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# A Study on Food Safety Knowledge and Related Practices

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## ABSTRACT

Eating a safe food continues to be one of the major concerns of the societies. An important factor for a successful food control is to create awareness for food safety and quality information, education and communication. According to FSSAI, Food Safety Officers conduct inspection of the food establishments, and they must have adequate knowledge in food safety to perform their duties and responsibilities. This study is carried of the respondents had a moderate knowledge in food safety. Only 20% of the respondents were included in the required group of high knowledge category. Karl Pearson correlation coefficient between knowledge score and practice score is 0.361( $P < 0.05$ ) shown that the strength of the association between knowledge and practice is medium. The chi square test shows that the level of knowledge is significantly associated with their educational qualification. The proportion of medium/high level of knowledge is more among post graduates in Food Science. The findings shown a need to update the qualifications required for a Food Safety Officer.

**Key words:** Food safety, Food control, Food safety knowledge, FSSAI, Food safety officers

Eating a safe food continues to be one of the major concerns of the societies. Every year, millions of people worldwide are hospitalized or die as a result of eating contaminated foods. World Health Organization identified factors associated with food borne illnesses including poor personal hygiene and sanitation, cross contamination from other foods, inadequate cooking, temperature abuse during storage and purchasing food from unsafe sources. Food workers and handlers may contribute food borne illnesses. Official food control is one of the cornerstones of food safety [1-3]. The responsibility of food safety is primarily the food business operator's but food control authorities verify that the handling of food products complies with food safety legislation. The authorities have several control methods to intervene in case of non-compliance in food premises. Negotiations and on-site education by the inspector are first line control measures and are considered efficient. An important factor for a successful food control is to create awareness for food safety and quality information, education and communication [4]. According to FSSAI, Food Safety Officers conduct inspection of the food establishments, and they have to complete training as specified by the Food Authority in a recognized institute. So, they must have adequate knowledge in food safety to perform their duties and responsibilities. In this context, this study is carried out with the purpose of investigating the relationship between the

educational qualification and knowledge on food safety of the food inspectors. The investigator also aimed to check the association between knowledge and practice of the respondents.

- To find out the relationship between educational qualification and knowledge on food safety of the FSOs
- To understand the association between knowledge and practices.

## MATERIALS AND METHODS

Based on the objectives, the study was conducted to find out the relationship between educational qualification and food safety knowledge of the respondents. Also assessed the association between knowledge and current practices of the respondents. 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 Thrissur, Kannur, Palakkad and Malappuram districts. The sample size was 50 as it was a preliminary 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 collected data was analyzed by suitable statistical tool and interpreted the results.

## RESULTS AND DISCUSSION

### General profile

The (Table 1) reflects that 26% of the respondents were graduates in various subjects like chemistry, physics, biochemistry etc. 28% studied veterinary science as their degree course. 30% of them were post graduates including food science

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also. The remaining 16% studied other courses such as BAMS, BHMS etc. [5].

Table 1 Education level of respondents

Variables	Frequency	Percent
BSc	13	26.0
MSc	15	30.0
BVSc	14	28.0
Others	8	16.0
Total	50	100.00

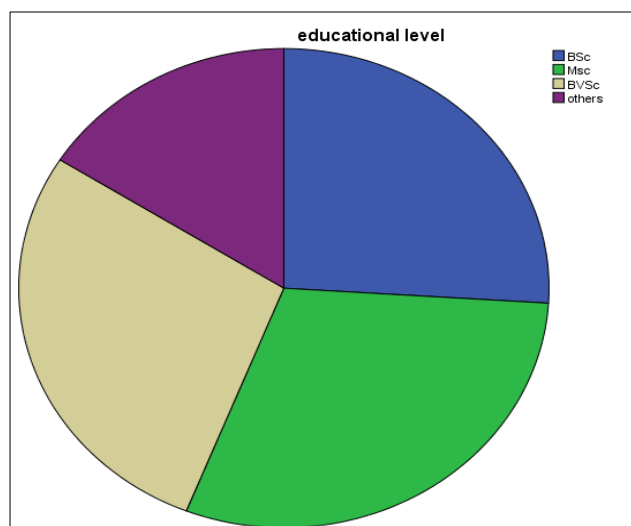


Fig 1 Education level

Table 2 Participation of gender

Variables	Frequency	Percent
Male	20	40
Female	30	60
Total	50	100.00

From the (Table 2) 60% of the participants were women and the remaining 40% were men.

