### **Original Research Article**

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# A study to assess the assess the food safety knowledge and hygienic practices among food handlers

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#### **ABSTRACT**

**Background:** Improper food production, handling, and preparation techniques have direct influence on health. A food borne disease is a disease usually either infectious or toxic in nature, caused by agents that enter the body through ingestion of food. The objective of the present study was to assess the food safety knowledge and hygienic practices among food handlers and to assess the improvement in knowledge and hygienic practices after educational intervention.

**Methods:** This was a longitudinal educational interventional study, carried out during October to December 2017 among 50 randomly selected food handlers in and around Gandhi Medical College campus, where the study subjects were interviewed by using a questionnaire in local language regarding their knowledge and practices of food handling, and were then later educated on proper food handling practices by lecture and demonstration method followed by a post intervention interview after a gap of 2 weeks.

**Results:** Out of 50 food handlers, 62% had knowledge of the food borne diseases and it raises up to 100% post intervention. During pre-intervention, only 78% of the participants used to wash their hands before preparing meal and after intervention 92% were washing their hands before preparing meal.

**Conclusions:** Food safety knowledge and hygienic practices among food handlers improved by 73% after the educational intervention. Maximum improvement was seen in the use of gloves, caps and hand washing practices.

**Keywords:** Food handlers, Food safety knowledge, Hygienic practices

#### **INTRODUCTION**

Improper food production, handling, and preparation techniques have direct influence on health. A food borne disease is a disease usually either infectious or toxic in nature, caused by agents that enter the body through ingestion of food. For example typhoid fever, diarrhoea, food poisoning, staphylococcal infection, Hepatitis A and E, amoebiasis and dysentery etc.<sup>1</sup>

Major sources contributing to microbial contamination are the place of preparation, utensils for cooking and serving, raw materials, time and temperature abuse of cooked foods and the personal hygiene of vendors. The extrinsic contamination of food may occur at any point in its journey from the producer to the consumer, food handlers specially play a major role here.

Food handlers can transmit a variety of diseases, this has been most famously demonstrated by the notorious case of "Typhoid Mary", a food handler who was also a chronic carrier of typhoid current statistics on food borne illnesses in various industrialized countries show that up to 60% of cases may be caused by poor food handling techniques, and by contaminated food served in food service establishments.<sup>2</sup>

The objective of the study was to assess the food safety knowledge and hygienic practices among food handlers and to assess the improvement in knowledge and hygienic practices after educational intervention.

#### **METHODS**

The study was conducted after approval from the Institutional Ethics Committee. This was a longitudinal educational interventional study, carried out during October to December 2017 among 50 randomly selected food handlers in and around GMC campus. The purpose of the study was explained to participants and verbal consent was then obtained. The subjects were interviewed by using a questionnaire in local language regarding their knowledge and practices of food handling. After that they were educated on proper food handling practices by lecture and demonstration method and caps and gloves were provided to them free of cost. After 2 weeks they were again interviewed regarding their knowledge and practices of food handling by the same questionnaire. Data was then entered in MS excel and then analyzed by the Epi info version-6.

#### **RESULTS**

Table 1 shows the age wise distribution of food handlers, Maximum food handlers were in the age group of 26-35 years that is 50%, followed by less than 25 years and 36-45 years age group, that contributed to 44% of the study group.

The Table 2 shows the knowledge of food borne disease among food handlers, pre intervention. Only 62 % of food handlers had adequate knowledge regarding food borne diseases before intervention, while after intervention every food handler became aware about food borne diseases.

Table 1: Age wise distribution of food handlers (n=50).

Age (in years)	Number	%
<25	11	22
26-35	25	50
36-45	11	22
46-55	03	06

Table 2: Knowledge of foodborne diseases.

Statement		Pre intervention					Post intervention		
	Yes	%	No	%	Yes	%	No	%	
Knowledge of foodborne disease	31	62	19	38	50	100	00	00	

Table 3: Distribution of food handlers according to their personal hygienic practices.

Parameter with frequency	Pre interven	tion	Post interve	Post intervention		
	Number	%	Number	<b>%</b>		
Frequency of nail cutting						
Once a week	23	46	34	68		
Once in two weeks	22	44	14	28		
More than 15 days	05	10	02	04		
Frequency of taking bath						
Once a day	42	84	47	94		
Alternate day	08	16	03	06		
More than two days	00	00	00	00		

Table 3 shows the personal hygienic practices among food handlers. Before intervention, frequency of food handlers cutting nails once in a week was 46%, which later increased to 84% post intervention. While the frequency of participants taking daily regular bath increased from 84% to 94% following our intervention.

