CHAPTER -I

INTRODUCTION

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1.1 INTRODUCTION

With the advent of globalization and opening up of the economy in the nineties there has been an unprecedented boom in Information Technology sector all over the world. The impact of this boom was all pervasive in social, economic, educational, cultural and developmental aspects of the society. The rapidity with which the changes were thrust upon the unprepared IT sector left little time for adaptability. This led to stress both ‘on’ and ‘off’ the field.

As businesses embrace the ‘New Economy’, a plethora of new information and communication technologies and software solutions are continually becoming available to them, all of which espouse to ameliorate a firm’s competitive advantage, be it by adding value or simply reducing the costs associated with activities and processes. This has resulted in many firms increasing their investments in information and communication technologies to improve the efficiency and effectiveness of inter and intra-organizational business systems and processes (Irani & Love, 2002). Yet, according to Baldwin et al. (2001) and Currie (1998) some firms have adopted a less engaging business strategy and sought to outsource their dependency on information technology (IT). This has placed increasing pressure on IT personnel as they jockey for their position within organizations. According to Gartner (2001), many businesses have been expecting more (i.e. longer working hours) from their IT personnel without a commensurate increase in remuneration. Not being able to take a vacation or having it cut short due to IT related problems has been identified as a major problem relating to the retention of employees (Gartner, 2001).

Organizational utilization and dependence on IT continues to grow, as information systems (IS) become the fabric that links business processes together (Moore, 2000). However, as firms adapt their business strategies, particularly their IT strategy, to changes in the external environment, IT personnel are often subject to increased user demands, role ambiguity, role conflict and work overload. Much of this pressure comes from active or passive strategies to downsizing and/or re-structuring and/or the supply-demand gap for IT professionals (Bartol & Martin, 1982;
Ivancevich et al. 1983; Guimaraes and Igbaria, 1992; Li and Shani, 1991; McGee, 1996; Sethi et al. 1999; Moore, 2000). Similarly, Baroudi (1985) and Guimaraes and Igbaria (1992) have reported that boundary spanning is a contributing factor to role conflict and ambiguity among IT personnel. According to Cartwright and Cooper (1996), the changing nature of work and uncertainties inherent in the business environment are the primary determinants of stress among IT personnel. Work-related stress can be defined as the inability to cope with the pressure in a job (Rees, 1997). In contrast, Lazarus and Launier (1978), state that stress is any internal or environmental demand that exceeds the normal adaptive resources of an individual.

Hitherto there is widespread belief that, work-related stress is a causal agent of physical and mental disorders. The impact of this can often be far reaching and result in organizational outcomes such as absenteeism and reduced productivity (Ganster, 1991; Cartwright, 2000). Yet not everyone is affected by stress in the same way. Some individuals thrive on stress (known in its positive form as eustress) and therefore appear to cope better with it than others. How an individual copes with stress determines how they will in turn be affected by the stress (Billings et al. 2000). Coping is an area that has received limited attention in the IS literature, even though IT personnel are prone to experiencing high levels of stress (Huang, 2001).

The stress faced by professional workers is substantial. For many professionals, it is intrinsic to the job itself, where competing demands and pressures are inescapable. The sheer volume of work can also be overwhelming at times, whether one is a social worker, teacher, doctor or manager. Anyone in this kind of job knows, either from their own direct experience or from observing colleagues, that stress can have very serious consequences. It can develop into a living nightmare of running faster and faster to stay in the same place, feeling undervalued, feeling unable to say 'no' to any demand but not working productively on anything. The signs of stress can include sleeplessness, aches and pains and sometimes physical symptoms of anxiety about going to work. What is more, people who are chronically stressed are no fun to work with. They may be irritable, miserable, lacking in energy and commitment, self-absorbed etc. They may find it hard to concentrate on any one task and cannot be relied on to do their share.
Stress is not a new concept, and was first introduced into life sciences by Hans Selye in 1936. There has been plenty of research going on in this field since then. Mason (1975) reviewed literature on stress and concluded that there was confusion and lack of consensus regarding its definition. The term, ‘stress’, has been approached by different people in different ways.

