminent to support the livelihood of around 10 million vendors which stand severely threatened due to outdated laws and changing policies, practices and attitudes of the powers that be. It is a coalition of Trade Unions, Community Based Organizations (CBOs), Non Government Organizations (NGOs) and professionals. Government of India has also taken various steps to ensure fair delivery of services to the street vendor.* [2] Many policies and bills have been framed like:

- National Policy on Urban Street Vendors- 2004
- National Policy on Urban Street Vendors- 2009
- Model Street Vendors (Protection of Livelihood and regulation of street vending) Bill 2009
- Policies and Gazette orders of various states like- Andhra Pradesh, Madhya Pradesh, Uttar Pradesh, Maharashtra and Rajasthan.

The Food and Agricultural Organization (FAO) of the United Nations defines **Street Foods** as *ready-to-eat foods and beverages prepared and/or sold by vendors and hawkers especially in streets and other similar public place.* [3]

Street foods are appreciated for the taste, flavor they offer at low, affordable price to the general population. Vendors prepare food at home and sell or they prepare food at the site of selling only. In India, variety of ready to eat food is available through street food vendors. This generally includes Chinese fast food, paranthas, puri bhaji, bhature and kulche apart from light snacks like tea, biscuits, mathi, fan etc. This is the major source of income for the vendors and consumers get instant, tasty and cheap food in return. Urbanization has led to migration and hence more nuclear families or bachelors staying away from families for employment. These people prefer street foods over cooking themselves their meals.

Rationale of the Study:

Delhi being the capital city of India has a large number of migration populations from other states of India in search of employment. This results in long working hours, less money and less time to prepare food themselves. Also, odd working hours and availability of street foods all round the clock make street foods more favorable for working population. On the other hand, people take street vending as profession because of lack of skills. Majority of vendors are unskilled people and they prefer street vending as profession because this takes less skill, low investment and easy income. Most of the vendors in metropolitan cities are those who were in good paying jobs in formal sectors but due to closure of industries they faced large scale unemployment and hence took vending as profession.[4]

This study tried to gain an insight about the hygiene practices followed by street food vendors and safety practices followed as they serve a large number of people by serving food. According **WHO (1989)**, *food handling personnel play important role in ensuring food safety throughout the chain of food production and storage. Mishandling and disregard of hygienic measures on the part of the street vendors may enable pathogenic bacteria to come into contact with and in*

some cases survive and multiply in sufficient numbers to cause illness in the consumer. About 82% of people of all age groups prefer to go to street vendors against 18% only who prefer to go to restaurants in the evening. 61% of the students in age group of 14- 21 years consume foods from the street vendors in the at least once during the lunch break. Food quality or taste of food has an overriding effect above all other considerations.[5]

So the study tried to highlight the practices followed by vendors in West Delhi and also to gain insight on food safety and hygiene status of food they sell. Street food vendors, being an unorganized sector, with very poor social profile, fail to receive health services when they fall sick. They are deprived of IEC services regarding personal and food hygiene. Study also tried to assess the services provided to these vendors by government and support and facilities they get under various acts and bills framed for them.

Review of Literature:

- No article of food should contain any containment, naturally occurring toxic substances or toxins or hormones or heavy metals in excess of such quantities as may be specified by regulations. The food authority and state food safety authorities shall monitor and verify that relevant requirements of law are fulfilled by food business operators at all stages of food business. The food safety officer may take a sample of any food or any substance which appears to him to be intended for sale, or to have been sold for human consumption. The food safety officer may enter and inspect any place where article of food is manufactured, or stored for sale, or stored for manufacture of any other article.[6]

- According **WHO (1989)**, food handling personnel play important role in ensuring food safety throughout the chain of food production and storage. Mishandling and disregard of hygienic measures on the part of the street vendors may enable pathogenic bacteria to come into contact with and in some cases survive and multiply in sufficient numbers to cause illness in the consumer

- In India, the number of street vendors increased after the economic liberalization policy was initiated in 1991. The traditional industrial cities, such as Mumbai, Ahmedabad and Kolkata saw a decline in the formal sector as large factories closed down and started outsourcing to the small scale industries. A section of the workers in the formal sector, or their wives, took to street vending after they lost their jobs. The goods sold by street vendors are usually consumed by those in the informal sector, as they are cheap. In fact we have a situation where one section of the urban poor (street vendors) helps the other sections of the urban poor by providing them low priced goods and by marketing their products.[4]

- Majority of vendors did not wash hands before preparation of food, had unkempt nails and did not wash utensils before reuse. There is a felt need for generating awareness regarding personal and food hygiene among the vendors, and a system for regular health examination of the vendors.[7]

- About 82% of people of all age groups prefer to go to street vendors against 18% only who prefer to go to restaurants in the evening. 61% of the students in age group of 14- 21 years consume foods from the street vendors in the at least once during the lunch break. Food quality or taste of food has an overriding effect above all other considerations.[5]

- A study in Africa highlighted the increasing prevalence of the eaten away home and the use of partly or fully cooked food.[8]

- Most of the vendors who sold both raw and cooked food items were not regulated; they operated haphazardly without any monitoring of what they prepared and how they prepared it.[8]

- Studies by **FAO** recorded poor knowledge, practices in food handling in the assessment of microbial contamination of food sold by vendors.[3, 9]

- There are no legal reasons for preventing hawking. In fact in 1989 the Supreme Court gave a major judgment regarding this issue (Sodhan Singh vs. NDMC). It ruled that every individual has the right to earn a livelihood as a fundamental right. Hawking is thus a fundamental right provided its does not infringe on the rights of others. Recognition of hawking as a profession would also benefit the municipalities. They would be able to officially enforce levies on hawkers. For example, in Imphal, which is perhaps the only place where hawkers are included in the urban plan, the municipality not only provides space for them but also charges a fee for garbage collection and sweeping, besides collecting license fees.[10]

