CHAPTER – 3  
DATA BASE AND METHODOLOGY

The present chapter deals with the data base employed and the research methodology followed during the course of the study. The ultimate success of a research immensely depends upon the overall research design. It enables the researcher to save his time, efforts and avoids aimless wandering. It includes defining the objectives, universe of the study, sample size, method of data collection, tools employed and statistical techniques used for data analysis. The present study is a cross sectional exploratory study that attempts to identify various job and organisational characteristics, family affairs and personality aspects causing stress among bank branch managers. The study also determines the implications of stress on health and the different types of coping strategies being followed by them to combat stress.

3.1 Objectives of the Study

The present study has been conducted to achieve the following objectives.

(i) To identify the various job and organisational factors causing stress among bank branch managers.

(ii) To identify the various family related factors causing stress among bank branch managers.

(iii) To examine the stress related health problems among bank branch managers.

(iv) To study the various coping strategies being used by bank branch managers to cope with stress.

(v) To examine the role of Negative Affectivity (NA) in the stress process.

(vi) To examine the role of various stressors, coping strategies and negative affectivity in stress process.

3.2 Universe of the Study and Sample

The universe of the study consists of all the branch managers of banks operating in Punjab.
As per “KPMG Survey” (2007), top twenty five banks of India were selected for the purpose of the study. While choosing, top twenty five banks of India no distinction has been made whether they are in public sector, private sector or foreign banks. The list of top twenty five banks of India (on the basis of total score and Balance sheet size more than twenty thousand crore) as per survey includes, HDFC, ICICI, Standard Chartered Bank, UTI/Axis Bank, HSBC, Corporation Bank, State Bank of Hyderabad, Indian Overseas Bank, Allahabad Bank, Citi Bank, Oriental Bank of Commerce, Federal Bank, Punjab National Bank, Canara Bank, IDBI Bank, ABN AMRO, State Bank of India, Union Bank Of India, Andhra Bank, Indian Bank, Syndicate Bank, Bank of Baroda, State Bank of Patiala, Bank of India, State Bank of Travancore.

Out of the top 25 banks, only those banks were selected for the study that were operating in Punjab and having at least a branch in Punjab state. Among these top 25 banks of India, two banks does not have a branch in Punjab (ABN AMRO and State Bank of Travancore, ranking 16 and 25 respectively) and hence were excluded from the study. Thus, 23 banks operating in Punjab were selected for the study. Out of total number of branches of these 23 banks, only those branches were selected that were operating at district headquarters. Further, while selecting the branches operating at district headquarters, the branches operating in various schools, colleges, hospitals and other institutions or special branches (maintaining limited number of services or extension branches etc.) were excluded from the study. In total there are around 643 branches of these banks operating in Punjab at district headquarters of all the districts (located through on-line branch locator of each bank). Therefore, 643 questionnaires were distributed to the managers of these branches. Few of the questionnaires were handed over personally or with the help of family members and friends and collected. Few questionnaires were mailed because of time and resource constraints. After repeated reminders and requests the total questionnaires received were found to be only 409. Further on their scrutiny it was found that 93 questionnaires were incomplete in one aspect or the other and were thus, discarded. Therefore, a final sample of only 316 bank branch managers was considered for analysis purpose.
3.3 Demographic Profile of the Respondents

The profile of the respondents in terms of age, educational qualification, total experience and employees per branch, is given in the Table 3.1.

