"A study to assess the Health Education Intervention on Knowledge, Attitude and Practices of Food Handlers Working in Sadar Hospital Gopalganj"

A dissertation submitted in partial fulfilment of the requirements

for the award of

Post-Graduate Diploma in Health and Hospital Management

by

PARITOSH VASHISHT

PG/11/066

International Institute of Health Management Research

New Delhi -110075

MAY, 2013

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बिहार सरकार

SADAR HOSPITAL,GOPALGANJ

Ambedkar chowk, Gopalganj

E - mail Id – sadar.gpj@gmail.com

Contact No. 06156-226226

NATIONAL RURAL HEALTH MISSION

पत्रांक 376 /

Certificate of Internship Completion

Date: 3/5/13

TO WHOM IT MAY CONCERN

This is to certify that **Mr. Paritosh Vashisht** has successfully completed his 3 months internship in our organization from February 07, 2013 to May 07, 2013. During this intern he has worked on **A study to assess the Health Education Intervention on Knowledge, Attitude and Practices of Food Handlers Working in Sadar Hospital Goplagan**under the guidance of me and my team at Sadar Hospital (District Health Society Gopalganj).

His exposure in Public Health was very good. He aptly handled major responsibilities during his tenure with us and we found him to be hardworking and very productive.

He is a self motivated, duty bound and a highly committed team player with strong conceptual knowledge.

We wish him good luck for his future assignments

3/5/13

Dr. Bimal Kumar
Deputy Supriintendent
Sadar Hospital
Gopalganj

DISTRICT HEALTH SOCIETY, GOPALGANJ

Certificate of Approval

The following dissertation titled " A **study to assess the Health Education Intervention on Knowledge, Attitude and Practices of Food Handlers Working in Sadar Hospital Goplaganj.""** is hereby approved as a 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 undersigned 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.

Dissertation Examination Committee for evaluation of dissertation

AVANISH KR. SINGH

Kirti

Vanishree MR

Certificate from Dissertation Advisory Committee

This is to certify that **Mr. Paritosh Vashisht, PG/11/066,** a graduate student of the **Post-Graduate Diploma in Health and Hospital Management**, has worked under our guidance and supervision. He is submitting this dissertation titled "A **study to assess the Health Education Intervention on Knowledge, Attitude and Practices of Food Handlers Working in Sadar Hospital Goplaganj."** 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 the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

Faculty Mentor Dr. D. Lal
Designation Associate Dean
IIHMR
New Delhi
Date

Organizational Advisor Dr. Bimal Kisku
Designation D.S, D.T.O
Organization Sadar Hospital
Address Gopalganj
Date 03/05/13

FEEDBACK FORM

Name of the Student: Paritosh Vashisht

Dissertation Organisation: Sadar Hospital, Gopalganj
District Health Society

Area of Dissertation: KPA Analysis

Attendance: 100%.

Objectives achieved: Effective Management of Staff.
Planing & Implementing Strategic Changes to improve service deliv
Active Participation in Planing, Organizing & Control day to day activitie

Deliverables: - Regular training & meeting with staff.
- Effective Utilization of Funds & Regular documentation & Reporting
- Monitoring & Supervision.

Strengths: Hard working. good management of HRA.
implementing work in time.

Suggestions for Improvement: well Co-ordination from Supervision authority.

Signature of the Officer-in-Charge/ Organisation Mentor (Dissertation)

Date: 3.5.13
Place: Gopalganj.

ABSTRACT

Diseases spread through food still remain a common and persistent problems resulting in appreciable morbidity and occasional mortality. Food handlers play an important role in ensuring food safety throughout the chain of production, processing, storage and preparation. This study is to determine sociodemographic distribution and to find knowledge, attitude and practice of food handlers towards food-borne diseases and food safety and to evaluate the impact of health education intervention. All 37 food handlers were interviewed by using structured questionnaire. Distribution of food handlers was Hindus (45.9%), males (100%), age above 25 years. The educational level was found as no formal education (21.6%), primary school (24.32%), secondary school (27%) and diploma/degree holders (8%). A significant number of food handlers (86.4%) had no certificate in food handlers training program and 70% had never undergone routine medical examinations (RME). Study shows there is 8 % increase in knowledge among respondents regarding food hygiene habits after health education intervention. Similarly 10% and 13 % increase in attitude and practices of healthy hygiene after health education. Findings of this preliminary study may help in planning health education intervention programs for food handlers in order to have improvement in knowledge, attitude and practice towards food-borne diseases and food safety. Furthermore, it will in turn reduce national morbidity and mortality of food-borne diseases.

ACKNOWLEDGEMENT

I would like to thank Dr. Shankar Jha, Civil Surgeon Gopalganj for giving me the opportunity to work under DHS Gopalganj.

I am grateful to thank Dr. Bimal Kumar,Deputy Superintendent Sadar Hospital Gopalganj for sanctioning the project, and Dr. Usha Kiran Verma, MO, Sadar Hospital Goplaganj to facilitate and provide all requisite information for the project.

I would like to give special mention to Mr. Vishal, DPM, GPJ, Mr. Saket Sinha, DAM GPJ, Mr. Shirish Kumar, DPC, GPJ and Ms. Khusboo Kumari DEO GPJ for enthusiastically supporting the activities, providing constructive comments on the draft of the report, to make it more action – oriented.

I am also thankful to all the staff members of Sadar Hospital Gopalganj for their co-operation and participation in the study, and to the respondents who consented and were interviewed.

At last but not the least, I would specially like to thank my mentor Dr. Dharmesh Lal, Dean IIHMR for continuous guidance before and throughout the project.

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1.1 Introduction to Organization & Profile

1. Hospital Layout & Appearance

The Hospital has different departments which are located in close proximity to each other. The hospital campus has an emergency building in the first block which is situated at left of the entrance gate and comprises of emergency, dressing room and emergency store. The second block is for inpatient department which houses OT, labour room, female ward, male ward, store room, manager office and record room. The third block houses OPD and administrative office. The fourth bock is situated in front of main entrance gate which consists of radiology, diagnostics, medicine store and burn ward.

2. Physical Infrastructure

Hospital has new OPD, ICU and Emergency building and is very well maintained.

OPD:

Basic facility such as waiting room, drinking water, trolley, and stretcher is available in the OPD. Registration Counters are situated at the entrance of building in front of each other at two corners separately for males and females to avoid blocking and over-crowding. A separate "MAY I HELP U" desk is also situated in the OPD. Separate rooms for Medicine, Ortho and general OPD are present in building. A separate room is also available for gynaecology OPD.

