CHAPTER VIII
SUMMARY OF FINDINGS,
SUGGESTIONS AND CONCLUSION

FINDINGS

1. Most of the respondents, both male and female, have awareness about food borne diseases. Though the respondents have awareness they can not protect themselves from food borne diseases due to lack of kitchen infrastructure facilities, improper hygienic practices and poverty of the consumers.

2. Education of the respondents takes an important role in the awareness of food borne diseases. The respondents with high level education have more awareness than the low level educated and illiterate.

3. The different levels of age and occupation of the respondents are not associated with the awareness of food borne diseases. Education and occupation of the respondents are not associated with the purchasing of contaminated food. Hence, all respondents buy contaminated food irrespective of their different levels of education and various occupations. The practice of bad hygienic behaviour while preparing and eating food causes unsafe food. The main cause of the unsafe food is bad hygienic practices.

4. Awareness of food borne diseases does not prevent the consumption of unsafe drinking water. The respondents’ income, occupation and household size of families are not associated with the use of unsafe drinking water. The respondents have awareness about unsafe drinking water but they are unable to avoid it. Most of the respondents use unsafe drinking water even though they are aware of it.
5. Keeping the correct temperature ($5^0\text{C}$) in the refrigerator keeps the stored food safe. A high or low level temperature in the refrigerator is not good for safe food. Education of the respondents is not associated with the knowledge of correct temperature. Respondents do not know the correct temperature. The food is safe if correct temperature ($5^0\text{C}$) is maintained in the refrigerator. Even the educated do not know the correct temperature. The respondents stated that mere keeping the food items in the refrigerator can keep food safe. This study concludes that the respondents take utmost care in keeping the food in the refrigerator, but they do not maintain the correct temperature. The different level of occupation of the respondents is also not associated with the safe keeping of food in the refrigerator. There is no significant relationship between the education and occupation of the respondents and safe keeping of food. Majority of the respondents do not know the safe keeping of food in the refrigerator irrespective of their education and occupation. Setting correct temperature is associated with income of the respondents. Cooking food at improper temperature causes food borne diseases. The improper temperature in cooking food items leads to unsafe food.

6. Food borne diseases are not associated with the different levels of age and occupation of the respondents. Food borne diseases have affected all respondents. The respondents have suffered from food borne diseases irrespective of their levels of age and occupation.

7. Education, income and household size of the family are not associated with visiting doctors for food borne diseases. The respondents visit doctors for food borne diseases irrespective of their education, income and household size of the family.
8. Majority of the respondents do not check the expiry date before purchasing the product. In this study, age, occupation, income and marital status of the respondents are not associated with checking of expiry date of the product. The education of the respondent is associated with checking of expiry date. The educated respondents check the expiry date before purchasing the products. It varies according to the different levels of education.

9. Dishcloths carry unsafe and harmful bacteria. Cleaning of dishcloths frequently is a safe kitchen practice to avoid harmful bacteria. In cleaning and changing the dishcloths, education and occupation play an important role. Education and occupation of the respondents have a significant relationship with the careful handling of dishcloths carrying harmful bacteria. When the level of education and occupation changes, the handling of dishcloths also changes. Food handlers should know the harmful and helpful bacteria. The education and the occupation of the respondents are closely associated with the awareness of harmful bacteria. When the levels of education and occupation changes, the awareness of bacteria also changes.

10. The correlation result shows that the respondents are highly confident in using mineral water, milk and milk products, vegetarian and non-vegetarian food. All the variables are positively correlated with the confidence level of food safety. It is noted that the dependent variables in the equations are strongly correlated with most of the independent variables. As per the correlation analysis, it is clearly indicated that the respondents have high confidence in the dependent variables of fruits and vegetables, fresh items for cooking, high priced products’ high quality, milk and milk products and mineral water.
11. The quality marks of the product such as ISI, AGMARK and FPO play an important role in ensuring the safety of the food. Quality and quantity are assured through these quality marks of products. The respondents should check the quality marks of the products before purchasing. In this study, the different levels of age, education, occupation and income of the respondents are associated with the checking of quality marks of the products. The high levels of age, education, occupation and income of the respondents lead to high awareness in checking the quality marks of the products. This checking of quality mark is not associated in different districts of Tamilnadu. In different districts the respondents checking of quality marks does not vary. The quality marks of ISI, AGMARK and FPO are positively correlated with one another.

