CHAPTER I
INTRODUCTION AND DESIGN OF THE STUDY

1.1 INTRODUCTION

The modern world of technology and advancement not only has a lot of comfort, but also a lot of demands and desires that affect the human mind and body. This has led to lot of pressures and complexities, which lead to stress. Stress has become an unavoidable and indispensible factor in the lives of all human beings. In fact, stress has become an indispensible part of human life. In the fast and modernized world today, no occupation or organization is stress-free. Stress arises when a person is unable to meet the demands of the situation owing to his physical or mental incapability. Pressures arise from an individual’s personal life as well as from work and people differ in their capacity to cope up with different types of pressures. Although stress is not an illness, stress can lead to several mental and physical disasters.

Stress is the reaction to any type of change. It affects the human body, emotions, thoughts and behaviours. The effects of stress can be positive, negative or both. It can either motivate people or paralyze their ability to accomplish anything. Stress is experienced by all at some point in the daily life. Sometimes stress has positive effects and sometimes it is harmful. Since stress can be positive and negative, understanding it is critical.

Stress to an extent enables individuals to work at an effective level and creates satisfaction, a sense of well being and accomplishment. But excessive stress can result in loss of efficiency, failure to perform well and affects the mental and physical health. Stress is dangerous and its effects may range from manageable situations to unimaginable disasters. Hence a balance in stress is needed to live and work.
Stress refers to an individual’s reaction to a disturbing factor in environment. It is an adaptive response to an external situation that results in physical, psychological and behavioural deviations for organisational participants. Stress is the result of a mismatch between the challenges experienced and belief in the ability to cope. Stress is likely to create problems within the organization, which will have the direct or indirect effect on the bottom line. The operating costs certainly rise because of lower productivity, incorrect or random work and mistakes¹ (Yemm and Graham, 2007).

The challenges may come from external sources and may be the result of too much or too little pressure. They may also come from within the individuals and be the product of their own value systems, needs and expectations. Stress implies some form of demand on the individual, it can be perceived as a threat that it may create a psychological imbalance and can certainly affect individual performance. It is particularly concerned with how people cope with change in their lives at work, at home and in other circumstances.

Stress is defined in terms of its physical and physiological effects on a person, and can be a mental, physical or emotional strain. It can also be a tension or a situation or factor that can cause stress². Occupational stress is stress involving work. Occupational stress can occur when there is a discrepancy between the demands of the environment/workplace and an individual’s ability to carry out and complete these demands³.

Now-a-days, the hospitals have become battleground between the bottom line and humanitarianism. The people want lower healthcare costs but in cases of emergency, where one needs medical attention, cost becomes the

second factor prioritizing the medical care. At present, life has become so valuable that people are willing to underwrite any cost to provide the utmost care. Hence, the hospitals and healthcare providers are trying to reconcile budgetary realities with the mission of providing humane, compassionate care. As a result, great stress is created for the caregivers and working in hospitals has become very hard.

Trying to maintain a balance between the necessary empathy and compassion to really care for patients, and the emotional distance needed to protect from being overwhelmed by human sufferings has always been a great challenge. Everyday confrontations with disease and death, pain and sadness assaults the sensitivity of doctors and nurses. Heavy schedules of work, overwhelming patient loads and dwindling resources have multiplied the burden and leave the doctors and nurses exhausted.

The doctors and nurses assume the role of caregivers, administrators and supervisors of the patients. Such multiple roles contribute to significant amount of occupation related stress. Reducing patients’ discomfort and recovery time remains the top priority for doctors and nurses. Inspite of that, various factors including ergonomics add to the physical stress and put them at risk. Stress has been defined as ‘silent killer’ by various researchers. The causes of stress among healthcare professionals rest with the working conditions which entail long working hours, disruption of sleeping patterns and dealing with seriously ill people. Work related stress affects the health of doctors and nurses to a great extent and result in poor morale and motivation, poorer communication and decision-making as well as poor relationship with superiors, subordinates and colleagues⁴.

It is impossible for angry, exhausted, distressed and demoralized healthcare employees to deliver optimal care to the patients. Providing high-

quality healthcare is impossible under stressful situations because humanity is an essential, integral and powerful agent of healing. Higher stress in machinery causes breakdown and wear out. Case is the same with human-beings. Human machinery can be kept at higher levels of efficiency with care and maintenance. So the well-being of the healthcare employees, particularly doctors and nurses is very important.