- A study in one African city, for example, found that 98% of the street vendors had faecal contamination on their hands and food, a situation that is likely to be the same for food vendors in other cities and villages. In part, this is because the street vendors have little or no access to safe water supplies or sanitation facilities, and they commonly cook and handle food with dirty hands. Raw foodstuffs, too, cannot be kept in safe storage places and are easily contaminated by vermin and insects. Moreover, the street vendors often keep cooked food at ambient (environmental) temperatures for prolonged periods of time and may heat the food only slightly before serving. All these factors may make the food from street vendors dangerous.[11]

Outline of the report

As background of the study is discussed in the introduction, further report is outlined as follows from chapter 2 to 5.

Chapter 2 Research Methodology

Chapter 3 Results and Findings

Chapter 4 Discussion

Chapter 5 Conclusion and Recommendations

Chapter 6 References

Chapter 2 Research Methodology

Research Objectives:

In view of the scope of the study, objectives of the study were defined as:

General Objective:

- To assess food safety and hygiene practices among street food vendors

Specific Objectives:

- To examine hygiene status of street food vendors.
- To observe the use of water and waste disposal practices among the street food vendors.
- To assess the environmental conditions around the place of selling street food

Study Design:

A quantitative and qualitative methodology was adopted to address the broad as well as specific objectives. The study completed is community based cross- sectional study. A questionnaire based study was done to address the objectives. Questions were directly addressed to the respondents and also observation based responses were noted down. Data collection was done with the help of questionnaires and output was generated. Findings were documented to assess the hygiene status and practices followed by the street vendors in West Delhi.

Sample Population:

The study was conducted in West Delhi Zone of Delhi state. This included areas like Najafgarh (Rural Population), Rajouri garden and Janakpuri (Commercial Sector) and Dwarka sub city (Residential Area) A representative sample was contacted for the study. In view of the objectives to be covered, street food vendors were contacted and data was collected by pre- tested questionnaires. A sample size of 100 respondents was covered by convenient sampling from various locations of three sections mentioned above from West Delhi Zone of Delhi state.

Data Collection:

All eligible respondents were contacted for the survey at different locations in West Delhi and structured questionnaires were used to gather the information. Target respondents were identified as following:

- Street food vendors who prepare food at home and sell it at one place. E.g. Roti Sabji, Rice Dal, Samosa, Pakora etc.

- Street food vendors who prepare food at site of selling only. E.g. Paranthas, Chinese fast food etc.

- Street food vendors who sell raw but modified food. E.g. Fruit Chat, Bhel Puri etc.

Data Analysis:

The data was entered in MS- Excel sheets and data analysis was carried out with the help of MS-Excel. As soon as the data collection was over, data was checked for its completeness, correctness and consistency and excel sheet was filled up and checked accordingly.

Chapter 3 Results and Findings

This chapter includes findings from the field research and the analysis done on the data collected from the field. The results and findings are further discussed under sub headings. While designing the study general and specific objectives were defined. There was one broad objective of the study and three specific objectives, which were defining the general objective. This chapter includes all the tabulated and text descriptions obtained in the study.

Data was collected from the field and sample size of 100 was covered from different locations of West Delhi. Data was entered in MS- Excel and analysis was done and tables and graphs were generated with the help of the same.

Results and Findings

General objectives were achieved by analyzing specific objectives differently. In this chapter, all findings and results will be discussed under sub headings. Respondents were street food vendors who were vending at the time of interview. While collecting information, questionnaire was divided into following four sub sections:

- Socio- Demographic Profile
- Vending Details
- Personal Hygiene
- Environment and Surroundings

Results and findings will be discussed under these four sections only in this chapter.

Socio- Demographic Profile:

Majority of the respondents (33 %) were in the age group of 25+ years i.e. 25 to 34 years. In the age groups, i.e. below 15 years and above 45 years, less percentage of vendors were observed, only 02 % and 06 % respectively. Very few respondents were females and majority of the vendors were male (97%). (Table-1)

VARIABLES	RESPONDENTS
Age	
Below 15 years	02 %
15+ years	07 %
20+ years	22 %
25+ years	33 %
35+ years	30 %
45+ years	06 %
Gender	
Male	97 %
Female	03 %
Religion	
Hindu	93 %
Muslim	03 %
Sikh	04 %
Education	
Never been to school	24 %
Primary	42 %
Metric	34 %
Marital Status	
Married	71 %
Un married	29 %

Table 1: Distribution of socio- demographic and other characteristics of the respondents (n= 100)

Ninety three percent of respondents were interviewed and Muslim and Sikhs were only 03 % and 04 % respectively. This brings to notice that majority of the vendors were Hindu. Out of the total respondents, 42 % of the vendors had achieved primary level of education while 24 % were illiterate. None of the vendors attained education more than matriculation level but 34% of the vendors had completed metric level education. Seventy one percent (71%) of the vendors were married as compared to 29 % who were unmarried.

Permanent Residency

As study was conducted in Delhi and literature review has shown migration as one of the major factor behind booming of street food vending. Information was collected about the permanent residence of the respondents. Around 64 % of the respondents were not permanent resident of the Delhi. They had migrated from the other states of India like, Uttar Pradesh, Bihar, Madhya Pradesh and also West Bengal. Few vendors have migrated from Nepal also.

