

## Original Research Article

# Practices towards prevention of food borne diseases among females in rural area of Trichy, India

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## ABSTRACT

**Background:** Food borne diseases are of great importance since it leads to multiple health problems resulting in illness, malnutrition, mortality and economic loss. These diseases share a significant proportion in the occurrence of communicable diseases. Objectives was to study the knowledge about food borne diseases and food safety among women residing in rural area.

**Methods:** This was a cross sectional study involving 150 adult females who were residing in rural field practice areas of a tertiary care teaching hospital. Practices of safe food handling were assessed using an interviewer administered questionnaire. Informed consent was obtained, and confidentiality was maintained. Appropriate descriptive statistical analysis was done.

**Results:** Out of 150 females, 147 (98%) were aware of the importance of washing hands before cooking. Sixty four (42.7%) females had a habit of washing the vegetables with water twice before cooking. 102(68%) females consumed stored food after reheating, 48(32%)females consumed without heating. Though 70% were aware of food adulteration, none of the participants have lodged complaint against adulteration.

**Conclusions:** Through our study we found that most of the females practiced proper hand washing before cooking and proper storage of the leftover food. The proportion of females who followed adequate cleaning of non-vegetarian food items and vegetables were found to be inadequate.

**Keywords:** Food borne diseases, Food safety, Practice, Prevention

## INTRODUCTION

Maintaining good health and health promotion not only requires adequate quantity of nutritious food but also food that is safe to consume.<sup>1</sup> Safe food, healthier nutrition and regular physical activity are the key factors to improve the quality of life of humans.<sup>2,3</sup> Increasing globalization of food chain has a serious impact on food safety and occurrence of food borne diseases due to high chance of contamination by different pathogens, toxins and chemicals.<sup>4</sup> Presence of these substances in food

leads to multiple health problems including diarrheal diseases, malnutrition, non communicable diseases, cancer and others.<sup>1,5</sup>

More than 250 diseases have been identified to be associated with food substances and increasing trend of food borne illnesses have been noticed worldwide.<sup>6,7</sup> Food safety is a science of describing handling, preparation and storage of food in ways that prevent food borne illnesses. Food borne illnesses which occur due to ingestion of contaminated food substances affect an

estimated population of 600 million every year worldwide and kills 420,000 individuals which results in loss of 33 million Disability Adjusted Life Years (DALYs).<sup>1</sup> These illnesses were caused by 31 hazards and 40% of the affected population were children less than five years of age.<sup>8</sup> Food safety was the theme for World Health Day 2015 and World Health Organization introduced the five key areas of focus for safer food which included keep clean, separate raw and cooked, thorough cooking of food substances, storage of cooked food at safe temperatures for reducing infections and use safe water and safe raw materials for cooking.<sup>9,10</sup> In this context, strengthening the surveillance of food borne illnesses has been given importance. Food borne illnesses not only affect the health of the affected individuals, it also causes economic loss to the family in the form of medical expenses and other indirect expenditures related to the treatment of the illness. Improper handling of food and unhygienic sanitation control have been identified as some causes of food borne infections. Increase in food borne infection has been linked with lack of knowledge about disease and their mode of spread. Enhancing the consumer knowledge of food safety is regarded to be an effective strategy in minimizing pathogenic microorganisms.<sup>11</sup> Hence the present study was conducted among adult females to assess their level of knowledge and practices of food safety.

Aim and objectives of the study was to assess the practices towards the prevention of food borne diseases and to study the knowledge about food safety and food adulteration among females residing in rural area.

## METHODS

It was cross sectional study design. Adult females residing in rural area. Sample size was 150. Study period was two months from October 2017 to November 2017.

### Study area

Rural field practice areas of a tertiary care teaching hospital located in Tiruchirappalli, Tamil Nadu.

### Study tool

Interviewer administered, semi structured questionnaire was used for collecting the necessary information after getting informed written consent from the participants. The questionnaire consisted of questions to assess the levels of knowledge and practice towards food safety, food adulteration, hygienic practices followed before and during preparation of food and about storage of food for prevention of food borne diseases.