ICU:

ICU is functional, equipments and furniture are utilized with proper care. Currently four fully functional chambers are operating in ICU. ICU is also directly linked with OT.

Burn ward:

Burn ward is located is newly built just above Emergency building. Separate AC is also available in ward.

Emergency:

Emergency building is newly built building and is well planned architecture design with all basic requirements such as ramp, separate entry & exit, triage area, resuscitation room, observation & procedure room. Essential equipments and crash cart is also available.

Labour Room:

Labour room is reconstructed with the provision of new born corner and restricted entry of the attendants and large no. of visitors leads to effective control, decreasing the chances of cross infection, pilferage/theft of bed-sheets &equipments, patient discomfort and noisy inpatient area. The patient is registered as indoor only when actual delivery takes place or at

the time labour pain, else, they are made to wait in the ward along with the attendants, without any registration. As per data provided by hospital, there is no LAMA. Labour room, new born corner and labour ward have a separate entry & exit with 24 hr security.

3. Support Services:

Finance:

According to data provided by hospital, RKS opening balance, expenditure and fund received is nil for the last three months. Internal financial audit and RKS meeting needs to be carried out periodically.

Ambulance:

Hospital's own ambulance is used to transfer the patient. Hospital premises are being used by private ambulances which cause loss of RKS funds.

Laundry :

As per the data for linen washed, more number of linen has been washed than that has been issued to the admitted patients. Provision of Internal evaluation of quality & services provided by outsourced facility need to be made mandatory.

Pharmacy :

Inventory control technique (VED Analysis) is followed in the pharmacy. Drugs are stored in a organized manner. Adequate no. of racks and shelves are available. Pigeon Shape rack is also very well organized for effective distribution of medicines.

Radiology :

Hospitals own radiology has X-ray machine and staff but it is not functional. Patients are referred to the outsourced radiology by doctors. Poor management of human resource and equipment. Lead apron and TLD badges are used. AERB certificate /approval is available with the agency conducting X rays.

Diagnostic lab:

Hospital lab conducts all required tests and is well equipped to perform essential tests. All Kits to conduct tests are available. Patients are also referred to outsourced laboratory run under PPP model to get the tests conducted.

Housekeeping and infection control:

Biomedical waste management and culture test is in practice. Low chances of hospital acquired infection and needle stick injury. Mixed storage of BMW, segregation is done, colour coded containers are available.

Signages:

Departmental signage are painted on wall needs to be redesigned/ replaced as many are either defaced or not available.. Directional signage such as fire exit route, You Are Here Map, informative signage and hazard notices needs to be displayed at prominent location.

Engineering and Maintenance:

Illumination level in the hospital is not as per the predetermined standard. Calibration of equipments are not being done. Electric wirings are broken and hanging dangerously in some places. No provision of Annual maintenance of building and equipments.

Dietary:

Kitchen services are outsourced. Food is not being provided to the patients as per state menu. Cooking, storage of the food is being done under hygienic conditions. Hygienic food is being supplied in closed containers.

Department of Public Health & Family Welfare

Department of Health and Family Welfare is responsible for the healthcare service delivery in the state of Bihar till the village level and is headed by Principal Secretary. This department through its State Health Society is also the nodal department for implementing National Rural Health Mission programmes of Government of India where it receives funds for disbursement.

The State Health Society, Bihar is headed by an Executive Director Sh. Sanjay Kumar, IAS. The state funds are also utilized by this department for healthcare delivery. The department is currently headed by Principal Secretary (Health) who is the overall Administrative Head.

Then there is a Secretary Health and the Mission Director for NRHM. There are two Additional Secretaries in the Department. Then there are three Joint Secretaries, three Deputy Secretaries and three under secretaries in the department. At the directorate level, there is one Director of Health Services (DHS) and three additional directors. Then there are six Joint Directors and nine Deputy Directors. There is a separate Medical Education Department headed by an Additional Director. The District level health chief is the Civil Surgeon who reports to the Regional Deputy Director. There are nine divisions in Bihar. At the district level there is a Sadar Hospital which is a 50-150 bedded health facility.

HOSPITAL FACT SHEET

Name of the Health Centre	SadarHospital, Gopalganj
Name of the CS	DR. SHANKAR JHA
Name of DS	DR. BIMAL KUMAR
Address	SadarHospital, Near AmbedkarChowk Gopalganj ,Bihar
Telephone No. of the Hospital	06156 – 224754
Email id of the Hospital	sadarhospital.gpj@gmail.com
Date of inception/commencement of services	Data not available
Number of Beds Declared:	60
Functional:	97
Status of owner entity	State govt.

TABLE 1

Major Indicators

The hospital major indicators based on average of data collected from the month of March 1, 2013 to April 1, 2013.

Sl. No.	Major Indicators	Result (Avg. per month)
01	OPD Admission	26387
02	IPD Admission	1912
03	Death	28
04	Delivery (Normal)	724
05	Delivery per day (C-Section)	42
06	Surgeries	43
07	Lab Test	950
08	X-Ray	945
09	Ultrasound	720

