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RESEARCH ARTICLE

To Assess the Awareness about Safe Food among Patients and their Attenders; A Cross Sectional study in Tertiary Care Hospital of Indore City

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ABSTRACT

Background: Unsafe food poses global health threats, endangering everyone. Infants, young children, pregnant women, the elderly and those with an underlying illness are particularly vulnerable. **Objective**: To assess the awareness of safe food among patients and their attenders that came in outpatient department in the selected tertiary care hospital. **Methodology**: A cross-sectional study conducted among 546 study subjects where 279 (51.1%) were patients who came for the first time, at the time of survey and 267 (48.9%) were attenders who came with their respective patient were selected randomly and interviewed using modified WHO pro-forma. **Result**: It shows that mean percentage score for the good awareness was 50.23%. While comparing among study subjects it was found that overall awareness was higher among attenders. Awareness regarding safe food was found to be extremely significant ($p < 0.001$) among attenders while compared with patients in the categories such as food is not always safe to eat, if it smells ok and looks good with p-value (p=0.001), followed by there are some microorganism that are useful for making good food and drinks with p-value (p=0.001) and how to prevent cross-contamination with p-value (p=0.001) respectively. **Conclusion**: The lack of awareness regarding safe food was being served as potential risk in our tertiary hospital. There is an urgent need of training programme for patients and their attenders that came do the OPD departments of the tertiary care hospital.

Introduction

With the increase in urbanization, industrialization, tourism and mass catering systems, food borne diseases are on the increase throughout the world. These diseases, usually either infectious or toxic in nature are caused by agents that enter the body through ingestion of food. Unsafe food containing harmful bacteria, viruses, parasites or chemical substances, causes more than 200 diseases ranging from diarrhea to cancers. Food borne and waterborne diarrheal diseases kill an estimated 2 million people annually, including many children [1].

Unsafe food poses global health threats, endangering everyone. Infants, young children, pregnant women, the elderly and those with an underlying illness are particularly vulnerable. Food borne diarrheal disease kills an estimated 2 million people annually, particularly in developing countries [1].

Food-borne diseases have been increasing in recent years, with a greater impact on the health and economy of developing countries than developed countries. According to the World Health Organization, in 2005 alone, 1.8 million people died from diarrheal diseases, and most of these cases were attributed to the ingestion of contaminated food and drinking water [2].

According to Food Net, the United States' food safety report card, significant progress had been made toward decreasing food borne illnesses caused by key pathogens, except Salmonella [3]. This decline is good news, but this rate is still higher than Healthy People 2020 goals [4].

India, being a culturally and socially diverse nation, food safety awareness differences were been noted in region-wise and in food handlers but research regarding the same is inadequate among patients as they were the sufferers. Therefore, in this background an attempt was made to study with an objective to assess the awareness of safe food among patients and their attenders that came in outpatient department in the selected tertiary care hospital.

Material and Methods

Research design and location

This was a cross-sectional Interview based study conducted in the OPD of Sri Aurobindo Medical College and PG Institute, Indore

Study institute was selected randomly by lottery method among the tertiary care hospitals of the Indore city.

The study subjects were patients and their attenders that attained the OPD of Sri Aurobindo Hospital on the National Nutrition Week which was held on 1st week September 2016.

Targeted Population, Setting and Instruments for getting Information

A total of 546 study subjects who attained the OPD were the targeted population for this study. Modified world health day pro-forma[5] for awareness of safe food was used. The pro-forma consists of 5 questions. All questions about awareness were in dichotomous pattern such as true response or false response.

The interns enrolled in the department of community medicine of the medical college were well oriented regarding the study and collecting the data using interview technique by initially selecting the participants that came for the first time at the time of survey in the OPD department and simultaneously separating patients from their attenders so that correct awareness can be assessed on same particular time. Investigators clearly stated to the study subjects that the information will be used only for scientific purposes and verbally consent was taken from all the study subjects.

Data Analysis

A variable file was created on MS Office Excel 2010. The data was analyzed using online software Graph-pad. The descriptive statistics were performed for each question was expressed in percentage basis. The Chi-square test was

applied with the p-value of less than 0.05 considered as significant.