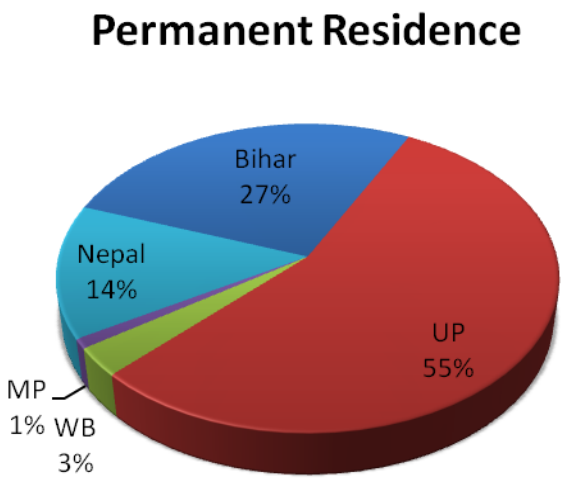


Figure 1: State/Country of Permanent Residence of Vendors

Out of 64 % of respondents who are not permanent residents of Delhi, majority of vendors have migrated from Uttar Pradesh (55 %). After Uttar Pradesh, Bihar has contributed more in terms of migration. Twenty seven percent (27 %) of vendors are from Bihar and 14 % have migrated from neighboring country Nepal. (Figure 1)

After taking information about duration of their stay in Delhi (those who have migrated from outside), 25 % of the migrated respondents were staying in Delhi for less than 5 years. Whereas, 7 % of them were in Delhi for more than 20 years, 19 % reported their stay in Delhi between 10-20 years.

Vending Operation and Income Generated

In 95 % of the responses, vending operation was described as full time vending. Rest 5 % of the vendors were vending as part time along with their other source of income. On asking about the number of people involved from family in vending, 85 % of the respondents were the only members from the family who was involved in vending the street food. (Table 2)

Type of Vending Carried Out by Vendors	**Percentage (%)**
Full time	95 %
Part Time	05 %
Number of People From Family	
One	85 %
Two	10 %
Three	05 %
Monthly Income (In Rupees)	
1000- 3000	06 %
3000- 5000	26 %
5000- 10000	28 %
10000 and above	40 %

Table 2: Vending Operation and Income Generated (n= 100)

Income generated by most of the vendors was in the range of Rs. 10000 and above. Forty percent (40%) of the vendors reported Rs. 10,000 and above as their monthly income. Next big percentage share in monthly income generation was 28 % vendors, who were earning Rs. 5000-10000 in a month. Small chunk of total respondents (06 %) was able to earn between Rs. 1000-3000 in a month. In the findings it was seen that vendors who were vending part time reported their income in the lower ranges. Full time vendors reported their monthly income in the higher ranges, except for few percent of respondents (02 %) who said that they were earning between Rs. 1000- 3000 in a month.

Vending Details:

This section discusses about the various details about the vending operation carried out in West Delhi. This includes information about the type of business run by vendors, type of food, utensils, garbage disposal etc.

Type of Vending

All the respondents interviewed were having stationary type of vending. None of the respondent was doing street food vending as mobile vending. Hundred percent (100 %) vendors were having permanent place of vending at a specified location. They were not involved in carrying out vending by moving from one place to another on head or any push cart.

Registration and Supervision

On asking about whether vendors were registered with any society/body/ association, 85 % of the vendors responded that they were not registered or licensed vendors. Rest 15 % of the respondent said that they did not want to tell or comment about their registration or license status. None of the respondent mentioned that they were registered or licensed with any society/ body or association. (Figure 2)

Figure 2: Status of Registration/ Licensing of Vendors

None of the respondents reported that they were visited by any authority. Hundred percent (100 %) of the respondents reported that they were not regularly visited or supervised by authorities.

Although most of the respondents stated that they were not regularly visited by any authority for any supervision or for solving their problems, but they had to pay money regularly every month to municipal officials and even policemen to ensure that they run their business smoothly without any license or registration. Most of the vendors were ready to obtain license or get registered if it was being provided to them through easy, hassle free procedures.

Type of Food Served By Vendors

Street foods served throughout West Delhi included variety of foods including Indian and Chinese fast foods. Majority of vended food was observed to be- Roti Sabji, Naan, Chhole Bhature, Kulche, Gol Gappe, Chaat, Momo, Chowmein and many Non vegetarian snack items like kabab, roll, keema and tikka. Among the vendors studied, 19 % prepared food at home and then brought it to the vending site. About fifty nine (59 %) percent vendors cooked vended food at vending site while, 19 % were engaged in preparing food at both home and vending site. (Figure 3)

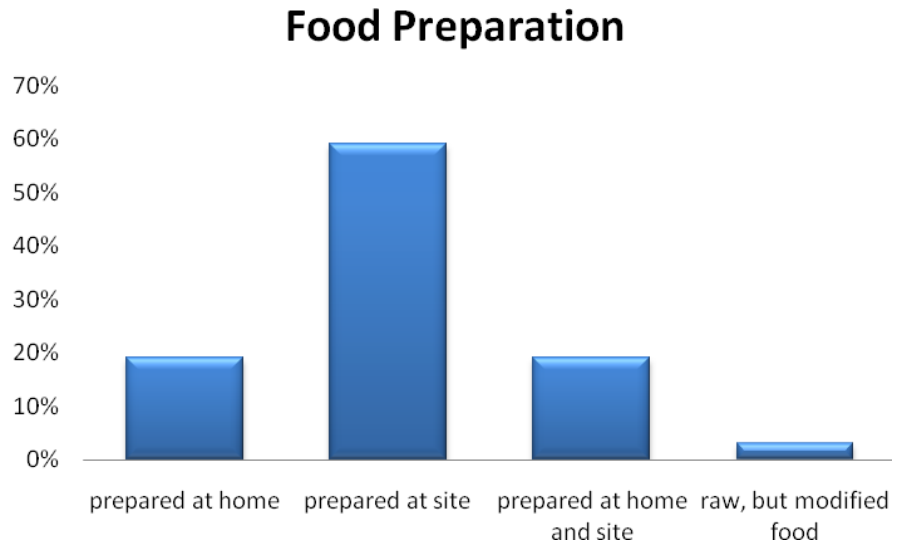


Figure 3: Food Preparation (n= 100)

