CHAPTER I
INTRODUCTION AND DESIGN OF THE STUDY

BACKGROUND OF THE RESEARCH

Today, millions of people are drinking unhealthy water in the world. Each year 5 million people worldwide die due to the diseases caused by unhealthy drinking water. Unhealthy water creates a great risk, especially for children because of their undeveloped immune system (G8 Action Plan Decisions, 2003)\(^1\). Indeed, the World Health Organization estimates that 4.1 million children die from diarrhea, which can be inhibited by healthy water (WHO, 2010)\(^2\).

In developed countries, it is observed that water is not only a basic consumption food, but also a lifestyle product. As mentioned in the Maslow’s hierarchy of needs, packaged water consumption reflects the choices related to the lifestyle as well as being a basic need at the bottom of the pyramid (Sipos, et al., 2007)\(^3\). Water is increasingly becoming an important economic resource, and its public distribution is being privatized in many countries (e.g., France, England, Brazil, Australia, Bolivia and, recently proposed in Italy), opening new market opportunities for private investors. The consumption of bottled mineral water is significantly increasing worldwide and has become an important factor both for economic and health issues (King, 2008)\(^4\). Natural mineral water means microbiologically wholesome water, originating in an underground water table or deposit and emerging from a spring tapped at one or more natural or bore exits. This type of water cannot be sterilized, pasteurized or otherwise treated to remove or destroy microorganisms (European Commission, 2009)\(^5\). Mineral water has been marketed as ideal for infant formula preparation and nursery drinking water, and for
reconstitution of foods and as drinking water, particularly for the immune-suppressed people (Warburton, 1993)\(^6\). Although some variations on the number of CFU may occur, the bottling process does not change the natural composition of the mineral water. Therefore large bacterial populations usually develop from small initial populations present in the source (Leclerc and Moreau, 2002; Loy et al., 2005)\(^7\). There are insufficient clinical and epidemiological evidence to conclude that the high heterotrophic counts in drinking water pose a risk to a consumer’s health (Edberg and Allen, 2004; Otterholt and Charnock, 2011; Varga, 2011)\(^8\). However, members of some species that may be part of the mineral water microbiota can cause diseases, mainly in vulnerable individuals, i.e., the very young, the elderly, the immune suppressed population, and pregnant women (Szewzyk et al., 2000; Otterholt and Charnock, 2011)\(^9\).

**PROBLEM STATEMENT AND PURPOSE OF THE STUDY**

In the modern scientific world most of the consumers, both poor and rich, are using packaged drinking water frequently or occasionally. Everyone believes that packaged drinking water is good for health. But they do not know its harmful impact on health. Major efforts have been taken to improve access to drinking water across India have not been matched by proportionate declines in deaths and illnesses from waterborne diseases which remain grossly underestimated. The poor water quality and the lack of adequate disposal of human, animal, and household wastes are contributing to waterborne diseases. Unsafe drinking water, along with poor sanitation and hygiene are the main contributors to an estimated 4 billion cases of diarrheal diseases annually, causing more than 1.5 million deaths, monthly among children under 5 years of age (WHO, 2005)\(^{10}\).
Water is consumed in large quantities around the world. The health risk associated with the consumption of contaminated water is of greatest concern. The paradoxical question is “Why are waterborne diseases high in India, even though the consumers are buying packaged drinking water which is stored in traditional, hygienic and scientific methods at home?” Hence, the researcher has made an attempt to find out the existing awareness and attitudes of consumers towards using packaged drinking water and to identify the causes and effects of waterborne diseases in the southern districts of Tamil Nadu.

**OBJECTIVES OF THE STUDY**

The main objective of the study is to know the use of packaged drinking water and its impact on health. Based on the main objective, the other objectives are framed. They are:

1. To study the awareness and attitudes of consumers towards packaged drinking water.
2. To analyse the behavioural changes of the consumers while purchasing and using packaged drinking water.
3. To identify the brand preferences of the consumers in buying packaged drinking water.
4. To identify the impact on health and the risk of waterborne diseases while using packaged drinking water.

**HYPOTHESES**

1. Awareness of extraction of minerals from the water depends on demographic profile of consumers.
2. Awareness and using of unsafe drinking water and contaminated water do not differ with the different profiles of consumers.
3. Ill health and improvement of health do not associate with the using of packaged drinking water.
4. The health of the respondents is not based on their brand preferences for packaged drinking water.
SIGNIFICANCE OF THE STUDY

1. To identify the waterborne diseases of the consumers after using packaged drinking water.

2. To analyze the exact factors influencing waterborne diseases.

3. To help avoid waterborne diseases among vulnerable sections of the society, especially children and pregnant women.

4. To offer the study as a means for both central and state governments to understand the reasons for waterborne diseases and prevent them.

