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### FOOD SAFETY KNOWLEDGE, ATTITUDE AND PRACTICES AMONG WOMEN IN FIELD PRACTICE AREA OF URBAN HEALTH TRAINING CENTRE, ANDHRA MEDICAL COLLEGE, VISAKHAPATNAM

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**ABSTRACT: INTRODUCTION:** Food safety describes handling, preparation and storage of food in ways to prevent foodborne illness. The contamination of food may occur at any stage in the process from food production to consumption ("farm to plate"-theme for World Health Day 2015). Unsafe food creates a vicious cycle of disease and malnutrition, particularly affecting infants, young children, elderly and the sick. Foodborne diseases include a wide spectrum of illnesses and a growing public health problem worldwide. **METHODOLOGY:** A cross-sectional community based study was done among 150 women in the field practice area of urban health training centre, Andhra Medical College, Visakhapatnam. Data was collected by administering questionnaire after taking informed consent. Data was entered in Epi data version 3.1 and analysed by using SPSS version 16. Results were represented in form of proportions and Fischer's Exact test was used to find significant association between variables. **RESULTS:** Among 150 participants, most of them were in age group of 21-30 years with mean age 33±11 years. About 68% belonged to low socioeconomic status, 76.7% were housewives, and 79.3% were literates. Among the participants, 94.7% had good knowledge regarding food safety, 30.7% had good practices showing gap between knowledge and practices. In 12% of cases there was history of foodborne illness. There was significant association between knowledge and literacy status; knowledge and past history of foodborne diseases ( $p < 0.05$ ). **CONCLUSION:** There is need for an education program in the community to improve the practices among women regarding food safety to fill the observed gap between knowledge and practices.

**KEYWORDS:** Attitude, Food safety, Knowledge, Practices, Visakhapatnam, Women.

**INTRODUCTION:** Food safety describes handling, preparation and storage of food in ways to prevent foodborne illness.<sup>1</sup> Foodborne diseases include a wide spectrum of illnesses and an important cause of morbidity and mortality worldwide. They are the result of ingestion of foodstuffs contaminated with microorganisms or chemicals. The contamination of food may occur at any stage in the process from food production to consumption ("farm to plate").<sup>2</sup> It is estimated that in the United States, foodborne diseases result in 76 million illnesses, 325,000 hospitalizations and 5,000 deaths each year.<sup>3</sup> It can be assumed that the prevalence of foodborne diseases in the developing world is even higher<sup>4</sup> but data from developing countries are scarce. According to the World Health Organisation (WHO) fact sheet on food safety November 2014<sup>5</sup>, unsafe food containing harmful bacteria, viruses, parasites or chemical substances, causes more than 200 diseases - ranging from diarrhoea to cancers. Foodborne and waterborne

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diarrhoeal diseases kill an estimated 2 million people annually, including children. Unsafe food creates a vicious cycle of disease and malnutrition, particularly affecting infants, young children, elderly and the sick. Foodborne diseases impede socioeconomic development by straining health care systems, and harming national economies.<sup>5</sup> To decrease the burden of foodborne diseases, WHO identified The Five Keys to Safer Food. The core messages of the Five Keys to Safer Food are: (1) Keep clean; (2) Separate raw and cooked; (3) Cook thoroughly; (4) Keep food at safe temperatures; and (5) Use safe water and raw materials.<sup>6</sup>

Household food safety is that part of food safety which individuals can monitor and control within the home. Women who have the primary responsibilities of purchasing, storage and preparation of food in the home should be well informed about the possible food-borne diseases and awareness regarding knowledge and practices related to household food safety should be improved among them.<sup>7</sup> Food handling practices are presently of public concern, and action is required to reduce the likelihood of home derived food borne diseases.<sup>4</sup>

**OBJECTIVE:** The study was conducted to assess the knowledge, attitude and practices regarding food safety among women at household level.

