CHAPTER - I

RESEARCH DESIGN AND EXECUTION OF THE STUDY

1.1 INTRODUCTION

Stress at work is a relatively new phenomenon of modern lifestyles. The nature of work has gone through drastic changes over the last century and it is still changing at whirlwind speed. They have touched almost all professions. Kids of kindergarten, boys of school, students of university and colleges, and every one in the academic field experiences stress everyday. All office goers experience stress of one or the other kind. Entrepreneurs and labourers experience a different kind of stress. Homemakers also experience stress in managing their home affairs.

Thus the reason for stress differs from person to person. But at the same everyone experiences stress. The stress people’s experience should not be necessarily treated as harmful. An optimum amount of stress can always act as an energizer or motivator and propel people to apply the efforts and complete the work. But a high level of stress can be a serious threat to the personality traits of the individual and can cause physiological and social problems.

From an individual's point of view, stress is human body's physical, mental and chemical reactions to circumstances that frighten, confuse, endanger or irritate us. If taken positively, stress is a friend that strengthens the individual for the next encounter, but if, taken negatively, it can have adverse effect on both physical and psychological factors. Stress affects not only the individual but also his/her environment. It has an adverse effect on the individual's family, work and society.
The term stress has been derived from the Latin word "Stringer" which means 'to clutch', 'compress', or 'bind'. In the seventeenth century the term stress was used to mean hardship, strain, adversity or affliction. In the eighteen and nineteenth centuries the term was used to mean force, pressure, strain or strong effort with reference to an object or person.

The concept of stress was first introduced in Life Sciences by Hans Selye in 1936. There are different views of different persons on the basis of their personal experiences. For some business men it is a frustration or emotional tension. Some suggest that it is a physical or mental pressure. However, stress restricts and acts as a hindrance in the performance of an individual. It is a kind of pressure that people feel in life due to their reaction to situation. Hans Selye defines stress as an “adaptive response to the external situation that results in physical, psychological or behavioral deviation for organizational participants." It is a condition arising from the interaction of people of their job and is characterized by changes within the people that force them to deviate from their normal functioning. There are two sides of stress - a positive and a negative side. A force that deviates from the normal functioning is distress, a negative side. A positive side is called as Eutress, which refers to healthy, positive and constructive outcome of stressful event. It is an experience that motivates people to achieve goals and attain success in every field of their life.

Stress is the "wear and tear" of the human bodies experience as they adjust to their changing environment; it has physical and emotional effects creating positive and negative feelings. As a positive influence, stress can compel people to action; it can result in a new awareness and exciting new perspective.

As a negative influence, it can result in feelings of distrust, rejection, anger and depression, which in turn can lead to health problems such as
headaches, stomach upset, rashes, insomnia, ulcers, high blood pressure, heart disease and stroke.

Stress is the reaction of an excessive pressure. People are living in a world of rapid and radical changes. These changes affect them considerably and increase their expectations. Therefore, people have to tolerate more pressure now than ever before. They get used to live with stress, and strive to meet ever-increasing amounts while wondering why they are not able to get the pleasure of life that they once did. More often than not this is because they fail to realize that stress needs to be handled and managed.

The term 'stress' is also used to describe the individual's response to pressure. The response can be psychological or behavioral. How the individual responds to the stressor will depend on their personality, their perceptions, and their past experiences. Some stress is necessary in that it assists people in achieving personal and organizational goals. However, too much stress can make those goals harder to achieve. People respond differently to stress. Some people function well under significant stress while others do not. A worker's ability to cope with increasing workplace stress is also affected by the amount of stress they are subjected to stressors outside of their workplace. Trouble at home may reduce their ability to cope with pressure at work.

1.1.1 OCCUPATIONAL STRESS

Occupational stress has become a common problem throughout the industrial world. Over the years its prevalence has increased, thus affecting the individual's mental health and well being. Occupational stress poses a threat to physical health. Work related stress in the life of organized workers, consequently, affects the health of organizations.
Occupational stress can be defined as the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker. Selye [1936] defines stress as “a dynamic activity wherein an individual is confronted with an opportunity, constraint or demand”. According to United States National Institute of Occupational Safety and Health, Cincinnati, (1999), Job stress can be defined as “the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker. Job stress can lead to poor health and even injury.

According to a discussion document presented by United Kingdom Health and Safety Commission, London, (1999), “Stress is the reaction of people who show excessive pressures or other types of demand placed on them. On the basis of experience and research, NIOSH favors the view that working conditions play a primary role in causing Occupational stress. However, the role of individual factors is not ignored. According to the NIOSH view, exposure to stressful working conditions (called Occupational stressors) can have a direct influence on worker safety and health.