Results

Table 1: Socio-demographic status of study subjects

Variables	Patients (n= 279)		Attenders (n = 267)		Total (n = 546)	
	n	(%)	n	(%)	n	(%)
Age (years)						
15 – 30	120	(43.0)	159	(59.6)	279	(51.1)
31 – 45	91	(32.6)	58	(21.7)	149	(27.3)
46 – 60	25	(9.0)	41	(15.4)	66	(12.1)
> 60	43	(15.4)	9	(3.3)	52	(9.5)
Gender						
Male	196	(70.3)	151	(56.6)	348	(63.7)
Female	83	(29.7)	116	(43.4)	198	(36.3)
Education						
Graduate	93	(33.3)	70	(26.2)	163	(29.9)
Intermediate	45	(16.1)	63	(23.6)	108	(19.8)
Higher secondary	48	(17.2)	55	(20.6)	103	(18.9)
Middle school	32	(11.5)	48	(18.0)	80	(14.7)
Primary school	22	(7.9)	10	(3.7)	32	(5.7)
Illiterate	39	(14.0)	21	(7.9)	60	(11.0)

Table 1: Represents socio-economic status of 546 study subjects out of which 279 (51.1%) were patients who came for the first time, at the time of survey and 267 (48.9%) were attenders came with their respective patient. According to age in complete years; it was found that 279 (51.1%) study subjects were from age group of 15 – 30 where 159 (59.6%) subjects were attenders more than patients i.e. 120 (43.0%). Followed by 149 (27.3%) study subjects were in age group of 31 – 45 years where 91 (32.6%) were patients more than attenders i.e. 58 (21.7%). According to gender; majority of the study subjects were males 348 (63.7%) and 198 (36.3%) were females; out of which mainly were patients i.e. 196 (70.3%) than 151 (56.6%) attenders, whereas above 60 years of study subjects were mainly patients i.e. 43 (15.4%). While according to education status; overall 163 (29.9%) study subjects were graduates, out of which patients were more graduate 93 (33.3%) than attenders i.e. 70 (26.2%) whereas 60 (11.0%) study subjects were illiterate in the study. Where, 39 (14.0%) patients were illiterate more than the attenders i.e. 12 (7.9%) in the present study respectively.

Figure 1: Distribution of study subjects as patients for awareness about safe food