**MATERIALS AND METHODS:** A descriptive cross-sectional study was conducted among 150 women in the field practice area of Urban Health Training Centre under Department of Community Medicine, Andhra Medical College, Visakhapatnam. The study was conducted in April 2015. Urban health training Centre caters 3 wards with 11 identified slums. Three slums were randomly selected using random numbers table. From each of three slums, 50 household were selected randomly. From each household, a woman who was above 18 years of age, involved in preparation of food at home and willing to participate in the study was chosen. Those who were not willing to participate in the study were excluded. Data was collected by using a questionnaire recommended by World Health Organisation (WHO) to evaluate knowledge, attitude, and practices regarding food safety. The questionnaire was translated to the local language and data was collected by self- administering questionnaire to the participants. Data from illiterates was collected by reading out the questions to the participants. Informed consent was taken prior to starting of the study and the purpose of the study was explained to the participants. Permission from the head of the institute and head of the department was taken prior to starting of study. The questionnaire comprised of questions related to socio-demographic profile, knowledge, attitude and practices regarding food safety. The questions were based on five keys for safer food (Key1-keeping clean, Key2-Separate raw and cooked, Key3-Cook thoroughly, Key4-Keep food at safe temperature, Key5-Use safe water and raw material. For the questions regarding knowledge options given were "True/False" and correct answer was given score 1. Participants who answered equal to or more than 50% of the questions correctly were considered having good knowledge. Regarding attitude options given were "Agree, Not sure, Disagree". Among then those who opted Agree were considered showing favourable attitude. Regarding food safety practices options given were "Always, Most often, Sometimes, Not often, Never. Those who answered "Always or Most often" for food safety practices were considered having good practice.

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**STATISTICAL ANALYSIS:** Data was entered by using Epidata version 3.1.2701.2008 and analysed by using SPSS version 16. Data was presented as proportions. Fisher's Exact test was used to test the association between food safety knowledge and practices in relation to literacy status, working status of women and history of food-borne illness in past one month.

### RESULTS:

- 1. DEMOGRAPHICS:** Among the 150 study participants, 35.3% belonged to age group between 21-30 years with mean age  $33 \pm 11$  years; 68% belonged to upper lower socio-economic class according to Modified Kuppaswamy Socioeconomic Scale 2014. About 79.3% were literates and 20.7% were illiterates; 76.7% were homemakers. Among 150 participants 12% had history of foodborne illness in past one month. The above information is summarised in Table 1.
- 2. KNOWLEDGE REGARDING FOOD SAFETY:** Majority of participants 142(94.7%) were found to have good knowledge regarding food safety by giving correct responses for  $\geq 50\%$  of questions as shown in Table 2.
- 3. ATTITUDE REGARDING FOOD SAFETY:** Those who "Agree" for the statement were considered to have favourable attitude and results were summarised in Figure 1.
- 4. PRACTICES REGARDING FOOD SAFETY:** Those who answered "Always or Most often" for each question, were considered to have good practice. In this study 30.7% were considered having good practices. As shown in Figure 2, most of participants follow practices like washing their hands during handling of food and keeping the kitchen surface clean than those like using separate knives and cutting boards for raw and cooked food, checking the food whether it is properly cooked or not, keeping food at safe temperature. Gap between knowledge and practices observed in this study is shown in Figure 3. There is a significant association between the knowledge and literacy status of the participants ( $p < 0.05$ ) with literates having better knowledge as shown in Figure 4. There was significant association between knowledge and past history of foodborne illnesses ( $p < 0.05$ ) in the study Figure 5.

**DISCUSSION:** The role of females in the prevention of foodborne illnesses is very important because of their roles as mothers and food preparers for household members as shown in studies done by Byrd-Bredbenner, Maurer et al., 2007; Subba Rao, Sudershan et al.<sup>8-9</sup> In this study, most of the women (35.3%) were in age group of 21-30 years and were home makers (76.7%). About 68% belong to low socio-economic group, 79.3% were literates. On assessing the knowledge of the participants, most of them had better knowledge regarding washing of hands, washing fruits and vegetables before consuming them similar to study done by Somiya et al.<sup>10</sup> and Ngozi et al.<sup>11</sup> but knowledge regarding using separate cutting boards for raw and cooked food; the temperature at which the food should be stored after cooking, before consuming; the proper temperature in the refrigerator at which various cooked and raw food should be stored; importance of reheating the food before consuming was comparatively less. Educated women (79.3%) were found to have better knowledge than uneducated women in this study. Regarding attitude, most of them agreed that it is important to wash hands before handling food, check

