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ANALYSIS OF FOOD HYGIENE KNOWLEDGE AND PRACTICES OF FOOD SAFETY OFFICERS TO CONTROL FOODBORNE OUTBREAKS

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Abstract : Food Borne Disease can be defined as any disease usually either infectious or toxic in nature caused by agents that enter the body through ingestion of food. A local incident can quickly become an international emergency due to the speed and range of product distribution, impacting health, international relations and trade. This study aims to analyse the level of knowledge of Food Safety Officers in food hygiene and their practices to control foodborne diseases. The research sample consists of 25 FSOs. The data were collected using a questionnaire. The data were analysed using SPSS 21.0 for windows. One way ANOVA test was done to compare the knowledge regarding food safety and hygiene of the respondents with their educational level. The average score regarding the knowledge was high among the respondents having MSc and least among BVSc holders. 44% of the respondents had a knowledge score of <5 in food safety and hygiene and only 8% secured a score of 9. The mean value of the knowledge score is 5.72 with a standard deviation of 2.092. The lowest score for the respondent's practice was 22 and 40% of the respondent's score lies in between 29 and 39, and only a 8% had a score greater than49. The mean value of the score was 40.80 with a standard deviation of 6.245.

Key words: FSOs, Foodborne diseases, food hygiene

1. INTRODUCTION

Food is an essential part of everyone's lives. It gives us the energy and nutrients to grow and develop, be healthy and active, to move, work, play, think and learn. Food is comprised of an array of chemicals which are a pure source of nutrients to sustain life. Some of the foods are consumed as such while others subjected to some processing including cooking and storage before they are eaten.(1)

Food can also be a vehicle of disease transmission if contaminated with harmful microbes (bacteria, viruses or parasites) or chemicals/toxins. Food Borne diseases are a world wide problem of great magnitude both in terms of human suffering and economic costs. Food Borne Disease can be defined as any disease usually either infectious or toxic in nature caused by agents that enter the body through ingestion of food. Food Borne Diseases could be due to microbial pathogens, naturally produced toxins or other chemicals that have entered the food supply chain.(2) Despite concerted efforts for several decades, food borne diseases remain a major global public health issue with substantial morbidity and mortality associated with the consumption of contaminated food stuffs.(3)

When certain disease-causing microbes (bacteria, viruses or parasites) contaminate food, they can cause foodborne illness, often called "food poisoning". Foods that are contaminated may not look, taste or smell any different from foods that are safe to eat. Salmonella, Campylobacter, Shigella and Escherichia coli (also called E. coli) are the common bacteria that cause foodborne illnesses. Salmonella is the most common cause of foodborne illnesses and meat, egg and seafood are common food sources for much illnesses. Some foodborne bacteria like Listeria monocytogenes can even grow inside the refrigerator in ready-to-eat food. Staphylococcus aureus bacteria grow in food and produce toxins that cause staphylococcal food poisoning. Viruses that commonly cause foodborne illnesses are norovirus and hepatitis A virus (HAV), which can be transmitted through contaminated water as well as contaminated surfaces.(4)

Foodborne bacteria are often naturally present in food and under the right conditions, a single bacterium can grow into millions of bacteria in a few hours. These bacteria multiply rapidly on foods with lots of protein or carbohydrates when food temperature is between 5 °C and 60 °C, which is often known as the "food danger zone". Therefore, most foodborne illnesses and outbreaks are reported during the summer months.(5)

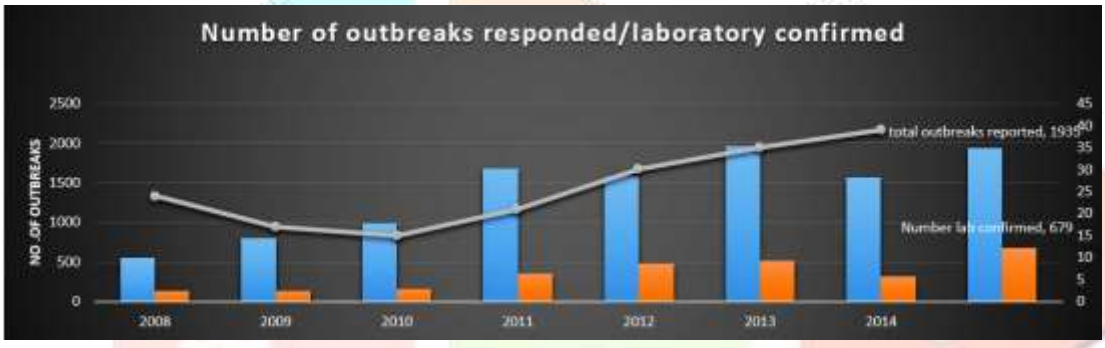
Bacteria grow and multiply on some types of food more easily than on others. The types of foods that bacteria prefer include meat, poultry, dairy products, eggs, seafood, cooked rice, prepared fruit and salads. These foods are more likely to be infected by foodborne bacteria but other foods could also be infected or cross-contaminated by them if appropriate food safety measures are not taken during preparation, storage, transportation and handling .(6)

