CHAPTER-III

MATERIAL AND METHODS

To accomplish the formulated objectives of the study, a systematic research methodology was adopted. This chapter, therefore, has been devoted to explain the research methodology adopted and various tools employed to complete the present investigation under the following sub-heads.

3.1 Locale of the Study : The locale of the study was the state of Punjab and Union territory of Chandigarh.

3.2 Sampling Design : The sample of the study was based on multi stage stratified random sampling technique. Because the present study is focused on modern household technologies and it was reported by the experts that the use of modern household technologies are significantly related with the literacy rate of the respondents. Thus, this point was kept in mind while selecting the cities for the study.

3.2.1 Selection of Cities : A list of all the districts of Punjab and UT of Chandigarh was prepared alongwith the literacy rate in the urban areas (Census of India, 2001 as stated in Statistical Abstract of Punjab, 2003)[1] (Annexure I). These cities were then arranged in descending order of their literacy rate as under:

S. No.	City	Literacy Rate in urban centres (%)
1.	Hoshiarpur	86.66
2.	Ropar	86.60
3.	Gurdaspur	83.43
4.	Nawanshahar	82.26
5.	Patiala	81.99
6.	Chandigarh	81.76
7.	Jalandhar	81.74
8.	Fatehgarh Sahib	80.22

9.	Kapurthala	79.63
10.	Ludhiana	79.42
11.	Amritsar	78.37
12.	Ferozepur	77.22
13.	Bathinda	75.96
14.	Moga	74.84
15.	Faridkot	72.71
16.	Muktsar	71.93
17.	Mansa	71.23
18.	Sangrur	70.12

Then these districts and Chandigarh were categorized into low literacy rate and high literacy rate groups taking the gap between highest and lowest literacy rate as under:

Gap between highest and lowest literacy rate = 86.66-70.12 = 16.54.

In order to get cut off point between the low and high literacy rate, the gap was divided by 2 and the dividend, which came to be 8.27, was either added to the lowest literacy rate or subtracted from the highest literacy rate. In this way the cut off literacy rate came to be 78.39.

Thus,

High Literacy Rate > 78.39 per cent

Low Literacy Rate ≤ 78.39 per cent

There were nine districts plus Chandigarh city which came under the high literacy rate. Out of these, 3 cities were selected randomly for the study namely, Chandigarh, Jalandhar and Ludhiana.

3.2.2 Selection of Localities : Three separate lists of all the localities falling in these cities were prepared with the help of the officials of Municipal Corporation of these cities. Then posh localities in these cities were identified in consultation with the officials of Municipal Corporations. From these posh localities, three localities were

randomly selected from each city for the study. The localities, thus, selected were as under :

	City	**Name of the Locality**
1.	Chandigarh	1. Sector 10 2. Sector 15 3. Sector 36
2.	Jalandhar	1. Model Town 2. Mota Singh Nagar 3. Lajpat Nagar
3.	Ludhiana	1. Sarabha Nagar 2. Bhai Randhir Singh Nagar 3. Civil Lines

3.2.3 Selection of Respondents : A list of all the households alongwith the possession of modern household technologies and occupation of decision making women was prepared for each selected locality. Those households were excluded from the lists that possess less than 50 per cent of the household technologies listed below under sub-title 3.3. The remaining households were then grouped into working and non-working women on the basis of their occupation. Working women were further categorized according to the nature of their profession/occupation such as, teachers, employees, self-employed and business women. From this, the category of teachers was finally selected for the study.

From the lists of working and non-working women in each selected locality, 75 working and an equal number of non-working women were randomly selected for the study, totalling 225 working and 225 non-working women in all.

3.3 Selection of the modern household Technologies

Household Technologies

Technology refers to methods, systems, and devices that are the results of scientific knowledge being used for practical purpose. For a homemaker the modern

household technologies are those devices which are time and energy saving and help to improve the quality of life.