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freshness of food before consuming or purchasing, throwing food that got expired. This might be due to various awareness programs in the community introduced at primary health care level like those regarding importance of hand-washing. In this study very few people agreed that meat thermometers were used to check whether meat is properly cooked or not because most of them were not aware of meat thermometers in that community.

In the study even though women (94.7%) had better knowledge, only 30.7% showed good practice. So, there was gap between knowledge and practices. For, example 97.3% had knowledge that it is important to wash hands during handling of food but only 45.3% of them followed it always, similarly only 16% of them always reheated cooked food before consuming, 32% always separated raw and cooked food and only 48.7% always washed fruits and vegetables before eating. This might be due to some of factors like- lack of awareness regarding importance of practices of food safety, lack of resources eg: some of the participants didn't have refrigerators at home, lack of safe water supply, lack of proper storage area to store raw and cooked food separately at home, most of them belong to low socio-economic class, traditional cultural practices followed during cooking etc as observed during house to house survey done for the data collection. In our study 12% had history of foodborne illnesses, similarly studies have expected that between 50 and 87% of reported foodborne disease outbreaks have been associated with the domestic kitchen, Redmond & Griffith et al<sup>12</sup> and World Health Organization report, Tirado& Schmidt et al<sup>13</sup> mentioned that 45.6% of foodborne disease outbreaks was due to temperatures abuse during food processing; poor refrigeration and inappropriate storage temperatures of leftover or recently cooked meals accounted for 23.5% and 12.6% of the cases, respectively. Low personal perception of food safety among women, contribute to foodborne illnesses in the home.

**CONCLUSION:** In the present study there was a gap between knowledge and practices regarding food safety. Health education program (regarding food safety practices) is recommended to build awareness among the households on safe cooking practices, storage methods to avoid cross contamination of food and thus preventing morbidities related to food-borne diseases.

**LIMITATION:** The limitation of this study is that the study results can't be generalised to all the women in urban slums. In this study assessment of food safety practices is through self-reporting which may over estimate actual practices.

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Variable	Frequency(n)	Percentage %
<b>1. Age groups in years</b>		
<20	16	10.7
21-30	<b>53</b>	<b>35.3</b>
31-40	43	28.7
41-50	26	17.3
51-60	9	6
>60	3	2
<b>2. Socioeconomic status(modified kuppuswamyscale 2014)</b>		
Upper class	2	1.3
Upper middle class	13	8.7
Lower middle class	32	21.3
Upper lower class	<b>102</b>	<b>68</b>
Lower class	1	0.7
<b>literacy status</b>		
Literate	<b>119</b>	<b>79.3</b>
Illiterate	31	20.7
<b>Employment status</b>		
Working	35	23.3
Notworking(housewives)	<b>115</b>	<b>76.7</b>

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### 3. History of foodborne illness in past one month