Work plays a powerful role in people's lives and exerts an important influence on their well-being. Since 1960s, paid work has occupied an increasing proportion of most people's lives. Although employment can be an exciting challenge for many individuals, it can also be a tremendous source of stress. Consequently, as work makes more and more demands on time and energy. Individuals are increasingly exposed to both the positive and negative aspects of employment. The relationship among work, mental and physical health may also contribute to career adjustment as well as to the productivity and economic viability of companies. Three concepts are important to understand this relationship.
Stress is an interaction between individuals and any source of demand (stressor) within their environment. A stressor is the object or event that the individual perceives to be disruptive. Stress results from the perception that the demands exceed one's capacity to cope. The interpretation or appraisal of stress is considered an intermediate step in the relationship between a given stressor and the individual's response to it. Appraisals are determined by the values, goals, individual commitment as personal resources (e.g., income, family, self-esteem) and coping strategies that employees bring to the situation.

Newspaper headlines worldwide have heralded an unprecedented concern about the detrimental effects of work stress. The United Nations World Labour Report attributes the source of stress to work places that are impersonal, and hostile. Since the early 1960s, researchers have been examining the psychosocial and physical demands of the work environment that trigger stress.

Research has identified many organizational factors contributing to increased stress levels: (a) job insecurity; (b) shift work; (c) long work hours; (d) role conflict; (e) physical hazard exposures; and (f) interpersonal conflicts with co-workers or supervisors. Reciprocally, elevated stress levels in an organization are associated with increased turnover, absenteeism, sickness, reduced productivity and low morale.

At a personal level, work stressors are related to depression, anxiety, general mental distress symptoms, heart disease, ulcers, and chronic pain. In addition, many people are distressed by efforts to juggle work and family demands, such as caring for sick or aging parents or children. Therefore, any exploration of the relationship between work conditions and mental distress must take into account the individual factors such as sex, age, race, income, education, marital and parental status, personality and ways of coping.
To have a balanced approach to understand the work stress, it is necessary to recognize the rewards provided by the employment that are both internal (intrinsic) and external (extrinsic), (e.g., skill development, self-esteem, money, variety from domestic surroundings, social contacts, and personal identity). Although increasing rewards of work can offset its stressful aspects, the physical environment should accommodate with the psychosocial conditions of employment. These can have deleterious effects on workers' mental and physical well-being. Reasons for stress can either be organizational (occupational) or extra-organizational (personal). The first category refers to work-related and work-place related factors. The second category refers to personal issues like the ill-health of a family member. Whatever might be the reason but the basic fact is that stress can impact with an individual's personal as well as professional life.

1.1.2 SYMPTOMS OF WORK-RELATED STRESS

Defining a clear link between occupational causes, and the resulting symptoms is much harder for a condition. Because many of the symptoms of stress are generalized such as increased anxiety, or irritability, it is easy for them to be ascribed to a characteristic of the worker, rather than to a condition of the work.

However, there is mounting scientific and medical evidence that certain types of work and work organization do have a measurable and verifiable impact on the health of workers. The range of symptoms includes physical symptoms, mental health symptoms, psychological symptoms, asthma, irritability, smoking, ulcers, depression, heavy drinking, heart disease, anxiety, eating disorders, diabetes, burn out, increased sickness, thyroid disorders and low self esteem.
Some degree of stress is a normal part of life and provides part of the stimulus to learn and grow, without having an adverse effect on health. When stress is intense, continuous or repeated, as is often the case with occupational stress, ill health can result (Hazards, 1994). The experience of stress can affect the way individuals think, feel and behave, and can also cause physiological changes. Many of the short and long term illnesses caused by stress can be accounted for by the physiological changes that take place when the body is placed under stress. From the documented evidence, it is clear that as far as work life is concerned extreme stress is so aversive to employees that they will try to avoid it by withdrawing psychologically (through disinterest or lack of involvement in the occupation). Excessive stress can destroy the quality of life and also affect family life.

In jobs where work overload is the cause of the stress, the workers find that they have to take time off to deal with the stress, only to return to work to find that the already unmanageable workload has substantially increased in their absence, thereby increasing the source of the stress and fuelling a vicious cycle which may ultimately lead to a complete breakdown in health (Selye, 1976).

1.1.3 IMPACT OF EMPLOYEE STRESS

Both physical and psychological stressors have a tremendous impact on not only the employees' health, but also the organization's. Some of the impacts of employee stress are:

1.1.3.1 Absenteeism

One of the grave impacts of employee stress is absenteeism. Employees under stress do not feel motivated to work and therefore take more number of leaves citing different reasons. As more and more employees cite ill health as the reason, the cost would all be added to the organization as
medical reimbursements. Employees might be absent from work to use it as a coping mechanism against stress. Frequent employee absenteeism not only costs millions to the organizations, but it also affects the overall productivity.

1.1.3.2 Loss of Judgement

A stressed out employee loses focus on his work. Due to this, the employee misses out vital information signals leading to ineffective decision making. Further, various research studies have proved that stress also slows down the thinking process. According to researchers, the enzyme - endorphins released under stress, slow down the ability to think and affect the ability of judgement in an individual.

1.1.3.3 Employee conflicts

Stress also might have an impact on the interpersonal relationships at workplace. A person under stress tends to be easily irritated leading to troubled relationships with his colleagues.

1.1.3.4 Workplace Accidents

Stress results in poor concentration and pre-occupation of the mind leading to workplace accidents. It is generally reported that in their drive to attain deadlines and accomplish tasks, employees tend to ignore safety rules leading to accidents.