According to a report by WHO for ‘Preventing suicide, A resource for General Physicians’ (2000), certain occupations such as veterinary surgeons, pharmacists, dentists, farmers and general practitioners have a higher risk of suicide which may be due to access of lethal means, work pressure, social isolation and financial difficulties5.

The doctors and nurses have to face a lot of critical environment which serves as a source of stress.

The multiple environments that influence the care providers’ behavior are:

1. Immediate environment - Interaction with patients and staff members
2. Personal environment - People with meaningful relationships with the practitioner; personal preferences and values, etc.
3. Professional environment - Colleagues, professional associations, certifying bodies, licensing or credentialing system and its regulations, etc.
4. Administrative environment - Rules, regulations and laws that govern provider behaviour, working conditions, facilities, healthcare education programmes, etc.

5. Educational environment - The opportunities for education that exist, the basic education system, higher education system, healthcare personnel education system and continuing education and other learning opportunities that are available, both formal and informal.

6. Community environment - How the practitioner’s profession is perceived in the wider local/regional community, in the media and the opinion leaders and decision makers in health and healthcare.

7. Social environment - The traditions and culture of the larger society.

8. Economic environment - The history of and prevailing economic conditions in the country, especially as they affect healthcare personnel.

9. Political environment - The dominant ideologies, political structures, etc. that set limits on types of political actions that are acceptable.

Health is wealth – Health is not only an absence of disease but it refers to the person’s entire well-being. This depends on the easier reach of quality health services at affordable costs. Healthcare involves both medical and preventive care. Four criteria for a just healthcare system are easier access without excessive burden, fair distribution of financial costs, training providers for competence empathy and accountability and special attention to children, women, disabled and the aged.

The last decade has witnessed enormous changes in healthcare industry which has shifted to a dynamic and significant industry from a stagnant one.

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India, being a country with growing population, the country’s per capita healthcare expenditure has increased from $43.1 in 2008 to $57.9 in 2011 and is expected to rise to $88.7 by 2015. The healthcare industry in India will grow from $78.6 billion in 2012 to $158.2 billion in 2017\(^8\).

The healthcare system in India is developing at a high rate due to its expanded coverage and services. Factors such as growth in incomes, higher access to high quality healthcare facilities have contributed to the development of healthcare industry in India. The low cost of medical services and high quality of treatment has resulted in the greater development of the country’s medical tourism, thereby attracting patients from the world countries. This has led to a cascading effect paving way for large number of private hospitals who continuously upgrade their facilities to profit out of this business.

The patients’ aspirations are changing rapidly thereby making them more aware of the health requirements, lower waiting times and nearness of healthcare facilities. Healthcare in India is delivered through both public and private sectors. In the recent years, India has built up a vast infrastructure of health at primary, secondary and tertiary care. Health services range from services provided by large corporate hospitals, smaller hospitals, nursing homes to clinics. Also the growth of private sectors has been increased by numerous factors viz., liberalized economic policy, rapid influx of the medical technology, increasing deficits of public sector hospitals and growth of middle income classes.

**1.2 STATEMENT OF THE PROBLEM**

The number of hospitals in the past few years has increased owing to the poor living conditions of the people due to various reasons like pollution,
overcrowd, busy schedule of work, desire to earn more, unhealthy and adulterated food habits, ambitions, needs and so on. Hence, both the number of hospitals and health care employees has increased.

In the era of globalization, there is a sea change witnessed in all the endeavours of the organization. The organizations are developed with multiple infrastructural facilities with modern tech-savvy including hospital industry. Simultaneously, the patients are entered with more complex diseases with high level of expectations in the hospitals.

In order to retain the image of the hospitals, the top authorities of the hospitals give more workload and high pressure for speedy recovery of the patients and they charge with heavy bills based on the augmented services. These work pressure creates more strain and repression among the doctors, nurses and the supportive staff. It reflects in their work progress especially inability to concentrate on the job, inactivity and deliberate forgetfulness.

They are even prone to make crucial decisions like attempting and committing suicides due to their incapability to balance their work life situations. Job stress is a recognized problem in healthcare workers and doctors are considered to be at particular risk of stress and stress related psychosocial problems9 (Burbeck et al., 2002).

Based on the above issues, the following questions were probed:

1. To what extent the healthcare employees are suffering from occupational stress?

2. Which are the factors causing occupational stress to healthcare employees?

3. What are the effects of occupational stress on the healthcare employees?

4. What measures are adopted for the reduction or prevention of occupational stress especially, for doctors and nurses belonging to the healthcare industry?