Vendors reported time duration from 30 minutes to 5 hours between preparation of food at home and then serving at site. Majority of respondents were serving food within two hours of preparation of food at home. On enquiring about the addition of any artificial colors or additives or sweeteners, 13 % of the vendors told that they were using artificial colors or additives. Sixty three percent of the respondents were using same utensils for cooking, heating and serving the cooked food. It was not applicable in 2 % of the vendors as they were selling raw but modified food, and 35 % of the vendors used separate utensils for the purpose of cooking, heating and serving the food.

Plates used for serving food and Water for cleaning plates

Questions were asked about type of plates used to serve the food and also about the type of the water used to clean the plates wherever applicable. Metal plates were used by 37 % of the vendors to serve the food while 57 % of the respondents served food in paper or disposable plates to the customers.

Variable	Status	Percentage
Type of Plates Used To Serve Food To The Customers	Metal Plates	37 %
	Plastic Plates	06 %
	Paper/ Disposable plates	57 %
Kind of Water Used For Cleaning The Utensils	Soapy Water	36 %
	Clean Water	07 %
	NA(paper/ disposable)	57 %
Disposal of Garbage	Open Lid Bin	72 %
	Closed Lid Bin	11 %
	On Road	16 %
	In Polythene Bags	01 %

Table 3: Practices Regarding Usage of Utensils and Water Use among Vendors (n= 100)

Responding to kind of water used to clean the utensils, 36 % of the vendors said that they use soapy water to clean the utensils. Seven percent (7 %) of the respondents reported using clean water to clean the utensils, where as 57 % of the vendors were not applicable for this response as they were using paper or disposable plates for serving the food to customers (Table 3).

Disposal of Garbage

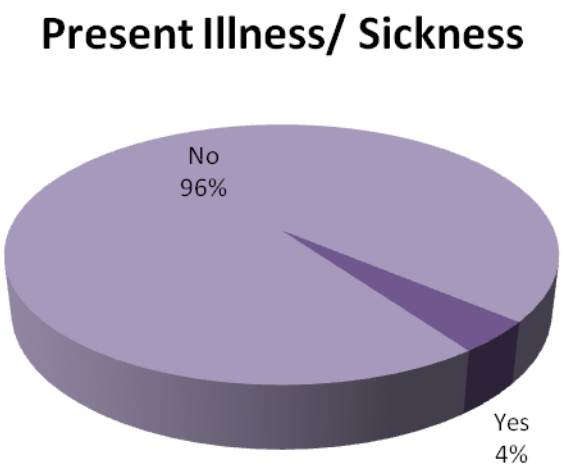
In context to disposal of garbage, majority (72 %) of the vendors used open lid bins for disposal of garbage. Only 11 % of the respondents told that they were using closed lid bin and 16 % reported that they were throwing their garbage openly on the road. Only 01 % of the vendors were using polythene bags for disposing their garbage. (Table 3)

Personal Hygiene:

Present Illness suffered by vendors and Utilization of Health Services

Enquiry was made about any present suffering or illness. Also in addition information about utilization of health services was taken in case of any sickness or illness. Four percent (4 %) reported that they were suffering from any illness at the time of interview, though these were small illnesses like, fever and cough.

Figure 4: Status of present sickness/ Illness among vendors (n= 100)



On asking about utilization of health services by the presently sick vendors, only one vendor out of four sick went to private facility for the treatment. Rest three vendors were having treatment at home only and they did not visit any health facility or any doctor.

Hygiene Observation

Personal hygiene status and hygiene behavior of the vendor was observed by the interviewer and findings were recorded. When observing about the use of apron while cooking or dealing with

the cooked food, only 2 % (n= 2) were observed using an apron. In context of usage of hand gloves while cooking, serving of cooked or raw food, 97 % of the vendors under study were not wearing hand gloves. Only 3 % of the vendors were using hand gloves while dealing with the raw or cooked food.

Observed Hygiene Practices	**Status**	**Percentage**
Use of Apron	Yes	02 %
	No	98 %
Use of Hand Gloves	Yes	03%
	No	97 %
Use of Head Cover	Yes	05 %
	No	95 %
Hair of the Vendor	Well	57 %
	combed	26 %
	Un combed	12 %
	Trimmed	05 %
	NA	

Table 4: Hygiene Practices Observed among vendors (n= 100)