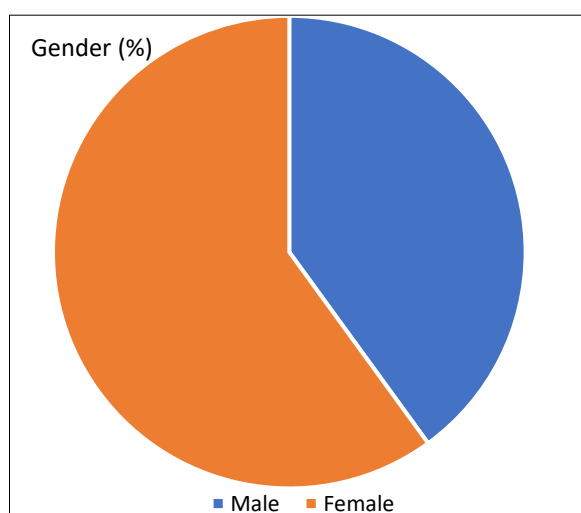


Fig 2 Participation of gender

Table 3 Participation of gender

Variables	Frequency	Percent
20-29 years	18	36.0
30-39 years	20	40.0
40-49 years	4	8.0
>50 years	8	16.0
Total	50	100.00

Data depicted in (Table 3) revealed that 40% of the of the respondents were in the age group of 30-39 years, 36% were in 20-29 years group, 16% were in >50 years group and the remaining 8% included in 40-49 years age group [6].

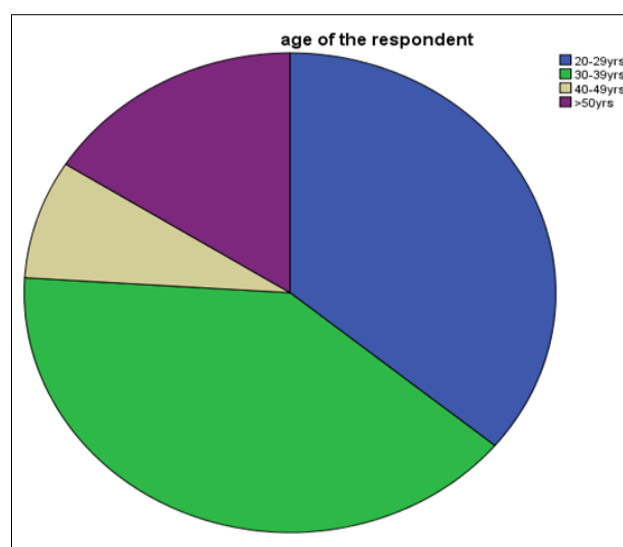


Fig 3 Age of respondents

Table 4 Respondents knowledge on food safety

Topics	No. of correspondents (N=50)
The most important food safety problem arising from unsafe food	50
Items needed by food poisoning bacteria to grow	25
Correct statement regarding food poisoning	46
Common reasons for food spoilage	34
Occurrence of food poisoning	13
Ways to prevent food spoilage	15
Critical situation which requires hand washing	25
Recommended freezer temperature to prevent food poisoning	38
Thawed foods should do when they felt warm due to power off	25
Example of poor manufacturing practice	42

Table 5 Knowledge score of the respondents

Variables	Frequency	Percent
Low	15	30.00
Medium	25	50.00
High	10	20.00
Total	50	100.00

All of the respondents correctly answered to the question on the most important food safety problem arising from unsafe food. Only 50% knew about the items needed by food poisoning bacteria for their growth. 92% of them correctly marked the statement regarding food poisoning. 32% of the respondents didn't know the common reasons for food spoilage. Most of the respondents that is, 74% didn't know the occurrence of food poisoning [7-8]. Only 30% knew the ways to prevent food spoilage. 50% of them only knew the critical situation which requires hand washing. 76% of the respondents correctly answered the recommended freezer temperature to prevent food poisoning. 50% didn't know, what to do the thawed foods which felt warm due to power failure. 84% of them were aware about the poor manufacturing practices [9].