### Data analysis

The data was entered in MS EXCEL and analysed using appropriate descriptive statistical tests. The results were presented in the form of frequency and percentage.

## RESULTS

A total of 150 females participated in the present study. Mean age of the study group was  $37.9 \pm 8.7$  years and majority (43.3%) were in the age group of 30 to 39 years. Thirty eight percent of the study population was uneducated and 64.7% were home makers who were not working elsewhere (Table 1). Out of 150 females, 105 (70%) females were aware of food adulteration and the health problems associated with adulteration. Twenty (13.3%) females were aware that there is a law which prohibits food adulteration and there is possibility of punishment in case if adulteration is being identified. Thirty-four participants (22.6%) said that atleast one food item bought by them was adulterated. When the participants were questioned about their sequence of action when they bought a product which is found to be adulterated, 52.9% said that they have returned back the pack to the shop owner, 32.3% have questioned the shop owner regarding the problem, 26.4% said that they have stopped buying the products in the specific shop, 17.6% have informed their family members regarding the issue and discarded the product and 2.9% have just ignored it. None of them have reported to the concerned authorities.

**Table 1: Details of the study participants (n=150).**

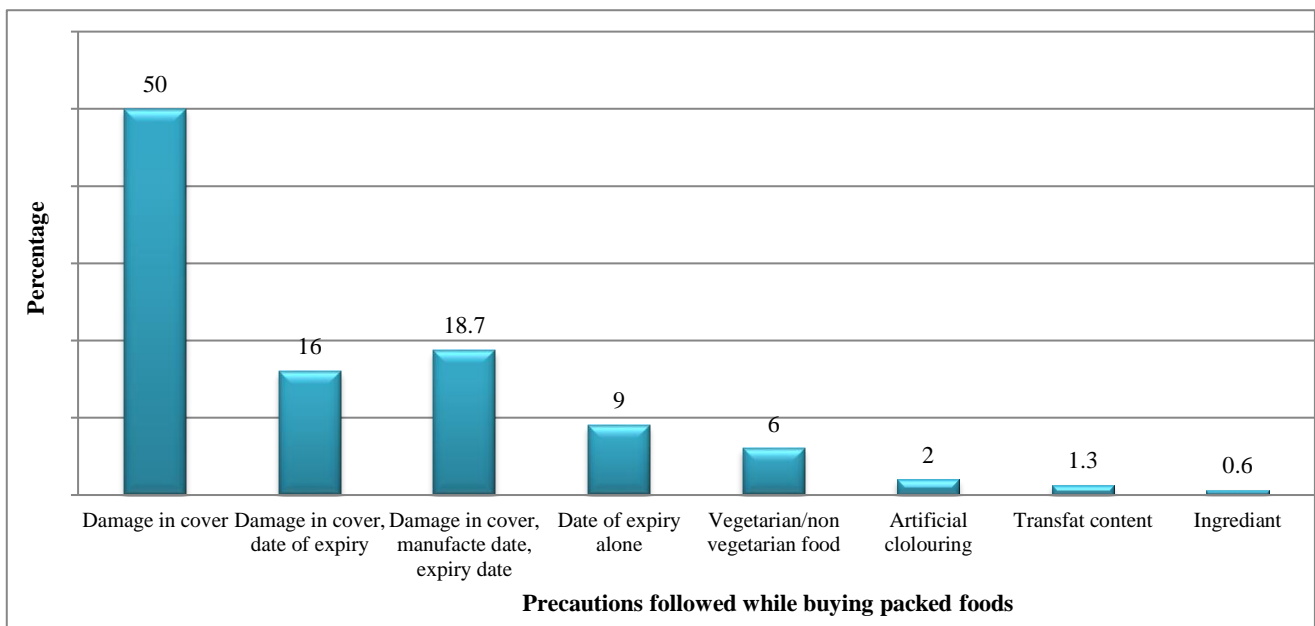
| Age in years     | Frequency (%) |
|------------------|---------------|
| 20-30            | 28 (18.7)     |
| 30-40            | 65 (43.3)     |
| 40-50            | 36 (24.0)     |
| 50-60            | 21 (14.0)     |
| Occupation       | Frequency (%) |
| Semiprofessional | 6 (4.0)       |
| Semiskilled      | 8 (5.3)       |
| Shopowner        | 1 (0.7)       |
| Skilled          | 4 (2.7)       |
| Unemployed       | 97 (64.7)     |
| Unskilled        | 34 (22.7)     |
| Education        | Frequency (%) |
| Graduate         | 10 (6.7)      |
| Highersecondary  | 11 (7.3)      |
| Highschool       | 32 (21.3)     |
| Middleschool     | 19 (12.7)     |
| Primary          | 21 (14.0)     |
| Uneducated       | 57 (38.0)     |

