CHAPTER IV

RESEARCH METHODOLOGY

4.1 INTRODUCTION

In this chapter, the research methodology followed for carrying out the study is explained. The method of data collection, sampling procedure, framework of analysis and definition of terms used in the study are explained here.

4.2 METHOD OF DATA COLLECTION

The study depends on primary data. In order to get the consumers’ opinions, questionnaires were used. Questions related to the objectives have been included after consulting with the consumers, the sales executives, the Government and private milk processors, the doctors, the dietitians and the quality control department. Based on the information gathered from 100 consumers through the pilot study, the structure of the questionnaire has been redesigned. The questionnaire includes questions related to the socio-economic profile of the consumers, the information seeking behaviour, the buyer behaviour, the awareness of the milk and the expectations of the consumers.

4.3 STUDY AREA

The study area, Coimbatore District is located in western part of Tamil Nadu State, in India. It is with an area of 3670 sq. kms and with a population of 29,16,620. Out of the total population, 14,82,228 (50.82%) are men and 14,34,392 (49.18%) are women. 20,56,377 (70.5%) people are literates in the District. Among them, the percentage of the literacy level of the men is 77 and the women is 64 (Source: Office of Assistant Director of Statistics, Coimbatore District). Coimbatore city is the headquarter of the District and the third largest city in Tamil Nadu. As it is exposed to the Palghat gap of western ghats it enjoys a salubrious climate. This has attracted a large number of Textile mills to this region. It is rightly called the Manchester of South India. Coimbatore is an industrial city which is also known for the manufacture of motor pumpsets and varied engineering goods. Coimbatore occupies its own place for renowned educational
institutions. There are three well known universities – TamilNadu Agricultural University, Bharathiar University and Anna University, Coimbatore – besides three more new universities – Avinashilingam University, Karunya University and Karpagam University.

4.4 SAMPLING PROCEDURE

Coimbatore District comprises all sorts of people within itself and this prompted the selection of Coimbatore District as the study area. Convenient Random sampling method has been followed. 1200 questionnaires were used for data collection, out of which 264 questionnaires were not responded by the consumers and the responses from consumers numbering 175, have been found unusable.

4.5 FRAMEWORK OF ANALYSIS

The statistical tools used to analyse data include (i) Chi-square Test, (ii) Analysis of variance (ANOVA), (iii) Simple Correlation, (iv) Multiple Regression, (v) Step-wise Regression, (vi) Path Analysis and (vii) Friedman’s Ranking Technique.

4.5.1 Chi-square Test

Chi-square test has been used to examine whether there exists any association between selected variables and consumer awareness of the milk. 23 Variables termed as attributes have been identified in order to test their association with the consumers’ awareness of the milk. They are (I) area of residence, (ii) age, (iii) religion, (iv) educational qualification, (v) educational qualification of the spouse, (vi) occupation, (vii) occupation of the spouse, (viii) monthly family income, (ix) family type, (x) extent of importance to the opinion of the family, (xi) extent of curiosity of knowing things in general, (xii) frequency of reading newspapers, (xiii) frequency of reading magazines, (xiv) frequency of watching television, (xv) frequency of listening to radio, (xvi) frequency of reading health related items in newspapers, (xvii) frequency of reading health related items in magazines, (xviii) frequency of watching the health related programmes on television, (xix) frequency of hearing the health related programmes on the radio, (xx) frequency of discussion on health related matters with friends, (xxi) frequency of discussion on health related matters with relatives, (xxii) period of discussion on health related matters with others and (xxiii) frequency of purchasing other brands. The levels of confidence chosen for the Chi-square test are five and one per cent.
4.5.2 Analysis of Variance (ANOVA)

Analysis of variance (ANOVA) has been used to test whether the mean level of awareness among different consumers who are classified on the basis of socio-economic factors, information seeking behaviour, buyer behaviour and awareness of the milk among the sample consumers significantly differs or not.

4.5.3 Simple Correlation

Factors that are significantly associated with the consumer awareness of the milk have further been tested for their nature and strength of relationship through correlation analysis for the total sample size and two categories of milk which consist of branded and unbranded milk and also the type of the family, nuclear or joint family. Only those variables that are quantifiable have been considered for correlation analysis. The variables are (i) educational qualification, (ii) educational qualification of the spouse, (iii) monthly family income, (iv) family type, (v) extent of the importance to the opinion of the family, (vi) extent of curiosity of knowing things in general, (vii) frequency of reading newspapers, (viii) frequency of reading magazines, (ix) frequency of watching the health related programmes on television, (x) frequency of hearing the health related programmes on the radio, (xi) frequency on discussion of health related matters with friends, (xii) frequency of discussion on health related matters with relatives, (xiii) period of discussion on health related matters with others and (xiv) frequency of purchasing other brands. The levels of confidence chosen are five and one per cent.