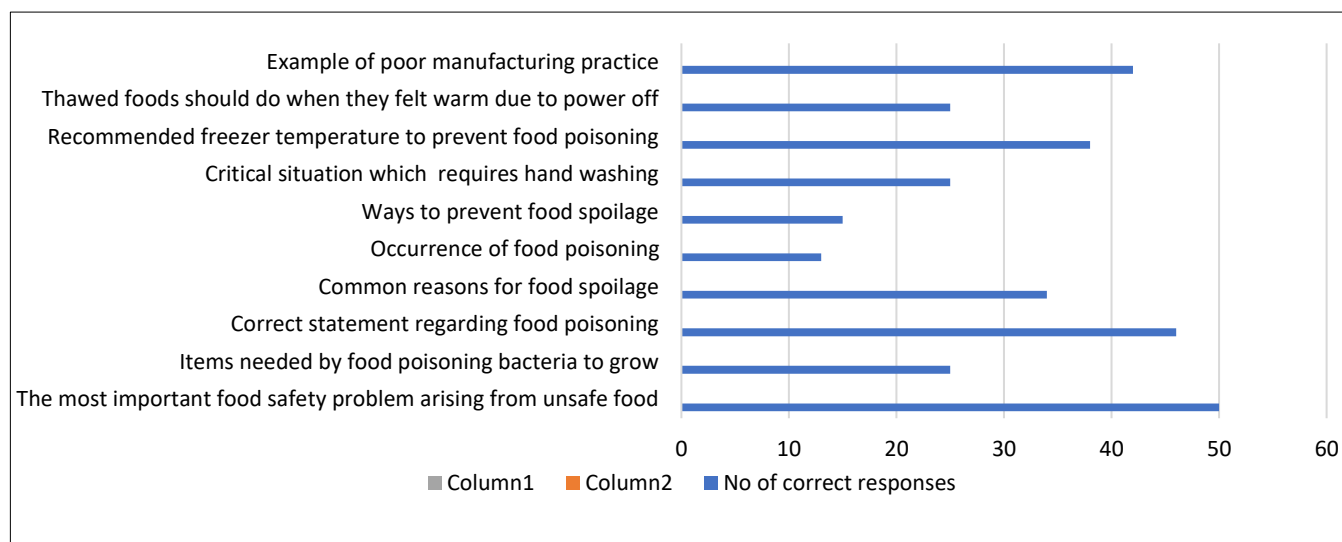


Fig 4 Respondent's Knowledge on Food Safety



Fig 5 Knowledge score of respondents

The total knowledge score of the respondents lies in between 4 and 9. Nobody secured the full score of 10. The mean score of knowledge is 6.2, median is 6, with a standard deviation of 1.20.

According to the score obtained from knowledge level questions, the researcher classified the respondents in to three group, that is score 0 to 5 included in low group, score 5 to 7 included in medium group and score 7 to 10 included in high group, as the respondents would have thorough knowledge in their relevant field. 50% of the respondents included in moderate knowledge group, 30% included in low knowledge group. Only 20% of the respondents were included in the required group of high knowledge category [10].

#### Respondents practices

The self-reported practices of the respondents showed that only 12% were checking the labels on food always and most of them (60%) were doing it often. 10% of them were doing inspections always at the public distribution system to ensure quality. Only 12% of the respondents always prepared food safety plans for Panchayat and Municipality. 10% of them were doing inspection in the vehicles for its for carrying food [11]. Only 6% made inquiries and inspections always as it was necessary and 20% were doing it often.