SCOPE OF THE STUDY

The present study covers the southern districts of Tamil Nadu. i.e. the districts of Thoothukudi, Virudhunagar, Tirunelveli and Madurai. It deals with the consumers’ attitudes towards packaged drinking water and their awareness of its impact on their health. The period of this study is about 2 years (i.e.) from May 2011 to November 2013.

METHODOLOGY

RESEARCH DESIGN

Since the study has its own predetermined objectives and methodology, it is descriptive in nature. Apart from this, an attempt has been made to explain the consumers’ attitudes towards packaged drinking water and their awareness of its impact on their health in the southern districts of Tamil Nadu. Hence this study is also analytical in nature.
SAMPLING PROCEDURE OF THE STUDY

Out of thirty two districts in Tamil Nadu, four districts i.e. Thoothukudi, Virudunagar, Tirunelveli and Madurai were selected for this study using convenience sampling method. In total, 150 respondents per district (approximately) were selected for this study. The total sample size came to 607 respondents. A well structured interview schedule was used to collect the relevant data.

SOURCE OF DATA

The present study is based on the primary data collected from consumers in the southern districts of Tamil Nadu. Secondary data consists of different literatures like books, published articles and websites.

FIELD WORKS AND COLLECTION OF DATA

A well-structured interview schedule was used to collect the primary data from the respondents. The interview schedule consists of four important parts. The first part covers the demographic profile of the respondents. The second part of the schedule covers data on the awareness and attitudes of consumers towards packaged drinking water. The third part of the schedule covers the behavioural changes of the consumers while purchasing and using packaged drinking water. The fourth part of the schedule includes the brand preferences of the consumers in buying packaged drinking water. A pilot study was conducted with 45 respondents. Based on the feedback of the pilot study, certain modifications, additions and deletions were carried out for the final draft of the questionnaire.
FRAME WORK ANALYSIS

Statistical tool SPSS (17.0) has been applied to classify and analyse the data collected in the survey undertaken. The collected data were processed with the help of appropriate statistical tools. The applied statistical tools and the conduct of application are summarised below:

1. **Chi-Square Analysis:** The Chi-Square analysis has been used to analyse the association between the profile of the respondents and their level of awareness of brand preferences, extraction of mineral from the water and contaminated water in the use of packaged drinking water.

2. **Correlation:** The correlation analysis has been used to identify the relationship between the different reasons for waterborne diseases of the respondents.

3. **One way analysis of variance:** The one way analysis of variance has been executed to find out the association between demographic characteristics of the respondents and their use of contaminated water and unsafe drinking water.

4. **t Test:** The t-test has been applied to find out the significant difference between awareness and unawareness of respondents regarding the percentage of mineral added and removed and waterborne diseases.

5. **Multiple Regression:** Multiple regression analysis has been used to find out the packaged drinking water’s impact on health, brand preferences, low quality, bad odour, fungus/dust/worms and containers’ damage among the respondents based on their overall awareness and attitudes towards packaged drinking water.
6. **Factor Analysis:** Factor analysis has been used to narrate the reasons for using the specific brand of packaged drinking water based on its function rotated into two factors namely, product quality and service quality.

**LIMITATIONS OF THE STUDY**

The present study is subject to the following limitations:

1. Even though there are many causes for waterborne diseases, the present study covers only awareness, attitudes and brand preferences of the respondents in using packaged drinking water.

2. Only four districts have been selected in the southern districts of Tamil Nadu.

3. The linear relationship between the dependent and independent variables are based on assumption.

4. The response to the interview schedule may be subject to the memory of the respondents.

**STRUCTURE OF RESEARCH REPORT**

For a neat and clear presentation of the study, the report has been divided into seven chapters:

1. The **first chapter** explains the introduction, problem statement and purpose of the study, objectives, significance of the study, methodology, limitations and structure of the thesis.

2. The **second chapter** reviews some of the important previous studies related to the main study.

3. The **third chapter** discusses the awareness and attitudes of consumers towards packaged drinking water.

4. The **fourth chapter** analyses the behavioural changes of the consumers while purchasing and using packaged drinking water.
5. The **fifth chapter** discusses and analyses the brand preferences of the consumers in buying packaged drinking water.

6. The **sixth chapter** analyses the impact of the use of packaged drinking water on the health of the consumers and waterborne diseases.

7. The **seventh chapter** discusses the relevant and important findings of the study. Appropriate suggestions have also been given in this chapter.
REFERENCES