TABLE 2

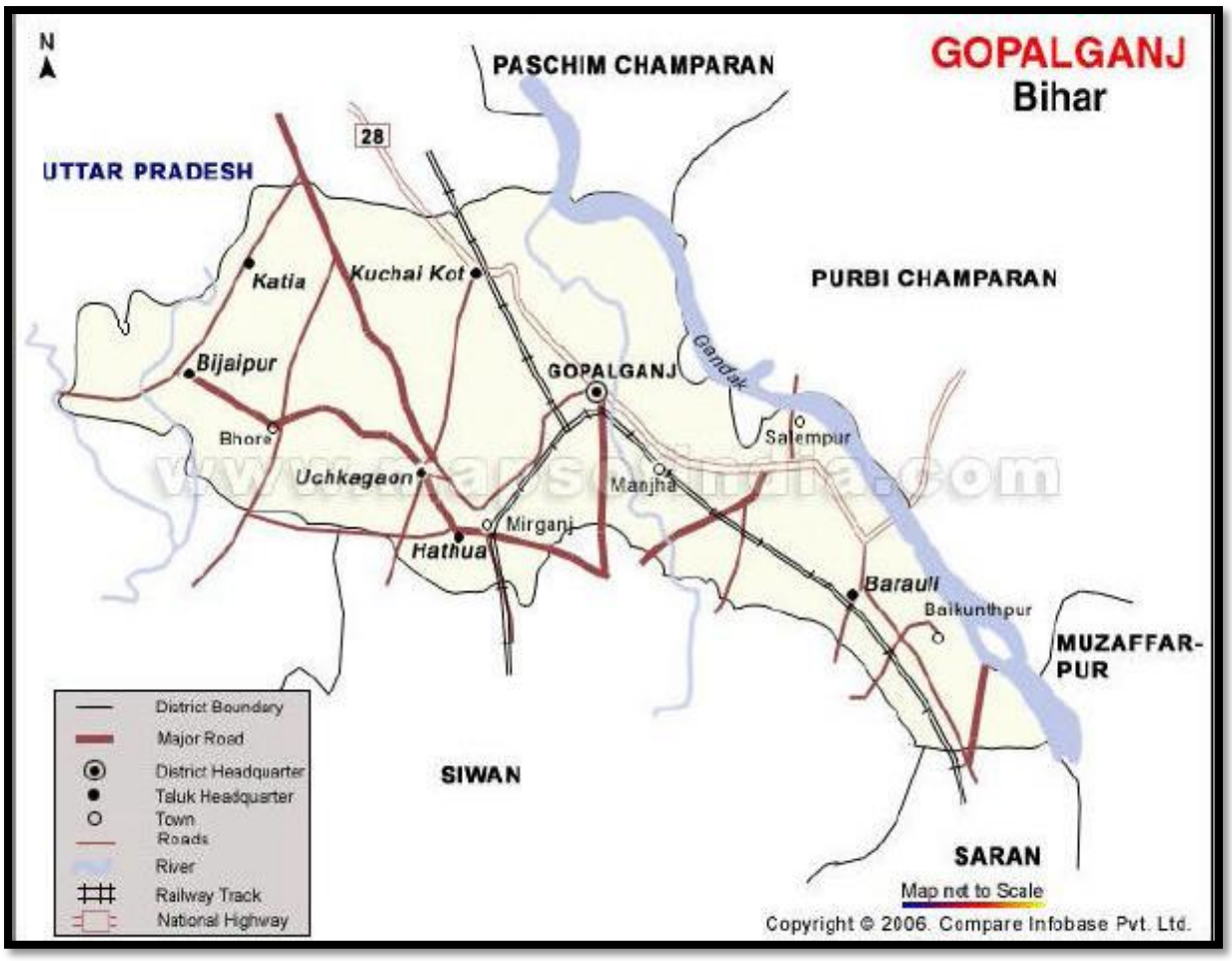

FIGURE 1 – Google map of Gopalganj District

1.2. Where were you engaged in?

S.No.	Activities	Detail	Follow up/ Remarks
1.	Meetings	With all staff including doctors	✓ Regarding 1st Formal interaction. ✓ Regarding Handling conflicts ✓ Regarding motivation ✓ Regarding allocation of duties ✓ Regarding quires handling
2.	Trainings	Knowledge based	✓ BMW training ✓ Disaster mock drill ✓ Fire safety
3.	Camps	National & International Days	✓ World TB Day ✓ Bihar Diwas ✓ National Safe Motherhood Day ✓ Immunization Week ✓ World Health Day
4.	Documentation	File work (SANCHIKA)	✓ Quality initiatives ✓ Routine reporting ✓ Analytical Reports
5.	Monitoring	Daily/Monthly basis	✓ HMIS ✓ Staff Attendance ✓ Roster Monitoring ✓ Outsourcing Activities

TABLE 3

1.3. A brief report on managerial tasks you did with respect to the departments / programmes

A. Plan, organize, direct, control and coordinate day to day activities of the hospital.
B. Ensuring quality assurance and other patient services.
C. Extrapolating data for quality assurance and monitoring purposes.
D. Planning and implementing strategic changes to improve service delivery.
E. Managing clinical, professional, clerical and administrative staff.
F. Procurement of equipments and supplies and organizing stores.
G. Liaise with clinical and non-clinical staff in other health facility, partner organization.
H. Maintaining public relations and ensuring that the facility maintains a positive image.
I. Implementation of new policies and directives.
J. Preparation of job roster ensuring optimum utilization of human resources.
K. Supervision of diet served in IPD.
L. Supervising the Sweeper and other staff for proper cleanliness.
M. Validating outsourced services.

PART II – DISSERTATION on

"A study to assess the Health Education Intervention on Knowledge, Attitude and Practices of Food Handlers Working in Sadar Hospital Gopalganj."

Chapter I - Introduction

Food is an important basic necessity, its procurement, preparation and consumption is vital for the sustenance of life. However, diseases spread through food are common and persistent problems results in appreciable morbidity and occasionally in death. [1] The annual incidence of illness related to food consumption continues to present a challenge to environmental health management. It has been well established that food borne diseases are an important contributor to human morbidity and mortality, as well as increased health care and private sector costs. [2,3] Hospitalized patients are more vulnerable to potential hazards, and neglecting these principles can lead to increased morbidity and mortality. The practice of safety measures by the food service staff in hospitals is necessary for the prevention of food-borne outbreaks. The prevention and control of food borne diseases play an important role in public health and the responsibility of food-handlers is of great concern. Many food borne illnesses result from improper food handling practices. The number of food borne illnesses traced to improper food handling in hospitals indicates a need for research to improve food hygiene. Education, training, and the development of food safety certification examinations are key components in the process of ensuring that food handlers are proficient in and knowledgeable about food safety and sanitation principles (Jacob, 1989); it is important to emphasize the effectiveness of health education programs for food handlers. Hence if the knowledge and attitude of food handlers regarding food hygiene is adequate, perhaps these illnesses would have less of an impact on society.