When it comes to purchase of packed food items, among the total study participants, 75 females (50%) had a habit of checking for presence of any opening in the sealed cover which was found to be most common practice, followed by 24 females (16%) who looked for presence of opening and the date of expiry of the product (Figure 1). While buying packed foods, none of the females participated in the study looked for energy level of the packed food item. Eighty-four participants (56%) had habit of taking food outside atleast once in a week. Highest proportion of participants, i.e., 98% had

knowledge about the importance of hand washing before cooking and there were aware that hand washing could prevent from diarrhoeal diseases.

But in practice, only 72.6% of the women washed their hands with soap and water before cooking and 78% of women washed their hand using soap before eating. Among the study group, 2 (1.3%) females frequently prepared their food items without washing the vegetables, 64 (42.7%) females washed the vegetables with water once and 84 (56%) washed vegetable two times and more before cooking. With regards to preparation of non

vegetarian food items, more than 50% washed it with water once before preparation, 36% and 28% used salt and turmeric respectively to clean the non vegetarian foods in addition to washing with water. Except for 8 participants, all others (94.6%) had a habit of using the prepared food after storage. One hundred and seven females (71.3%) stored the leftover food with bowl and plate without refrigerating it and 35 females (23.3%) stored in refrigerator and 8 females (5.4%) used to throw them out. Among those who reused leftover food, 69% consumed stored food after reheating, 31% females consumed without reheating the food article.



**Figure 1: Precautions followed by participants while purchasing packed foods.**

**DISCUSSION**

Through this study, we tried to assess the knowledge of food safety in adult females living in rural area. Seventy percent of the females participated in this study knew about food adulteration and this result is concordant with the study conducted by Nagvanshi in which 72% females were aware of adulteration.<sup>12</sup> Almost 13% were aware about the presence of law for prevention of food adulteration in India which was very low compared to 45% and 27.5% females having knowledge about prevention of food adulteration act and consumer protection act.<sup>13,14</sup> Low rate of awareness in the study population could be due to higher rates of illiteracy. Almost 23% of the participants have bought adulterated products which was found to be lower than the results reported by Joshi et al, with 45% females experiencing adulteration.<sup>14</sup> None of the females participated in this study have made official complaint or legal action against adulteration.<sup>13</sup>

In this study, 98.7% females were aware of washing vegetables before cooking when compared to another study done in United States where 97% females were aware and another study done in Hyderabad where 77.4% females washed the vegetables before cooking.<sup>15,16</sup> Ninety eight percent females were aware about importance of hand washing before cooking and 72.6% practiced hand washing before cooking and 78% washed hands before eating which is less than the practice of hand washing reported by Sudershan et al, in which 90% were practicing hand washing before cooking, serving and eating.<sup>16</sup> Proportion of women washing hands with soap and water was much higher than the results of a study by Priyadarshini where hand washing with soap was adapted only by 11.8%.<sup>17</sup> Among 150 females, 107 (71.3%) females stored the leftover food in the refrigerator when compared to another study done in Hyderabad among the rural females where 14.3% females stored the leftover food in the refrigerator.<sup>16</sup>

## CONCLUSION

Most of the females were aware about the food adulteration, hand washing before cooking, and storage of the leftover food and had less knowledge about the cleaning of non-vegetarian and vegetables. Information regarding follow up action for food adulteration and proper way of washing vegetables should be included in information, education and communication regarding nutrition and food safety among public.

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