According to a research conducted by Workers’ Occupational Health Services conclude workers under stress are thirty per cent more likely to be involved in accidents than those experiencing low levels of stress. In addition to all the above mentioned problems, organizations would also face high turnover rates of employees, high replacement costs, loss of intellectual capital and increasing grievances. Many organizations have realized the
serious impacts of employee stress and have started taking steps to combat it. The responsibility of making a workplace employee friendly and healthy lies with both the employer and the employees.

1.1.4 MODELS AND THEORIES OF OCCUPATIONAL STRESS

1.1.4.1 French, Caplan and Kahn’s Person – Environment Fit (PE-Fit) theory

French, Caplan, Kahn and their colleagues (French and Caplan, 1972; French et al., 1982; French and Kahn, 1962; Kahn et al., 1964) subsequently incorporated Lewin’s concepts of stress and strain in their Person – Environment Fit (PE-Fit) theory, which is widely accepted as a major conceptual framework for research on occupational stress (Chemers et al., 1985; Edwards and Cooper, 1990). In the context of this theoretical orientation, occupational stress is defined in terms of job characteristics that pose a threat to the individual resulting from a poor match between the abilities of the employee and the demands of the job (French and Caplan, 1972). The workplace stress that occurs as a result of incompatible person–environment fit produces psychological strain that may contribute to stress-related physical disorders (French et al., 1982).

1.1.4.2 Stress at Work Model

Cooper and Marshall’s (1976; Marshall and Cooper, 1979) Stress at Work model is similar to PE-Fit theory, but is more specific in identifying five major categories of job pressure and lack of organisational support in the workplace that contribute to occupational stress: (1) pressures intrinsic to the job; (2) the employee’s role in the organisation; (3) interpersonal relationships at work; (4) limitations in career development; and (5) organisational structure and climate.
1.1.4.3 Karasek’s Demand–Control Model

Karasek’s (1979) Demand–Control model focuses on interactions between the objective demands of the work environment and the decision latitude of employees in meeting these demands (Karasek and Theorell, 1990). According to this model, ‘the greatest risk to physical and mental health from stress occurs to workers facing high psychological workload demands or pressures combined with low control or decision latitude in meeting those demands’ (Schnall, 1998, p. 1). The combination of high job demands with relatively little control contributes to lowered productivity and a greater risk of health-related problems (Theorell and Karasek, 1996). The Demand–Control model also recognizes the beneficial effects of social support from supervisors and co-workers (Karasek et al., 1982; Schnall, 1998).

1.1.4.4 Lazarus’ Transactional Process Model

Lazarus’ (1966) Transactional Process model of psychological stress and coping conceptualizes stress as a process that involves a complex transaction between a person and her/his environment (Lazarus and Folkman, 1984). In applying this model to occupational stress, Lazarus (1991) emphasizes the distinction between sources of stress (‘stressors’) in the workplace and the emotional reactions that are evoked when a particular stressor is cognitively appraised as threatening. Three types of appraisal mediate the effects of stressors on emotional reactions. Primary appraisal occurs when a stressor is evaluated in terms of its immediate impact on a person’s well-being. Secondary appraisal takes into account the resources of the employee for coping with the stressor. The third type, reappraisal, incorporates new information resulting from the worker’s appraisal of the effectiveness of her/his efforts to cope with a particular stressor.
1.1.4.5 National Institute for Occupational Safety and Health (NIOSH) Model

National Institute for Occupational Safety and Health (NIOSH) defines job stress in terms of ‘the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker’ (NIOSH, 2002). This definition of job stress, as well as the resulting model developed by NIOSH, was primarily influenced by PE-Fit theory. The NIOSH model explicitly recognizes that exposure to stressful working conditions plays a primary role in causing job stress and influencing worker safety and health, while ‘individual and other situational factors can intervene to strengthen or weaken this influence’. However, the NIOSH model gives little attention to the significant influence of the employee’s cognitive appraisal of sources of stress in the workplace.

1.1.4.6 Spielberger’s State–Trait Process (STP) Model

Spielberger’s State–Trait Process (STP) model of occupational stress focuses on the perceived severity and frequency of occurrence of two major categories of stressor events, job pressures and lack of support (Spielberger et al., 2002). The STP model builds on the PE-Fit and Transactional Process models by endeavoring to integrate these models with the conception of anxiety, anger and depression as emotional states and personality traits (Spielberger, 1972; Spielberger et al., 1983; Spielberger et al., 1988). The STP model gives greater emphasis than other models to the effects of individual differences in personality traits in determining how workplace stressors are perceived and appraised.

