



A STUDY OF FOOD HANDLERS IN A TEACHING HOSPITAL OF JHARKHAND, INDIA

¹Tuhin Chakraborty, ¹Amit Nishant, ¹Nayan Sinha, ¹Priya Mishra, ^{2*}Dewesh Kumar and ³Vivek Kashyap

¹MBBS Undergraduate Student, RIMS, Ranchi, India.

²Assistant Professor, Dept. of PSM, RIMS, Ranchi, India.

³Prof and HOD, Dept. of PSM, RIMS, Ranchi.

*Corresponding Author: Dr. Dewesh Kumar

Assistant Professor, Dept. of PSM, RIMS, Ranchi, India.

Article Received on 08/12/2017

Article Revised on 28/12/2017

Article Accepted on 18/01/2018

ABSTRACT

Introduction: Food handlers with poor personal hygiene and lack of awareness of important issues in preventing food borne diseases, working in food establishments could be potential sources of infections. This paper attempts to study the health status and awareness related to health in food handlers of a teaching hospital of Jharkhand.

Methodology: It was a cross-sectional study conducted during September 2017 to November 2017 in the food establishments inside the premises of RIMS, Ranchi. All the food handlers working in the food establishments (hospital kitchen and mess) who satisfied the inclusion criteria of study were interviewed on various aspects of health. The data were collected using ODK collect app in hand sets and the data was transferred in Microsoft excel for further analysis.

Results: A total of 76 food handlers were studied, out of them 88.15% were males and nearly 50% belonged to age group less than 25 years. Approximately two third study participants spent 8-12 hours at work and 93.42% of them didn't take a single day leave due to illness. None of them took any vaccines against the diseases of public health importance transmitted via food and water. Amongst the vaccines, BCG and Tetanus were the ones which was given to them at some point of time. **Conclusion:** Vaccination status of food handlers working in RIMS campus was not satisfactory, government authorities should take appropriate steps to increase awareness towards immunization to Hepatitis A, cholera and enteric fever and also make proper arrangements for the same.

KEYWORDS: Food handlers, vaccination, health status, food safety.

INTRODUCTION

Food which is defined as an early article manufactured, sold or represented for the use as food or drink for human consumption or any item that enters into or is used in composition, preparation or preservation of any food or drink, is an important basic necessity, its procurement, preparation and consumption are vital for sustenance of life. Food handler is defined as a person in food trade or someone professionally associated with it, such as an inspector, who in his routine work comes into direct contact with food in the course of production, processing, packaging or distribution.^[1] Food handlers with poor personal hygiene and lack of awareness of important issues in preventing food borne diseases, working in food establishments could be potential sources of infections. Food handlers come in direct contact with food consumed by large number of people. The most frequently food worker's errors are handling of food by a person either actively infected carrying a pathogen, bare hand contact with food, failure to wash hands properly. The US Centres for Disease Control and Prevention (USDHHS-CDC 1996) revealed that the outbreaks of food borne diseases include inadequate cooking, heating, or re-heating of foods consumption of

food from unsafe sources, cooling food inappropriately and allowing too much of a time lapse. As we all know that the food handlers have been working in various types of community kitchen and their health status can affect the status of food hygiene which can lead to contamination of foods attributing to acute gastroenteritis and food poisoning in various subgroups of the population e.g., medical/dental/nursing students. Poor personal hygiene, primarily ineffective hand washing, has been recognised as a significant risk factor of food contamination that leads to food poisoning.^[2,3] Moreover, many reports have demonstrated similarities between the pathogens isolated from patients and food handlers, clearly indicating that food handlers were the vehicles of transmission for the foodborne pathogens.^[4,5] More than 250 food borne diseases are caused by either bacteria (Clostridium, Botulinum, E.Coli, Salmonella, Listeria, Vibrio Cholera); viruses (Enterovirus, Hepatitis A, Rotavirus, Norovirus); parasites (Entamoeba histolytica, Cryptosporidiosis, Giardia, Trichinosis). The various food borne diseases are botulism, campylobacteriosis, hepatitis A, norovirus infection, salmonellosis, shigellosis, diarrhoea, typhoid, food poisoning, amoebiasis, ascariasis, hook worm infections etc.^[6]

