Chapter – 3

Research Methodology

This chapter gives a detailed description about the methodology used for the present study. Keeping in mind the various objectives of the research this section of the thesis has been designed. Research methodology is the foundation of scientific research and therefore this chapter is a very important one for this research. The types of data collected, nature of samples, sample size, tools used for data analyses etc. have been explained here.

3.1 Research Design

The natural behavior of the respondents was observed without affecting them in any way i.e there was no control over the independent variables. Hence this study falls under descriptive research design.

3.1.1 Sources of data

Primary data were collected from the women employees of Puducherry town. Questionnaire was the instrument used for this purpose. Secondary data were collected from book, journals, newspapers, magazines and web resources.

3.1.2 Sample Size

3.1.2.1 Universe

The universe consisted of women employees, employed in service sectors. According to Economic Survey 2010 – 12, National Accounts classification of the services sector incorporates trade, hotels, and restaurants; transport, storage, and communication; financing, insurance, real estate, and business services; and
community, social, and personal services. In World Trade Organization (WTO) and Reserve Bank of India (RBI) classifications, construction is also included. Economic Survey 2010 – 12 also says that out of 1000 employees 683 people work for services sector including construction sector in Puducherry town.

According to the official Census 2011 details of Puducherry (Pondicherry), released by Directorate of Census Operations (Puducherry) the following was observed.

Table 3.1

*The population of Puducherry Town*

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Description</th>
<th>Year 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Actual Population</td>
<td>9,46,600</td>
</tr>
<tr>
<td>2</td>
<td>Male</td>
<td>4,66,143</td>
</tr>
<tr>
<td>3</td>
<td>Female</td>
<td>4,80,457</td>
</tr>
</tbody>
</table>

From the above table it is observed that the female population exceeds male population according to 2011 census of India in Puducherry town only. According to the report of the Fifth Economic Census (2005) DES, Puducherry, women employed in non – agricultural establishment by major activity group is given as follows.
Table 3.2

*Female population in various non agricultural sectors of Puducherry Town*

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Major Activity Group/important Industry group</th>
<th>Total Female Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mining and Quarrying</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Manufacturing</td>
<td>10580</td>
</tr>
<tr>
<td>3</td>
<td>Electricity, Gas, and Water Supply</td>
<td>31</td>
</tr>
<tr>
<td>4</td>
<td>Construction</td>
<td>191</td>
</tr>
<tr>
<td>5</td>
<td>Sale, Maintenance and Repair M/V and M/C</td>
<td>152</td>
</tr>
<tr>
<td>6</td>
<td>Wholesale Trade</td>
<td>305</td>
</tr>
<tr>
<td>7</td>
<td>Retail Trade</td>
<td>4002</td>
</tr>
<tr>
<td>8</td>
<td>Restaurants and Hotels</td>
<td>919</td>
</tr>
<tr>
<td>9</td>
<td>Transport and Storage</td>
<td>159</td>
</tr>
<tr>
<td>10</td>
<td>Posts and Telecommunications</td>
<td>776</td>
</tr>
<tr>
<td>11</td>
<td>Financial Intermediations</td>
<td>493</td>
</tr>
<tr>
<td>12</td>
<td>Real Estate, Banking and Service</td>
<td>1858</td>
</tr>
<tr>
<td>13</td>
<td>Pub. Admn. Defence Social Sector</td>
<td>4322</td>
</tr>
<tr>
<td>14</td>
<td>Education</td>
<td>7667</td>
</tr>
<tr>
<td>15</td>
<td>Health and Social Work</td>
<td>5910</td>
</tr>
<tr>
<td>16</td>
<td>Other Community and Personal Service</td>
<td>1174</td>
</tr>
<tr>
<td></td>
<td>Non-Agricultural Activities (Total)</td>
<td>38542</td>
</tr>
</tbody>
</table>

*Note.* Report of the Fifth Economic Census (2005) DES, Puducherry

From the above tables it is clear that out of a total of 4,80,457 women in Puducherry 38,542 women are engaged in working with non – agricultural
activities, according to the report of the fifth economic census (2005) DES, Puducherry.