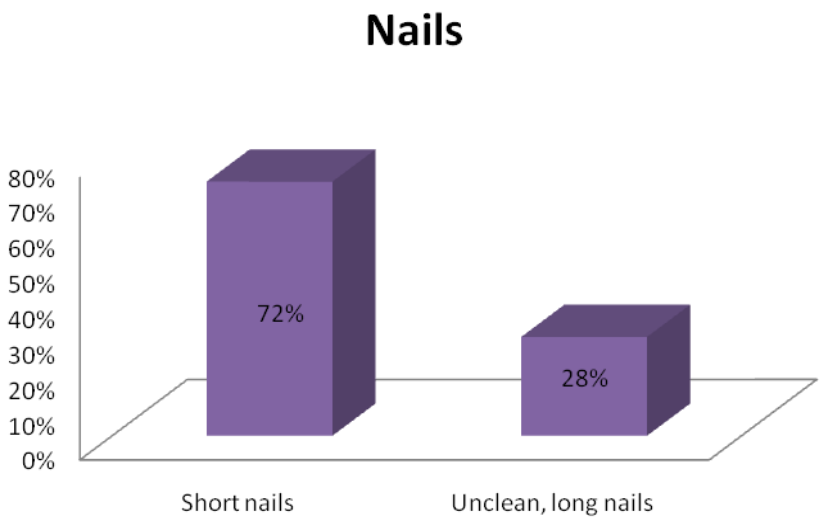
When observed that whether head of the vendors covered their head during handling/ cooking/ serving raw or cooked food, it was found that in majority of cases (95 %) vendors were not wearing any head cover. Only head of five percent of the vendors was observed to be covered. Condition of hair of the vendors under study could not be observed in 5 % of the vendors, because they were wearing head covers while vending. It was observed that 57 % of the observed vendors were having well combed hair. Only 12 % of the vendors had short, trimmed hair, while 26 % were having uncombed hair.

None of the respondents were observed having running nose, sneezing or other signs of cold and cough. Even those few vendors who were having minor present illnesses, even they were not observed to have running nose. Only two respondents (02 %) were found to wash their hands before and after handling the raw food. None of the rest of the vendors was observed to be engaged in such kind of practice while handling raw or cooked food.

Nails and Wound

A significant proportion (72 %) of the vendors had well- kept, short and clean nails. Twenty eight percent of the vendors were observed to be having long, unclean nails. (Figure 5)

Figure 5: Nail Observation of vendors (n= 100)



On observation, it was seen that 4 % of the observed vendors had open wounds present. None of these observed wounds were covered or properly dressed. These wounds were present on either face of the vendor or on the hands and arms.

Environment and Surroundings:

As a part of study, observation of environmental conditions around the vending site was also done. This section was totally based on the observation of the vending site and its surroundings. Observation was done for various components like site of vending, presence of dust, flies, and stray animals around the site. Observations were done by the interviewer and no information regarding this was taken from the vendors under study

Site of Vending

As a part of observation, site of vending of vendors was observed. Surrounding areas and environmental conditions were observed near by the vending site. Seventy one percent (71 %) of the vending sites were found to be clean i.e. surroundings to that vending site were clean and free of any garbage or open water source or open drain. It was observed that 20 % of the vending sites were near garbage and very few vending sites (7 %) were found to be vending nearby to any open drain. Only 2 % of the vending sites were operating with any open water source present close to the vending site. (Figure 6)

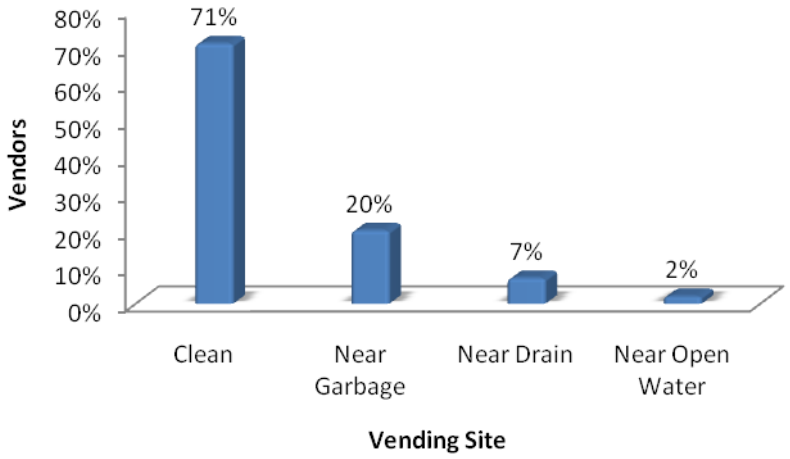


Figure 6: Observation of Vending Site

While observing, it was noticed that only 56 % of the vendors had covered their food which they were vending. At 42 % of the vending sites, food was uncovered and only two percent of the vending sites were using polythene bags to store their food before serving it to the customers.

Environmental Conditions around the Vending Site

The environmental conditions around the vending sites were also observed as a part of the study. While observing, it was noticed that in 45 % of the cases, there was presence of flies and mosquitoes at the vending site, rest were free of flies/ mosquitoes.

Environmental Conditions	Status	Percentage
Presence of Flies/ Mosquitoes	Yes	45 %
	No	55 %

Presence of Dust/ Vehicular Traffic	Yes No	40 % 60 %
Presence of Stray Animals/ Animal Waste	Yes No	13 % 87 %

Table 5: Environmental Conditions around the Vending Sites (n= 100)

At a large proportion (40 %) of the sites observed, there was presence of dust or vehicular traffic around the vending site. But 60 % of the sites observed were free of any dust or any vehicular traffic around the vending site. Thirteen percent (13 %) of the vending sites were having presence of stray animals or animal waste around the site. But majority of sites (87 %) were not having presence of any stray animals or animal waste around the sites. (Table 5)

Drinking Water

On observing drinking water supply, it was found that DDA water supply was the source of drinking water in majority of the cases. Sixty one percent (61 %) of the vendors were using regular DDA water supply as their source of drinking for the customers.