Globally about one third of the total population is estimated to be infected with intestinal parasites, the majority being people living in tropical and sub-tropical parts of the world.^[7] About 819 million people are infected with *Ascaris lumbricoides* (*A. lumbricoides*), 464.6 million people with *Trichuris trichiura* (*T. trichiura*), 438.9 million people with hookworm infection^[8], 500 million people with *Entamoeba histolytica* (*E. histolytica*) and 2.8 million people are infected with *Giardia lamblia* (*G. lamblia*).^[9] Food handlers can easily transmit these pathogens to a large population if they are not aware. The World Health Organization (WHO) reports that there approximately 2 million fatal cases of food poisoning occur every year globally, especially in developing countries.^[10] This scenario could be due to the poor state of food safety and general hygiene in those countries. Lack of proper infrastructure and awareness is a major reason for this negligence towards food handlers. In country like ours lack of proper sanitation facilities also adds to the problem. Minor safety measures like use of gloves, caps and masks are also neglected in these food establishment due to lack of awareness and economical reasons.

Rationale of study

The World Health Organization (WHO) reports that there approximately 2 million fatal cases of food poisoning occur every year globally, especially in developing countries.^[10] This scenario could be due to the poor state of food safety and general hygiene in those countries. Lack of proper infrastructure and awareness is a major reason for this negligence towards food handlers. In country like ours lack of proper sanitation facilities also adds to the problem.

Health status of food handlers is an important indicator of food safety. Assessing the vaccination and health status of food handlers is required to assess the safety of the food being served in various food establishments in RIMS and also to know the chances of food being served in various food establishments containing any pathogens.

Aims and objectives

- i. To assess vaccination and health status of food handlers working in various food handlers in RIMS
- ii. To assess awareness towards food safety among food handlers working in various food establishments in RIMS.

MATERIAL AND METHODS

Study type

A cross-sectional study.

Study period

This study was conducted from September 2017 to November 2017.

Study place

Food establishments of Rajendra Institute of Medical Sciences, Ranchi.

Sampling and Sample size

All food handlers working in each food establishments inside RIMS campus was our sampling frame. There are various food establishments inside RIMS campus. Hospital kitchen is outsourced while Hostel Messes are run by independent food handlers. Hospital kitchen being the largest having 50 food handlers working in shifts, hostels having 20 messes in total with 1-3 food handlers working in each of them. Total food handlers being approximately 100. However, we could recruit 76 food handlers who gave their consent to participate in the study.

Methodology

For baseline data collection, every food establishment in RIMS campus was visited and data was collected from eligible consenting food handler. Data related to socio-demographic characteristics and personal hygiene practices of food handlers and related risk factors was collected by face to face interview using pre tested structured questionnaire and observational guidelines. All the questionnaires were checked for accuracy and completeness.

In case when a particular food handler was not found to be present, a second visit was made after a week to that particular food establishment for collection of data from that food handler. If that food handler was found absent then no further visits were made.

Study tool

A pre tested semi structural questionnaire was prepared to assess the vaccination and health status of food handlers. The questionnaire was in English and consisted of 20 items on demographic information (3 items), vaccination and Health status (5 items), food safety knowledge (2 items) and food safety practices (10 items). Food safety knowledge was assessed based on six constructs: (1) personal hygiene; (2) cross-contamination prevention and sanitation; (3) food handling; (4) health problems that would affect food safety; (5) symptoms of foodborne diseases and (6) foodborne pathogens. For food safety practices and health status the respondents were required to choose either "Yes" or "No".

Inclusion criteria

Food handlers working for more than 3 months and gave their informed consent.

Exclusion criteria

Food handlers having less than 14 years of age.

Data collection and analysis

The questionnaire was made in Open Data Kit (ODK) built and investigators collected data in their hand from food handlers of contract and/or permanent status from premises within the campus during the period of September 2017 to October 2017. The participation of food handlers in this study was conducted on a voluntary basis.

