CHAPTER - III

RESEARCH METHODOLOGY

Introduction

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

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 the 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 in 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 Sources of Data

The survey method was deployed in this study to gain insight and knowledge
of the factors determining the work-life balance of women employees in the IT sector.
The primary data of the study is collected through a structured questionnaire. The
relevant secondary data was collected through journals, magazines, newspapers,
research articles, published information and details from websites of the software
companies taken for study.

3.4 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 women employees
conflict both family and organisation, burnout, job tension which is inferred from
the attrition rates, often facing problems in different situations and the organizations
were shortlisted based on manpower distribution, in this respect the research
identified four software companies Infosys, HCL, Wipro, and TCS. These
organizations contribute for highest women manpower distribution among Chennai
hence the study was carried out among the selected four software companies and
focused day today worklife balance women employees for betterment of individual and organisational performance.

3.5 Selection of Respondents

In India, there are four major metropolitan cities present, out of which Chennai is located in South India. The Chennai is hub of IT industry in south India around 100 medium and large scale software companies operating its business in Chennai. Since, Chennai represents the good section of respondents belonging to different software companies, the respondents residing in Chennai were taken for the study. In software industry most of the employees belong to female category and more over most of the respondents are married and difficult to balancing the day to day family and working environment. Since the researcher was approached and requested for filling out of the questionnaire, irrespective of their age, educational qualifications, occupation, monthly income, number of childrens and family members.

3.6 Sampling Design

It is the theoretical basis and the practical means by which data are collected so that the characteristics of a population can be inferred with known estimates of error. The following subdivisions explain the sampling design of this thesis.

3.7 Selection of Sampling Area

Chennai is the fourth largest metropolis in India. It has got the mix of all range of people, spreading from school level to post graduate / professional level having different background in terms of their income, age occupation etc., Also it has the migrant residents moved from different parts of India, say, North, East and West, representing a population across India. This research has been carried out in Chennai as it is a place with different profiles of the people available and thus can be used to arrive at meaningful conclusion regarding the study on work life balance of women employees performance in IT sector.
3.8 Sampling Technique

The sampling technique used in this study is convenience sampling. Convenience sampling is a type of non-probability sampling which involves the sample being drawn from that part of the population which is close to hand. That is, a sample population was selected because it was readily available and convenient. It may be through meeting the person or including a person in the sample when one meets them or chosen by finding them through technological means such as the internet or through phone.

3.9 Sample Size

As the population is finite but huge in numbers convenience sampling was adopted for the study. There are several approaches to determine the sample size. These include a census for small populations, imitating a sample size of similar studies, using published tables, and applying formulae to calculate a sample size. For populations that are large, Cochran developed the equation given below to yield a representative sample for proportions:

\[
\text{Equation: } n_0 = \frac{Z^2 pq}{e^2}
\]

Where \(n_0\) is the sample size, \(Z^2\) is the abscissa of the normal curve that cuts off an area at the tails (1-equals the desired confidence level, eg. 95% ) \(e\) is the desired level of precision, \(p\) is the estimated proportion of an attribute that is present in the population, and \(q\) is \(1-p\). The value of \(Z\) is found in statistical tables which contains the area under the normal curve. In this study, we have presumed that population size is finite and unknown, the formula was applied to know the sample size, and found the sample size 540 meets the requirements.

3.10 Questionnaire

A structured questionnaire was administered to collect the primary data. The Likert’s 5 point scale method was found suitable for the study, as it has a good viability and most importantly it is easy for the respondents of varying educational
level to understand and respond. This is also the most widely used method among
the researchers and easy to construct. However the researcher is aware of the
limitations of the tool as it may not have equal appearing intervals and requires
validation of the data before analysis. However researchers by convention treat it as
an interval scale, with due validation of the data, the same being observed in this
study also.

3.11 Pre-Test

The pretesting or pilot study was conducted with an idea of testing the
reliability of the designed questionnaire. A sample of 100 women respondents of
software companies from Chennai were selected for this purpose. Based on the
responses and views of the participants, confusing as well as difficult questions were
slightly modified to ease the responses and the questionnaire was standardized. The
prepared questionnaire was tested for reliability using Cronbach’s Alpha, which is
discussed subsequently. The non-response bias checks were done initially by the
researcher from the survey carried out and was deemed as acceptable as the
calculated final response rate was high (84%).