The modern household technologies for the study were selected from the following categories:- (i) Kitchen related technologies, (2) Non-kitchen related technologies. Under the non-kitchen related technologies, the following technologies were included : (i) Washing, Ironing and Cleaning technologies, (ii) Recreational technologies, (iii) Information and communication technologies and (iv) comfort technologies. The details of the selected technologies is given below :

I. Kitchen related technologies :

1. Food processor 2. Mixer and grinder 3. Stick blender 4. Toaster 5. Patty maker 6. Electric kettle 7. Coffee maker 8. Electric chapatti maker 9. Poori presser 10. Electric Tandoor 11. Electric Juicer 12. Rice cooker 13. Electric egg beater 14. Chopper 15. Microwave 16. Ice cream maker 17. Food warmer 18. Oven toaster and griller 19. Cooking range 20. Refrigerator 21. Dish washer 22. Water purifier 23. Geyser 24. Electric chimney.

II Non-Kitchen related technologies

(i) Washing, Ironing and Cleaning Technologies

1. Automatic electric iron 2. Washing machine 3. Vacuum cleaner

(ii) Recreational Technologies

1. Television with cable connection 2. VCR and CD player/DVD player 3. Music system.

(iii) Information and communication Technologies

1. Personal computer and Internet 2. Mobile phone

(iv) Comfort technology

1. Cooler 2. Air conditioner 3. Inverter 4. Generator 5. Room heater 6. Heat convector 7. Exhaust fan.

3.4 Operational Definitions

Home Maker

A homemaker is one who performs the major part of household activities with or without the help received from the other members of the family or servants.

Working Homemaker

Homemaker who is working outside the home for paid employment e.g. teachers, doctors, engineers, other professionals. self employed and business women.

Non-working Homemaker

Homemaker who is not working for paid employment outside home.

Management Practices

The practices, which aim at achieving the family comforts and high living standards effectively and efficiently with least expense of family resources. These are advocated from time to time with different medias for adoption in household day to day activities and work. These are of different types i.e. cost effectiveness, resources like money and materials management, time management, energy conservation techniques, safety against household accidents and energy saving equipments and tools.

3.5 Construction of the interview schedule

An interview schedule containing the structured questions related to various aspects of the equipment was developed as per the objectives of the study.

It included the following sections:-

Part A: Personal profile of the respondents

It included questions pertaining to the age, education, occupation of the respondents, family type, family size, monthly income of the family etc.

Part B: It included the questions related to the possession and use of different equipments/technologies by working and non-working women.

Part C: It included questions related to the perception of the homemakers regarding the impact of the selected improved household technologies in the management of home.

Part D: It included the questions related to the problems faced by the homemakers for buying and using the selected equipment technologies.

Part E: It included the questions related to attitudes of the homemakers towards the possession and use of household technologies.

Part F: It included the questions related to the factors affecting the purchase and use of these technologies.

3.6 Pre-testing of the interview schedule

The interview schedule was pre-tested on a group of 30 non-sampled respondents, by adopting test, re-test method. Necessary modifications were made in the interview schedule as per the pre-tested data and the schedule was finalized for data collection (Annexure II). To avoid any confusion among the respondents, a booklet containing the pictures of selected household equipment was prepared and it was shown to the respondents while interviewing them (Annexure III).

3.7 Data Collection

Personal interview method with the selected respondents was used for data collection. The purpose of the study was explained to the respondents in the detail and they were ensured that the information given by them will be kept secret and will be used only for research work. For developing rapport with the selected respondents two or three informal visits were made before the actual data collection. After developing adequate rapport with the respondents, actual data collection was done by personally visiting each of the selected respondents. Data was obtained through personal interview method from working and non-working homemakers.

3.8 Analysis of Data :

In order to arrive at the logical results, simple tools such as frequencies, percentages, average etc. as well as advanced statistical tools such as students t-test, Z-test, mean scores, coefficient of correlation, etc. were applied. Before applying various statistical techniques, some attributes of respondents were given numerical scores.