Table – 3.1

Demographic Profile of the Respondents

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Demographic Variables</th>
<th>Categories</th>
<th>Frequencies</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Age</td>
<td>20-30</td>
<td>10</td>
<td>3.16</td>
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<tr>
<td></td>
<td></td>
<td>30-40</td>
<td>73</td>
<td>23.10</td>
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<td></td>
<td></td>
<td>40-50</td>
<td>93</td>
<td>29.43</td>
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<td></td>
<td>50-60</td>
<td>140</td>
<td>44.30</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>316</strong></td>
<td></td>
<td><strong>100</strong></td>
</tr>
<tr>
<td>2</td>
<td>Educational Qualifications</td>
<td>Graduate</td>
<td>159</td>
<td>50.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Post Graduate</td>
<td>157</td>
<td>49.7</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>316</strong></td>
<td></td>
<td><strong>100</strong></td>
</tr>
<tr>
<td>3</td>
<td>Total Experience (in Years)</td>
<td>0-10</td>
<td>73</td>
<td>23.10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10-20</td>
<td>47</td>
<td>14.87</td>
</tr>
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<td></td>
<td></td>
<td>20-30</td>
<td>171</td>
<td>54.11</td>
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<td></td>
<td></td>
<td>30-40</td>
<td>25</td>
<td>7.91</td>
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<td></td>
<td><strong>Total</strong></td>
<td><strong>316</strong></td>
<td></td>
<td><strong>100</strong></td>
</tr>
<tr>
<td>4</td>
<td>Number of Employees Per Branch</td>
<td>5-15</td>
<td>184</td>
<td>58.22</td>
</tr>
<tr>
<td></td>
<td></td>
<td>16-25</td>
<td>116</td>
<td>36.70</td>
</tr>
<tr>
<td></td>
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<td>25-35</td>
<td>14</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>35-45</td>
<td>2</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>316</strong></td>
<td></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
The data reported in the table 3.1 shows that majority of the respondents (44.30 percent) occupying managerial positions in different branches of banks belong to the age group of above fifty years and only ten respondents (3.16 percent) belong to the age group of less than thirty years. While rest of the 166 respondents (52.53 percent) belong to the age group of thirty to fifty years. The minimum reported age of the respondents in years is 28 and maximum reported age of the respondent is 59.

On the basis of educational qualifications the respondents were divided into two categories i.e., graduates holding bachelor’s degrees and others as post graduates holding masters degree. Those respondents qualifying diploma course in Cisco Certified Network Associate (CCNA) after their graduation are also considered in the category of post graduate respondents. Table 3.1 shows that 159 respondent are found to be graduates representing 50.3 percent, while 157 are post graduates representing 49.7 percent of the total.

Total experience-wise the respondents are divided into four categories that are from 0 to 10 years, 10 to 20 years, 20 to 30 years and 30 to 40 years. Table 3.1 reveals that majority of the respondents (62.2 percent) have total experience more than 20 years. Only 23 percent of the respondents have total experience less than ten years. Rest 14.8 percent of the respondents have total experience between ten to twenty years. The reported experience of respondents varies from six months to 31 years.

Employees per branch, refers to the total number of employees working in a branch under a branch manager. On the basis of number of employees per branch the sample has been divided into four categories, that is 5 to 15, 15 to 25, 25 to 35, and 35 to 45. The data shows that large number of branches (94.92 percent) have number of employees less than 25 and only 2 branches have number of employees more than 35 (0.6 percent). Rest of the branches (4.48 percent) has number of employees from 26 to 35. The reported number of employees working in a branch varies from 7 to 42.

3.4 Survey Tools

In order to collect the data through survey following self developed and standardized tools has been used:
These five tools were compiled and assigned different sections. The first part of the compiled tool deals with demographic information such as age, educational qualification, experience, and number of employees per branch, followed by five different sections from A to E.

- **Section –A** deals with various job, organisational and family related factors which might produce stress among bank branch managers.
- **Section- B** measures the physical health of the bank branch managers.
- **Section –C** measures the mental health of the bank branch managers.
- **Section- D** deals with coping strategies used by the bank branch managers to manage stress.
- **Section -E** measures Negative Affectivity.

**3.5 Construction and Standardization of Survey Tools**

- **Job Organisational and Family Factor Scale**

To assess various job, organisational and family related stress factors, a Job and Family Stressor Scale, created through combining self constructed and standardized scales, has been used. The objective of the said scale is to explore job and family related stress factors among the bank branch managers and is designed after giving due representation to each and every possible dimension that may have potential to produce stress. Initially, a detailed review of relevant literature was carried to identify the various types of stressors that may cause stress among managerial population. Then, bank managers belonging to various sectors were contacted to identify probable stressors that create stress among them. Later on, some senior members of the organizations, experts of the
related field, and research fellows from the related areas were consulted and the first draft of the questionnaire was prepared. The draft consisted of 97 items to cover different dimensions of job, organisational and family related factors.

The initial draft of the questionnaire was then tested on few managers. After testing, nine items were deleted from the list and five were modified. Thus, the modified draft was having 88 items and which was again given to six judges (that included a retired bank manager, two senior bank managers, a psychologist, a doctor and an academician who was involved in research related to stress) to further ensure the validity of the scale. On their suggestions, 11 items were deleted as they were considered irrelevant, 7 items were modified to remove the ambiguities in them and 2 new items were added to get more completeness in the scale. Thus, the revised draft of the questionnaire consisted of 79 items and to further test the same, the revised draft was administered on 50 managers of the target population for the purpose of pilot study. Using data collected, necessary item analysis was carried out which indicated the need of refinement of 5 statements and deletion of another 15 statements. Thus, the final draft of the questionnaire consisted of 64 test items including 57 items represented various job related factors and 7 items family related factors.