As mentioned earlier, according to Economic Survey 2010 – 12, National Accounts classification of the services sector incorporates trade, hotels, and restaurants; transport, storage, and communication; financing, insurance, real estate, and business services; and community, social, and personal services. In World Trade Organization (WTO) and Reserve Bank of India (RBI) classifications, construction is also included. Keeping this classification of service sectors in mind, samples from the following areas have been selected for the study.
Table 3.3

*Female population in various services sectors of Puducherry Town*

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Various Services Sector</th>
<th>Total Female Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Construction</td>
<td>191</td>
</tr>
<tr>
<td>2</td>
<td>Wholesale &amp; Retail Trade</td>
<td>4307</td>
</tr>
<tr>
<td>3</td>
<td>Restaurants and Hotels</td>
<td>919</td>
</tr>
<tr>
<td>4</td>
<td>Transport and Storage</td>
<td>159</td>
</tr>
<tr>
<td>5</td>
<td>Posts and Telecommunications</td>
<td>776</td>
</tr>
<tr>
<td>6</td>
<td>Financial Intermediations</td>
<td>493</td>
</tr>
<tr>
<td>7</td>
<td>Banking Services</td>
<td>1858</td>
</tr>
<tr>
<td>8</td>
<td>Education</td>
<td>7667</td>
</tr>
<tr>
<td>9</td>
<td>Health and Social Work</td>
<td>5910</td>
</tr>
<tr>
<td>10</td>
<td>Other Community and Personal Service</td>
<td>1174</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>23454</strong></td>
</tr>
</tbody>
</table>

*Note.* Report of the Fifth Economic Census (2005) DES, Puducherry
3.1.2.2 Sample size

The sample size of this research study was 587 women from the various service sectors. The formula for calculating the sample size is

\[ n = \frac{Z^2 \cdot p \cdot q \cdot N}{e^2 (N - 1) + Z^2 \cdot p \cdot q} \]

where,

\( n \) = sample size

\( N \) = population

\( Z \) = value of standard variate at 95% confidence level (1.96)

\( p \) = probability of success (0.5)

\( q \) = probability of failure (0.5)

\( e \) = acceptable error 4% of true value

[Calculated using the formula \( e = z \cdot \sqrt{(p \cdot q / n)} \), where \( z = 1.96 \)]

3.1.2.3 Sampling Design

This research study involved stratified proportional random sampling. The population was divided into a number of non–overlapping subpopulations or strata and sample items were selected from each stratum proportionately. The sectors such as construction, transport and storage and financial intermediations were eliminated from the study as they had very few women employees compared to the total population under consideration and may not represent the population.
3.1.2.4 Stratified Proportional Random Sampling

The population from which the samples are to be drawn constitutes various service sectors. Hence stratified proportional random sampling is applied in order to obtain representative sample. In this study each service sector becomes a stratum. Samples are selected from each stratum by simple random sampling method. The sizes of the samples from different strata are kept proportional to the sizes of the strata. That is, according to Kothari. C. R (2004), if $P_i$ represents the proportion of population included in the stratum $i$, and $n$ represents the total sample size, the number of elements selected from stratum $i$ is $n.P_i$. Using this calculation the following sample sizes were calculated for each sector, i.e, for the present study sample size is 587 and so $n = 587$ to be drawn from a population size of $N = 22611$ which is divided into seven strata of size $N_1 = 4307$, $N_2 = 919$, $N_3 = 776$, $N_4 = 1858$, $N_5 = 7667$, $N_6 = 5910$ and $N_7 = 1174$. Adopting proportional allocation the sample sizes can be got as shown below for different strata.

For strata with $N_1 = 4307$, $P_1 = 4307/22611$

and hence $n_1 = n.P_1 = 587(4307/22611) = 111.81$

i.e, approximately $= 112$.

Proceeding on the same lines the sample sizes for other strata are calculated and tabulated in table 3.4.
Table 3.4

*Female population in seven different services sectors of Puducherry Town*

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Services</th>
<th>Population size</th>
<th>Required proportionate Sample size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Wholesale &amp; Retail Trade</td>
<td>4307</td>
<td>112</td>
</tr>
<tr>
<td>2</td>
<td>Restaurants and Hotels</td>
<td>919</td>
<td>24</td>
</tr>
<tr>
<td>3</td>
<td>Posts and Telecommunications</td>
<td>776</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>Banking Services</td>
<td>1858</td>
<td>48</td>
</tr>
<tr>
<td>5</td>
<td>Education</td>
<td>7667</td>
<td>199</td>
</tr>
<tr>
<td>6</td>
<td>Health and Social Work</td>
<td>5910</td>
<td>153</td>
</tr>
<tr>
<td>7</td>
<td>Other Community and Personal Service</td>
<td>1174</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>22611</strong></td>
<td><strong>587</strong></td>
</tr>
</tbody>
</table>

3.2 Framework for analysis

Structured questionnaire was the instrument used for data collection. The entire set of questions was divided into four parts. The first part consisted of personal data sheet, the second part consisted of details of the organization the respondents worked for, the third part consisted of women empowerment questionnaire and the fourth part consisted of standard questionnaires for behavioural variables. The three behavioural variables used for the study were emotional intelligence, work life balance and organizational commitment.
3.3 Variables Description

3.3.1 Demographic variables

Demographic factors include age, religion, order of birth, educational qualification, marital status, family type, spouses’ educational qualification, spouses’ employment type and spouses’ annual income of the respondents, number of children, type of house, mode of transport to work place, ability of the respondents to drive a two wheeler or a car, type of savings, nature of income, hobbies and type of relaxation of the respondents.