4.5.4 Multiple Regression

The technique of Multiple Regression has been employed to ascertain the combined influence of the fourteen variables included for the correlation analysis for the sample consumers as a whole and for the branded and unbranded milk consumers and also for the consumers of nuclear and joint family separately. The following regression equation is framed and tested.

\[
AI = a + b_1 EQ + b_2 EQS + b_3 MFI + b_4 FT + b_5 EIOF + b_6 ECKTG + b_7 FRN + b_8 FRM + b_9 FWHRPT + b_{10} FHRPR + b_{11} FDHRMF + b_{12} FDHRMR + b_{13} PDHRMO + b_{14} FPOB + e
\]
where,

\[ \begin{align*}
AI &= \text{Awareness Index} \\
\text{a} &= \text{Intercept term} \\
\text{EQ} &= \text{Educational Qualification} \\
\text{EQS} &= \text{Educational Qualification of the Spouse} \\
\text{MFI} &= \text{Monthly Family Income} \\
\text{FT} &= \text{Family Type} \\
\text{EIOF} &= \text{Extent of Importance to the Opinion of the Family} \\
\text{ECKTG} &= \text{Extent of Curiosity of Knowing Things in General} \\
\text{FRN} &= \text{Frequency of Reading Newspapers} \\
\text{FRM} &= \text{Frequency of Reading Magazines} \\
\text{FWHRPT} &= \text{Frequency of Watching the Health Related Programmes on Television} \\
\text{FHHHRPR} &= \text{Frequency of Hearing the Health Related Programmes on the Radio} \\
\text{FDHRMF} &= \text{Frequency of Discussion on Health Related Matters with Friends} \\
\text{FDHRMR} &= \text{Frequency of Discussion on Health Related Matters with Relatives} \\
\text{PDHRMO} &= \text{Period of Discussion on Health Related Matters with Others} \\
\text{FPOB} &= \text{Frequency of Purchasing Other Brands} \\
e &= \text{Error term}
\end{align*} \]

The significance of the regression coefficients is tested through ‘t’ statistics. R^2 value calculated to ascertain the goodness of fit of the regression equation has been tested for its significance through ‘F’ statistics. The levels of confidence chosen for ‘t’ and ‘F’ statistics are five and one per cent. When the value of R^2 is significant at one per cent level, it is highly significant and when R^2 is significant at five per cent level, it is significant.
4.5.5 Step-wise Regression

The most prominent factors that influence consumers' awareness of the milk are ascertained through step-wise regression analysis for the sample consumers as a whole and for the four segments namely (i) Branded milk segment, (ii) Unbranded milk segment (iii) Nuclear family segment and (iv) Joint family segment.

4.5.6 Path Analysis

Path analysis has been carried out to find out the direct and indirect effect of the variables, included for correlation and regression analysis of the consumers’ awareness of the milk for the sample consumers as a whole and for the consumers of four segments separately.

4.5.7 Friedman's Ranking Technique

In Friedman's analysis, data from each case are ranked horizontally from 1 to K and two-way analysis of variance is done. This technique identifies the ranks given by the consumers towards end use of milk, factors considered for the selection of the seller and also the factors that impressed the type of milk. In addition, the mean values have also been identified.

4.6 DEFINITION OF TERMS

The meaning of Milk, Consumers’ awareness of the milk, Awareness Index and Segment classification of consumers are given below.

4.6.1 Milk

The term milk in the study relates to the milk of Cows and Buffaloes.

4.6.2 Consumers’ awareness of the milk

The present study examines the extent of the consumer awareness of the milk. It means consumers’ awareness towards full information of the products and services being purchased by them. 'Consumer awareness of the milk' as used in the study refers to the awareness of consumers on the availability of different brands, knowledge about manufacturing company, varieties of milk, suitability of rich fat and low fat milk, processing of milk, health hazards and quality control.
4.6.3 Awareness Index

The level of awareness of the milk has been measured by constructing an index called "Awareness Index". For this purpose, awareness of the milk related questions numbering 29 have been given scores on a three-point Likert scale ranging from one to three. Thus, the maximum score a consumer would get is 87. The awareness index has been ascertained by converting the score of each consumer into percentage.

Thus,

\[
\text{Awareness Index (AI)} = \frac{\text{Awareness score of a consumer}}{\text{Maximum score to be obtained by a Consumer}} \times 100
\]

4.6.4 Segment classification of sample consumers

In order to find out the differences on the awareness level of the milk of the sample consumers among various segments, the sample consumers were classified into four segments based on the type of milk consumed by them and the type of family to which they belong. Therefore the consumers of branded and unbranded milk are brought under first two segments. Consumers of nuclear family and the consumers belonging to joint family come under the third and fourth segment respectively.