Finally, the scaled developed was a Likert Scale having 64 items and each one was measured on a five point scale varying from ‘strongly agree’ to ‘strongly disagree’. Alpha a measure of internal consistency for job and organisational item construct was found to be 0.86 and that of family related item construct 0.52.

- **Physical Health Scale**

In order to assess the physical health of the respondents a self constructed physical health scale was used. For constructing the scale twelve different physical health symptoms associated with stress were selected. In all about twelve physical health symptoms were finalised on the basis of review of psychological and clinical studies as well as consultation with a doctor. These symptoms are also found to be the causal factors by many of the studies also, these include, High Blood Pressure (Fletcher and Jones, 1993, Brisson et al., 1999, Harris et. al. (2000); Chronic fatigue syndrome (Sanders and Korf...
(2008); Joint pains (Weinberg, 1977); Diabetes (Surwit et. al. 1992); Skin Disorder (Labhwohl and Tan., 1998); Headache (Paul et. al. (1998); Insomnia (Georgina et. al. (2008); Irritable bowel syndrome (Bennett et. al. 1998); Uric acids (Svensson et. al. (2002); High Cholesterol Level (Steptoe, and Brydon, 2005); Upset Stomach (Barret, et. al. 2002); Neck and Back Pain (Linton, S. J. (2000), etc. The respondents were asked to express the frequency of experiencing each of the physical health problems on a five point Likert scale ranging from Always to Never. The corresponding weights assigned to the scale were 4, 3, 2, 1, and 0, respectively. The reliability of the physical health scale calculated using ‘Cronbach Alpha’ is 0.69.

- **General Health Scale**

In order to assess the mental health of bank branch managers, ‘General Health Scale’ (GHS) developed by Goldberg (1978) has been used. The scale consists of 12 items designed to assess the mental health of an individual. One more item related to ‘sleeping disorder’ was added to the scale on the basis of the inputs received from respondents during pilot survey, thus making it a thirteen item scale. The respondents were asked to express the frequency of experiencing each of the mental health problems on a five point Likert scale ranging from Always to Never. The corresponding weights assigned to these scale were 4, 3, 2, 1, and 0, respectively. Alpha a measure of internal consistency for mental health scale found to be 0.62.

- **Coping Scale**

The coping strategies used by bank branch managers to cope with stress were assessed through ‘Ways of Coping Check List’ (Folkman and Lazarus, 1988) comprising 66 items covering various problem and emotion focused coping strategies. The respondents were asked to express the frequency of using a particular strategy varying from ‘used to a great deal’, ‘used quiet a bit’, ‘used somewhat’, and ‘do not used at all’ and weights assigned were 3, 2, 1 and 0, respectively. The scale provides factor structure having eight factors representing all kinds of coping strategies. The reliability of the ‘Ways of Coping Check List’ calculated with Cronbach Alpha’ is 0.69.
• **Negative Affectivity Scale**

For assessing the ‘Negative Affectivity’ among the respondents of the present study ‘Strain Free Negative Affectivity’ (SFNA) (Fortunato and Goldblad, 2002) has been used. The scale consists of twenty items designed to examine the level of negative affectivity in an individual. It is a seven point response format varying from ‘Strongly Disagree’, ‘Moderately Disagree’, ‘Slightly Disagree’, ‘Neither Disagree nor Agree’, ‘Slightly Agree’, ‘Moderately Agree’ and ‘Strongly Agree’. The weights were assigned accordingly which varied from 7 to 1. The respondents were asked to express the level of agreement with the given situations. The reliability of the Strain Free Negative Affectivity (SFNA) scale calculated with Cronbach Alpha is 0.36.

**3.6 Data Analysis**

To analyse the collected data, a number of statistical techniques, like, Mean, Standard Deviation, Reliability Analysis Percentages, T-test, Factor Analysis, Correlation and Multiple Regression Analysis, have been used with the help of a statistical Package SPSS 11.5. All these techniques are discussed in the text following:

**3.6.1 Mean (M)**

The mean is the best known measure of central tendency. It is the average value of the distribution obtained by dividing sum of scores in the distribution by the number of observations.

**3.6.2 Standard Deviation (S. D)**

This is the most important and stable index of variability. It represents the degree to which the scores are circled around mean. The formula to calculate standard deviation is:

\[
S.D. (\sigma) = \sqrt{\frac{\Sigma(X - M)^2}{N}}
\]

where:

\[
X = \text{individual scores}
\]
M = mean of scores and
N = deviation of each score from mean.