1.1.5 OCCUPATIONAL STRESS AND JOB SATISFACTION

Several studies have tried to determine the link between stress and job satisfaction. Job satisfaction and occupational stress are the two hot
focuses in human resource management researches. According to Stamps & Piedmonte (1986) job satisfaction has been found significant relationship with occupational stress. One study of general practitioners in England identified four job stressors that were predictive of job dissatisfaction (Cooper, et al., 1989). In other study, Vinokur-Kaplan (1991) stated that organization factors such as workload and working condition were negatively related with job satisfaction. Fletcher & Payne (1980) identified that a lack of satisfaction can be a source of stress, while high satisfaction can alleviate the effects of stress. This study reveals that, both job stress and job satisfaction were found to be interrelated. The study of Landsbergis (1988) and Terry et al. (1993) showed that high levels of work stress are associated with low levels of job satisfaction. Moreover, Cummins (1990) have emphasized that job stressors are predictive of job dissatisfaction and greater propensity to leave the organization. Sheena et al. (2005) studied in UK found that there are some occupations that are reporting worse than average scores on each of the factors such as physical health, psychological well-being, and job satisfaction. The relationship between variables can be very important to academician. If a definite link exists between two variables, it could be possible for a academician to provide intervention in order to increase the level of one of the variables in hope that the intervention will also improve the other variable as well (Koslowsky, et al., 1995).

Occupational stress can reduce productivity, increase mistakes and accidents at work, encourage absenteeism, lower morale, increase conflict with others and cause physical and emotional problems (Pflanz & Ogle, 2006) and finally poor life satisfaction (Pawar & Rathod, 2007). High levels of work stress are associated with low levels of job satisfaction. According to Fairbrother and Warn (2003), occupational stress can be negatively related to job satisfaction among navy trainees onboard ship. They also revealed that the most important features of stress onboard ship are uncertainty and loss of
control. Sanchez, et al., (2004) found that job pressure was negatively associated and was the most important predictor of job satisfaction. In conclusion, the researcher examined what extent of interrelation between the occupational stress and job satisfaction among IT professionals in Chennai city.

1.1.5.1 Stress among it professionals

The workforce in IT industry faces its unique challenges. The technological advancements in this sector come up in short span of time with significantly high efficiencies, putting them apart from technology previously/currently in use.

The movement to new technology puts a lot of pressure on employees and organizations, demanding more immediate and direct changes across all functions. This sector is very volatile and faces the problem of lack of job security and constant upgradation of skills to remain marketable. The working conditions in the Information System profession is becoming very stressful (Vowler, 1995; Engler N. 1996; Sethi et.al., 1999; Thong and Yap, 2000) with average working hours extended to 50 hours per week, working on Saturdays and Sundays and not being able to take leave when sick (King, 1995). Due to long working hours and monotonous work, the information technology jobs have been equated to 'electronic sweat shop', 'battery hens' '19th century prison' and 'Roman slave ship' (Shahnawaz, 2006). According to ComPsych Corp. survey, more than two-third of the employees feel 'high stress' in their jobs. Around 78% of the cases are related to anxiety, stress, and neurotic disorder. The workers involved in the survey are in the age group of 25- 54 years (24-34 years, 35-44 years and 45-54 years accounted for 25.5%, 28.2%, and 24.4% of the cases respectively (Workers Health book Chartbook, 2004). In another survey of Information technology professionals, 95% of all
senior managers, 90% of all middle level managers, and 80% in the rank and the file describe their day as stressful (Graner, 1997).

The present working style has also contributed to stress. The skills in this sector are becoming obsolescent at a rate of 20% per year (Yourdon, Edward, 1994). Hadfield (2005) states that the lack of control over standardized software products and inflexible deadlines are the biggest causes of stress among IT managers. The study also reported stress as the worst hazard of their workplace and repetitive strain as the next greatest problem.

Goodweni (2004) reports that increased workload, constant changes at work, reduced staff and long working hours affect not only employees but also the employers, who lose around 6.5 million working days annually to work based stress amounting to about [pounds sterling] seven billion. Rogers (2004), while studying 700 IT directors found that they were not able to maintain a healthy work-life balance. It was reported that around 83% of them were not able to sleep and 70% remained constantly worried about the instability of their IT system. The most significant stressors reported are work overload, career opportunities, role ambiguity and role conflict and working with diversified personalities (Calbon 1994). Conditions of changing technology, redundancy, and resource inadequate (Engler, 1998, Aziz 2003) also place a high demand along with financial pressure, budget constraints, and other resource inadequacy problems (Vowler, 1995; Aziz 2004).

The human-computer interaction factor also has an effect on work exhaustion (Rajeshwari et, al 2005). The widespread nature of stress in IT has given rise to the term 'techno-stress', which is used to explain the phenomena of stress arising due to usage of computers. Craig Broad in early 1980's coined the term techno-stress and defined it as a 'modern disease of adaptation caused by the inability to cope with new computer technologies in a healthy
manner; (Ennis, 2005). Thus, there is a strong need for systematic research on stress among IT professionals.

1.2 STATEMENT OF THE PROBLEM

The information technology (IT) industry has become one of the most robust industries in the world. Information technology industry is a key driving force of global economic growth. Economies of scale and insatiable demand from both consumers and enterprises characterize this rapidly growing sector.