Since data was collected using Open Data Kit (ODK) collect platform in android phones, from where data was directly transferred to google spreadsheet, then the data was analysed in MS Excel professional Pro 2016 and IBM SPSS 20.

RESULTS

Out of 76 food handlers who handlers who participated in our study majority of food handlers in our study were males (88%), while females constituted minority (12%). Majority of food handlers were (i.e. 49%) 25 years old or less, 18% were 25-35 years, 20% were 35-45 years old, 9% were 45-55 years old and 9% were 55-65 years old. Average age was found to be. Majority food handlers had education upto school level(40%), illiterates and college(including high school) educated were 29% and 30% respectively.(**Table 1**).

Majority of the food handlers worked 8-12 hours (66%). 13% food handlers worked for 8 hours or less. While 21% food handlers worked more than 12 hours a day. Mean working hours was found to be 11.06 hours. Only 5 out of 76 food handlers had taken leave due to illness. Mean of days lost due to illness being 0.41 days. Majority of food handlers had work experience of more than 5 years (36.84%), 11.84% had experience of 1-5 years and 35.53% had work experience less than 1year. (**Table 2**). Majority (74%) of food handlers didn't

receive any training, only 26% of food handlers were trained. Majority food handlers (92%) were not assessed before recruitment, while health of only 8% food handlers was assessed.

Approximately 47% food handlers had received BCG and tetanus vaccines, vaccination status of 24% food handlers was unknown or uncertain and 29% of food handlers didn't receive any vaccine.(**Figure 1**). BCG and tetanus vaccination was assessed on the basis of presence of BCG scar and recent events. None the food handlers received vaccine against Hepatitis A, Cholera or Enteric fever. Our study found that 38% of food handlers knew that food can be a source of infections, while rest 62% didn't know that. 81% of the food handlers were apparently healthy and 19% were either diseased at the time of study or recently. Among diseased food handlers cough was common (12% of total) followed by fever (6%) and diarrhoea & vomiting being least common (1%). Majority (51%) of the food handlers use gloves, mask and cap, while other 49% didn't use such things. 38% of food handlers were aware to food safety while majority, 62% were unaware to the concept of food safety. 21% of the respondents in our study were tobacco addicts, while majority of food handlers (79%) were not addicted to tobacco. Majority of food handlers (89%) agreed that providing safe food is their responsibility, while remaining 11% denied that.

Table 1: Socio-demographic characteristics of study participants.

		Number	Percentage
Sex	Males	67	88.15
	Females	9	11.85
Age	25 years or less	37	48.68
	25-35 years	14	18.42
	35-45 years	15	19.73
	45-55 years	7	9.21
	55-65 years	3	3.94
Education	Illiterate	22	28.94
	School	30	39.47
	College	23	30.26
	post graduate	1	1.31

Table 2: Work related characteristics of study participants.

Work characteristics		Number	percentage
Working hours	8hrs or less	10	13.15
	8-12 hrs	50	65.78
	12-16 hrs	7	9.21
	16 hours or more	9	11.84
Work experience	less than 1 year	27	35.52
	1-5 years	9	11.84
	more than 5 Years	28	36.84
Leave due to Illness	No leave	71	93.42
	1-10 days	5	6.57
	more than 10 days	0	0