Rationale of Study

Food hygiene and food hygiene practices are of great concern in the current situation. It's ironical to state that, awareness on food hygiene and food hygiene practices are of poor standard among food handlers working in canteen, hotel or cafeteria situated in hospital or hospital premises. A major risk of food contamination lies with the food handlers. Dangerous organisms present in or on, the food handler's body can multiply to an infective dose, given the right conditions, and come into contact with food, or surfaces used to prepare food. [4]

It has been established that, to a considerable extent, the domestic hygiene practices adopted by food handlers can result in a greater or lesser microbial load in prepared meals. Unsafe food handling practices in food service establishments are a major contributor to the transmission of food-borne illness. [5]

A significant fraction of cases have been attributed to consumption of food in hospitals, and as the number of meals eaten away from the home during hospitalization continues to rise, the potential for large-scale food borne-disease outbreaks will continue to increase. Diseases spread through food still remain a common and persistent problems resulting in appreciable morbidity and occasional mortality. Food handlers play an important role in ensuring food safety throughout the chain of production, processing, storage and preparation and service of food hence their knowledge regarding the same should be of the highest concern. [6]

Food handlers in hospitals contribute to the incidence of foodborne disease; therefore, it is essential that workers and management staff have a thorough understanding of safe food practices since hospitalized patients are more vulnerable to potential hazards, and neglecting these principles can lead to increased morbidity and mortality.

So, the purpose of study is that the findings may throw light on knowledge level and attitude of food service staff on food hygiene thus helping in creating awareness in reducing the incidence of food borne illnesses. The present study results may help the food management staff and hospital authorities to take appropriate measures to reduce the spread of food borne illnesses; thereby increase personnel knowledge and hospital organizational growth. The results of this study may help in identifying proper and suitable methods for planning health education programs for food handlers that will improve their knowledge, attitudes, and practices. Evaluation is an essential component in determining the effectiveness of health education programs. Health education programs may reduce national morbidity, mortality, and the transmission of food-borne diseases.

Statement of the Problem

A study to assess the Health Education Intervention on Knowledge, Attitude and Practices of Food Handlers Working in Sadar Hospital Gopalganj.

General Objective

To evaluate the impact of health education intervention on hygienic status of food handlers.

Specific Objectives

1. To determine the level of knowledge, attitude and practices regarding food hygiene among food handlers in Sadar hospital.
2. To find out the socio-demographic characteristics of food handlers working in eating establishments.

Review of Literature

A study was conducted to evaluate hygiene of food handlers and their sites of work. The hygienic habits of food handlers were evaluated by personal interview at the job site. Hygiene of the establishment was evaluated according to a standard score. The study results showed that both workers and establishments were found inadequate in this respect. After a short educational intervention, a significant increase ($p < 0.05$) in knowledge about hygienic habits was demonstrated in food handlers. The study suggested that prevention of food transmitted diseases requires constant educational efforts directed to food handlers. [7]

A study was conducted to evaluate knowledge, attitudes, and behaviour concerning food borne diseases and food safety issues among food handlers in Italy. Face-to-face interviews were conducted within a random sample of 411 samples using a structured questionnaire. The results showed that 48.7% knew the main food borne pathogens, and this knowledge was significantly greater among those with a higher education level, in practice from a longer period of time, and who had attended education courses ($P < 0.05$). The study concludes that the attitude was not supported by some of the self-reported safe practices observed for hygienic principles, because only 20.8% used gloves when touching unwrapped raw food, and predictors of their use were educational level and attending education courses. [8]

A study was conducted to assess the knowledge and practice of food hygiene by food handlers in a Nigerian University Campus. A descriptive, cross-sectional study was carried out on randomly selected 102 food handlers operating on the campus and was interviewed. The practice of storing and reheating leftovers was low and agreed to by 15 (14.7%) of the respondents; there was a very low frequency of hand washing. Inspection of food handlers showed a low level of personal hygiene. Only 31 (30.4%) had had pre employment medical examination and only 49 (48%) had received any form of health education. This study revealed a poor knowledge and practice of food hygiene among food handlers providing food for undergraduates in a Nigerian University and recommended that a massive health education. [9]

A study was conducted to determine adherence to Hazard Analysis and Critical Control Points (HACCP) methods and to evaluate knowledge, attitudes, and practices of 36 food-services staff with regard to food hygiene in hospitals using a survey. A questionnaire about demographic and practice characteristics, knowledge, attitudes, and behaviours about

control and prevention of foodborne diseases was sent to food-services staff. Multiple logistic regression analysis was performed. The results showed that Only 54% of the 27 responding hospitals were using the HACCP system and, of those using HACCP, 79% adopted a food-hygiene-practice. This study concluded that food hygiene practices and techniques are adopted and followed by food handlers who are working hospitals with HACCP standard. [10]

A study was conducted to explore the pattern of socio demographic distribution and to determine knowledge, attitude and practice of food handlers towards food-borne diseases and food safety. Sample of 430 food handlers were randomly selected from Kota Bharu district and interviewed by using structured questionnaire This study concludes that there is no significant difference of attitude and practice between trained and untrained food handlers. [11]

A study was conducted to assess the knowledge and practice of food hygiene and safety among food handlers in fast food restaurants in Edo. A descriptive cross-sectional study was carried out among 350 respondents who were selected by means of a systematic sampling method and interviewed using a semi-structured researcher-administered questionnaire. An observational checklist was thereafter used to inspect their personal hygiene status. The knowledge of food handlers was significantly influenced by previous training in food hygiene and safety ($p = 0.002$). Food handlers who had worked for longer years in the fast food restaurants had better practice of food hygiene and safety ($p = 0.036$). The level of education of respondents did not significantly influenced their practice of food hygiene and safety ($p = 0.084$). This study showed good knowledge and practice of food hygiene and safety by food handlers in the fast food restaurants, but suggested that is need for improvement through training and retraining of food handlers by the management of the restaurants and the local government authorities. [12]

Chapter II – Data & Methods

Source of data

The data was collected from the food handlers those who are working in Sadar Hospital, Gopalganj

Research approach

A survey research approach was used for the present study.

Research design

Descriptive research design was used to assess knowledge, attitude and practices regarding food hygiene among food handlers.

Setting

The study was conducted in the Sadar Hospital Gopalganj

Population

Target population of the study is the food handlers working in Sadar Hospital Gopalganj

Variables

Variables of the present study are:

- knowledge regarding food hygiene among food handlers.
- attitude and practices regarding food hygiene among food handlers

Method of data collection.

Sample size

- All 37 food handlers working in Sadar Hospital Gopalganj

Instruments intended to be used

- Baseline Performa of food handlers
- Structured knowledge and practices questionnaire to assess knowledge towards food hygiene among food handlers.
- Attitude rating Likert scale to assess the attitude of food handlers regarding food hygiene.

Data collection method

- Permission was obtained from the concerned authority
- Purpose of the study was explained and consent was taken from the subjects

Data analysis plan

The collected data will be analyzed using descriptive statistics.