Likert Scale :

To know the level of agreement of respondents on the impact of modern household technologies on home management, Likert Scale was used. In Likert scale technique, respondent indicates agreement or disagreement with each statement on a five point scale, and each point is given a numerical score indicating the favourableness and unfavorableness towards an issue. The five-points suggested in Likert scale were “strongly agree”, “agree”, “neutral”, “disagree” and “strongly

disagree" (Kothari, 1990)[2]. In the present study, instead of five points, three point scale was used such as "agree", "neutral" and "disagree". These attributes were given numerical score as under :

A. For positive statements

Agree	=	1
Neutral	=	0
Disagree	=	-1

B For negative statements

Agree	=	-1
Neutral	=	0
Disagree	=	1

Attitude of respondents : The attitude of the respondents towards possession and use of modern household technologies was recorded as "very useful", "somewhat useful" and "not useful". These attributes were given the following numerical score :

Very useful	=	2
Somewhat useful	=	1
Not useful	=	0

Frequency of use of technologies

Frequency of use of modern household technologies was recorded as "daily", "weekly", "fortnightly", "monthly" and "rarely" which were given the numerical scores as under :

Daily	=	5
Weekly	=	4
Fortnightly	=	3
Monthly	=	2
Rarely	=	1

Students' t-test :

In order to compare the mean values of a parameter between working and non-working women, unpaired students' t-test was applied as under :

$$t = \frac{\overline{X}_w - \overline{X}_{nw}}{\text{S.E. of } (\overline{X}_w - \overline{X}_{nw})}$$

$$\text{S.E.} = S\sqrt{1/n_w + 1/n_{nw}}$$

$$S = \sqrt{\frac{SD_w^2 (n_w-1) + SD_{nw}^2 (n_{nw}-1)}{n_w + n_{nw}-2}}$$

where $\overline{X}_w$ = Mean of working women group
$\overline{X}_{nw}$ = Mean of non-working women group
S.E. = Standard error of mean difference
SD_w = Standard Deviation of working women group
SD_{nw} = Standard Deviation of non-working women group
S = Common Standard Deviation
n_w = No. of respondents in working women group
n_{nw} = No. of respondents in non-working women group

Z-test

Z-test, i.e. test of proportions was applied to test the significance of difference between two proportions of respondents as under :

$$Z = \frac{| P_w - P_{nw} |}{\text{S.E. of } (P_w - P_{nw})}$$

$$\text{S.E.} = pq\ (1/N_w + 1/N_{nw})$$

Where

$$p = \frac{n_w}{N_w} + \frac{n_{nw}}{N_{nw}} \quad \text{and } 1 = q - p$$

Where P_W = Proportion of respondents in working women group
P_{NW} = Proportion of respondents in non-working women group
S.E. = Standard error of difference of proportions
N_W = Total number of respondents in working women group
N_{NW} = Total number of respondents in non-working women group

N_W = Specific number of respondents in working women group
n_{NW} = Specific number of respondents in non-working women group

Coefficient of Correlation :

Karl Pearson's coefficient of correlation was calculated to see the relationship between the ranks given to different factors by working and non-working women :

$$r = \frac{\Sigma (X - \overline{X})(Y - \overline{Y})}{\sqrt{\Sigma (X - \overline{X})^2 \times \Sigma (Y - \overline{Y})^2}}$$

where X = Overall average rank of working group
Y = Overall average rank of non-working group

Mean

$$\text{Mean} = \frac{\Sigma X}{N}$$

where X is the score of a respondent given to a parameter and
N is the number of respondents in a group.

Standard Deviation

$$\text{S.D.} = \sqrt{\frac{\Sigma (X - \overline{X})^2}{N - 1}}$$

Where
S.D. = Standard Deviation
$\overline{X}$ = Mean
N = No. of respondents
X - Variable

References:

1. District wise Rural and Urban literates and literacy rate by Sex, *Census of India, 2001* as cited in *Statistical Abstract of Punjab*.2003: 72-73.

2. Kothari, C.R. *Research Methodology*, New Age International Private Limited Publishers, 1990, pp.84-86.