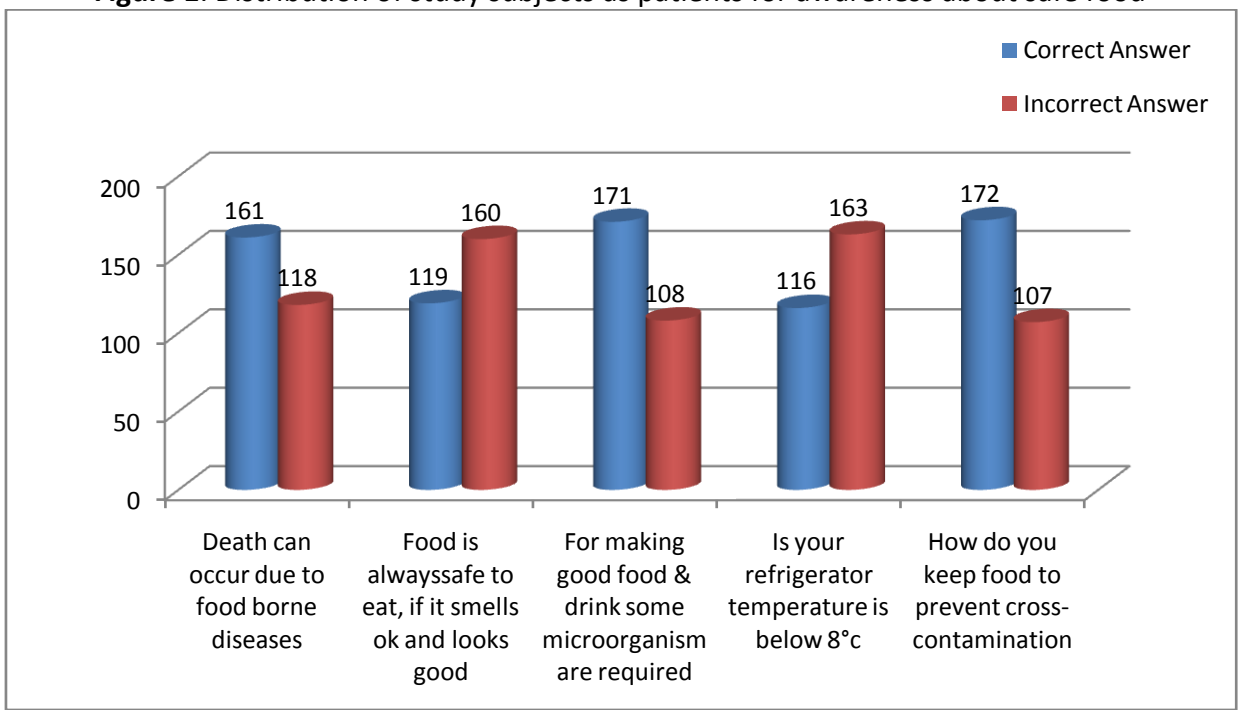

Figure 1: Represents the patient's positive awareness about safe food; where 161 (57.7%) patients correctly answered that death can occur due to food borne diseases, followed by 119 (42.7%) subjects answered that food is not always safe to eat, if it smells ok and looks good. 171 (61.3%) subjects correctly answered that some microorganisms were required for making food and drinks. While, 116 (41.6%) subjects answered correctly that their home refrigerator were below 8 ° c, whereas 172 (61.6%) subjects answered various correct ways how they prevent cross contamination in the study respectively.

Figure 2: Distribution of study subjects as attenders for awareness about safe food

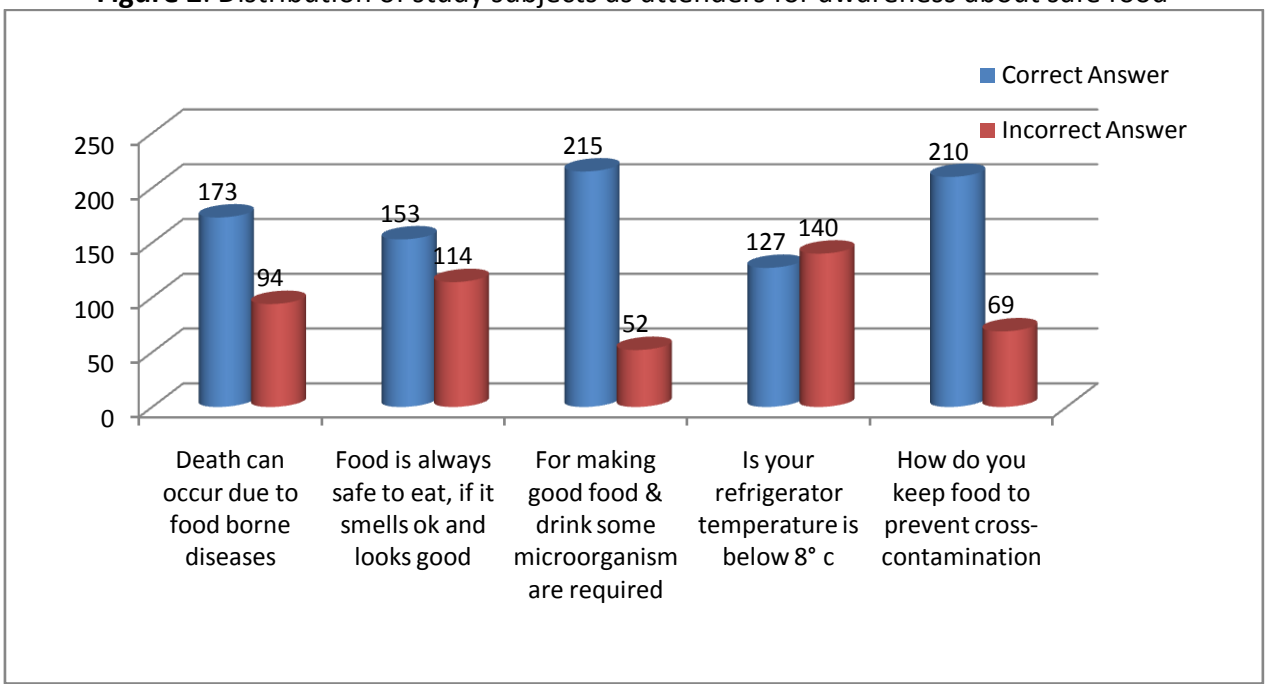

Figure 2: Represents the attender's positive awareness about safe food; where 173 (64.87%) patients correctly answered that death can occur due to food borne diseases, followed by 153 (57.3%) subjects answered that food is not always safe to eat, if it smells ok and looks good. 215

(80.5%) subjects correctly answered that some microorganisms were required for making food and drinks. While, 127 (47.6%) subjects answered correctly that their home refrigerator were below 8 ° c, whereas 210 (78.7%) subjects answered various correct ways how they prevent cross contamination in the study respectively.