- **Descriptive statistics:** Frequency and percentage distribution were used to analyze the demographic data of food handlers and their level of knowledge and attitude.

Methods

The study was carried out between February 2013 and April 2013 in food service establishment at Sadar Hospital after approval by the Hospital protocol committee.

The study was conducted in 3 phases. In the first phase, food handlers were interviewed using a pretested, semistructured schedule following their informed consent. Information was collected about their sociodemographic characteristics, knowledge and attitudes towards various aspects of food and personal hygiene and hand washing practices.

For assessing knowledge, an initial question was asked, "Can any disease be transmitted through food or water?" .To elicit knowledge about the role of food handlers in maintaining food hygiene, a question were asked," Cap and gloves should be worn while handling food ."

To assess attitudes, food handlers were asked to respond on a 2 point Likert type scale of "yes" and "no" to various statements related to food and personal hygiene, such as "Cooked food could be kept covered, "Hands should be washed before and after handling food," "Hands should be washed after defecation," Hands should be washed after micturition," "A food handler should wear apron while working." In addition, attitude of cooks was assessed against the statements "Raw and cooked food can be kept in contact" and "Raw food should be washed thoroughly before use."

Hand washing practices were assessed by asking food handlers whether they washed their hands before handling food, after handling food, after defecation and micturition, and what cleansing material they use to wash their hands at the workplace and after defecation and micturition. All questions were asked in Hindi language which was understood by all study participants.

Once all food handlers were interviewed i.e. baseline performa of food handlers, the second phase of imparting health education, was initiated in the establishment. Health education focused on personal and food hygiene was provided in the establishment itself using posters, charts, containing messages in Hindi. Based on the first phase analysis, study material was prepared in consultation with the Hospital committee and with the help of WHO guidelines on food habits and food hygiene. They were given health education regarding food born diseases and importance of personal hygiene and environmental sanitation. Information, education and communication (IEC) material used were poster and pamphlets in Hindi and demonstrations by the team members like proper and correct method of hand washing. A power point presentation was also shown to the workers showing importance of personal hygiene. Two weeks health education intervention program was initiated. All 37 food handlers participated in this program.

After providing health education to all food handlers, the final phase of evaluating the impact of health education intervention on food handlers was initiated. All the questions that were asked in first phase regarding knowledge, attitudes and practices were again asked. Then the data from first phase is compared with the data after providing health education. To assess practice aspect among food handlers, a rapid interview was done after 25 days of health education. Frequency and percentage distribution were used to analyze the demographic data of food handlers and their level of knowledge and attitude.

Chapter III- RESULTS

Table 4 demonstrates the socio-demographic characteristics or data of respondents. Out of the 37 respondents involved in this research all were men (100%), majority (45.9%) were Hindus and 37.83 were Muslims. The majority age was same (32.43%) for respondents having age between 26 – 35 years and above 35 years. The education level was found as no formal education (21.6%), primary school (24.32), secondary school (27%) and diploma/degree holders (8%). A significant number of food handlers (86%) had no certificate in food handlers training program and 70% have never undergone routine medical examination (RME).

S.No.	SOCIODEMOGRAPHIC CHARACTERISTICS	TOTAL (37)	PERCENTAGE
1.	AGE		
	✓ BELOW 18	2	5.405
	✓ 18-25	11	29.73
	✓ 26-35	12	32.43
	✓ ABOVE 35	12	32.43
2.	EDUCATION		
	✓ ILLITERATE	8	21.622
	✓ UPTO 5^{TH}	9	24.32
	✓ 6^{TH}-10^{TH}	10	27.02
	✓ 11^{TH}-12^{TH}	7	18.19
	✓ ABOVE 12^{TH}	3	8.10
3.	EXPERIENCE		
	✓ LESS THAN 6 MONTHS	9	24.32
	✓ 6-12 MONTHS	4	10.81
	✓ 1-2 YEAR	12	32.43
	✓ MORE THAN 2 YEAR	12	32.43
4.	TRAINING STATUS		
	✓ YES	5	13.51
	✓ NO	32	86.48
5.	ROUTINE MEDICAL EXAMINATION		
	✓ NEVER	26	70.27
	✓ WITHIN LAST 6 MONTHS	4	10.81
	✓ LAST 6 MONTHS-1 YEAR	2	5.40
	✓ MORE THAN 1 YEAR	5	13.51
6.	RELIGION		
	✓ HINDU	17	45.94
	✓ MUSLIM	14	37.83
	✓ OTHERS	6	16.21

TABLE 4

Table 5 demonstrates the knowledge attribute of all respondents. A series of 8 questions were asked from every respondents and every question is given equal weightage of 1 to calculate total mean score of all respondents before intervention and after intervention. As Table 2 shows there is 8 % increase in knowledge among respondents regarding food hygiene habits and practices.

S.No.	Knowledge Attribute	Before Education	After Education
1.	Can any disease be transmitted through food or water	11	35
2.	Hands should be washed before and after food handling	32	34
3.	Licking fingers can contaminate food while handling food	14	22
4.	Floor, walls and roof should be kept clean	25	31
5.	Hands should be washed after defecation and urination	35	36
6.	Remnants of previous day cooked material can be served today	25	36
7.	Half rotten vegetables can't be used for cooking	6	21
8.	Cap and gloves should be worn while handling food	28	32
	TOTAL SCORE	**176 (22)**	**247 (30.87)**

TABLE 5

Figure 2 shows there is considerable increase in knowledge regarding proper washing of utensils, as before education only 5 % knew that utensils should be washed with soap and after intervention the number goes to 25.