The Indian IT industry has played a key role in putting India on the world map. The industry has attracted more than 10 per cent of total FDI flowing into India. The industry has also led in the development of the Indian organizations as global multinationals with over 400 delivery centres (outside India), the industry has presence in 52 countries, and 200 cities with more than 10 organizations listed on overseas stock exchanges and more than 400 Fortune 500 customers. Direct employment within the IT sector is expected to grow by 10.4 per cent to reach 2.5 million in 2010-11 with over 2,40,000 jobs being added during the year. The indirect employment attributed to the sector is estimated to be about 9.0 million in 2010-11 as compared to 8.2 million in 2009-10.

The spectacular growth performance in the IT industry in the last decade has helped the industry contribute substantially to India's GDP. In 2010-11, the IT industry's contribution to GDP is estimated to be 6.4 per cent as compared to 6.2 per cent in 2009-10. The IT Industry has enormous potential to grow in the years to come. By the fiscal year 2015, the industry's aggregate revenue is expected to reach US $ 130 billion, a CAGR of about 14 per cent from the year 2010-11 and contribute about 7 per cent to India's GDP.
The industry is likely to continue growing from strength to strength, as local players incorporate the best in class practices from global counterparts whilst retaining their edge in terms of lower cost of labor and focused governmental investments. New graduates with degrees in related fields such as electronics engineering and computer science can hope to achieve significant professional growth and a healthy remuneration from companies looking to hire the best talent available.

The Indian workforce in information technology industry has earned an image of 'low cost' but 'high quality' technical workers, helping Indian information technology industry to keep a promising growth rate. The Indian information technology industry has brought a fundamental change in the market of information technology services globally by presenting a tough competition to American and European information technology related jobs in the current decade. The productivity, efficiency, and low cost are centre stage issues for management of information technology.

The Indian information technology industry caters to the global informational economy primarily as a provider of low-end services. This very feature has shaped the nature of the employment that has been created in this sector. Mobility, flexibility, and employee relationship management are the three major characteristics of work and employment in this industry. This sector requires its workforce to be highly mobile and open to travel between locations; India and 'onsite', as well as between jobs; within India and 'offshore'. Within companies, flexibility is maintained through resource management systems such as 'the bench' along with certain variables in computing salary of the employees. The third characteristic of this sector is the employee relationship management, in which a lot of emphasis is given to attraction, development, and retention of the workforce.
Information Technology industry in India got tremendous boost in the past decade due to factors like liberalization and globalization of the Indian economy coupled with favourable government policies. This sector of the sunshine industry brought a new work environment and sea changes in the employment trends. Service providers characterized this sector by adhering to strict deadlines set by their customers, working in different time zones, interdependency in teams, multitasking, increased interaction with offshore clients and extended work hours. Information Technology professionals are constantly under pressure to deliver the services efficiently as well as to remain cost effective. The customer expectation in terms of skills required for processing jobs keeps changing and forces professionals to upgrade/adapt very fast to their demands. At times Information Technology professionals are forced to change the entire paradigms amidst constant uncertainty and high risk. These working conditions lead to high stress in the professionals. Organizations have started recognizing high stress as a worthy area to address well-being and growing attrition rate. Lot of research work has been done in the past decade addressing various issues of this sunshine industry. Currently, managing stress is the focus area for information technology organizations to address the significantly high attrition rate and well-being of the professionals in the industry. The major objective of the researcher for submitting his research in this field is that it would benefit the society of software employees, software employers, indirect employees and nation. Therefore, the researcher attempts to study the occupational stress experienced by the IT professionals and its impact on job satisfaction.

1.3 SCOPE OF THE STUDY

Stress is now common in organizations because of increasing job complexity and economic pressure. Particularly occupational stress has become a common and costly problem, leaving few workers untouched. It
should be noted that not all stress is bad. Learning how to deal with and manage stress is critical to maximize job performance; staying safe on the job and maintaining physical and mental health. Survey of the literature on occupational and perceived stress reveals that there are a number of factors related to job, which affects the behaviour of the employees and as a result of it, normal life is disturbed\(^1\)

The rapid growth of IT industry as a whole is having a deep affect on the socio-economic dynamics of India. IT sector has led to the creation of IT workforce which has its distinct forms of work, employment, organization, and management along with its distinct work culture that have emerged which has its affect on lifestyle, sociality and identity that are taking place within this new global workforce. Lifestyle in the young IT professionals lead to health hazards due to occupational stress. There is a strong need to address the various issues concerning stress and job satisfaction of employees of IT sector which contributes significantly to India's GDP. Hence, this study throws light on the pathogenesis of various problems related to occupational stress and its impact on job satisfaction. This study will be helpful to draw up further policy on related fields and act as a secondary data for further research.

1.4 OBJECTIVES OF THE STUDY

The present study was designed to analyze the various factors influencing occupational stress, and job satisfaction of the information technology professionals in Chennai city, Tamilnadu with following specific objectives:-

1. To study sources of occupational stress in the IT industry.

2. To study the coping strategies adopted by the IT industry

\(^1\) McLean, 1974; Brief, Schular and Vansell,1981.
3. To measure the level of occupational stress among the IT professionals.

4. To analyze level of job satisfaction among IT professionals

5. To analyze the effects of occupational stress on the job satisfaction.

6. To recommend coping strategies to reduce stress and improve job satisfaction of IT professionals.

1.5 THEORETICAL FRAMEWORK AND HYPOTHESIS

In this section a theoretical framework for the occupational stress is developed based on the objectives and previous literature survey in this area. The model can be developed consistent with previous theory that estimates the effects of several dimensions on occupational stress.