Table 2: Distribution of study subjects according to positive awareness about safe food among patients and attenders

Awareness	Patients n (%)	Attenders n (%)	Total n (%)	Chi-Sq	*p*-Value
Death can occur due to food borne diseases	161 (57.7)	173 64.8)	334 (61.2)	2.89	0.089 (MS)
Food Is always safe to eat, if it smells ok and looks good	119 (42.7)	153 (57.3)	272 (49.8)	11.7	0.001**
For making good food & drinks some microorganism are required	171 (61.3)	215 (80.5)	386 (70.7)	24.4	0.001**
Is your refrigerator temperature is below 8° c	116 (41.6)	127 (47.6)	243 (44.5)	1.98	0.159
How do you keep food to prevent cross-contamination	172 (61.6)	210 (78.7)	382 (70.1)	18.8	0.001**

(MS): Marginally significant; **: Extremely significant at p-value (< 0.001)

Table 2: Represents the study subjects according to positive awareness among patients and attenders; it was found that overall awareness was higher in attenders as compared to patients that came in the OPD of the tertiary care hospital. According to the positive awareness about death can occur due to food borne diseases; 173 (64.8%) attenders had higher awareness compared to patients i.e. 161 (57.7%). However after applying test of significance; it was found to be marginally significant [chi sq; 2.89] with p-value (p=0.089).

Similarly according to positive awareness that food is not always safe to eat, if it smells ok and looks good; 153 (57.3%) attenders had higher awareness compared to patients i.e. 119 (42.7%), however after applying test of significance; it was found to be extremely significant [chi sq; 11.7] with p-value (p=0.001).

While according to positive awareness that there are some microorganism that are useful for making good food and drinks; 215 (80.5%) attenders had higher awareness compared to patients i.e. 171 (61.3%), however after applying test of significance; it was found to be extremely significant [chi sq; 24.4] with p-value (p=0.001).

Similarly while assessing according home refrigerator temperature; 127 (47.6%) attenders had higher awareness compared to patients i.e. 116 (41.6%), however after applying test of significance; it was found to be non-significant [chi sq; 1.98] with p-value (p=0.159) it is due to the fact that both patients as well as attainders had poor awareness about their home refrigerator.

Simultaneously while assessing how you keep food to prevent cross-contamination; 210 (78.7%) attenders had higher awareness compared to patients i.e. 172 (61.6%), however after applying test of significance; it was found to be extremely significant [chi sq; 18.8] with p-value (p=0.001) in the study respectively.

Discussion

In general, the overall awareness was high with a mean percentage score of 50.23%. Study subjects demonstrated good awareness in the categories such as 61.2% were aware that food borne diseases can cause death followed by 70.7% were aware that there are some micro-organisms which were helpful for making good food and 70.1% were aware about how they prevent cross contamination to avoid infection. But, there are categories where, study subjects had less awareness such as; 44.5% subjects only knew about the refrigerator temperature and 49.8% knew that food which always looks good is not always safe to eaten. Similar study [6] was conducted among 124 food handlers in 32 school canteens in Portugal, found that the food handlers displayed reasonable level of knowledge

in personal hygiene and cross contamination, but fared worse in other areas.

The level of awareness in our study was influenced by education of the study subjects. Similar study conducted in tertiary care hospital of Tamil Nadu, India they found low education level influenced the knowledge of food borne diseases in their study [7]. On the other hand, other studies showed that their study subjects had low level of knowledge about food hygiene issues. In a study that was performed in small and micro enterprises, to assess food handlers' knowledge on food hygiene (n = 159), in South Africa, the average percentage of correct answers was 46.0% [8] and in another study in Ankara, Turkey, the mean food safety knowledge score of food handlers (n = 764) was 43.4% ± 16.3% [9].

In our study 49.8% knew that food which always looks good is not always safe to eaten it means 50.2% study subjects were still unaware similar study was conducted among (n=444) food handlers, employed in 104 small food businesses where 57.0% food handlers wrongly believed that they can tell by sight, smell and taste weather the food is ok or contaminated with food poisoning bacteria [10].

Our study showed satisfactory knowledge 61.9% of refrigerator's control, but there are studies with both good knowledge [11] and lack of knowledge [10, 12] regarding temperature control measure to reduce the risk of food poisoning.