Rajeswari and Anantharaman (2005) carried out a study on role of human-computer interaction factors as moderators of occupational stress and work exhaustion. Software professionals perform boundary-spanning activities, and thus need strong interpersonal, technical, and organizational knowledge to be professionally competent. They have to perform in a demanding work environment characterized by strict deadlines, differing time zones, interdependency in teams, increased interaction with clients, and extended work hours. These characteristics lead to occupational stress and work exhaustion. Yet, the impact of stress is felt in different ways by different people, even if they perform the same functions. These differences in the perception of stress can be caused by varying confidence in their technical capabilities. People possess varying technical capabilities, based on their acquisition of technical skills, comfort level in using technology, and intrinsic motivation. They opined that these attributes represented the human-computer interaction (HCI) personality of software professionals. Their results revealed that HCI factors had a main effect but no significant moderating effect on work exhaustion. Control over the technology variable emerged as the key variable among the HCI factors that affected software professionals' ability to cope with stress and work exhaustion.

Alwin Toffler (1970) coined the term ‘future shock’ to describe the feeling of vague continuous anxiety that arise in people who are subject to rapid changes. It is as if we feel that the future is rushing upon us; and there is nothing we can do to stop it or even slow it down. We are forced to continuously adapt and this adaptation produces an underlying feeling of apprehension and longing for stability.

When all the psychological processes of an individual like attention, perception, remembering, thinking, reasoning and creativity etc, function in a normal way, the person is able to adjust and cope with his environment. He meets the various demands of life on his own quite successfully, and is said to be of sound mental health. Such a person experiences reasonably less tension, anxiety, worry, conflict and
stress. He is able to solve the problems of life successfully. But a person who, on the contrary fails to do so is said to have unsound mental health and is affected frequently by stress. When the demand on a person from the environment is more and his capability to meet such demands is less, then this incapability might lead to anxiety and stress.

The employees of various organizations, especially employees working in IT companies have to spend time under heavy pressure of conflicting demands and work situations. They perform managerial functions under very compelling situations. This leads to anxiety and stress.

1.2 CONCEPT OF STRESS

Stress is a person’s adaptive response to a stimulus that places excessive psychological or physical demands on that person. Selye (1974) pioneer in stress research has put forth that stress can also be positive. It is referred to as eustress. Eustress is necessary in each person’s life. Selye conceptualized the psycho physiological response to stress. He put forth the three phase defense reaction- General Adaptation Syndrome (GAS). The three distinct phases are, alarm, resistance and exhaustion.

Stress at work can be categorized into four major categories. The occupational stress can be physical environment- like noise, light, temperature, polluted air etc; individual stressors- like, role conflict, role ambiguity, work overload, responsibility, working conditions; group stressors- like, poor relationship with peers, subordinates, boss etc and organizational stressors- like poor structural design, no specific policy. However these stressors act on different people in different ways due to the individual differences which can again be classified as Cognitive/ affective components- like Type A/ Type B personality, hardiness, social support; biological/demographic like age, sex, occupation etc.

Available research has implied that there is no universally accepted list of stressors; each organization has its own unique set of stressors that should be examined. Individual differences explain why the same stressor that is disruptive and
unsettling to one person is challenging to another. There are also life events which can cause stress, like death of the spouse, divorce, pregnancy etc.

The Social Readjustment Rating Scale by Richard Rahe and Thomas Homes gives mean values to each life event and is able to assess the amount of stress and its effects on individuals.

Consequences of stress can be subjective- like anxiety, apathy; behavioral- like alcoholism, drug abuse, accident proneness; cognitive- like poor concentration, mental blocks; physiological- like increased blood pressure, increased heart rate and organizational- like absenteeism, low productivity etc. Most costly effects of stress could be withdrawal (absenteeism or quitting), alcoholism, drug abuse, and deteriorating physical and mental health etc.

1.2.1 Organizational stress:

In the past two or three decades, there have been many empirical studies on stress. Researchers have focused on the causal factors of stress-strain relationship, types of stresses experienced by different work populations and also various coping strategies adopted by organizations (Pestonjee 1992).

Stress in organization can be defined as a misfit between a person’s skills and abilities and demands of his/her job, and as a misfit in terms of a person’s needs not being fulfilled by his/her job environment (French et al. 1974).

1.2.2 Management of organizational stress:

Mismanaged organizational stress can produce individual strain and distress which is detrimental for an organization’s human resources and leads to low productivity. When organizational stress is well managed it can lead to improved performance, workers’ satisfaction and productivity.