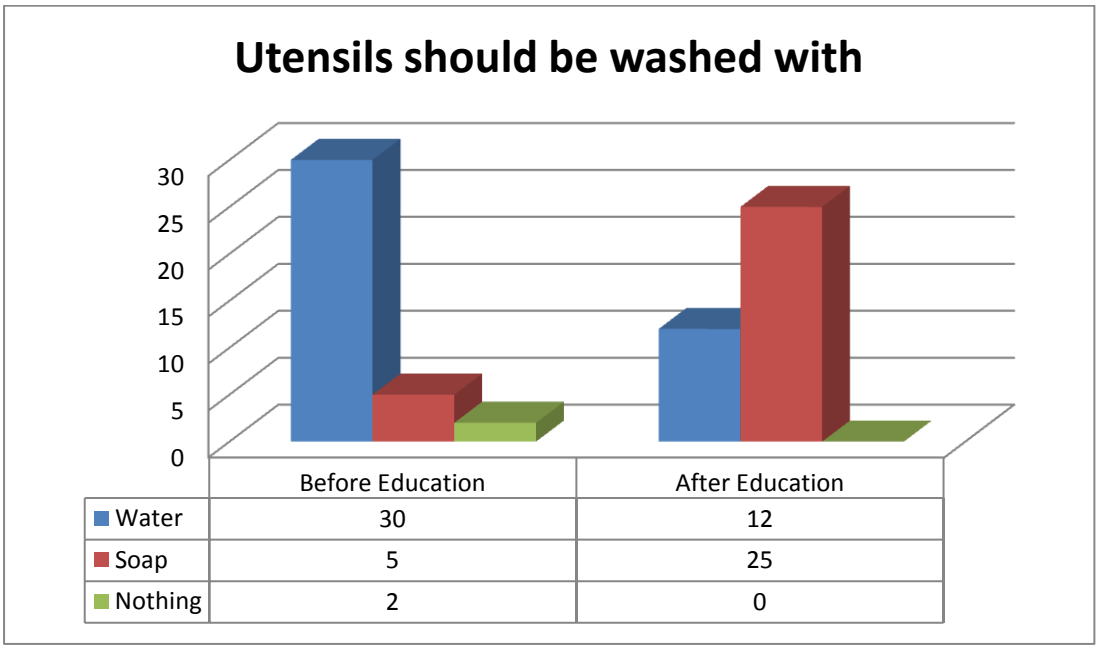

FIGURE 2

There is 31% increase in knowledge related to disease can be transmitted through food or water before and after health education intervention.

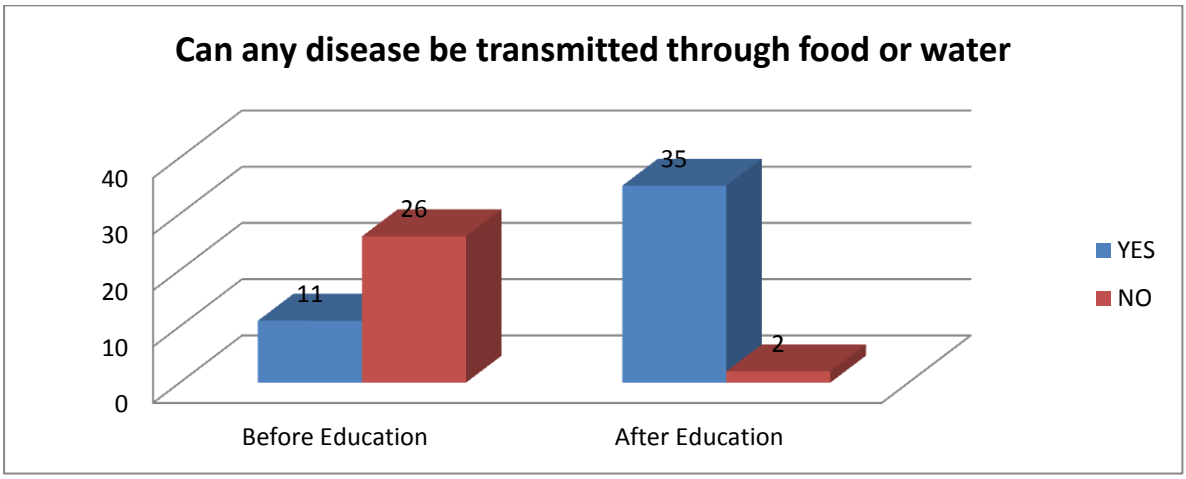

FIGURE 3

Almost all participants knew about hand washing habits before and after food handling as shown in figure 4

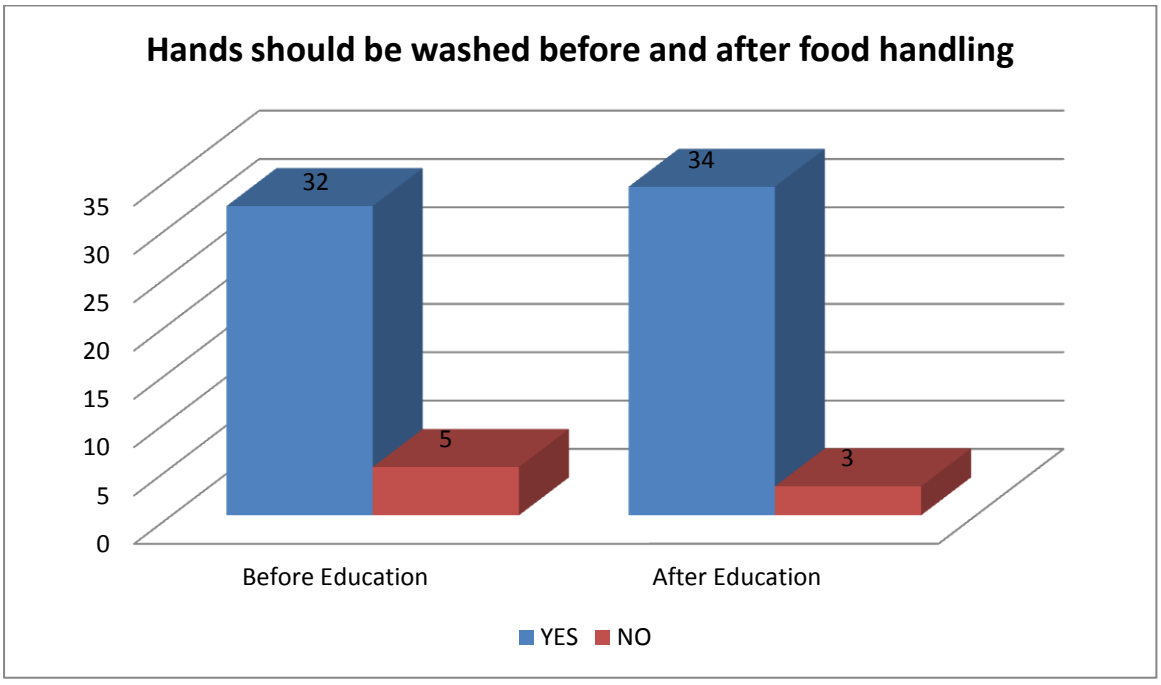

Figure 4

Table 6 shows the Attitude aspect of all respondents. Same pattern was follow to score attitude as done to calculate knowledge attribute. Equal score is provided to every question and then mean score is calculated before health education intervention and after giving health education intervention. A significant increase of 10% in attitudes of all respondents was shown before and after education. Maximum attitude change occurs in wearing gloves and caps and also at disposing the waste in closed container.