Table 4 shows the knowledge about different type of food borne disease among food handlers. Before intervention only 56%, 54%, 46%, 06%, 02% and 02% food handlers considered that loose motion, vomiting, abdominal pain, typhoid, jaundice, hepatitis respectively can be caused by unhygienic handling of food , while after intervention, this percentage increased to 84%, 84%, 74%, 30%, 24% and 14% respectively.

Table 4: Distribution of food handlers according to their knowledge on different type of foodborne disease.

Disease	Pre intervention		Post interv	ention
	No.	%	No.	%
Loose motion	28	56	42	84
Vomiting	27	54	42	84
Abdominal pain	23	46	37	74
Typhoid	03	06	15	30
Jaundice	01	02	12	24
Hepatitis	01	02	07	14

Table 5 shows the profession related hygienic practices among food handlers. Before intervention only 6%, 12%, 08%, 42% and 48% of food handlers used apron, cap, gloves, clean towels for wiping hands and first aid kit after getting injured. 74% of the food handlers used to work even after getting injured. After intervention, the percentage of food handlers using apron, cap, gloves, clean towels for wiping hands and first aid kit after getting injured increased to 14%, 50%, 36%, 84% and 68% respectively. The percentage of food handlers

working after getting injured reduced considerably to 24%.

Table 6 showing the knowledge on hand washing practices among food handlers. Before intervention 96%, 66%, 78% and 72% food handlers wash their hands after going to toilet, after cleaning the table, before preparing meal, after handling garbage respectively. After intervention this percentage increased to 100%, 84%, 92% and 94% respectively.

Table 5: Distribution of food handlers according to profession related hygienic practices.

Statement	Pre in	tervent	ion	Post intervention				
	Yes	%	No	%	Yes	%	No	%
Use of Apron	03	06	47	94	07	14	43	86
Use of cap	06	12	44	88	25	50	25	50
Use of Gloves	04	08	46	92	18	36	32	64
Use of clean towels for wiping hands	21	42	29	58	42	84	08	16
Use of first aid kit after getting injured	24	48	26	52	34	68	16	32
Work even after getting injured	37	74	03	26	12	24	38	76

Table 6: Distribution of food handlers on the basis of knowledge on hand washing practices.

Statement	Pre in	tervent	ion		Post intervention			
	Yes	%	No	%	Yes	%	No	%
Hand wash after going to toilet	48	96	02	04	50	100	00	00
Hand wash after cleaning table	33	66	17	34	42	84	08	16
Hand wash before preparing meal	39	78	11	22	46	92	04	08
Hand wash after handling garbage	36	72	14	28	47	94	03	06

Table no. 7. Distribution of food handlers according to workplace related hygienic practices.

Statement	Pre intervention				Post intervention			
Statement	Number	%	Number	%	Number	%	Number	%
Use of covered dustbin at the work place	39	78	11	22	46	92	04	08
Covering of prepared food and raw material	24	48	26	52	39	78	11	22

#### **DISCUSSION**

Maximum study subjects were in the age group of 26-35 years that is 50% which is similar to other studies and minimum in the age group from 45-50 years of age group that is maximum food handlers from young age group. In this 62% of food handlers reported they know about food born disease which was much more than the study conducted by Kubde et al in which only 27.9% of food handlers reported that they heard about food borne diseas. That is they were aware that food can be a source of infection if not handled properly. <sup>3,5,6</sup>

In this study use of apron, cap and gloves by food handlers is very less as compared to study conducted by Akabanda et al. But the use of apron, cap and gloves was increased after intervention in this study.<sup>5</sup>

So the knowledge and hygienic practices of food handlers were poor before the intervention which was very much improved after intervention. Maximum improvements were seen in personal hygienic practices.

#### **CONCLUSION**

Food, safety knowledge and hygienic practices among food handlers improved by 73% after the educational intervention. Maximum improvement is seen in the use of gloves, caps and hand wash practices.

#### Recommendations

Street food vendors should be trained in food hygiene practices. There should be an on-going awareness and education at regular intervals. Local government agencies

should consider establishment of street food centers with adequate supporting utility services, such as portable water and waste disposal to improve vendor practices.

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Institutional Ethics Committee

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