12. There is a significant relationship between vegetarian food and food borne diseases. Majority of the respondents have high confidence in vegetarian food than non-vegetarian food. The education of the respondents is not related to the confidence in vegetarian food and its food safety. Generally, public feel that high priced products have high quality. However, in this study the respondents in different levels of age, education, income and different districts are not associated with the confidence of the food safety.

13. Lack of awareness about hand washing practices leads to various health issues including food borne illnesses. For maintaining good health, proper hand washing is very important. Hence, it is necessary to follow proper hand washing practices for a healthy life. Washing hands before preparing food is observed as an important factor while cooking. Further, washing hands without soap after visiting toilet is considered
as a crucial factor. Hence, it is concluded that hand washing practices while cooking are very essential to avoid unnecessary health issues.

14. After visiting toilet, hands should be washed with soap to kill harmful bacteria that causes diseases. This analysis concludes that washing hands with soap and without soap after using toilet reduces food borne diseases of the respondents. The different levels of education and occupation of the respondents are associated with the hand washing practices of with soap and without soap after visiting toilet. This handwashing practices varies according to the levels of education and occupations.

15. The respondents stated that the handling of pet animals does not cause food borne diseases. There is a significant relationship between burns in hands while cooking and causes for food borne diseases. Food borne disease arises due to burns in hands while cooking. The practicing of bad personal hygiene is moderately correlated with purchasing of contaminated food materials. The correlation is significant at 1% level. The results of the correlation is high (0.655) in purchasing contaminated food materials and practicing bad personal hygiene. It is followed by the correlation between cooking food at improper temperature and practising bad personal hygiene (0.601). Hence, it is concluded that a higher correlation exists between purchasing contaminated food materials and practising bad personal hygiene.

16. There is a significant relationship between food borne diseases and time taken to wash hands. Improper washing of hands leads to food borne diseases. The time taken for hand washing practices determines the food borne diseases of the respondents. Proper hand washing practices avoid food borne diseases. Scientific hand washing practices of 20 seconds technique is necessary to avoid food borne
diseases. In this study only very few respondents wash their hands as per this scientific method. There is no significant relationship between washing of hands and the education and the occupation of the respondents. Hence, the respondents hand washing practices are not based on their education and occupation.

17. It is necessary to wash hands with soap after visiting toilet. But in this study very few followed this method of washing due to poverty and ignorance. Most of the respondents followed unscientific methods irrespective of their levels of age, education and occupation. There is no significant difference in different districts in this regard. It is essential to wash hands with soap after touching pet animals. Education of the respondents is associated with hand washing practices. This hand washing practices vary according to the level of education and in different districts of Tamil Nadu. There is no relationship between the awareness of food borne diseases and the practice of washing hands with or without soap before and after consuming food. This analysis indicates that the awareness of food borne diseases does not cause any change in washing hands with or without soap before and after consuming food. They give equal response to washing hands with or without soap before and after consuming food.

18. Using bare hands to serve food causes food contamination. Proper utensils should be used for safe food. Using of bare hands to serve food is associated with the respondents’ possession of different types of houses but is not associated with different levels of education and occupation. The burns in hands cause food borne diseases. The respondents should not prepare food with burns affected hands. There
is no significant difference between burns in the hand which lead to food borne

diseases and education and occupation of the respondents.

19. Hands should be washed with soap after handling non-vegetarian items. All
respondents irrespective of their education and occupation do not take care to wash
their hands after handling meat and fish. But this hand washing practice is associated
with the different income groups of the respondents. Food borne diseases are not
associated with washing hands with soap after preparing meat and fish. The
respondents stated that washing of hands with soap is not related with food borne
diseases.

20. Washing of fruits and vegetable is necessary before eating and cooking. This practice
is significantly associated with education. The highly educated respondents follow
this practice more compared to illiterate. This practice has no significant difference
among the different levels of age, occupation and type of family. All the respondents
do not properly wash fruits and vegetables before use.

21. The respondents dry hands with paper or towel to avoid food borne diseases. Most of
the respondents have no awareness about drying hands with paper or towel
irrespective of their occupation, education and income. The respondents stated that
the food borne diseases do not arise without drying of hands with paper or towel.
Hence, the respondents considered that drying of hand is not necessary after handling
food items.

22. Hygienic kitchen practices prevent food borne diseases. Hence, the kitchen should
be cleaned before and after preparing food at home. Majority of the respondents do
not clean the kitchen properly and frequently before and after preparing food
irrespective of their age, education, occupation and types of family. The respondents do not take proper care in cleaning the kitchen. But, the respondents stated that the food borne diseases do not arise due to unclean kitchen.