The reason to conduct this study is to analyze occupational stress experienced by the IT professionals and to estimate their direct and indirect effects on various relevant outcomes (job satisfaction). This research will provide further insight as to what extend can the twelve variables influence in the job satisfaction among IT professionals.

Two main constraints are included in the research model below encompassing occupational stress and job satisfaction. Their relationships are illustrated in figure 1 below.
This study infers that there exists a negative relationship between occupational stress and job satisfaction. Based on these, statement of hypothesis is as follows:

Hypothesis 1: Irrespective of categories, all the respondents experience the same level of occupational stress.

Hypothesis 2: There is no significant difference between individual demographic variables and the occupational stress experienced by the respondents.
Hypothesis 3: There is no correlation between overall occupational stress and the different sources of stress.

Hypothesis 4: The personality of the respondents influences the level of occupational stress experienced by the IT professionals.

Hypothesis 5: There is no significant difference between categories of the respondents and their level of job satisfaction.

Hypothesis 6: There is no significant difference between individual demographic variables and the level of job satisfaction of the respondents.

Hypothesis 7: The personality of the respondents influences the level of job satisfaction of the IT professionals.

Hypothesis 8: The level of occupational stress influences the job satisfaction of the IT professionals.

PERIOD OF THE STUDY

The study was conducted from 2006-2012

1.6 METHODOLOGY

1.6.1 Research design

The study explores the relationship between occupational stress and job satisfaction of professionals in the IT industry. The study uses a descriptive research design. The researcher used the descriptive research design in order to obtain a proper definition of problem with the help of literature surveys. Descriptive research design is best suited for formulating of a problem for precise investigation.
Both primary and secondary data have been collected for the study. The primary data were collected from the IT professionals with the help of a questionnaire. A structured and validated questionnaire has been used for collection of primary data.

The secondary data have been collected from the sources like books related to stress management, previous research studies, national and international journals and online journals.

1.7 SAMPLING FRAMEWORK

1.7.1 Area of the study

The study was conducted in Chennai, India. The information technology industries in Chennai have extended their business in all areas, namely, software testing, development, programming, import and export, and maintenance of projects. In the diversified economic foundation, information technology industries have gained a major ground in the Chennai's economy. The late 1990s, witnessed the birth of business process outsourcing and software development and within few years there was a prominent squirt of outgrowth in the number and magnitude of the information technology industries in the city. This in turn created a great impact on the city's economy. Chennai is now one of the important software centres in India. Cheap IT labour is one of the main facts that has attracted multitude of multi-billion-rupee foreign software companies such as Microsoft to establish their business in the city as well as in other software centers of India like Bangalore, Hyderabad, Kolkata, and Delhi making the country a booming software exporter worldwide. At present Chennai is the second largest exporter of IT and IT enabled Services in India next to the Silicon Valley. The city is a hub of a number of technological parks and promises the employment of nearly 3,00,000 people.
Accordingly, Chennai is the most suitable place to conduct this research in India. Therefore, Chennai city is selected for the study. According to survey conducted by NASSCOM in 2010 - 11 there are top 20 IT companies in India. Among them, top ten companies functioning in Chennai have been selected to analyze the occupational stress and job satisfaction of IT professionals. The list of top 20 companies as reported by NASSCOM is listed below.

**TABLE 1.1**

NASSCOM TOP 20 IT COMPANIES IN INDIA FY 2010-11

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Tata Consultancy Services Ltd.</td>
</tr>
<tr>
<td>02</td>
<td>Infosys Limited</td>
</tr>
<tr>
<td>03</td>
<td>Wipro Technologies Ltd.</td>
</tr>
<tr>
<td>04</td>
<td>Cognizant Technology Solutions India Pvt. Ltd.</td>
</tr>
<tr>
<td>05</td>
<td>HCL Technologies Ltd</td>
</tr>
<tr>
<td>06</td>
<td>Mphasis Ltd</td>
</tr>
<tr>
<td>07</td>
<td>Genpact Ltd</td>
</tr>
<tr>
<td>08</td>
<td>Capgemini India Pvt. Ltd.</td>
</tr>
<tr>
<td>09</td>
<td>Tech Mahindra Ltd1</td>
</tr>
<tr>
<td>10</td>
<td>Aegis Limited</td>
</tr>
<tr>
<td>11</td>
<td>Mahindra Satyam1</td>
</tr>
<tr>
<td>12</td>
<td>Intelenet Global Services Ltd</td>
</tr>
<tr>
<td>13</td>
<td>Firstsource Solutions Ltd</td>
</tr>
<tr>
<td>14</td>
<td>CSC, India</td>
</tr>
<tr>
<td>15</td>
<td>WNS Global Services (P) Ltd</td>
</tr>
<tr>
<td>16</td>
<td>Syntel Ltd</td>
</tr>
<tr>
<td>17</td>
<td>Patni Computer Systems Limited</td>
</tr>
<tr>
<td>18</td>
<td>Hindulja Global Solutions Ltd</td>
</tr>
<tr>
<td>19</td>
<td>Exl Service.com (India) Pvt Ltd</td>
</tr>
<tr>
<td>20</td>
<td>L&amp;T Infotech</td>
</tr>
</tbody>
</table>