The symptoms of Food borne diseases range from mild and self-limiting (nausea, vomiting and diarrhoea with or without blood) to debilitating and life-threatening (such as kidney and liver failure, brain and neural disorders, paralysis and potentially cancers) leading to long periods of absenteeism from work and premature death. After eating tainted food, abdominal cramps, diarrhoea and vomiting can start as early as one hour or within three days depending on the foodborne pathogen, type of toxin and level of food contamination. (7)

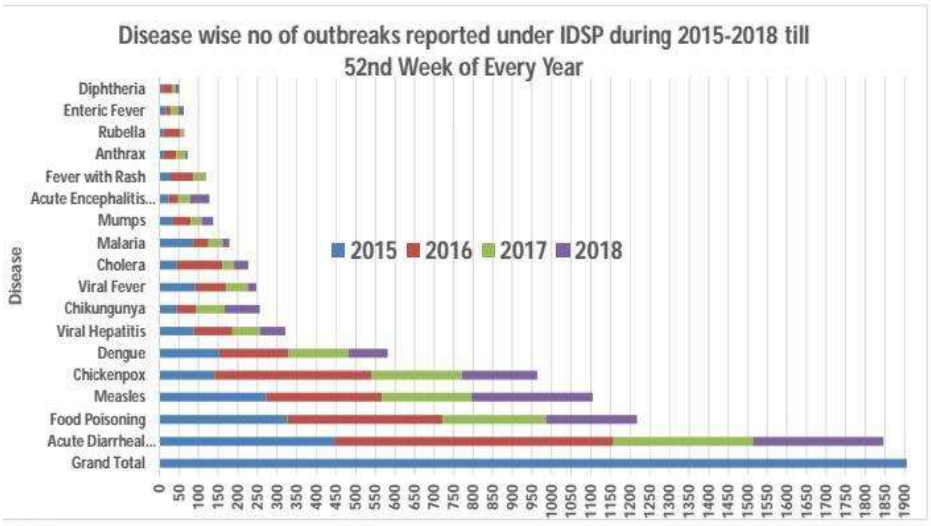
Food borne diseases can also affect economic development through the tourism, agriculture and food export industries. In a globalized world, Food borne diseases do not recognize borders. A local incident can quickly become an international emergency due to the speed and range of product distribution, impacting health, international relations and trade.(8)

Recently the World Health Organization (WHO) established the Food borne Disease Burden Epidemiology Reference Group (FERG) which estimated that 31 food borne diseases resulted in over 600 million illness and 420000 death world wide. (9)

In India, the burden of food borne disease is not known. Most food borne diseases go unreported, only few are reported in the media, usually those with high morbidity and or occurring in urban areas. In such a condition controlling the outbreaks, detection and removal of implicated foods, identification of the factors that contribute to the contamination, survival and distribution of the suspected agent, prevention of any future outbreaks and strengthening of food safety policies and programmes is not possible. (10)



According to the weekly outbreak report of the IDSP, a total of 553 outbreaks were reported in 2008, 799 out breaks in 2009, 990 0ut breaks in 2010, 1675 outbreaks in 2011, 1584 in 2012, 1964 outbreaks in 2013, 1562 outbreaks in 2014, 1935 in 2015, 2679 outbreaks in 2016 and 1714 have been reported in 2017. Majority of the reported outbreaks included those of Acute Diarrhoeal Diseases and Food Poisoning.(11)



According to the National Health Mission's Weekly Outbreak Report,2018, Food Poisoning holds the second position in the total no of Disease Outbreaks reported in India. (11)

2. MATERIALS AND METHODS

The study was conducted on food safety officers in Kerala state. The researcher obtained permission from Food Safety Commissioner of Kerala to conduct the study. The study sample from Pathanamthitta, Alappuzha and Malappuram districts. The sample size was 25 as it was done as a pilot study. The data was collected through a questionnaire. The questionnaires were given to the FSOs and the researcher collected back immediately after they filled it out.