1.3 OBJECTIVES OF THE STUDY

The present study is undertaken with the following objectives:

1. To study the occupational stress in general and in particular healthcare industry.

2. To ascertain the causes of occupational stress of healthcare employees.

3. To analyze the consequences of occupational stress of healthcare employees.

4. To examine the coping strategies followed by the healthcare employees to combat occupational stress and

5. To suggest suitable measures to overcome occupational stress among healthcare employees.

1.4 SCOPE OF THE STUDY

This study is an overall effort to measure the occupational stress of healthcare employees and is mainly aimed to know whether the various demographic attributes of the healthcare employees particularly Doctors and Nurses viz, Age, Gender, Marital Status, Type of family, Dependents,
Occupation of the spouse, Designation, Specialization, Length of service and Income per month have an effect on their stress level.

Simultaneously, the researcher focuses on the innumerable consequences faced by the healthcare employees. Hence, the problems are analyzed on various operational areas viz, personal factors, nature of job, superior- subordinate relationship and time pressure.

1.5 RESEARCH METHODOLOGY

The research methodology serves as a guideline for the researcher to perform the step by step research process. It includes the data source, tools used for collection of data, sampling technique, sample size and tools of analysis.

1.6 DATA COLLECTION

The study used both Primary and Secondary data. First-hand information was collected from one hundred and twenty five Doctors and four hundred and fifteen Nurses working in the study area. The data were collected with the help of a well-structured questionnaire from selected sample respondents. The questionnaire contains various information on socio-economic data of the respondents and 3C’s of stress - causes of stress, consequences of stress and coping measures of stress. The respondents’ opinion on the quality standard and various other kinds of problems were organized in a systematic way. The data, thus collected from the healthcare industry were organized in a simple tabular form.

1.7 SECONDARY DATA

The Primary data were supplemented by a spate of secondary source of information, in order to learn about the conceptual framework of the occupational stress in general and in particular healthcare industry.
Several literature were collected from well-equipped libraries in Bangalore, Chennai and Coimbatore. A number of standard textbooks and journals were studied to obtain pertinent literature. Data regarding healthcare industry was gathered from hospitals, Indian Medical Association and health department. Further, Internet web resources were also used to collect the latest information of healthcare industry and occupational stress among the Doctors and Nurses.

1.8 TOOLS USED FOR DATA COLLECTION

The tool constructed for the collection of data was a questionnaire for the sample employees of the healthcare industry in Salem District.

Personal data pertaining to the employees were included in the questionnaire. The other parts of the questionnaire were so designed as to get information regarding sources of stress and level of stress, and measuring stress management ability. Questions were designed to study the effect of occupational stress and to understand the stress coping strategies.

1.9 SAMPLING TECHNIQUE

Sampling technique is the method adopted for the selection of samples. In this study, stratified random sampling method was used. Under this method, the total population was divided on the basis of the geographical area of the Salem District, i.e., Taluks. From each stratum, samples were selected on random basis. In this study, the healthcare employees were chosen from nine taluks in Salem District. The sample healthcare employees were selected on various backgrounds of occupational status, from each of these taluks.

1.10 SAMPLE SIZE

The sample size refers to the number of samples included in a research study. The number of Doctors and Nurses working in Salem District was obtained from the health department of Salem District. For the purpose of this
study, the sample size has been determined to be 540 comprising 125 doctors and 415 nurses.

Table 1.1 Sample size

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Taluks</th>
<th>No. of Doctors</th>
<th>No. of Nurses</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Salem</td>
<td>15</td>
<td>85</td>
<td>100</td>
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<tr>
<td>2</td>
<td>Attur</td>
<td>15</td>
<td>45</td>
<td>60</td>
</tr>
<tr>
<td>3</td>
<td>Sankagiri</td>
<td>15</td>
<td>45</td>
<td>60</td>
</tr>
<tr>
<td>4</td>
<td>Idappadi</td>
<td>15</td>
<td>45</td>
<td>60</td>
</tr>
<tr>
<td>5</td>
<td>Mettur</td>
<td>15</td>
<td>45</td>
<td>60</td>
</tr>
<tr>
<td>6</td>
<td>Gangavalli</td>
<td>15</td>
<td>45</td>
<td>60</td>
</tr>
<tr>
<td>7</td>
<td>Omalur</td>
<td>15</td>
<td>45</td>
<td>60</td>
</tr>
<tr>
<td>8</td>
<td>Vazhapadi</td>
<td>15</td>
<td>45</td>
<td>60</td>
</tr>
<tr>
<td>9</td>
<td>Yercaud</td>
<td>5</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>125</strong></td>
<td><strong>415</strong></td>
<td><strong>540</strong></td>
</tr>
</tbody>
</table>

Since the population size is more in Salem Taluk, higher numbers of samples were taken and Yercaud being the taluk with lesser population, sample size was reduced.