3.3.2 Organisational Profile Variables

Organisational Profile variables include nature of job held, nature of employment, occupational level, number of subordinates, work experience, annual income, working knowledge of computers and internet, whether the respondents are tax asseses or not.

3.3.3 Behavioural Variables

The behavioural variables such as emotional intelligence, work – life balance and organizational commitment have been taken as factors influencing women empowerment. Each of these behavioural variables is measured individually and their relationship with the dependent variable ‘women empowerment’ is then found using statistical analysis.

To measure the influencers of women empowerment three standard questionnaires on ‘Emotional Intelligence’, ‘Work – Life Balance’ and
‘Organisational Commitment’ each were taken and measured along with the self constructed questionnaire for ‘Women Empowerment’.

3.4 Instruments Description

3.4.1 Emotional Intelligence Tool

To measure emotional intelligence, Bar – on Emotional Quotient Inventory (EQI, 1997) developed by Reuvon Bar – on was used.

Description

The ability to perceive and express emotion, assimilate emotion in thought, understand and reason with emotion, and regulate emotion in oneself and others.

The emotional intelligence tool has been constructed and standardized by Baron which is popularly known as Baron’s tool. This scale consists of 66 items, measuring 10 dimensions. They are; (1) Self – regard, (2) Interpersonal relations, (3) Impulse Control, (4) Problem Solving, (5) Emotional self – awareness, (6) Flexibility, (7) Reality testing, (8) Stress tolerance, (9) Assertiveness and (10) Empathy.

Instructions

The following statements refer to the emotional intelligence of people. The statements may or may not be totally characteristics of your organization but try to decide which statements are most characteristic and which are not.

4 – Strongly agree  3 – Agree  2 – Not decided

1 – Disagree  0 – Strongly disagree  * - to be reversed
Dimension description

1. Self – Regard

Description

This dimension is defined as consideration for oneself. Administration of employees’ self – regard to emotional intelligence are loaded with 6, 12*, 21, 27*, 36, 43, 51, 56, 64.

Scoring

The dimension consists of 9 items. So the minimum and maximum possible scores are 0 to 36. The mean value of less than 18 is considered as a low score, scores between 18 and 28 is moderate and the mean value of 28 and above is considered as a high score. The higher the score, higher is the self – regard of the employees.

2. Interpersonal Relations

Description

This dimension refers to the relationship that exists among the employees. This dimension is loaded with the following items 15, 20, 31, 35*, 50 55, 63*.

Scoring

This dimension consists of 7 items. The maximum possible score is 28 and the minimum possible score is 0. The mean value of less than 13 is considered as low, scores between 13 and 23 is moderate and the mean value of 23 and above is considered as high. Higher the score higher is the interpersonal relations.
3. Impulse Control

Description

The term impulse refers to the sudden urge to act, without thought for the results. How far the employees are able to control sudden action is measured by impulse control. This dimension is measured from items 7*, 38*, 44*, 58*, 65*.

Scoring

The dimension consists of 5 items, so the maximum possible score is 20 and the minimum possible score is 0. The mean value of less than 6 is taken as low, scores between 6 and 14 is moderate and the mean value of 14 and above is taken as high. Higher the score higher is the impulse control.

4. Problem Solving

Description

It refers to the ability of employees to solve problem and handle the problems in the work environment. This is measured by the estimations of the items 1, 9, 14, 23, 29, 46.

Scoring

This dimension consists of 6 items. The maximum possible score can be 24 and the minimum possible score is 0. The mean value of less than 12 is low, scores between 12 and 20 is moderate and the mean value of 20 and above is high. Higher the score, higher is the problem solving ability of the employees.
5. Emotional Self – Awareness

Description

This refers to the employees’ awareness about their own emotional status. This is measured from the items 3, 5, 11*, 17*, 25*, 57*.