The obtained data were examined using the SPSS 21.0 software. Required tables and graphs were prepared using the frequencies and percentages. One Way ANOVA test was done to compare the knowledge regarding food safety and hygiene of the respondents with their educational level.

3. RESULT AND DISCUSSION

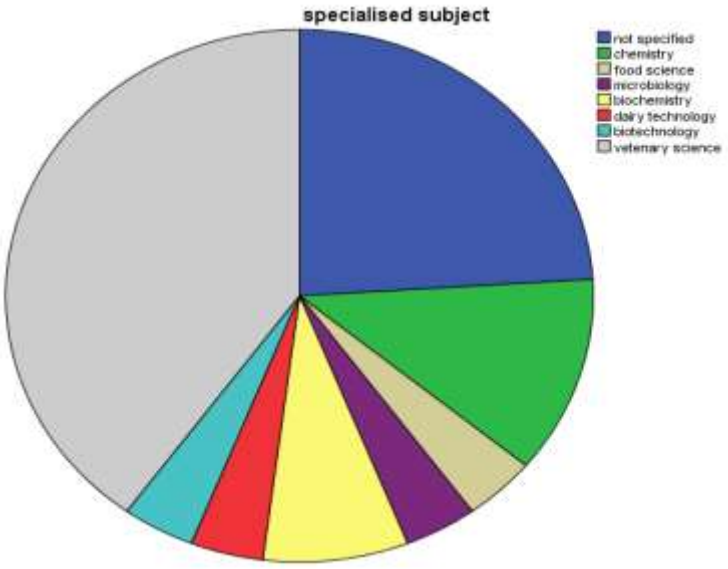
General profile

Parameters	Responses in %(n=25)
Age (years)	
20-29	38
30-39	34
40-49	8
50<	20
Gender	
Male	32
Female	68
Education level	
Bsc	24
MSc	32
BVSc	36
Others	8

Most of the respondents, that is about 38% were in the age group of 20-29 years, 34% were in the age group of 30-39 years, 8% were in 40-49 years group and the remaining 20% were more than 50 years of age. 68% of the participants were women and the remaining 32% were men.

32% of the respondents were post graduates. 36% studied BVSc, 24% had BSc degree in various subjects like chemistry, physics etc. The remaining 16% were studied other courses such as Biotechnology, Microbiology etc.

Most of the respondents ie.40% were from veterinary background and 24% not specified their subject of specialization.



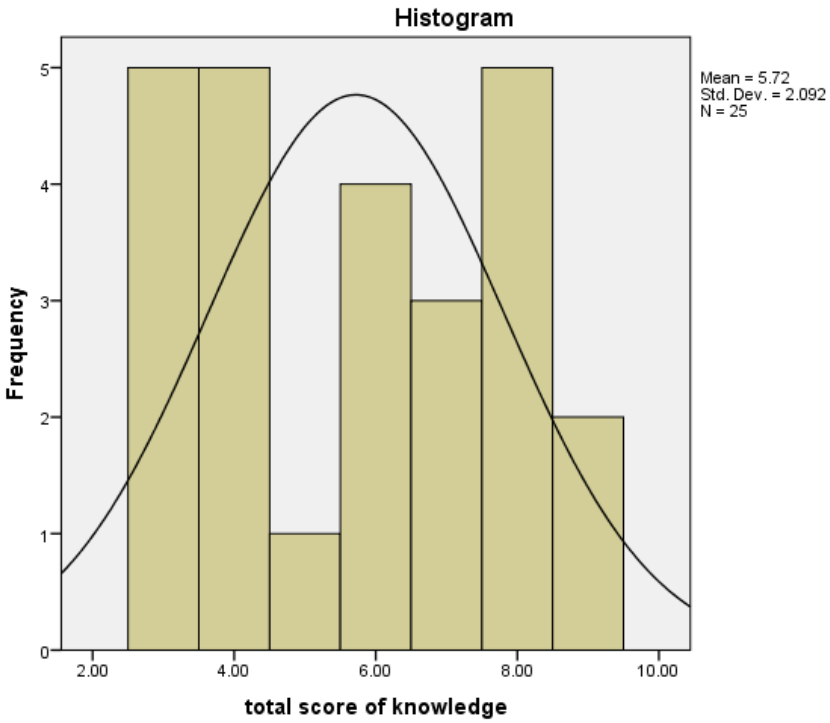
4. Work details

96% of the participants were in the designation of Food Safety Officers and 4% were Nodal Food Safety Officers.