S.No.	ATTITUDE Attribute	Before Education	After Education
1.	Only fresh vegetables were used for cooking	27	33
2.	Before using vegetables were washed	30	35
3.	Hands should be washed before handling food	32	34
4.	Cooked food should always be covered	22	32
5.	Have they wore gloves and cap	2	25
6.	Garbage disposed in closed container	5	23
7.	Maintained cleaned environment at food premises	32	33
8.	Belief the importance of training program	15	22
9.	Belief disease can be transferred via food	11	28
	TOTAL SCORE	**176 (19.5)**	**265 (29.4)**

TABLE 6

All respondents were provided with health education training and to attitude is important aspect, so its important to know about the perception of respondents regarding the belief about importance of training program. Figure 5 shows that there is considerable increase (68%) about the belief the importance of training program before and after education.

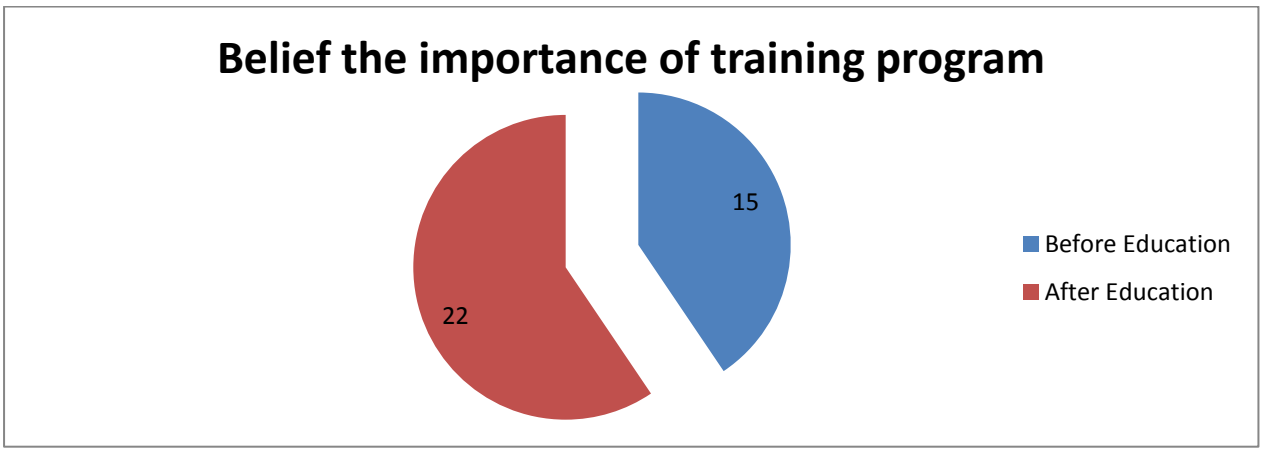

Figure 5

Table 7 shows the practice attributes of workers before education, after education and after 25 days of education. There is considerable increase in practice of workers regarding washing hands before handling food. Similar results were found in practice of workers related to fresh vegetables were used for cooking. But there is slight decrease in wearing gloves and caps practice after education and after 25 days of education. And similarly there is decrease in waste disposal practice after education and after 2 days of education.

S.No.	PRACTICE Attribute	Before Education	After Education	After 25 days of Education
1.	Hands should be washed before handling food	21	29	34
2.	Only fresh vegetables were used for cooking	11	27	31
3.	Before using vegetables were washed	22	33	34
4.	Cooked food should always be covered	25	29	32
5.	Have they wore gloves and cap	2	27	20
6.	Garbage disposed in closed container	11	29	20
7.	Maintained cleaned environment at food premises	19	22	27
	TOTAL SCORE	**111 (15.85)**	**196 (28)**	**198 (28.28)**