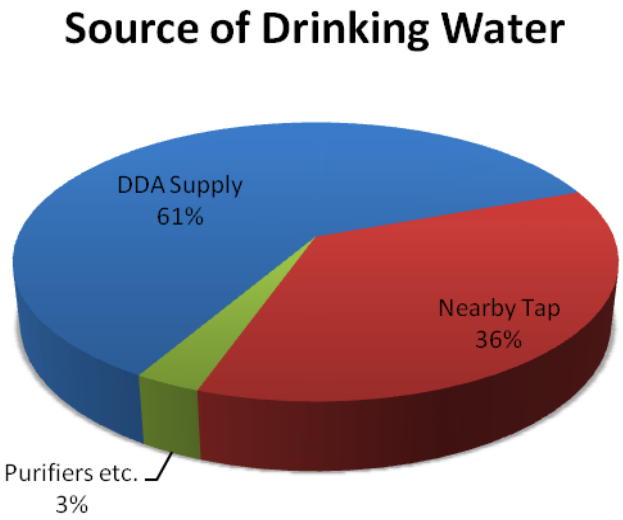


Figure 7: Source of Drinking water (n= 100)

Tap near by the vending site was used by 36 % of the vendors out of the total vendors observed in the study. Only 03 % of the vendors used purifiers/ aqua guards/ filters as their source of drinking water for the customers coming to their vending sites. (Figure 6)

On observing the vending sites for their cleanliness, it was observed that at 39 % of the sites food serving was not clean. Sixty one percent (61 %) of the vending sites had clean location where raw or cooked food was served to the customers.

Cleaning of Utensils

Observations were also made keeping in mind the area where utensils were being cleaned after the use. In 24 % of the cases it was not applicable as they were using paper or disposable plates. Only 02 % of the vendors were using basins for cleaning utensils, rest were either cleaning utensils openly or in a bucket.

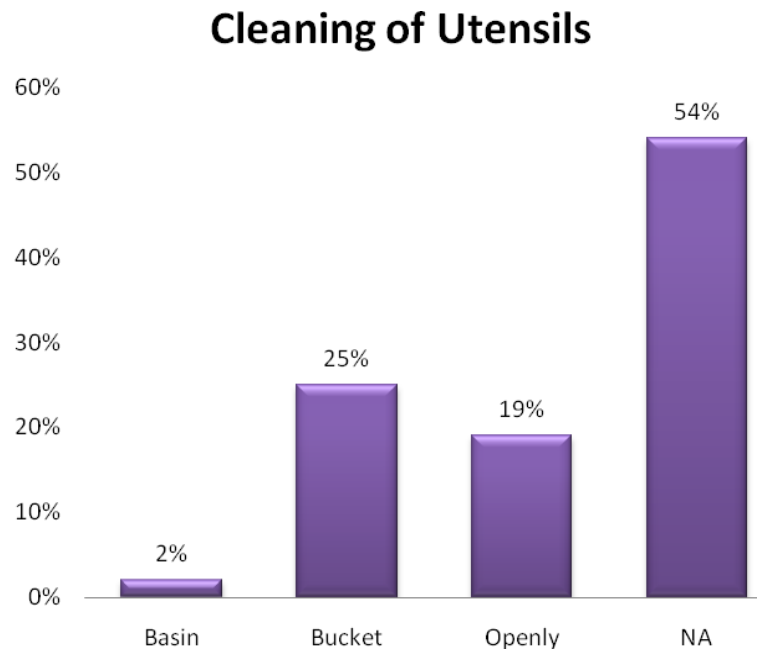


Figure 8: Cleaning of Utensils by vendors

Buckets were used by 25 % of the vendors for cleaning the utensils. It was observed that around 19 % of the vendors were cleaning their utensils in open only. They were not using either buckets or basin. (Figure 7)

Chapter 4 Discussion

Street foods are defined as wide range of ready to eat food which is either prepared at home and sold or sometimes prepared at the site only[12]. This food can be eaten at the same place or can be taken away to home. These foods include variety of items including beverages and raw, but modified food. The persons who sell this type of foods age generally called as street vendors. Street vendor are defined as person engaged in vending of articles, goods, wares, food items or merchandise of everyday use or offering services to general public, in a street, lane, side walk, footpath, pavement, public park or any other public place or private area or from a temporary built up structure or by moving from place to place and includes hawkers, peddler, squatter and all other synonym terms which may be local or region specific. Street foods are of great importance in today's world as it provide cheap, tasty and ready to eat option for people who can't afford much expensive food or who can cook on their own or who look for tasty alternatives now and then.

In a study conducted in Varanasi, various reasons behind decision of having food were discussed and percentage populations were also expressed who were having food at streets. It was found in that study that about 82 % of the people preferred to go to a street vendor at evening time and only 18 % of the population was in favor of going to restaurant at evening time. It was also observed that in age group of 14- 21 years, almost 61 % of the students consumed food at street vendor at least once during lunch time. Above all other considerations, food quality and taste had an overriding effect in decision of place of food.[7]

Many studies were concentrated on the microbiological contamination of food by bacteria, fungi and many other micro organisms, which were contaminating during preparation or storage of food. A few studies have highlighted the food handling practices and hygiene status of street food. On top of that, very limited studies were done in National capital Delhi. Delhi being

national capital and a metropolitan city, there is a need to explore the practices followed by street food vendors in terms of food safety and hygiene. This study was an attempt to do so.

According to the Food Safety and Standards Act, 2006, No article of food should contain any containment, naturally occurring toxic substances or toxins or hormones or heavy metals in excess of such quantities as may be specified by regulations. It is the duty of state food safety authority to monitor this and verify that food safety procedures are being followed by all the food selling businesses. Food safety officer is authorized to take samples of food from the food ventures[6]. In this study, it is found that none of the street food vendor under study was being visited or supervised by any of the food safety authorities or by any health department or MCD employees. In a study conducted by WHO, it was reported that mishandling or disregard on part of vendor regarding hygiene measures can play an important role in spread of pathogenic contamination. This present study found that in 45 % of the cases, flies/ mosquitoes were present at the vending site, 20 % vending sites were near garbage and 13 % of the sites had stray animals/ animal waste around the site.