84% of the participants had less than 2 years experience, 12% were in 2-5 years group and only 4% had more than 5 years of experience. There was no one with more than 10 years experience. All of the respondents got training on food safety and 36% of them got it six months prior to the date of data collection. 28% of them got the training in between six months and one year prior to data collection.20% got before 1-2 years and 16% got before 2 years of data collection.

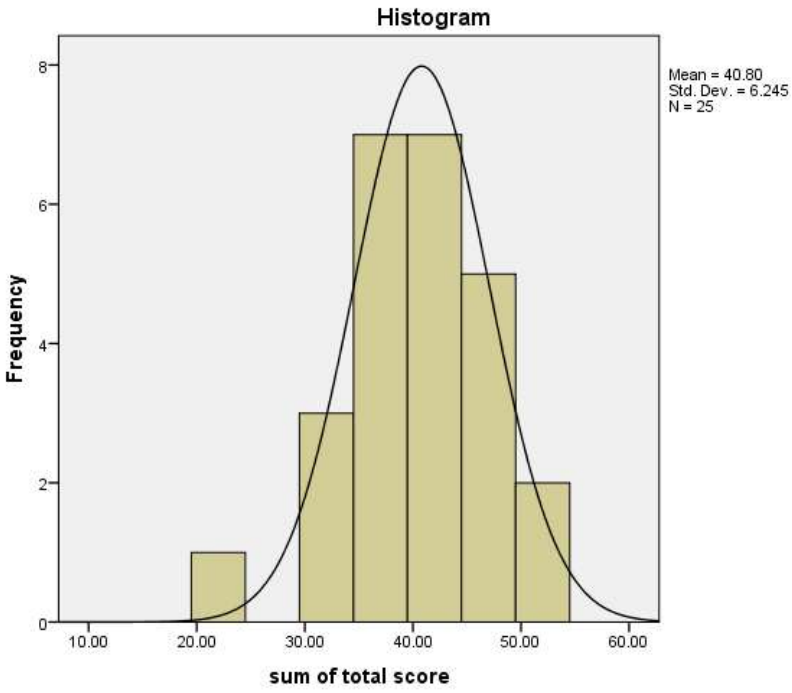
5. Knowledge

44% of the respondents had a knowledge score of <5 in food safety and hygiene, 48% of the respondents values lies in between 6 an 8. Only 8% secured a score of 9. The mean value of the knowledge score is 5.72 with a standard deviation of 2.092



6. Practices

The lowest score for the respondent's practice was 22 and 4% secured this score. 40% of the respondent's score lies in between 29 and 39, percentage of respondents in the score group of 39 to 49 was 48 and only a 8% had a score greater than49. The mean value of the score was 40.80 with a standard deviation of 6.245.



80% of the respondents reported that they were attended the outbreaks of food poisoning many times. Some of them were food poisoning happened at ICDS training programme in Pathanapuram, Food poisoning due to adulterated honey at a marriage reception in Nilampur etc.

One way ANOVA test was done to compare the knowledge regarding food safety and hygiene of the respondents with their educational level. The average score regarding the knowledge was high among the respondents having MSc(6.37) and least among BVSc holders(5.22).

7. CONCLUSION

The knowledge level on food safety and hygiene found low in most of the food safety officers. The score for their practices related to food safety also low. Lack of thorough knowledge in concerned aspects, they will fail to implement the rules and regulations in to the practical side. It is important to note that addressing the risk of food borne diseases also included in their duty. Ultimately it requires the implementation of a well functioning and integrated food control system. So the government should make sure that it should be followed according to the Act by the FSOs. For that, it should be necessary to develop a training manual which contains all the important aspects in food safety including food poisoning, food borne diseases, food micro biology, storage temperatures etc.

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