1.11 PILOT STUDY

A pilot study was conducted by selecting 50 employees working in the healthcare industry to check the validity of the questions and to understand the difficulties of the respondents in giving their responses. After Pilot study, necessary modifications were incorporated in the questionnaire to fit in the track of the present study.
1.12 TOOLS OF ANALYSIS

The analysis and tabulation of results were performed by the use of the statistical analysis package (Statistical Package for Social Sciences (SPSS)). Statistical tools such as Descriptive Statistics, Factor Analysis, Discriminant Function Analysis, Weighted average, chi square test, and Analysis of Variance were used appropriately in the study.

1.13 FACTOR ANALYSIS

Factor analysis is a method used to transform a set of variables into a small number of linear composite, which have maximum correlation with original values. Factor analysis is used to study complex sources of stress in order to identify the major characteristics (or factors) considered important by the respondents. The purpose of factor analysis is to determine the response to the several numbers of statements which are significantly correlated. If the responses to a number of statements are significantly correlated, it is believed that the statement measures some factors common to all of them.

Factor analysis can be applied to continuous variables or interval scaled variables. A factor analysis is like a regression analysis as it tries to “best fit” factors to a scatter diagram of data in such a way that factors explain the variance associated with respondents to each statement. Factor analysis was conducted by the researcher in the following steps:

1. Desk research
2. Formation of questionnaire
3. Collection of Data
4. Feeding and processing the input
5. Analyzing the output
6. Identification of factors and naming them, and
7. Conclusion.
1.14 STATISTICS ASSOCIATED WITH FACTOR ANALYSIS

1.14.1 BARTLETT’S TEST OF SPHERICITY

Bartlett’s test of sphericity can be used to test the null hypothesis that the variables are not correlated with the population. The test of sphericity is based on chi-square transformation of the determinant of correlation matrix. A large value of the test statistics will have the regression of the null hypothesis.

1.14.2 KEISER-MEYER-OLKIN MEASURE OF SAMPLING ADEQUACY

This index compares the magnitude of the observed correlation coefficients to the magnitude of the partial correlation coefficient. Small values indicate that the correlation between pairs of variables cannot be explained by the other variables and that factor analysis will not be appropriate.

1.14.3 EIGEN VALUES AND COMMUNALITIES

A factor’s Eigen value or latent root is the sum of the squares of its factor loadings. It helps to explain that how well a given factor fits the data from all respondents on all statements. Communality is the sum of squares of statement’s factor loadings, i.e., it explains how much each variable is accounted for by the factors taken together.

1.14.4 FACTOR LOADING

Simple correlation between the variables and the factors were studied with the help of factor matrix which contains the factor loading and the factors. The researcher has applied the factor analysis to assess the major attributes causing occupational stress to health care employees.
A correlation matrix is constructed based on the ratings. The analytical process is based on the matrix of correlation between variables. Valuable insights can be gained from an examination of this matrix. If the factor analysis should be proper, the variables must be correlated. If the correlation between all the variables is small, factor analysis may not be appropriate in this inter correlation matrix. If the correlation of all the variables are in good fit, and the factor analysis may be appropriate.

**1.14.5 DISCRIMINANT ANALYSIS**

Discriminant function analysis is used to determine which continuous variables discriminate between two or more naturally occurring groups. For example, a researcher may want to investigate which variables discriminate between fruits eaten by (1) primates, (2) birds, or (3) squirrels. For that purpose, the researcher could collect data on numerous fruit characteristics of those species eaten by each of the animal groups. Most fruits will naturally fall into one of the three categories. Discriminant analysis could then be used to determine which variables are the best predictors of whether a fruit will be eaten by birds, primates, or squirrels.

Logistic regression answers the same questions as discriminant analysis. It is often preferred to discriminate analysis as it is more flexible in its assumptions and types of data that can be analyzed. Logistic regression can handle both categorical and continuous variables, and the predictors do not have to be normally distributed, linearly related, or of equal variance within each group.