Temperature control of ready to eat food and cooked food are crucial steps to prevent the growth of food borne pathogen to an infectious level. Specifically, improper holding temperature and slow cooling of hot foods, promote growth of B. cereus and Cl. perfringens to disease-causing levels [13]. Moreover, improper storage of ready to eat food facilitates the growth of Listeria monocytogenes to an infectious level.

Conclusion

The lack of awareness regarding safe food was being served as potential risk in our tertiary hospital. There is an urgent need of training programme for patients and their attenders that came do the OPD departments of the tertiary care hospital for protecting their own self from being ill from controllable food spoiling pathogens. The results of this study may help in identifying proper and suitable methods for planning health education programs for patients and their attenders to improve their knowledge, attitudes, and practices.

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Conflicts of Interest

The authors declare no conflict of interest in the present study.

References

1. World Health Organization. Food Safety [Internet]. 2014 [cited 12 September 2016]. Available from: http://www.who.int/mediacentre/factsheets/fs399/en/

2. World Health Organization. (2007). Food safety and food-borne illness. Fact sheet No. 23. Available at http://wwwwho.int/mediacentre/factsheets/fs237/en/

3. CDC.gov. Food Net Homepage | CDC [Internet]. 2015 [cited 13 September 2016]. Available from: http://www.cdc.gov/foodnet/ index.html

4. Healthypeople.gov. Food Safety | Healthy People 2020 [Internet]. 2014 [cited 25 September 2015]. Available from:

http://www.
healthypeople.gov/2020/topics-objectives/topic/food-safety/national-snapshot

5. World Health Day. WORLD HEALTH DAY 2015 QUIZ # safe-food from farm to plate, make food safe [Internet]. 2015 [cited 13 September 2016]. Available from: http://www.who.int/campaigns/world-health-day/2015/tablemat-en.pdf.

6. M. J. Santos, J. R Nogueira, L. Patarata and O. Mayan, "Knowledge Levels of Food Handlers in Portuguese School Canteens and Their Self-Reported Behavior to-wards Food Safety," International Journal of Environ-mental Health Research, Vol. 18, No. 6, 2008, pp. 387- 401. doi:10.1080/09603120802100212

7. Anuradha M, Dandekar R. Knowledge, Attitude and Practice among food handlers on food borne diseases: A hospital based study in tertiary care hospital. Int J of Biomed & Adv Res [Internet]. 2014; 5(4):196. Available from: http://www.ssjournals.com/index.php/ijbar/article/viewFile/491/489

8. M. Marais, N. Conradie and D. Labadarios, "Small and Micro Enterprises—Aspects of Knowledge, Attitudes and Practices of Managers' Hospital, Western Cape," South African Journal Clinical Nutrition, Vol. 20, No. 2, 2007, pp. 50-61.

9. F. P. Çakiroglu and A. Uçar, "Employees' Perception of Hygiene in the Catering Industry in Ankara (Turkey)," Food Control, Vol. 19, No. 1, 2008, pp. 9-15. doi:10.1016/j.foodcont .2007.01.001

10. Walker E, Pritchard C, Forsythe S. Food handler's hygiene knowledge in small food businesses. Food Control [Internet]. 2003 [cited 13 September 2016]; 14(5):339-343. Available from: http://www.sciencedirect.com/science/article/pii/S0956713502001019

11. Sharif L, Obaidat M, Al-Dalalah M. Food Hygiene Knowledge, Attitudes and Practices of the Food Han-dlers in the Military Hospitals. FNS [Internet005D. 2013 [cited 13 September 2016]; 04(03):245-251. Available from: http://dx.doi.org/10.4236/fns.2013.43033

12. Buccheri C, Casuccio A, Giammanco S, Giammanco M, La Guardia M, Mammina C. Food safety in hospital: knowledge, attitudes and practices of nursing staff of two hospitals in Sicily, Italy. BMC Health Services Re-search [Internet]. 2007 [cited 27 September 2015]; 7(1):45. Available from: http://www.biomedcentral.com/1472-6963/7/45

13. B. J. McCabe-Sellers and S. E. Beattie, "Food Safety: Emerging Trends in Food Borne Illness Surveillance and Prevention," Journal of the American Dietetic Association, Vol. 104, No. 11, 2004, pp. 1708-1717. doi:10.1016/j.jada.2004.08.028