23. Leftover food should be kept in a proper way. Otherwise it causes food borne diseases. Hence, the edibility of the leftover food should be identified before eating. There is a significant relationship between identifying the edibility of leftover food and age, education and occupation of the respondents. The different levels of age, education and occupation help to identify the edibility of leftover food. The respondents stated that this identification of edibility of leftover food is not related with food borne diseases and income. The respondents in different levels of education and occupation of the respondents take care in storing the leftover food. Food handling practices in leftover food are significantly related with food borne diseases. The food borne diseases arise due to improper keeping of leftover food. These practices are not related with the income of the respondents.

24. The respondents stated that the refrigerator is necessary to keep the food safe. Therefore, the respondents in different levels of occupation, education, income and respondents who live in different types of houses possess refrigerator. Majority of the respondents stated that refrigerator is necessary for safe keeping of food.

25. Hygienic preparation of food avoids food borne diseases. The respondents stated that the food borne diseases arise when the food is prepared during sickness. The respondents in different levels of age, income and types of family prepared food during sickness. Fresh vegetables have nutritional value and are safe for consumption. Majority of the respondents do not take care in using fresh vegetables irrespective of
their education, occupation and income. The awareness of food borne diseases is not related to the practice of using fresh vegetables for cooking.

26. There is no significant relationship between the habit of cleaning the kitchen before preparing food with the different levels of education and occupation of the respondents who live in different types of houses. Cleaning of kitchen utensils play an important role in safe keeping of food. This practice is not followed properly by the respondents in different levels of education, occupation and the respondents in different types of houses. The respondents do not take care in cleaning the kitchen before preparing food.

27. Hygienic practices in kitchen help safe food preparation and avoid food borne diseases. Hence, kitchen and kitchen surface should be cleaned after every use. But the respondents do not give importance for this cleaning irrespective of their occupation, education, household size, types of family and house type. Sterilization of food kills harmful bacteria. It is essential for the safety of the food. Majority of the respondents in different levels of education and occupation do not give preference to sterilizing the food.

28. Generally feeding pet animals in the kitchen causes food borne diseases. The respondents in different levels of age and education avoid this behaviour with awareness about harmful bacteria. But the respondents in different occupations and income groups follow this bad practice in the kitchen without any awareness. Unsafe food causes food borne diseases. The respondents identified safe food by its appearance and smell as per their level of age, education and occupation. The result shows that if unsafe food is not identified it causes food borne diseases.
29. Adulterated food causes many food borne diseases. The awareness of food adulteration reduces food borne diseases. The respondents in different levels of age, education, occupation and income have awareness about food adulteration and avoid buying adulterated food. The result of the study shows that there is a significant relationship between the awareness of adulterated food and food borne diseases. The awareness of adulteration reduces food borne diseases. Some respondents stated that unsafe food is not caused by the food adulteration. The respondents need to be aware of different types of food adulteration.

30. The respondents’ awareness about the different types of adulteration differs with their levels of education and occupation. This awareness varies with the levels of education and occupation. But the awareness of food borne diseases is not related with food adulteration. Most of the respondents identify physical adulteration more easily than biological and chemical adulteration. This adulterated food causes food borne diseases, mainly diarrhoea followed by unsettled stomach.

31. Most of the respondents have awareness about lodging complaints against adulteration. For this the education plays an important role in the complaint giving attitude against food adulteration. However, the respondents in different levels of age, occupation and income do not give importance to lodging complaints against the unfair trade practices. The awareness of food adulteration is not related to the complaint giving attitude of the respondents.

32. Adulteration is an offence and the traders should be fined. Majority of the respondents due to poverty and passive indifferences, adjust with the adulterated food materials. They accept adulteration as a common practice. The respondents in
different levels of age, education and occupation accept adulteration as a common practice and can not prevent this practice.

33. The quality marks of ISI, AGMARK and FPO give guarantee to the products for their purity. In this study, the awareness of quality marks of the product is not significantly associated with the awareness of food adulteration. The awareness of quality marks is not influenced by the awareness of food adulteration. In India, the manufacturers and traders take advantage of the illiteracy, poverty and passive indifference of the consumers and exploit them. Hence, the traders do not give importance to the complaints made by the respondents and use their political and money power. The traders do not give response to the respondents of different groups of age, education and occupation in considering their complaints against adulteration.