### 3.6.3 Reliability Analysis

Reliability refers to the consistency of a measure. A test is considered reliable if we get the same result repeatedly. It is the degree to which how the measure is reliable to generalize the outcomes. There are two main methods of calculating reliability, i.e. Cronbach Alpha and Split Half reliability. In the present study, ‘Cronbach Alpha’ was calculated by using SPSS package for all the scales used for the study.

### 3.6.4 T-test

Since the data was available in the form of scores, thus significance of difference was calculated using t-test.

### 3.6.5 Factor Analysis

Factor Analysis has been employed to identify the factors underlying a large number of variables being examined for the study. It is an interdependence technique in which all variables are simultaneously considered, each related to all others. The technique attempts to identify the relationship among all the variables considered for the study. It is described as a decompositional procedure that identifies the relationships that exist within a set of variables. The identification of relationships leads to forming of groups of metric variables (interval or ratio scaled). These groups are called factors. An identified factor is an underlying quality found to be characteristic of the variables. The variance explained by each factor is represented through Eigen values. Communalities refer to the commonness and it is the amount of variance an original variable share with other variables. Factor Loadings are the correlation between the original variable and the factor itself. While, squared factor loadings specify that, what percentage of the variance in an original variable is explained by a factor.

#### 3.6.5.1 Factor Extraction

The most important purpose of factor analysis is to reduce the data and generate factors that can further be used in the analysis. Principal Component Analysis (PCA) has been
used to summarize the original information representing maximum variance in a minimum number of factors. Under this method the factors are based upon an analysis of the total variance in the original data. Practically, factor analysis begins with a correlation matrix that has the value of '1' used on the diagonal. This computationally means that all the 100% of the variance is common or is shared between the variables and represents a linear combination of variables in such a manner that the maximum variance is extracted from the variables. The process of obtaining underlying factors or components is called extraction. The number of factors to be extracted is an important issue in Factor Analysis. There are three possible alternatives available for the said purpose:

1) Priori Criteria

In a priori Criterion, the analyst already knows how many factors are to be extracted and accordingly instructs the computer.

2) The Latent Root Criteria

In latent Root Criterion, only those factors having Eigen value greater than one are considered significant. The logic behind the criteria is that the Eigen value less than one describes that the factor explains less variance than the variance explained by a single variable.

3) Scree Test

Scree test is a graphical presentation of Eigen values of all the factors originally considered for extraction. In Scree Test, at least one factor, more than the latent root criterion is generally extracted. It helps in identifying an optimum number of factors that can be extracted before the amount of unique variance begins to dominate the common variance structure.

3.6.5.2 Factor Rotation

Rotation is ordinarily used after extraction to identify more important and useful factors and elimination of the least important ones. Rotation helps us in arriving at a simple loading pattern of factor loadings by maximizing high correlations and minimizing low correlations. Through rotation we does not lose any important information or data, rather
it is done to make the extracted factors more meaningful and easily interpretable, while keeping the number of factors and communalities of each variable fixed. There are twin methods used for rotation i.e. orthogonal or oblique. Orthogonal is preferred when it is assumed that the underlying factors are uncorrelated otherwise it should be oblique. There are three orthogonal rotation techniques (varimax, quartimax and equamax) and two oblique rotation techniques (direct oblimin and promax). Of these varimax is the most commonly used technique. Varimax rotation of the factor maximizes the variance of the squared loadings of a factor on all the variables in a factor matrix, which generally has the effect of differentiating the original variables by extracted factor. Each factor tends to have either large or small loadings of any particular variable. A varimax solution provides results that makes it as easy as possible to identify each variable with a single factor.

3.6.5.3 Factor Naming

The final step in factor analysis is the naming of factors. There are no rules available regarding naming of various factors; it is purely the judgment, choice or discretion of the investigator on the basis of variables loaded to the factor and its theoretical base. The factor names are given considering the various variables loaded on a particular factor. Normally an attempt is being made to choose a name that represent all or majority of the underlying variables in a factor.

