CHAPTER III

RESEARCH METHODOLOGY

This chapter focuses on the research design, operationalization of variables, data collection method, and data analysis plan. This chapter has dealt with the main objectives and hypothesis of the present study. An overview of the design of the study included methods of selection of respondents, method of data collection, tools for analysis and choice of test statistics. Further a well-designed questionnaire was also used. The details of the questionnaire used and the sampling procedure adopted in the study are described in the following pages.

3.1 Research

Research is an organized set of activities to study and develop a model or procedure/technique to find the results of a realistic problem supported by literature and data such that its objectives are optimized and further make recommendations/interferences for implementations. Redman and Mory define research as “a systematized effort to gain new knowledge”. Research is an academic activity and as such the term should be used in a technical sense. According to Clifford Woody research comprises defining and redefining problems, formulation hypothesis or suggested solutions; collecting, organizing and evaluating data; making deductions and reaching conclusions; and at last carefully testing the conclusions to determine whether they fit the formulating hypothesis. Research methodology are system of models, procedures and techniques used to find the results of research problem.
3.2 Research Design

Research design is the blueprint for conducting research aimed at answering the research question. It ensures that the study is relevant to the problem and economical in procedures by guiding the researcher on major research issues such as data collection techniques, sampling procedure, monetary costs and time required for the study and techniques used for data analysis. They have classified research design into several categories based on eight different descriptors.

According to their framework, this study follows a formal research design where the objective is to answer the research question and testing of hypothesis. In terms of control of other variables, research design follows an ex post facto design where the researcher’s ability to manipulate the variables is limited. In terms of purpose, it is more of a causal study, wherein the objective is to explain the relationship between variables. Data were collected at once to represent a snapshot, and hence on time dimension, the research design is considered to be of cross sectional nature.

3.3 Selection of Company

For the purpose of this study, leading software companies in the software industry in Chennai were taken for the study. The companies were selected with the perspective of choosing the organization facing high level of burnout, job tension which is inferred from the attrition rates and the organizations were shortlisted based on manpower distribution. These organizations contribute for highest women manpower distribution among Chennai. So analysing their work-life conflict of their women employees would help to study the objectives specified.
3.4 Data Collection Method

The study involved the measurement of the socio-economic profile of women employees working in software industry in Chennai. Confirmatory factor analysis has been done to confirm the factor structure of experiencing conflict in the family life and work environment, managing work-life conflict at family and work environment, betterment of managing work-life conflict and feeling of present life and work environment. Experience levels of conflict at family and work environment were discussed. Important aspects of work-life conflict at family side and work environment, and its betterment are identified. Expectation levels in present family life and work environment are also enumerated. Influence of employees’ demographics over experiencing conflict, managing work-life conflict, betterment of work-life conflict and expectations in present family life and work life are discussed in detail both in the aspects of family life and work life. Frustation in job and its reasons are also elaborated. Correlation analysis has been done for family life and work life. Hence the data were collected only from women employees. Based on the above specified objectives both primary and secondary were collected. Primary data were collected by administering questionnaire mainly to study and secondary data were collected from various journals and the reviews of past studies helps the researcher to identify the previous gap.
### 3.4.1 Variables for the Study

The below describes the variable and its nature is shown in Table 3.1.

**Table 3.1 Variables for the study**

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Experiencing conflict at family side</td>
</tr>
<tr>
<td>2</td>
<td>Experiencing conflict at work environment</td>
</tr>
<tr>
<td>3</td>
<td>Managing work-life conflict at family side</td>
</tr>
<tr>
<td>4</td>
<td>Managing work-life conflict at work environment</td>
</tr>
<tr>
<td>5</td>
<td>Betterment of Managing work-life conflict at family and work environment</td>
</tr>
<tr>
<td>6</td>
<td>Feeling about present family life</td>
</tr>
<tr>
<td>7</td>
<td>Feeling about present work environment</td>
</tr>
</tbody>
</table>
3.4.2 Questionnaire Construction

The questionnaire was constructed with nine sections, **Section A** analyses the experience of conflict at the family side, **Section B** analyses the experience of conflict at the work environment, **Section C** measures the level of satisfaction towards managing the work-life conflict at family side, **Section D** measures the level of satisfaction towards managing work-life conflict at work environment, **Section E** measures the level of expectation towards the betterment of managing work-life conflict at family and work environment, **Section F** assess their feeling about their family life, Section G assess their feeling about work environment, **Section H** about the organization they work and **Section I** has all the demographic details about the respondents. The reliability of the questionnaire was tested through pilot study the values indicated have proved the reliability and validity of parameters taken for the study.

3.4.3 Research Questions

The study was designed to gain reasonable answers to the following questions. The main research questions of this study are:

1) How do work and family related factors influence the work-family conflict of women software employees in Chennai?
2) How do work and family related factors influence the satisfaction level at work and family respectively of women software employees in Chennai?
3) How do work and family related factors influence their expectation for managing work life conflict at work and family respectively?
4) How do the women software employees in Chennai feel about their present work environment and present family situation.
5) What moderator effect does family support and work support play in the work and family situation?
6) How do they like to retain themselves in the company they work or they have left the company for various reasons?
7) How do they rate the organization that they work for?
8) What challenges do they face and what coping strategies do they use to avoid conflict?