34. The complaint giving attitude of the consumers reduces unfair trade practices of the traders. Majority of the respondents stated that they have no time to lodge complaints. Time is the main constraint to lodge complaints for most of the respondents. The different levels of occupation and education of the respondents do not influence proper responses from the manufacturers and traders. Educated respondents stated that money is not the main constraint to lodge complaint against unfair trade practices.
SUGGESTIONS AND CONCLUSION

1. The consumers have been suffering from food borne diseases even though they have awareness about food borne diseases. Lack of kitchen infrastructure, unhygienic practices and poverty are the main causes for the food borne diseases. The respondents know about unsafe drinking water and its impact on health. They are using unsafe drinking water because of non-availability of alternative source of clean and safe drinking water. Frequently in urban areas, the sewage water is mixed with the water supplied by the local authorities. This unsafe drinking water leads to diarrhoea which is the main cause of child mortality. The central government, state government and local authorities should supply safe drinking water and start poverty alleviation programmes to improve the standards of living of the consumers to avail enough kitchen infrastructure facilities, hygienic practices and to reduce poverty of the consumers.

2. Majority of the respondents do not wash fruits and vegetables before cooking except educated respondents. The other causes for the food borne diseases are cooking and keeping food at improper temperature, unawareness of harmful bacteria, handling and feeding pet animals in the kitchen and bacteria in the dishcloths. Hence, the respondents ought to visit the doctors for the treatment of food borne diseases irrespective of their age, education, occupation and sex. These unsafe food practices cause food borne diseases. To avoid them the NGOs and government should create awareness about food safety practices and food borne diseases.
3. Another main cause for the food borne diseases is related with the hand washing practices of the people. Improper hand washing practices create cross contamination of food. The respondents are not taking care to wash hands with soap after visiting toilet. This is a dangerous practice leading to food borne diseases. Very few wash hands with soap after handling meat/fish and pet animals. In western countries the consumers follow the 20 seconds technique to wash their hands. In India, as per this study, this technique is not followed by the respondents. Only a negligible percentage of the respondents follow this method. Normally, majority of the respondents do not use soap to wash their hands. The result shows that most of the respondents do not take care in drying their hands with towel and paper. They stated that this activity does not cause any disease. They have no awareness about drying hands. Hence, the food handlers (women) need educational programmes and counseling by physicians to adopt hygienic food handling practices. The Ministry of Education should take efforts to give training to the teachers in hand washing practices and food safety. After getting training, they should create awareness among the student community. Most of the consumers do not know the importance of washing their hands correctly before preparing food. Hand washing is an important hygienic practice in preventing transmission of infectious diseases.

4. In India, adulteration plays an important role in the market places. In this study, the respondents mainly suffered from food borne diseases due to food adulteration. The respondents have general awareness about the food adulteration. They do not know about the effects of chemical and biological adulterations, which are more dangerous to life than physical adulteration.
5. The respondents are poor in lodging complaints against unfair trade practices, especially food adulteration. This study shows that the respondents have awareness about lodging complaints but they hesitate to complaints about adulteration due to time constraints, money and the muscle power of the traders, poverty and passive indifference of the consumers.

6. Most of the respondents affected by food adulteration stated that the manufacturers and traders do not give proper response to their complaints. Another group of respondents stated that they have no time to lodge complaints and the traders easily escape from punishment through their money, muscle and political power. Hence, the respondents accept this food adulteration as a common practice and have adjusted their lives with adulterated food. The central and state government have more than 30 consumers protection Acts. In it, Consumer Protection Act 1986 is more powerful than other acts but has failed to protect the consumers practically due to their other works. The central and state government should strengthen the Consumer Protection Act without any political interference.

7. Sterilization of food and keeping the food in the refrigerator at correct temperature are steps to keep the food safe. Majority of the respondents do not sterilize the food and do not possess refrigerator for the safe keeping of the food. The respondents identify the unsafe food by its smell, taste and appearance of food. The respondents use leftover food without proper preservation in the correct temperature. Proper sterilization destroys all harmful diseases. The possessors of refrigerator do not maintain the correct temperature. Most of the food borne illness outbreaks included inadequate holding time and temperature, improper food storage, inadequate
sterilization and using of leftover food. Inappropriate temperature, inadequate refrigeration, improper cooking and reheating are the major causes for food borne diseases. The Ministry of Consumers Affairs should create awareness about safe and unsafe food through workshop, seminar, public and street meeting to create awareness about the safe keeping and hygienic practices of the consumers.