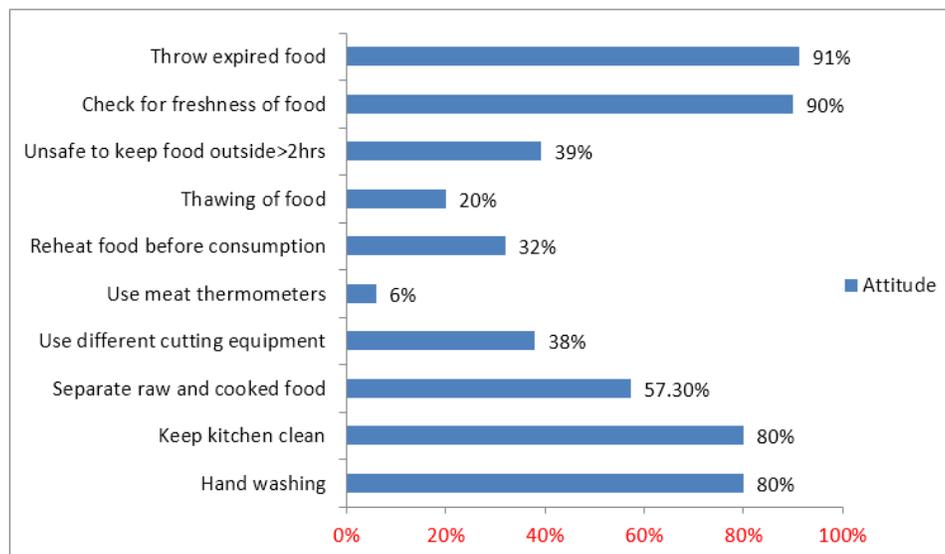
Yes	<b>18</b>	<b>12</b>
No	132	88

**Table 1: Socio-demographic characteristics of participants (N=150)**

Question	Correct response	
	n	%
1. It is important to wash hands before handling food (true */ false)	146	97.3
2. Wiping cloths can spread microorganisms. (true*/false)	80	53.3
3. The same cutting board can be used for raw and cooked foods provided it looks clean. (true/false*)	74	49.3
4. Raw food needs to be stored separately from cooked food.(true*/false)	116	77.3
5. Cooked foods do not need to be thoroughly reheated.(true/false*)	90	60
6. Proper cooking includes meat cooked to 40 °C.(true/false*)	57	38
7. Cooked meat can be left at room temperature overnight to cool before refrigerating.(true/false*)	82	54.7
8. Cooked food should be kept very hot before serving.(true*/false)	130	66.7
9. Refrigerating food only slows bacterial growth(true*/false)	84	56
10. Safe water can be identified by the way it looks.(true/false*)	93	62
11. Wash fruit and vegetables.(true*/false)	149	99.3

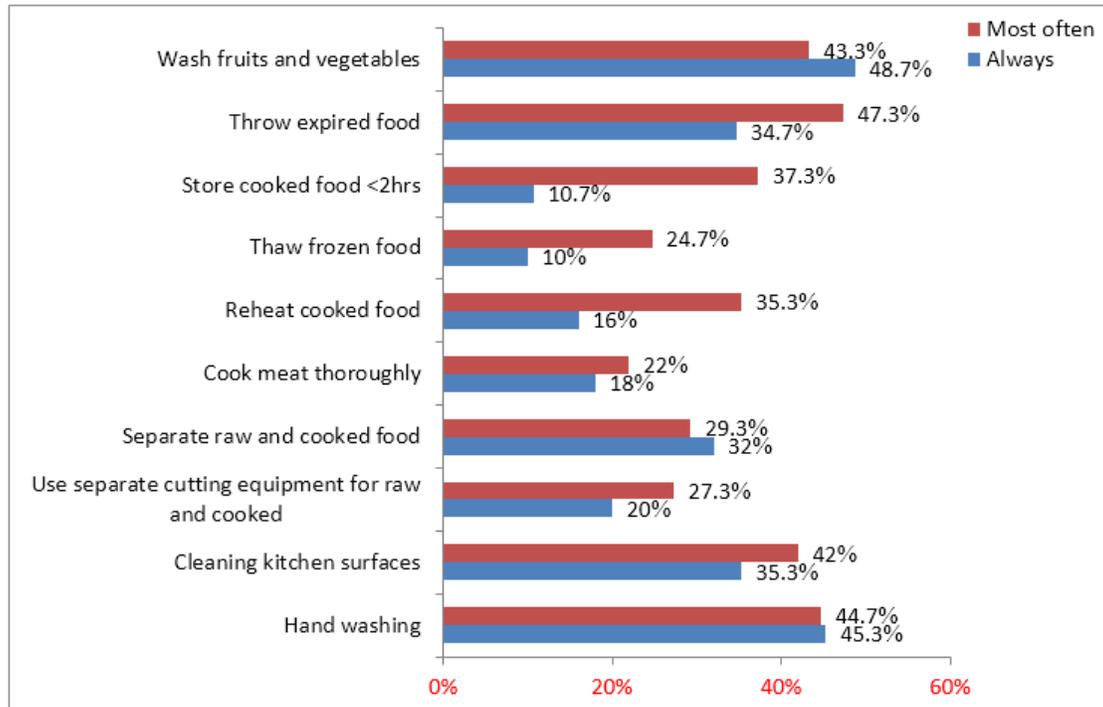
**Table 2: Correct responses to questions regarding knowledge on food safety (N=150)**