3.4.4 Pretest

The pretest was conducted with an idea of testing the reliability of the questionnaire designed and to understand the respondent’s ease in answering the questionnaire. Primary concern was regarding the length of the questionnaire, since it has 81 questions to measure 7 variables, in addition to the demographic variables and job related variables. A sample of (20% of 500(N=100)) software women employees in Chennai were selected for this purpose.

Respondents were required to mention the time required to complete the questionnaire, items that were difficult to understand or answer and other general remarks. Respondents to pilot testing identified some words as difficult to understand and answer. Based on the views of the respondents the needed modifications are carried out and the questionnaire was standardized.
3.4.5 Sampling Size

The sample size was determined by a sampling proportion method using the following formula:

\[ n = \left( \frac{ZS}{E} \right)^2 \]

\[ = \left( \frac{(1.96) (0.93)}{0.01} \right)^2 \]

\[ = 500 \]

Where
- Acceptable error E is 10% = 0.01
- S = Sample SD/SD of population = 0.93
- Z = Standardized value corresponding to a confidence = 1.96

3.4.6 Sampling Design

As the population is indefinite, Convenience sampling was adopted for the study. The questionnaire was administered to a non-probability sample of 500 software women employee in Chennai.

3.4.7 Non-Response Bias Checks

The non-response bias was checked by both a field and data. As in any survey method, there will be non-response. The initial non-response, from the survey carried out by the researcher was deemed as acceptable as the calculated final response rate was high (94%). The main reason given for non-response was refusal to answer the survey and the lack of time for enumerators to obtain responses.
3.4.8 Reliability and Validity test

Reliability

Reliability of an instrument refers to the degree of consistency between multiple measurements of variables. It is extent to which an experiment tests or any measuring procedures yield, the same result on repeated attempts. Reliability was estimated through internal consistency method which is applied to measure the consistency among the variables in a summated scale. In the present study, the Cronbach’s Alpha co-efficient of reliability was found based on primary data of the present study and the details are as follows:

Table 3.2

Reliability measures for the study

<table>
<thead>
<tr>
<th>No.</th>
<th>Variables</th>
<th>No. of items</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Experiencing conflict at family</td>
<td>12</td>
<td>0.83</td>
</tr>
<tr>
<td>2</td>
<td>Experiencing conflict at work environment</td>
<td>16</td>
<td>0.84</td>
</tr>
<tr>
<td>3</td>
<td>Managing work-life conflict at family side</td>
<td>13</td>
<td>0.81</td>
</tr>
<tr>
<td>4</td>
<td>Managing work-life conflict at work environment</td>
<td>17</td>
<td>0.83</td>
</tr>
<tr>
<td>5</td>
<td>Betterment of managing work-life conflict</td>
<td>10</td>
<td>0.82</td>
</tr>
<tr>
<td>6</td>
<td>Expectation in Present family life</td>
<td>6</td>
<td>0.85</td>
</tr>
<tr>
<td>7</td>
<td>Expectation in Present work environment</td>
<td>5</td>
<td>0.87</td>
</tr>
<tr>
<td></td>
<td>Overall reliability of the study</td>
<td>79</td>
<td>0.85</td>
</tr>
</tbody>
</table>

Source: Primary data
Validity

Both Face and Content validities were established in the study. The face validity was done by the investigator and the content validity was established by the experts in the field of investigation. Face validity, it appears to measure whatever the author had in mind, namely, what he thought he was measuring. The rationale behind content validity is that to examine the extent to which a measuring instrument provides adequate coverage of the topic under study.

3.5 Data Analysis

All data analysis was conducted using SPSS V-15. Sample means, standard deviation and N are presented in the analysis chapter for all the variables of the study. The classification tools serve as data presentation techniques for clear interpretations.

3.5.1 Statistical Tools Applied for the Study

The data collected was statistically analysed by applying various tools like simple percentage, t-test, ANOVA followed by Duncan multiple range test, Chi-square, Fried man test, correlation analysis and multivariate tools like multiple regression and discriminant analysis

3.5.1.1 Analysis of Variance (ANOVA)

ANOVA allows for the study of a single factor or several factors, but will only measure one variable. An ANOVA works by measuring the variance of the population in two different ways; the first is by noting the spread of values within the sample; the second is by the spread out of the sample means. If the samples are from identical populations, these methods will give identical results. The basic assumptions for ANOVA are random sampling independent measurements, normal distribution and equal variance

3.5.1.2 Non-Parametric Chi-square Analysis
Chi-square association test is a non-parametric test useful to establish an association between two categorical variables. The frequency dumping in each cell of the cross tabulation allows identification of the association between two types of heterogeneous groups and also the nature of cases in that particular cell. It also exhibits linear by linear relationship, and Cramer’s Phi-statistics to study the relationship.