TABLE 7

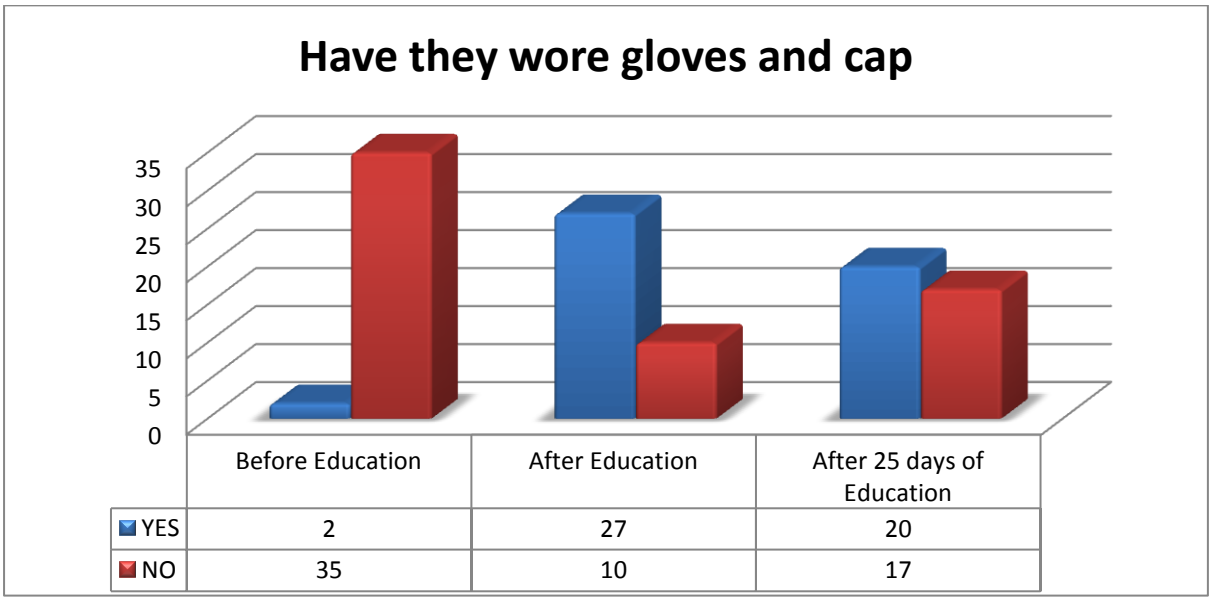

Figure 6

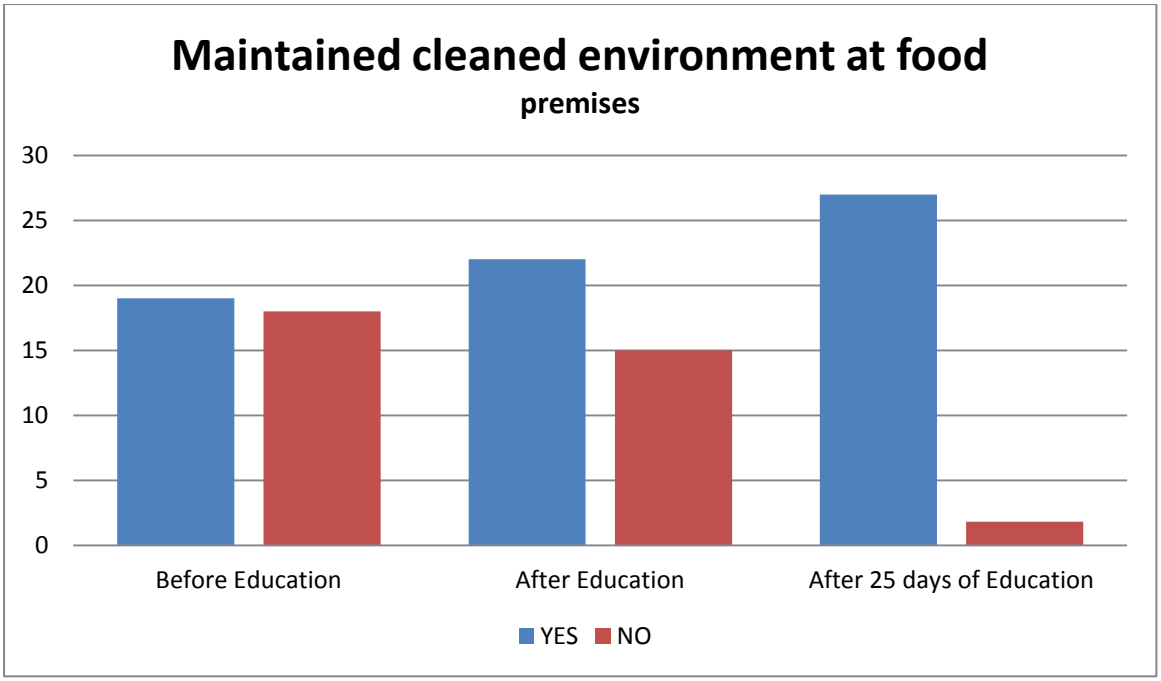

Figure 7

Chapter IV- Discussion

In the present study, all workers were males and maximum belonged to age group of less than 30 years and similar observations were made in a study conducted in Bijapur city where most of the respondents were also below 30 years. [13,14] In another study conducted in Gondar Town, Northwest Ethiopia, large majority (72.4%) of the food-handlers was young adults aged 20-40 years [15]. Majority of subjects were literate but proportion of illiterate persons was also very high. Mostly the young employees were literate. Similar observations were also made in Bijapur where majority of them were literate but proportion of literate workers was high as compared to present study [13]. Now it has become mandatory to have minimum of 10th standard literacy level for a worker to be employed in public (government) sector. As far as clothing is concerned, most of the employees did not wear gloves and caps. Majority of workers were tobacco chewer. Those chewing tobacco were likely to affect food sanitation because of indiscriminate spitting or dribbling of secretion while talking, serving etc. Slightly higher figures were obtained in a study conducted in Amritsar [16].

From this study, food handlers had good attitude towards food-borne diseases though they did not practice accordingly during their daily activities. Their practice was poor in hand washing, personal hygiene and safety food handling. Hand washing practices should be emphasized to food handlers as the hands need to be washed carefully before touching food or any sort and particularly after handling raw food ingredient, which will introduce bacteria daily to the kitchen and before continuing with other cooking preparations (Hobbs and Roberts, 1993).

As the poorly paid job, it is poorly motivated and rapid staff turnover also causes problems. Food handlers should therefore receive suitable training in the basic principles of food safety (WHO, 1998). Particular attention should be given to the importance of time and temperature

control, personal hygiene, cross contamination, sources of contamination and the factors determining the survival and growth of pathogenic organisms in food (WHO,1988b; Goh, 1997). At the end of the training period, the knowledge and understanding of food safety on the part of food handlers should be tested. The use of attractive and explicit poster-type displays in workrooms is considered to be effective way of reminding food handlers of various aspects of food safety (WHO, 1988b).

Chapter V- CONCLUSION & RECOMMENDATIONS

Food hygiene is an important aspect in food industry that the government made it compulsory for food handlers to provide clean food and free from contamination. Overall from this study it can be seen that the food handlers at Sadar hospital Gopalganj need to improve their knowledge on food hygiene especially their personal hygiene. In addition these workers have moderate attitudes towards food hygiene. Among the good hygiene practices that are being applied by food handlers were washing hands before and after handling food, wearing caps and gloves and maintaining clean environment. From this study, level of knowledge, attitudes and practices of food hygiene of food handlers was determined. Also there is certain increase in knowledge, attitude and practices of health hygiene among food handlers after providing health education. Furthermore, this study clear shows the impact of health education intervention on knowledge attitude and practices among food handlers.

Findings of this preliminary study may help in planning regular health education intervention programs for food handlers in order to have improvement in knowledge, attitude and practice towards foodborne diseases and food safety. It is recommended that education and training in good-hygiene practices should be provided to all food-handling personnel. Furthermore, if they are healthy, it will in turn reduce morbidity and mortality of food-borne diseases among themselves as well as population served by them. Education, training and the development of food safety certification examinations are key components in the process of ensuring that food handlers are proficient and knowledgeable about food safety and sanitation principles.

Based on the findings of the present study, it is further recommended that certain steps should be taken and enforced strictly to improve the status of food hygiene in food service establishments. These include banning the use of all tobacco products during food handling, strict monitoring by the managers for proper hand washing, early identification of morbid conditions and urgent referral to health care facility, exclusion from food handling on a temporary basis during illness and pre-placement and regular in-service medical examinations including immunization against organisms causing enteric fevers and tetanus.

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