3.12 Reliability and Validity Test

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 the primary data of
the present study and the details are as follows:
Table No.1

Reliability measures for the study

<table>
<thead>
<tr>
<th>No.</th>
<th>Particulars</th>
<th>No. of items</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Opinion towards the work life balance at working and personnel environment</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Work environment</td>
<td>25</td>
<td>0.87</td>
</tr>
<tr>
<td></td>
<td>b. Support from family</td>
<td>12</td>
<td>0.88</td>
</tr>
<tr>
<td></td>
<td>c. Childcare, Dependent care</td>
<td>10</td>
<td>0.91</td>
</tr>
<tr>
<td>2</td>
<td>Satisfaction in association with balancing work and family</td>
<td>29</td>
<td>0.84</td>
</tr>
<tr>
<td>3</td>
<td>Expectation towards the present work life balance</td>
<td>33</td>
<td>0.87</td>
</tr>
<tr>
<td></td>
<td>Overall reliability of the study</td>
<td>109</td>
<td>0.86</td>
</tr>
</tbody>
</table>

Source: Primary data

3.13 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.

3.14 Variables for the Study

The following are the variables the researcher have taken into account for the present study:

- Women employees demographic personnel life expectations
• Women employees demographic on opinion towards childcare and dependent care
• Balancing between work and family commitments
• After hindrance balancing work and family commitments
• Age wise work life conflict in personnel environment
• Age wise work life balance in work environment
• Satisfaction of women employees
• Expectation of women employees
• Number of dependents and work life balance of women employees
• Shift system balancing of women employ
• Work place support
• Family support
• Procedures and policies
• Child care
• Health position
• Present working environment

3.15 Questionnaire Construction

The questionnaire was constructed with five parts, Section A analyses the women employees balance work and family commitments, Section B analyses the hinderance for women employees balancing the work and family commitments, Section C measures the level of opinion towards managing the work-life balance at working, support from family, childcare and personnel. Section D measures the level of exception towards the worklife balance including personnel life exception, family life exception and organisational exceptions. Section E measures the level of satisfaction of women respondentstowards the working and family environment and leads to successful life inthe critical conflict situation, Section F 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.

3.16 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 balance of women software employees in IT sector 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 balance 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?

3.17 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.
3.18 Hypotheses of the Study

The following null hypotheses have been examined for the study:

H\textsubscript{0}\textsubscript{1(a)}: The experience level of conflict at family side of women employees working in software companies do not differ with the average score.

H\textsubscript{0}\textsubscript{1(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 H\textsubscript{0}\textsubscript{2}: All the aspects of managing work life conflict at family side gives equal satisfaction to the women employees.

Null hypothesis H\textsubscript{0}\textsubscript{3}: All the aspects of managing work life conflict at work environment gives equal satisfaction to the women employees.

Null hypothesis H\textsubscript{0}\textsubscript{4}: All the aspects of betterment of managing work life conflict at work environment carry equal expectation among women employees.

H\textsubscript{0}\textsubscript{5}: The expectation level in present family life of women employees working in software industry do not differ with the average score.

H\textsubscript{0}\textsubscript{6}: The expectation level in present work environment of women employees working in software industry do not differ with the average score.

H\textsubscript{0}\textsubscript{7}: 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.

H\textsubscript{0}\textsubscript{8}: 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.

H\textsubscript{0}\textsubscript{9}: 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.
qualification (f) Monthly income (g) Working hours per week on managing work-life conflict at family side.

\[ H_0 \text{(10): There is no significant influence of women employees’ demographics (a) Age (b) Marital status (c) Category of Job (d) Work experience (e) Educational qualification (f) Monthly income (g) Working hours per week on managing work-life conflict at work environment.} \]

### 3.19 Framework of 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.

### 3.20 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.

#### 3.20.1 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.

#### 3.20.2 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 Crammer’s Phi-statistics to study the relationship.

3.20.3 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.

3.20.4 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.

3.20.5 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.

3.20.6 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 has been 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.

3.21 Limitations of the Study

The study is a sample based study and the inferences derived from the analysis and interpretation are expected to be representative of the total population. However, the study is subject to the following limitations:

- The present study is confined only to female employees in IT industry of Chennai city and not cover do there states of India.
- The sample was limited to IT organisation in Chennai city.
The study was conducted under the assumption that the information given by the respondents will be authentic.

The outcome of the study cannot be generalised as the data will be collected only from female employees and not from all the employees.

The study is chiefly concentrated only on the IT sectors. Hence it becomes difficult to judge the importance of Work life balance across other industries.

Time factor was a major challenge.

3.22 Conclusion

A research analysis requires a good research design to arrive at desired results. Since, the survey method needs a good sampling technique together with proper selection of sampling area and sample size to effectively study the population, appropriate steps were taken to ensure that a proper research design is drawn with statistically reliable sampling with tested questionnaire. The requisite variables were chosen for study, relevant hypotheses were set and specific statistical tools were applied for arriving at inferences on the data. The structural Equation Modelling technique was used to propose a model that may be followed by IT companies to know performance of women employees towards work life balance.