While comparing with other studies done in other cities, it was found that much lower hygiene practices were found in those studies. In this study, it was revealed that, 72 % of the vendors have short nails, 57 % had well combed hair and 56 % of the vendors covered their food while vending. These results showed marked improvement in these practices being followed in Delhi. Vadodara study has shown a very poor picture in this aspect. In that city, only 5 % of the vendors had short nails[13]. The reasons behind this huge difference can be the factor of being in a metropolitan city, as mentioned in another study being done in East Delhi[7]. It explains that reason behind this difference could be as street vendors in Metropolitan cities are more exposed to health and hygiene related messages.

In this study, it is highlighted that 72 % of the vendors are disposing garbage in open. Similar findings are discovered in Vadodara[13] and East Delhi[7] studies. Similar cases of disposing garbage in open were reported in both the studies. Both the studies showed poor picture of hygienic conditions around the vending sites. Same findings were found in this study. There was presence of dust, presence of flies and animal waste around the vending sites. Hand washing is important and effective way of preventing spread of pathogenic diseases. In this study it is observed that only 2 % of the vendors were washing hands before and after handling food.

Street foods provide variety of foods available to population and it is a medium for integrating rural and urban areas economically. In a study conducted in Varanasi, it was observed that 42 % of working men, 23 % of working women and 61 % of students prefer having street foods [5].

The study conducted in east Delhi, showed various deficiencies and areas of concern regarding the health related practices, health status and potential of infection among street food vendors. This business of street food vending has become necessity of the modern world, therefore there is need to take necessary steps for regularization of this profession. Awareness is less regarding the heath status and health seeking behavior is also not very positive. In this study, it is found that vendors having present illnesses and sickness were not going for treatment at private or government facilities, rather were having treatment at home.

In Varanasi study, it was found that 82 % of the people of all age groups preferred going to a vendor for food against 18 % who did not prefer[5]. In this study also, while asking for reasons from the customers for choosing street food, various reasons stood out. This was not part of formal questionnaire, but general comments were recorded while having informal conversation with the customers.

Some verbatim quotations from customers regarding their preference for street food:

"We eat this food, because its tasty"

"In an ideal environment, everybody is moving, so its good that we get food at cheap price and instantly"

"During family outings, we generally come to this place to have food together"

Chapter 5 Conclusion and Recommendations

Mobile food vending is essential component in sustainable urban development. It includes convenient locations of food vending, low inputs and easy alternatives to jobless people. Food vended is of different flavor, cheap and tasty, which becomes popular among people easily. This study highlighted few points which need to be addressed for better hygiene status and food practices among street food vendors.

Implementation of Street Vending Policy

There have been many steps taken in this front by government like:

- National Policy on Urban Street Vendors- 2004
- National Policy on Urban Street Vendors- 2009
- Model Street Vendors (Protection of Livelihood and regulation of street vending) Bill 2009

But this study highlighted that none of these have been implemented effectively. None of the vendors were registered under any society or body, and they were not having any licensing, which can authorize them to do street vending. Steps should be taken to ensure that there is proper system of authorizing and licensing street vendors.

Interventions

To solve the problems of street vendors, National Association of Street Vendors (NASVI) was registered in 2003 under society's registration act, 1860 to bring together the street vendor organizations in India. NASVI should bring about some changes in the Indian street vending system. This may include regularization of street food vendors, provision of specified locations to street vendors and also low cost kiosks should be made available to the vendors. Up gradation of pavements where vendors are vending and few other services like rubbish disposal and waste management should be incorporated in the Indian vending system.

NASVI should provide a platform where all vendors can come and discuss problems faced by them and then efforts should be made to provide solutions to those problems.

Education

Vendors are often poorly educated and this study also supports that. Vendors lack proper knowledge of food safety and hygiene practices one should follow while vending. Food related illnesses and food borne diseases can be controlled by proper use of food handling techniques. Therefore, training and education of food vendors is a cost effective way of improving incidents of food borne diseases. Many countries are conducting food handling training programmes for street vendors, so taking lessons from them and then those trainings can be tailor made according to the need of Indian scenario.

Adapting the Five Keys to Safer Food to address the street food sector[14]

WHO has developed few measures for street food vendors based on the principles of five keys to safer food. These can be incorporated and taught in Indian scenario. These are:

Key 1: Keep clean

Key 2: Raw and cooked food should be kept separated

Key 3: Destroy hazards when possible

Key 4: Keep micro organism in food from growing

Key 5: Use safe water and raw material.

- Since this sector is unorganized sector, there is a felt need for generating government's initiatives for its development. There is also need of generating food and personal hygiene and ensuring an effective system of regular health examinations of vendors and regular sample collection of food they are serving to the customers.

Limitations of the Study

There are certain limitations in regard to this study. These should be highlighted and addressed in a better way. The limitations felt and suggestive actions are:

1. Perspective of customers consuming food from the vendors was not taken. It can be done in future to highlight few more issues which were not highlighted by conducting study on street vendors.

2. Perspective of government officials was not taken with regard to licensing and regularization of vendors. This can highlight the problems faced by them in implementing the policies and regularizing street vendors.

3. Only stationary vendors were covered. In further researches, mobile vendors can be covered as they also are an important part of street food vending system.

4. Sample of foods were not tested and physical examination of vendors was not done because of lack of resources.

5. Larger sample size can be covered in future as this was not possible in this study because of paucity of time and resources.

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Annexure

Interview Questionnaire for Street Food Vendors

Consent Form

S. No. _ _ _

My name is …… I am a student of IIHMR, New Delhi.