3.6.5.4 Factor Scores

In order to use the extracted factors further for correlation and regression analysis the factor score of various factors are calculated. The scores were obtained by combining the raw variables with weights that were proportional to their factor loadings. It has been described as follows:

\[ \text{Factor Score} = \sum \left( \frac{b_{ij}}{\lambda_i} \right) X_i \]

Where \( b_{ij} \) is the factor loading for the \( j^{th} \) variable on \( i^{th} \) factor, \( \lambda_i \) is the associated Eigen Value and \( X_i \) is the raw score. The division by the Eigen Value is aesthetic, in that it merely assures that the resulting index has a variance equal to 1.
3.6.6 Correlation Analysis

Correlation is the most important statistical technique used to obtain knowledge about relationship existing between two variables. The measure of correlation is called correlation coefficient. This measure helps the investigator to examine the extent of relationship between the two variables. The correlation analysis usually precedes regression analysis. It provides information about direction and extent of linear relationship between different variables. In order to examine the linear relationship among job and organisational factors, family related factors, negative affectivity, coping strategies and health of the respondents, Karl Pearson’s Correlation Coefficients have been calculated.

3.6.7 Multiple Regression Analysis

Regression analysis is a multivariate statistical technique often used to examine the relationship between a single dependent variable and a set of independent variables. It is a statistical tool with the help of which we are in a position to predict the unknown value of one variable from the known value of another variable. It can be defined as the study of the dependence of one variable, the dependent variable, on one or more other variables, the explanatory variables, with a view to estimating and/or predicting the (population) mean or average value of the former in terms of the known or fixed (in repeated sampling) values of the latter (Gujrati 2005). Although regression analysis deals with the dependence of one variable on other variables, it does not necessarily mean that the dependent variables and explanatory variables are causally connected. The causation will come from theory and regression model are used in as a confirmatory approach. However, the single equation regression models assume that the causal relationship between dependent variable and explanatory variable if any flows in one direction only. There are several approaches that can be used to find the best regression model. As a sub techniques step wise regression has been widely used to minimize the problem of multicollinearity, when large number of explanatory variables is used. Further it helps to identify which of the explanatory variable explains the highest amount of variance. Multiple regression models of ordinary least square (OLS) have been used to examine the impact of more than one explanatory variable on the one dependent variable.
The co-efficient of multiple determinations ‘R$^2$’ and also the adjusted R$^2$ for the loss of degree of freedom have been calculated to study the extent to which the variations in the dependent variable are explained by independent variables taken together. The value of R$^2$ lies between 0 and 1 i.e., $0 \leq R^2 \leq 1$. The higher the R2 the greater the percentage of variations of dependent variable explained by the independent variables taken together. The ‘F’ values were also calculated to test the significance of R$^2$ with ‘F’ distribution at one and five percent level of significance (Malhotra (1997)).

In the present study step wise multiple regression technique has been used to examine the impact of various stress factors and coping strategies on the health of the respondents. The theory has established that stress affects the health of employees negatively, and when an employee is under stress they use different types of coping strategies to cope with stress. Thus, regression models have been used as a confirmatory statistical tool to reassess the relationship among bank branch managers.

3.7 Statistical Package Used

S.P.S.S. version 11.5 was used for statistical analysis.

3.8 Limitations of the Study

It is a cross sectional and exploratory study based on primary survey conducted with the help of a questionnaire. Survey studies are never error free. Any study based on a survey conducted through a pre-designed questionnaires suffers from the basic limitation of the possibility of difference between what is recorded and what is truth, no matter how carefully the questionnaire has been designed and field investigation has been carried out. This is because the respondents may deliberately give wrong responses, and even if they intend to respond correctly, there are bound to be differences owing to well known problems of filters in communication process. Although, every effort has been made to establish rapport with the respondents, to minimize the errors in interpreting the reported true responses, yet there may be possibility of errors because no fool proof way for obviating the possibility of an error creeping in the whole research process is there. Some of the other limitations of the study are reported as follows:
1. The investigator has taken only those branches that are operating at district head quarters, thus, the work environment at district head quarters may not extrapolate to the whole banking industry.

2. To investigate the physical health problems, only the most common health problems have been taken up for the study, while the respondents may be suffering from some other health problems which are not taken up in the study.

3. Some of the items relating to organizational and family related stressors may be subject to defensive responses.

4. Data analyzed were primarily retrospective data. Coping responses reported might be the coping styles rather than the actual coping behavior.

5. The Scale ‘Strain Free Negative Affectivity’ (SFNA) may lack cultural validation.

6. It is a cross sectional design, self reported data and respondents were from urban areas only, thus the generalization of findings may not be valid. The respondents’ bias in their response to the questionnaire can not be ruled out.

7. More research in future is recommended focusing on comparison of managers working in public, private and foreign banks, and managers working in urban and rural areas. Further, present study has used cross sectional data to study the stress (Job and family related factors) and employee health relationship. For future research, it has been suggested to conduct longitudinal studies to examine and refine the relationship.