Discriminant function analysis is multivariate analysis of variance (MANOVA) reversed. In MANOVA, the independent variables are the groups and the dependent variables are the predictors. In DA, the independent variables are the predictors and the dependent variables are the groups. As previously mentioned, DA is usually used to predict membership in naturally
occurring groups. It answers the question: can a combination of variables be used to predict group membership? Usually, several variables are included in a study to see which ones contribute to the discrimination between groups.

Discriminant function analysis is broken into a 2-step process: (1) testing significance of a set of discriminant functions, and; (2) classification. The first step is computationally identical to MANOVA. There is a matrix of total variances and covariances; likewise, there is a matrix of pooled within-group variances and covariances. The two matrices are compared via multivariate F tests in order to determine whether or not there are any significant differences (with regard to all variables) between groups. One first performs the multivariate test, and, if statistically significant, proceeds to see which of the variables have significantly different means across the groups.

Once group means are found to be statistically significant, classification of variables is undertaken. DA automatically determines some optimal combination of variables so that the first function provides the most overall discrimination between groups, the second provides second most, and so on. Moreover, the functions will be independent or orthogonal, that is, their contributions to the discrimination between groups will not overlap. The first function picks up the most variation; the second function picks up the greatest part of the unexplained variation, etc... Computationally, a canonical correlation analysis is performed that will determine the successive functions and canonical roots. Classification is then possible from the canonical functions. Subjects are classified in the groups in which they had the highest classification scores. The maximum number of discriminant functions will be equal to the degrees of freedom, or the number of variables in the analysis, whichever is smaller.
1.14.6 STANDARDIZED COEFFICIENTS AND THE STRUCTURE MATRIX

Discriminant functions are interpreted by means of standardized coefficients and the structure matrix. Standardized beta coefficients are given for each variable in each discriminant (canonical) function, and the larger the standardized coefficient, the greater is the contribution of the respective variable to the discrimination between groups. However, these coefficients do not tell us between which of the groups the respective functions discriminate. We can identify the nature of the discrimination for each discriminant function by looking at the means for the functions across groups. Group means are centroids.

Differences in location of centroids show dimensions along which groups differ. We can, thus, visualize how the two functions discriminate between groups by plotting the individual scores for the two discriminant functions. Another way to determine which variables define a particular discriminant function is to look at the factor structure. The factor structure coefficients are the correlations between the variables in the model and the discriminant functions.

The discriminant function coefficients denote the unique contribution of each variable to the discriminant function, while the structure coefficients denote the simple correlations between the variables and the functions.

1.14.7 CHI-SQUARE TEST

Chi-square test is applied to ascertain the significance of relationship between socio-demographic factors and level of stress among doctors and nurses. Chi-square is a measure which evaluates the extent to which a set of the observed frequencies of a sample deviates from the corresponding set of theoretical frequencies of that sample.
The chi-square test statistic is obtained by using the following formula:

\[ \chi^2 = \sum \frac{(O_i - E_i)^2}{E_i} = \left[ \frac{(O_1 - E_1)^2}{E_1} + \frac{(O_2 - E_2)^2}{E_2} + \ldots + \frac{(O_n - E_n)^2}{E_n} \right] \]

Where \( O \) = Observed frequencies and \( E \) = Expected frequencies

1.15 HYPOTHESES

The researcher has formulated and tested the following hypotheses keeping in view the wider theoretical framework and objectives of the study.

1. There is no significant relationship between the demographic variables of the respondents and sources of stress.

2. There is no significant relationship between demographic variables and level of occupational stress.

3. There is no significant difference between doctors and nurses regarding the effects of stress.

1.16 LIMITATIONS OF THE STUDY

1. ‘Non occupational’ stressors and ‘domestic stressors’ have not been considered in the present study as they did not come under the purview of the present study.

2. The responses of the same respondents may differ from time to time. This is an inherent limitation in all the researches on behavioral sciences.
3. Since the doctors and nurses are directly involved with patient care, the Healthcare employees other than doctors and nurses are excluded from this study.

1.17 CHAPTER SCHEME

- The **first chapter** includes the conceptual framework, statement of the problem, objectives of the study, scope of the study, methodology, hypotheses and limitations of the study.

- The **second chapter** presents the review of literature available relating to the current research problem.

- The **third chapter** focuses on theoretical framework of the causes, effects and stress management strategies at the individual and organizational level.

- **Chapter four** deals with the Statistical analyses and interpretations relating to the level of stress, causes of stress, effects of stress and coping strategies.

- The **fifth chapter** recapitulates the key findings and conclusions of the study and offers suitable suggestions.