I am conducting a study about the **Food Safety and Hygiene Practices among Street Food Vendors in West Delhi**. I would appreciate your participation in this study. I would like to ask you few questions in this regard. The interview will take about 15 minutes to complete. Whatever information you provide will be kept confidential.

Participation in this study is voluntary and you can choose not to answer any question or all the questions. However, I hope that you will participate in this study since your participation is important to us.

At this time do you want to ask me anything about the survey?

Respondent Agrees to be interviewed begin the interview……Begin interview

If the respondent does not agree to be interviewed ……End

May I begin the interview now?

Location……..

Sub Area…….

Date: ☐☐.☐☐.☐☐☐☐ ……

Signature of the Vendor

SECTION A: Socio Economic and Demographic Profile

Q1. To Q. 25→ Fill questionnaire by Interviewing the vendor

S. no.	Question	Response	Skip to
1.	What is your name?	_____	-
2.	What is your age? (In years)	1. below 15 □ 2. 15- 19 □ 3. 20- 24 □ 4. 25- 34 □ 5. 35- 44 □ 6. 45 and above □	-
3.	Sex of the vendor?	1. Male □ 2. Female □	-
4.	What is your religion?	1. Hindu □ 2. Muslim □ 3. Sikh □ 4. Christian □ 5. Others _____	
5.	What is your marital status?	1. Married □ 2. Un- married □	-
6.	What is your educational status?	1. Illiterate □ 2. Primary Level □ 3. Secondary Level □ 4. Graduation □ 5. Others……	-
7.	Are you a permanent resident of Delhi?	1. Yes □ 2. No □	If 'Yes', skip to '10'

8.	If not a permanent resident of Delhi, then resident of which state?	_____	-
9.	What is the duration of your stay in Delhi?	---- years ----- months	-
10.	Is vending your part time or full time job?	1. part time job □ 2. full time job □	-
11.	What is your monthly family income? (In Rupees)	1. less than 1000 2. 1000- 3000 3. 3000- 5000 4. 5000- 10000 5. 10000 and above	-
12.	How many people of your family are involved in vending?	_____	-

SECTION-B: Vending Details

S. no.	Question	Response	Skip to
13.	What type of vending operation you are carrying out?	1. Mobile □ 2. Stationary □	-
14.	Whether you are a registered or licensed vendor?	1. Yes □ 2. No □ 3. Do not want to tell □	-
15.	Are you regularly visited/ supervised by any authority?	1. Yes □ 2. No □	If 'No', skip to '17'
16.	Who supervises/ visits your vending site?	1. Employees from corporation (NDMC/ MCD) □ 2. Officials from health department □ 3. NGOs □	-

		4. Others_____	
17.	What type of food do you serve?	1. Pre- cooked food □ 2. Prepared at home □ 3. Prepared at site □ 4. Raw but modified food □	If '1','3', &'4', skip to '19'
18.	What is the time lapse between preparation and serving of food?	-------minutes ---------hours	-
19..	Whether you add additives/sweeteners/artificial colors in food or not?	1. Yes □ 2. No □	-
20.	Do you use separate utensils for cooking, heating and serving or same utensils?	1. Separate □ 2. Same Utensil □	-
21.	What kind of plates/utensils do you use to serve the food?	1. Metal Plates □ 2. Plastic Plates □ 3. Paper/ disposable Plates □	If '3', skip to '23'
22.	What kind of water do you use for cleaning the utensils?	1. Soapy water □ 2. Clean Water □ 3. Dirty Water □	-
23.	Where do you dispose the garbage?	1. On road □ 2. In open lid bin □ 3. In close lid bin □ 4. In polythene bags □	-

SECTION- C: Personal Hygiene

S. no.	Question	Response	Skip to
24.	Are you suffering from any disease presently?	1. Yes (specify disease) □ 2. No □	If 'No', skip to "26"

25.	From where you are taking treatment for your illness?	1. At Home/ self medication □ 2. At Government facility □ 3. At private Facility □	--
	From Q. 26 to Q. 41, fill questionnaire by OBSERVATION only.		
26.	Use of Apron?	1. Yes □ 2. No □	
27.	Use of hand gloves?	1. Yes, Gloves □ 2. No, Bare Hands □	
28.	Head Covered?	1. Yes □ 2. No □	If 'Yes', skip to '30'
29.	Hair?	1. Well combed □ 2. Un combed □ 3. Trimmed □	--
30.	Running Nose?	1. Yes □ 2. No □	--
31.	Nails?	1. Short □ 2. Unclean, Long □	--
32.	Hand washing before and after handling the cooked or raw food?	1. Yes □ 2. No □	--
33.	Any visible open wounds on the body?	1. Yes □ 2. No □ 3. Wounds, but dressed □	--

SECTION- D: Environment and Surroundings

(Only OBSERVATION)

		1. Clean □	

34.	Site of vending?	2. Near Garbage □ 3. Near Open Drain □ 4. Near Open water source □ 5. Others _____	--
35.	Storage of food?	1. Covered □ 2. In Poly Bags □ 3. Uncovered □	--
36.	Presence of flies/ mosquitoes?	1. Yes □ 2. No □	--
37.	Source of drinking water?	1. Purifiers/ aqua guard/ filters □ 2. DDA supply □ 3. Near by tap □ 4. Open source/ well/pond etc. □	--
38.	Presence of dust/ vehicular traffic near vending site?	1. Yes □ 2. No □	--
39.	Cleaning of utensils?	1. Bucket □ 2. Basin □ 3. Openly □	--
40.	Whether site of serving raw or cooked food is clean?	1. Yes □ 2. No □	--
41.	Stray animals/ animal waste near the site of vending?	1. Yes □ 2. No. □	--

- **Any Additional Observation:**

Thank you for your co- operation.

Signature of the Interviewer