Scoring

This dimension consists of 6 items. The maximum possible score can be 24 and the minimum possible score is 0. The mean value of less than 12 is low, scores between 12 and 20 and the mean value of 20 and above is high. Higher the score, higher is the emotional self – awareness of the employees.

6. Flexibility

Description

It refers to the adjustable nature of the person in the working place. This is measured from the items 8*, 13*, 22*, 28, 39, 45*, 52*, 66*.

Scoring

This dimension consists of 8 items. So the minimum score will be 0 and the maximum score will be 32. The mean value of less than 13 is considered low, scores between 13 and 21 is moderate and the mean value of 21 and above is considered high. Higher the score, higher will be the flexibility of the employees.
7. Reality Testing

Description

Reality testing refers to the ability of the person to know the fact and analyze the crisis situation. This measured from the items 4, 19*, 26*, 34*, 42, 48*.

Scoring

This dimension consists of 6 items. The maximum possible score can be 24 and the minimum possible score is 0. The mean value of less than 9 is low, scores between 9 and 14 is moderate and the mean value of 14 and above is high. Higher the score, higher is the reality testing ability of the employees.

8. Stress Tolerance

Description

It refers to the ability of the person to withstand the stressful situations. It consists of items 2, 10, 16, 24*, 32*, 40, 53, 60*.

Scoring

This dimension consists of 8 items. The maximum possible score is 32 and the minimum score is 0. So the mean value of less than 14 is considered low, scores between 14 and 22 is moderate and the mean value of 22 and above is high. Higher the score, higher will be the ability of the person to tolerate stress.
9. Assertiveness

**Description**

This refers to the level of confidence and forcefulness of the employees. This is measured from items such as 18, 33*, 41*, 47, 54*, 62.

**Scoring**

This dimension consists of 6 items. So the maximum score is 24 and the minimum score is 0. The mean value of less than 8 is low, scores between 8 and 17 is moderate and the mean value of 17 and above is high. Higher the score, higher will be the assertiveness.

10. Empathy

**Description**

This refers to the ability to empathize, to understand and share the feelings of others. It is measured from the items 30, 37, 49, 59, 61.

**Scoring**

This dimension consists of 5 items. The maximum possible score is 20 and the minimum score is 0. The mean value of less than 8 is taken as low, scores between 8 and 17 is moderate and the mean value of 17 and above is high. Higher the score, higher is empathy.

**Reliability Analysis**

The reliability value of this scale was measured in the pilot study conducted among 100 respondents and it was found to be 0.858.
3.4.2 Work – life balance Tool

Work life balance was measured with an 18 item scale adapted from an instrument reported by Fisher (2001). This scale consisted of 18 items designed to assess three dimensions of work life balance: work interference with personal life (WIPL), personal life interference with work (PLIW), work/personal life enhancement (WPLE). The scoring for Fisher scale is based on Likert’s five point scale 1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Very Often. This scale has been tested for reliability and validity. Cronbach alpha values for the three factors include 0.93 for WIPL, 0.85 for PLIW, and 0.69 for WPLE (Hayman, J, 2005). The maximum score for work – life balance would be 90 and the minimum would be 18. Score below 30 would be low work – life balance, score between 30 and 60 would be moderate work life balance and score of 60 and above would be high work – life balance.

3.4.3 Organisational Commitment Tool

Description

This refers to the dedication of employees towards their work.

This scale has been developed by R. T. Mowday, R. M. Steers, L. W. Porter (1979). This scale consists of 15 items.

Instructions

The following statements are related to one’s work situation that leads to organizational commitment. Please indicate your response by circling the number which represents your feelings.
5 – Strongly Agree  
4 – Agree  
3 – Not Decided  
2 – Disagree  
1 – Strongly Disagree

**Scoring**

The overall total score indicates the level of organizational commitment of the employees. This scale consists of 15 items. The maximum score is 75 and the minimum score is 15. The mean values of less than 25 is considered low, score between 25 and 50 is moderate and the mean value of 50 and above is high. Higher the score, higher is the organizational commitment of the employees.

**Reliability**

The reliability value of this scale was measured in the pilot study conducted among 100 respondents and it was found to be 0.886 (Cronbach’s alpha value).