\* Response in bold letters is considered correct response.

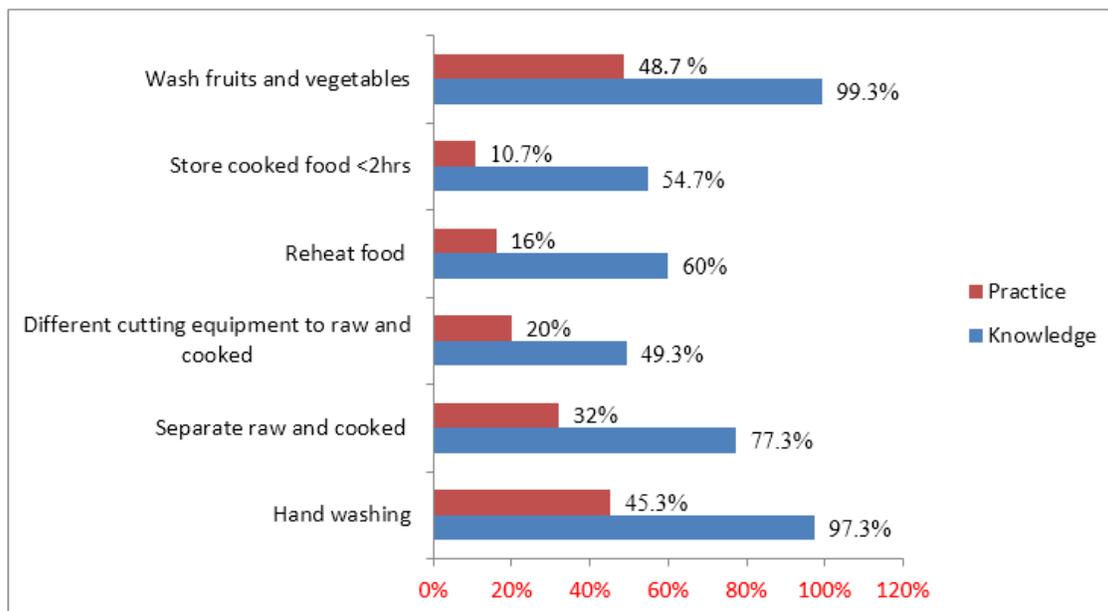


**Figure1: Positive attitude towards food safety among study subjects**

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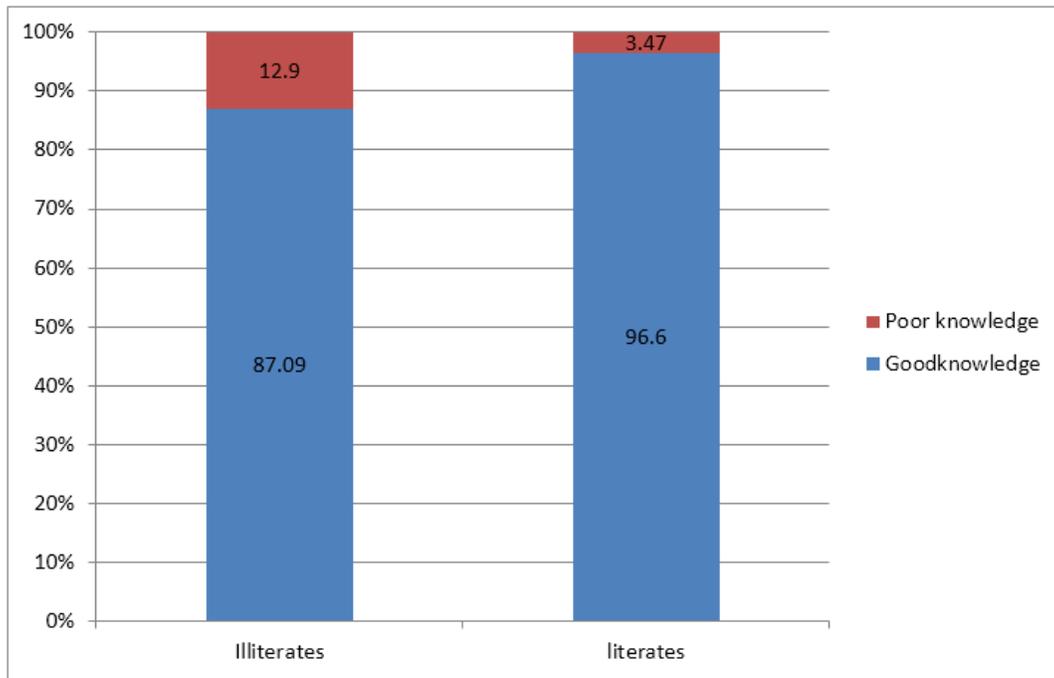


**Figure 2: Good Practices towards food safety among study participants**

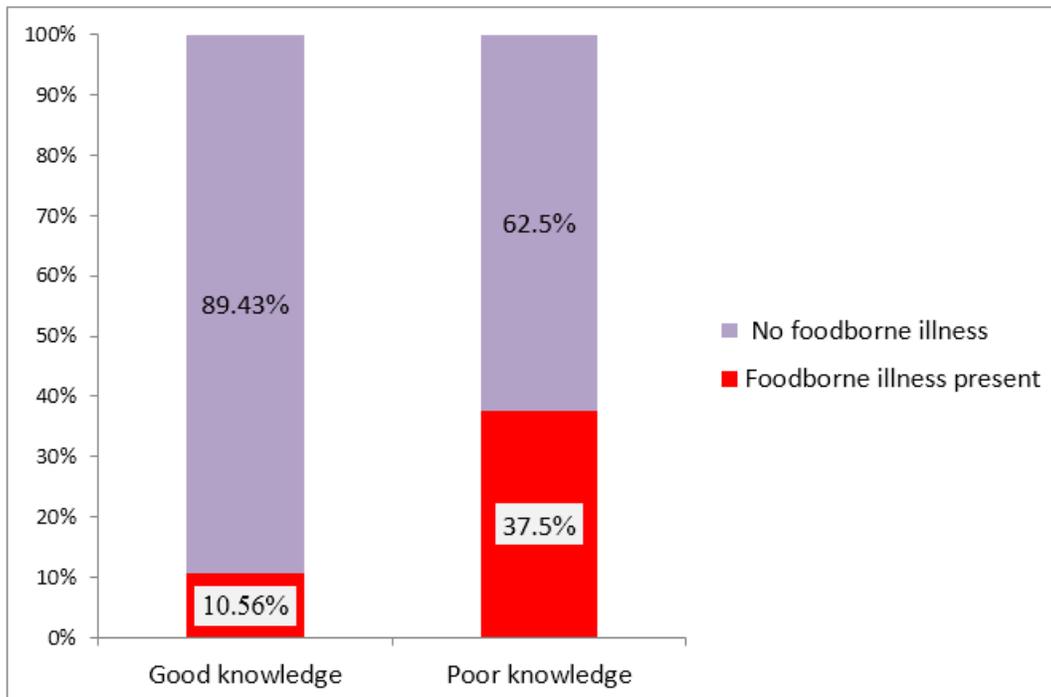


**Figure 3: Representing gap between knowledge and practices regarding food safety**

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**Figure 4: Relation between literacy status and knowledge**



**Figure 5: Relation between knowledge and past history of food-borne illnesses**

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