Table 7 Practice of respondents

Topics	Always	Often	Sometimes	Rarely	Never
Checks the labels on food for sale	6	30	10	4	
Doing inspections at the public distribution systems to ensure quality	5	7	10	17	11
Prepare food safety plans for Panchayath and Municipalities	6	4	25	5	
Stop and inspect any vehicle suspected to contain any unsafe food	5	5	10	9	21
Make inquiries and inspections as may be necessary	3	10	15	16	6

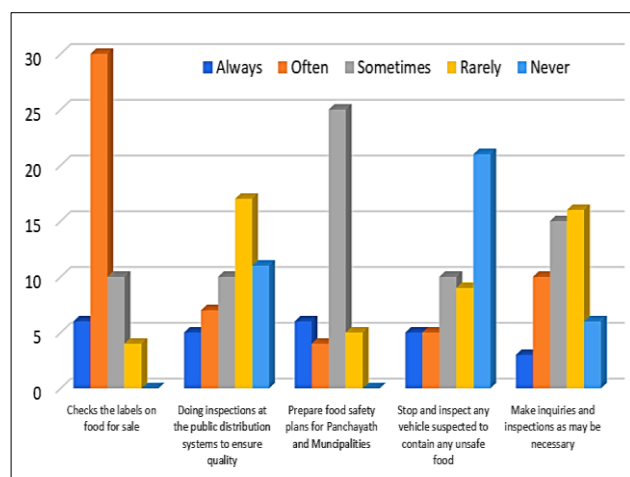


Fig 6 Current practice of respondents

Table 9 Correlation between knowledge score and practice score

		Knowledge score of the respondents	Practice score of respondents
Knowledge score of the respondents	Pearson correlation	1	0.361*
	Sig. (2-tailed)		0.010
	N	50	50
Practice score of the respondents	Pearson correlation	0.361*	1
	Sig. (2-tailed)	0.010	
	N	50	50

$$r = 0.361, p = 0.000$$

\*Correlation is significant at the 0.05 level (2-tailed)

Karl Pearson correlation coefficient between knowledge score and practice score is .361( $P < 0.05$ ) shows that there is

significant positive correlation between knowledge and practice. i.e., The strength of the association is medium

Table 10 Knowledge score of the respondents

Knowledge score of the respondents	B. Sc. (N=13)	M. Sc. (N=15)	B. VSc. (N=14)	Others (N=8)	Total (%)
Low (%)	30.8	0	35.7	75	30
Medium (%)	69.2	33.3	64.3	25	50
High (%)	0	66.7	0	0	20
Total (%)	100	100	100	100	100

From the (Table 10) 30% of the respondents were included in the “Low” knowledge category and they had BSc (physics, Chemistry, etc.), B. VSc, BAMS, BHMS etc. as their educational qualification. 50% of them were in “Medium” knowledge category in which most of them had B. Sc. and B. VSc. as their qualification. Only 20% included in the required group of “High” knowledge category and they had MSc Food Science and allied subjects as their educational qualification.

The proportion of medium/high level of knowledge is more among post graduates in Food Science and allied subjects [12].

## CONCLUSION

In this study, the chi square test shows that the level of knowledge is significantly associated with their educational qualification. The proportion of medium/high level of knowledge is more among post graduates in Food Science. The findings shown a need to update the qualifications required for a Food Safety Officer as there are so many other courses like BAMS, Unani, BHMS, BVSc etc. were included in the list provided by Government, as they are not directly related to food safety. Lack of thorough knowledge in concerned aspects, the Food Safety Officers will fail to implement the rules and regulations in to the practical side.

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Table 11 Chi-square tests

Chi-square tests	Value	df	Asymp. Sig. (2-sided)
Pearson chi-square	36.755 <sup>a</sup>	6	.000
Likelihood ratio	40.575	6	.000
Linear-by-linear association	4.799	1	.028
N of valid cases	50		

<sup>a</sup>9 cells (75.0%) have expected count less than 5.

The minimum expected count is 1.60

The chi square test shows that the level of knowledge is significantly associated with their educational qualification.

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