Source: NASSCOM
There are more than 500 IT and IT related companies functioning in Chennai city. Among them top 20 companies as reported by NASSCOM, only some of the major companies engaged in IT and IT related services were taken for the study. They are (1) Tata Consultancy Services Ltd., (2) Infosys Limited, (3) Wipro Technologies Ltd., (4) Cognizant Technology Solutions India Pvt. Ltd., (5) HCL Technologies Ltd., (6) L&T Infotech (7) Mahindra Satyam (8) Tech Mahindra Ltd., (9) Aegis Limited and (10) CSC, India. The numbers of employees in these companies are listed below.

TABLE 1.2

SELECTED SAMPLE COMPANIES IN CHENNAI

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company</th>
<th>No. of Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Tata Consultancy Services Ltd.</td>
<td>54239</td>
</tr>
<tr>
<td>02</td>
<td>Infosys Limited</td>
<td>16429</td>
</tr>
<tr>
<td>03</td>
<td>Wipro Technologies Ltd.</td>
<td>15014</td>
</tr>
<tr>
<td>04</td>
<td>Cognizant Technology Solutions India Pvt. Ltd.</td>
<td>18259</td>
</tr>
<tr>
<td>05</td>
<td>HCL Technologies Ltd</td>
<td>15421</td>
</tr>
<tr>
<td>06</td>
<td>L&amp;T Infotech</td>
<td>13587</td>
</tr>
<tr>
<td>07</td>
<td>Mahindra Satyam.</td>
<td>4967</td>
</tr>
<tr>
<td>08</td>
<td>Tech Mahindra Ltd</td>
<td>6982</td>
</tr>
<tr>
<td>09</td>
<td>Aegis Limited</td>
<td>3658</td>
</tr>
<tr>
<td>10</td>
<td>CSC, India</td>
<td>4866</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>153422</td>
</tr>
</tbody>
</table>

1.7.2 Participants

As the profession of IT industries professionals is acknowledged as stressful occupation, the sample of the present study involved professionals working in the IT industries in Chennai City.
1.7.3 Sample size

For the purpose of the analysis, the IT professionals are classified as higher level, middle level and lower level professionals. The Senior Associates, Team leaders, Project leaders, Project managers, senior software engineers, and senior manager are considered as higher level executives. The Software developer, Test analyst, System analyst, System administrator, Data base administer, Software tester, System executive, Software engineer and Web developer are classified as middle level professionals.

The Programmer, Assistant programmer, Data entry operator, Software technician, Hardware technician and Trainee are viewed as lower level professionals. Only those professionals who have already served for more than 3 years in the companies alone considered in the study. The sample size was calculated to guarantee a sufficient number of respondents in each IT company. Thus, the following formula has been used to estimate the sample size (The Survey System, 2007):

\[
\text{Minimum Sample Size (n)} = \frac{t^2 \times p \times (1-p)}{m^2}
\]

Where:
- \(n\) = required sample size (minimum size)
- \(t\) = Confidence level at 95% (standard value of 1.96)
- \(p\) = Estimated fractional population of subgroup, expressed as decimal (0.5 used for sample size needed)
- \(m\) = Margin of error at 5% (standard value of 0.05)

\[
n = 1.96^2 \times 0.5 \times (1-0.5) / 0.05^2 = 384
\]

Correction for Finite Population

\[
\text{New SS} = \frac{SS}{1 + \frac{SS-1}{Pop}}
\]
Where: \( \text{pop} = \text{population} \)
\( \text{SS} = \text{Sample size} \)

\[
\text{New SS} = \frac{384}{1 + \frac{384 - 1}{152647}} = 384
\]

As per the formula the required total sample size is 384, which constitutes 0.25 per cent of the total population. Therefore, 0.25 per cent from each category is drawn on the basis of stratified random sampling method.