### 3.5.1.3 t-Tests

T-Tests are used in situations where the research wants to compare two statistics. The basic utility of a t-test is that it produces a straightforward easy to interpret results of significance. In the case of this thesis, two tailed t-tests were used after all other analysis was completed only to note the differences of assumed mean and computed mean directly. The basic assumptions for t-tests- one random sampling, independent measurements, normal distribution and equal variance.

### 3.5.1.4 Correlation Analysis

Correlation is the degree of association between two variables and it is represented in terms of coefficient known as correlation coefficient. The range of correlation coefficient is in between -1 and +1; if the coefficient is 0, there is no association between variables. If the coefficient is positive, then the variables are associated directly and it is maximum when it is +1.
3.5.1.5 Multivariate Analysis

Multivariate analysis for this study involved the use of multiple regression and discriminant analysis multiple regression.

If the number of independent variables in a regression model is more than one, then the model is called multiple regression. Stepwise hierarchical regression is preferred in this model compare to enter method, due to its ability to deal with multicollinearity issues.

Discriminant analysis is dependence multivariate techniques. The purpose of dependence technique is to predict a variable from a set of independent variables. This is used primarily to identify variables that contribute to differences in the a priori defined groups with the use of discriminant functions.

3.5.1.6 Structural Equation Modelling

Structural equation modelling (SEM) is a statistical technique for testing and estimating causal relations using a combination of statistical data and qualitative causal assumptions. Structural equation models (SEM) allow both confirmatory and exploratory modeling, meaning they are suited to both theory testing and theory development. Confirmatory modeling usually starts out with a hypothesis that gets represented in a causal model. The concepts used in the model must then be operationalized to allow testing of the relationships between the concepts in the model. The model is tested against the obtained measurement data to determine how well the model fits the data. The causal assumptions embedded in the model often have falsifiable implications which can be tested against the data.

With an initial theory SEM can be used inductively by specifying a corresponding model and using data to estimate the values of free parameters. Often the initial hypothesis requires adjustment in light of model evidence. When SEM is used purely for exploration, this is usually in the context of exploratory factor analysis as in psychometric design.

Among the strengths of SEM is the ability to construct latent variables: variables that are not measured directly, but are estimated in the model from several measured variables,
each of which is predicted to 'tap into' the latent variables. This allows the modeler to explicitly capture the unreliability of measurement in the model, which in theory allows the structural relations between latent variables to be accurately estimated. Factor analysis, path analysis and regression all represent special cases of SEM.

In SEM, the qualitative causal assumptions are represented by the missing variables in each equation, as well as vanishing covariances among some error terms. These assumptions are testable in experimental studies and must be confirmed judgmentally in observational studies.

3.6 Hypotheses of the Study

The following null hypotheses have been examined for the study:

H01 (a): The experience level of conflict at family side of women employees working in software companies do not differ with the average score.

H01 (b): The experience level of conflict at work environment of women employees working in software companies do not differ with the average score.

Null hypothesis H0 2: All the aspects of managing work life conflict at family side gives equal satisfaction to the women employees.

Null hypothesis H0 3: All the aspects of managing work life conflict at work environment gives equal satisfaction to the women employees.

Null hypothesis H0 4: All the aspects of betterment of managing work life conflict at work environment carry equal expectation among women employees.

H05: The expectation level in present family life of women employees working in software industry do not differ with the average score.
H06: The expectation level in present work environment of women employees working in software industry do not differ with the average score.

H07: There is no significant influence of women employees’ demographics (a) Age (b) Marital status (c) Category of Job (d) Work experience (e) Educational qualification (f) Monthly income (g) Working hours per week on experiencing conflict in their family life.

H08: There is no significant influence of women employees’ demographics (a) Age (b) Marital status (c) Category of Job (d) Work experience (e) Educational qualification (f) Monthly income (g) Working hours per week on experiencing conflict in their work environment.

H09: There is no significant influence of women employees’ demographics (a) Age (b) Marital status (c) Category of Job (d) Work experience (e) Educational qualification (f) Monthly income (g) Working hours per week on managing work-life conflict at family side.

H010: There is no significant influence of women employees’ demographics (a) Age (b) Marital status (c) Category of Job (d) Work experience (e) Educational qualification (f) Monthly income (g) Working hours per week on managing work-life conflict at work environment.

3.7 LIMITATIONS OF THE STUDY

1. The study is a sample based study and analysis and interpretations are bound to be representative of the total population.
2. The present study is confined only to software women employees of Chennai city and does not include other states of India.
3. The analysis is based completely on the responses given by the respondents in the questionnaire. The authenticity of the responses is the limiting factor.
4. There is a possibility of employee bias in responding to certain questions.
5. Time was a major constraint and owing to the hectic nature of their job some of the women employees were not able to spend time in filling the questionnaire completely.
6. The sample taken from the population does not include all the companies in the software industry.