**3.5 Dependent Variable: Women Empowerment**

**Description**

This refers to the freedom women have and the extent to which they exercise their freedom. This scale is a self constructed scale consisting of 90 items. Women empowerment questionnaire consisted of a self constructed scale covering six dimensions such as – economic dimension, socio – cultural dimension, familial / interpersonal dimension, legal dimension, political dimension and psychological dimension (Malhotra, 2003). Each dimension carried 15 questions and therefore had a total of 90 questions put together. Each question had 5 choices based on Likert’s 5 – point scale (1 - Strongly agree, 2 – Agree, 3 – Neutral, 4 – Disagree, 5 – Strongly Disagree). This scale was tested for reliability during the pilot study.
and a score of 0.774 (Cronbach’s alpha value) was obtained. The maximum score for women empowerment would be 450 and the minimum score would be 90. Mean value of less than 150 is considered low, scores between 150 and 300 is moderate and the mean value of 300 and above is considered to be high. Higher the score, higher is the empowerment of women.

3.6 Statistical tools used for data analysis

Appropriate statistical tools were used to analyze the collected data using SPSS package version 16.

3.6.1 Chi square test

The chi square test was applied to find the association between women empowerment and demographic variables, women empowerment and organization profile variables, women empowerment and behavioural variables. For this purpose the following hypotheses were framed.

1. \( H_0 \): There is no association between women empowerment and demographic variables.

2. \( H_0 \): There is no association between women empowerment and organization profile variables.

3. \( H_0 \): There is no association between women empowerment and behavioural variables.
3.6.2 Correlation analysis

Correlation was used to find the relationship between the dependent variable and the independent variables. The following hypotheses were tested for correlation to identify if there is significant relationship between the variables.

1. \( H_0: \) There is no significant relationship between women empowerment and demographic variables.

2. \( H_0: \) There is no significant relationship between women empowerment and organization profile variables.

3. \( H_0: \) There is no significant relationship between women empowerment and behavioural variables.

3.6.3 t – test

t test was used to test for significance, the mean women empowerment scores for respondents with and without children. The hypothesis framed for this test was as follows.

1. \( H_0: \) There is no significant difference between demographic variables and Women Empowerment.

2. \( H_0: \) There is no significant difference between organizational profile variables and Women Empowerment.

3. \( H_0: \) There is no significant difference between behavioural variables and Women Empowerment for respondents with and without children.
3.6.4 One way ANOVA

ANOVA was used to identify the existence of significant difference between the women empowerment scores among the respondents from the various service sectors.

1. $H_0$ – There is no significant difference in women empowerment scores for each of the groups of demographic variables.

2. $H_0$ – There is no significant difference in women empowerment scores for the respondents working in different service sectors.

3. $H_0$ – Women Empowerment remains the same for differences in emotional intelligence.

4. $H_0$ – Women Empowerment remains the same for differences in work life balance.

5. $H_0$ – Women Empowerment remains the same for differences in organisational commitment.

3.6.5 Multiple regression analysis

Multiple regression model in this research study was applied to find the impact of the independent variables - emotional intelligence, work life balance and organizational commitment on the dependent variable women empowerment.

The regression equation for women empowerment along with its influencing factors was depicted as

$$\ Y = A + B_1X_1 + B_2X_2 + B_3X_3$$
Where,

\[ Y = \text{Women Empowerment} \]

\[ B_1, B_2, B_3 \] are the coefficient of regression equation

\[ X_1 = \text{Emotional Intelligence} \]

\[ X_2 = \text{Work life balance} \]

\[ X_3 = \text{Organisational commitment} \]

\[ A = \text{Constant} \]

A t – test was done to determine the significance of each of the factors of women empowerment at 5% level of significance to test whether t was significant for emotional intelligence, work life balance and organisational commitment.

Regression was then tested for significance using F – test for women empowerment on emotional intelligence, work life balance and organizational commitment. F – test revealed whether the regression of women empowerment on emotional intelligence, work life balance and organizational commitment was significant or not.

3.6.6 Multiple correlation analysis

The extent to which the \( Y^1 \) scores (predicted women empowerment scores) from multiple regression analysis correlated with the actual women empowerment score gave the multiple correlation R. R depicted the strength of the fit (the proportion of the explained variance). The F test was used to test whether the \( R^2 \) calculated showed significant relationship between women empowerment and the behavioural variables.
\[ F_{(k, N-k-1)} = \frac{(R^2/k)}{((1-R^2) / (N-k-1))} \]

The table value of F, at 95% level of significance, or in other words, alpha of 0.05 for \((k, n-k)\) degrees of freedom, where \(k\) is number of predictors and \(n\) is the sample size was calculated to test the framed hypothesis.

This study used SPSS, excel work sheets and online calculators. It helped in assessing the individual and combined effect of the independent variables on the dependent variable.

### 3.7 Conclusion

The research methodology chapter dealt with the research design, sampling technique, sample size determination and the various statistical tools used for analyses. The actual analyses have been explained in the following chapter on results and discussion.