**TABLE 1.3**

**SAMPLE SIZE**

<table>
<thead>
<tr>
<th>Company</th>
<th>Higher level professionals</th>
<th>Middle level professionals</th>
<th>Lower level professionals</th>
<th>No. of Employees</th>
<th>Sample (0.25%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tata Consultancy Services Ltd.</td>
<td>15983</td>
<td>21358</td>
<td>16898</td>
<td>54239</td>
<td>136</td>
</tr>
<tr>
<td>Infosys Limited</td>
<td>4518</td>
<td>8055</td>
<td>3856</td>
<td>16429</td>
<td>41</td>
</tr>
<tr>
<td>Wipro Technologies Ltd.</td>
<td>3849</td>
<td>6523</td>
<td>4642</td>
<td>15014</td>
<td>38</td>
</tr>
<tr>
<td>Cognizant Technology Solutions India Pvt. Ltd.</td>
<td>6982</td>
<td>8062</td>
<td>3215</td>
<td>18259</td>
<td>46</td>
</tr>
<tr>
<td>HCL Technologies Ltd</td>
<td>5429</td>
<td>7258</td>
<td>2734</td>
<td>15421</td>
<td>39</td>
</tr>
<tr>
<td>L&amp;T Infotech</td>
<td>4578</td>
<td>6347</td>
<td>2662</td>
<td>13587</td>
<td>34</td>
</tr>
<tr>
<td>Mahindra Satyam1.</td>
<td>1187</td>
<td>2349</td>
<td>1431</td>
<td>4967</td>
<td>12</td>
</tr>
<tr>
<td>Tech Mahindra Ltd1</td>
<td>2548</td>
<td>2109</td>
<td>2325</td>
<td>6982</td>
<td>17</td>
</tr>
<tr>
<td>Aegis Limited</td>
<td>1208</td>
<td>1586</td>
<td>864</td>
<td>3658</td>
<td>09</td>
</tr>
<tr>
<td>CSC, India</td>
<td>1525</td>
<td>2113</td>
<td>1228</td>
<td>4866</td>
<td>12</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>47807</strong></td>
<td><strong>65760</strong></td>
<td><strong>39855</strong></td>
<td><strong>153422</strong></td>
<td><strong>384</strong></td>
</tr>
</tbody>
</table>
1.8 DATA COLLECTION

In order to achieve the objectives of this research, data were collected both from the primary and secondary sources. The primary data were collected from the respondents through a structured questionnaire.

1.9 INSTRUMENTATION

A well developed and widely used Occupational Stress Index (OSI) in the Indian context (Srivastava and Singh, 1981) was chosen to assess the occupational stress of the sample. The questionnaire consisted of 48 statements with five alternative responses e.g., 5 scores for absolutely true, 4 for almost true, 3 for partially true, 2 for almost false and 1 for absolutely false. The statement with asterisk should be scored inversely, e.g, 5 for absolutely false and 1 for absolutely true.

Job Satisfaction Scale developed by Rabindra N.Kanungos (1982) was used to measure level of job satisfaction of the respondents. This scale consists of 41 items. Each item consists of 5 alternatives. They are scored as 1 to 5. The responses are Disagree, More Disagree, Average, Agree and More Agree. The respondents were asked to encircle any one of the alternatives.

Type-A Type-B Personality Scale developed by Friedman and Rosenman (1974) was used to determine the personality of the respondents. This test consists of 7 statements. Each statement has two verbal descriptions. On each statement, the respondents were asked to encircle their level of feelings. The levels are mentioned from 1 to 8. It is continuous scale type question.
1.10 STATISTICAL ANALYSIS

Descriptive and inferential techniques such as cross tabulations, chi-square test, correlation, analysis of variance and t-test were used for the analysis of data and testing the hypotheses in accordance with the objectives.

1.11 PILOT STUDY

Before the field survey was conducted, the consistency of the information has become essential and a pilot survey was conducted for this purpose. In this study, widely used structured questionnaires were used. So, validation of the questionnaires is not required.

The researcher also has conducted a pilot study, for which the standardized questionnaires were supplied to 25 respondents and this was tested for extracting the tentative results. The results of the pilot study indicate that the respondents have experienced stress to a certain extent, which induced the researcher to conduct the full fledged research on this topic.

1.12 LIMITATION OF STUDY

Like other empirical studies, this study is not without its limitations. The study can be strengthened by increasing the sample size as the data analysis results and findings may vary substantially when the sample size is increased or decreased. As only one industry may not represent whole industries in India, more industries’ involvement would create a more diffused results and findings.

In the study, the researcher has not developed any scale. Instead readily available structured and standardized scales are used as these are
widely and universally accepted for measuring occupational stress, job satisfaction and personality of the respondents.

The study is purely based on the respondents’ opinion. The researcher felt that the respondents might express biased opinions which limit the validity of the study.

Individuals’ stress susceptibility varies over time. The environment can also vary its conditions. Since stress is a complex and dynamic process presented in different areas of life, this research focuses only on the stress at work place due to occupational stress. In this study an attempt to identify basic stress management strategies is applied to IT industry professionals in a work situation. However, this approach restricts the findings to a specific kind of experience in the given work environment.

Respondents’ opinion may change from time to time and the responses are also subject to variation depending upon the situation and attitude of the respondents at the time of the survey.

Lastly, in this research, the researcher has mainly focused on occupational stress, and the level of job satisfaction of the employees in the study unit. The impact of stress on work related behaviour of employees, such as absenteeism, loss of judgment, employee conflicts and work place accidents is not analyzed in this study. It is directed for future research.

1.13 CHAPTER SCHEME

This study is organized into six chapters.

Chapter one describes the research design and execution of the study

Chapter two examines review of literature in the area of occupational stress and job satisfaction.
The third chapter describes the stress management strategies practised by the IT industry.

Chapter four analyses the occupational stress experienced by IT professionals.

Chapter five deals with level of job satisfaction and occupational stress on job satisfaction of the employees.

Chapter six summarizes the findings of the study and presents suggestions to reduce stress and improve job satisfaction of employees of IT industry.