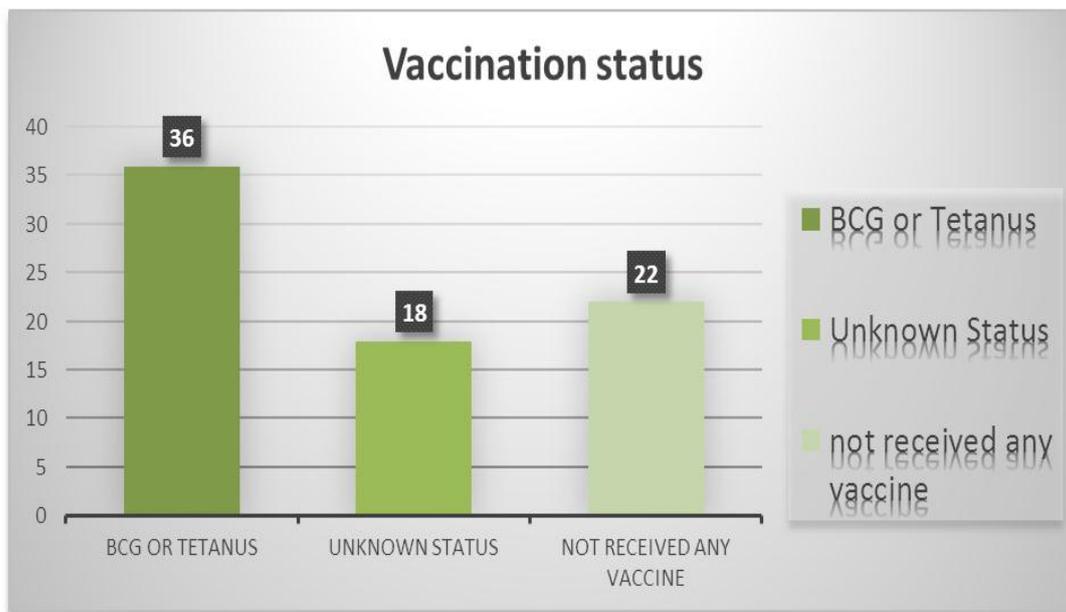


Figure 1: Vaccination status of food handlers.

DISCUSSION

In our study we found that Maximum food handlers were male (88%), as in our country men leave the home to earn money while females stay at home. Similar results were reported in other studies.^[1,12,13,14,15,16] 67% of food handlers were younger than 35 years. Mean age being 31.2 years. Majority of the food handlers being of the working age. Similar result was reported in other studies.^[1,12,13,19]

While majority of the food handlers were immunized but none of them were vaccinated against hepatitis A, cholera and enteric fever group. Other authors reported that very few food handlers did receive vaccine against typhoid in their study.

81% of the food handlers were apparently healthy and 19% were either diseased at the time of study or recently. Among diseased food handlers cough was common (12% of total) followed by fever (6%) and diarrhoea & vomiting being least common (1%). Similar results were reported in another studies.^[19] Only 5 out of 76 food handlers had taken leave due to illness. Mean of days lost due to illness being 0.41 days.

Food safety awareness was found to be unsatisfactory. Other studies reported that the food handlers in their study had better knowledge (i.e. more than 50 – 75% had correct knowledge) compared to present study.^[18] Food handlers working in hospital kitchen were trained, educated and had working hours of 8-9 hours. They had access to caps, gloves, mask and apron (cooks only). Food handlers working in mess were untrained, illiterate and unaware of food safety, not immunized and had working hours. They didn't had access to gloves, cap and masks.

Maximum food handlers had primary education (40%), while illiterates and college or high school educated were 29% and 30% respectively. Other studies have found that most of the food handlers were educated up to high school or illiterate or had primary education.^[1,16,17] An association between education and awareness to food safety was found, similar to a study. Awareness to food safety increased with level of education.

Mean working hours was found to be 11.06 hours. The food handlers are forced to work more than 8 hours due to absence of adequate manpower and proper shift system.

It was found that maximum food handlers did not receive any training (74%). Other studies also reported that majority of the food handlers in their study were not certified in food training.^[1,19] An association between training and awareness to food safety is also found.

Majority (51%) of the food handlers use gloves, mask and cap, while other 49% didn't use such things. Other studies reported that only 17% used cap.^[15]

Majority of food handlers (79%) had no addictions. While tobacco chewers and smokers were found to be around 21%, since, Tobacco chewing is one of the major addictions in our state. Other studies also observed that the tobacco chewers in their study were very few.^[14]

CONCLUSION

Vaccination status of food handlers working in RIMS campus was not satisfactory, government authorities should take appropriate steps to increase awareness towards immunization to Hepatitis A, cholera and enteric fever and also make proper arrangements for the same. All food handlers should be trained before joining and should be educated regarding health and hygiene.

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