There are various causes for stress like, factors intrinsic to the job, role in the organization, relationships at work, career uncertainty, organizational structures, organizational climate, home/ work interface etc. Stress can also be the result of personality and social support.
Given that stress is widespread and is also disruptive in organizations, it is essential to manage stress more effectively. Many strategies have been developed to manage stress at the workplace. They may be individual coping strategies like exercise, relaxation, time management, role management, support group and organizational coping strategies like, institutional programs; properly designed jobs, proper work schedule, organizational cultures, supervision etc; collateral programs like stress management programs, health promotion programs; employee fitness programs, career development programs etc.

Identifying the source of stress and making use of various interventions to reduce the amount of stress is what is most important. In this light we shall see what is coping and how various coping strategies are made use of to reduce stress.

1.2.3 Coping

Coping refers to the way of dealing with stress. Coping styles and strategies may either be oriented towards avoiding stress or towards dealing with stress. It is evident that challenges are posed by the changing business scenario, which forces upon the IT employees to perform their task under compelling situations. Hence proper coping strategies have to be practiced to manage such stressful situations. Sam Bativala (1990), in his study found that Indian executives adopted various coping strategies like yoga, practicing good management, avoiding confrontation, developing trust in oneself, improving self image, maintaining better family relationships etc.

Coping is actually a dynamic process. Lazarus (1980) concluded that effectiveness of coping strategies depend upon ‘controllability of the situation’. The employees may use cognitive as well combative (action oriented) strategies at the same time. It is also possible that an employee adopts the approach mode of coping for one part and, avoidance coping strategy to effectively deal with the rest of the part of the situation of stress. In certain situations avoidance coping strategies might prove more effective and useful than the approach mode of coping strategy.

Coping is any conscious effort by an individual to manage or overcome a stressful event (Holahan, & Moos, 1987). Coping strategies may be oriented towards confronting and overcoming the stressor, or may entail efforts to reduce tension by evading the problem. The type of coping strategies adopted may depend on how the
individual appraises the stressful event, their negative and positive affect, personality differences and environmental factors, which may result in an enhanced or decreased psychological adjustment. Recent developments in this area, have recognized the importance of positive psychological states, and have highlighted the necessity of assessing both positive and negative affect in relation to coping (Folkman, 1997; Folkman, & Moskowitz, 2000).

Lazarus and Folkman’s (1984), cognitive theory of stress and coping originates with the everyday appraisal and reappraisal of one’s transactions with one’s environment. The appraisal process involves the immediate cognitive and physical identification of the stress, the immediate reaction (primary appraisal), the evaluation of the individual’s internal and external resources, and their availability (secondary appraisal) (Lazarus & Launier, 1978). Appraisals are influenced by an individual’s beliefs, values, goals and emotions, and the event is understood in terms of the personal significance it has for the individual (Stein et al. 1997). This then determines whether the individual feels threatened, challenged, or harmed. When a transaction is appraised as stressful, coping is required. Lazarus and Folkman (1984) identified two types of coping- emotion-focused coping and problem-focused coping. Emotion-focused coping attempts to regulate emotional distress and return to normal social and physiological functioning. Whereas, problem focused-coping is goal directed, and includes strategies such as decision-making and planning to resolve conflicts or to manage the problem. Here, either type of coping can lead to an event outcome that may be favorable, unfavorable or involve no resolution at all. Unfavorable outcomes or outcomes with no resolution do not alleviate distress and require reappraisal and additional coping. In contrast, a favorable outcome results in positive emotion, and the termination of any coping activity (Folkman, 1997). Theories of coping have generally focused on the negative effects of stress and the regulation of distress. Positive affect, defined as positively toned emotions including mood, emotion or psychological state, have been largely omitted from most contemporary theories of stress and coping (Lazarus, 2000). Research undertaken by Folkman (1997), has identified the co-occurrence of positive and negative psychological states. Folkman (1997) revealed that affect, positive or negative, may influence appraisal of the stress-situation and psychological well being. Similarly, Stein et al. (1997), found that positive appraisals predicted psychological well being and was significantly
correlated with positive morale whereas negative appraisals were associated with depression. Recognizing the need for the coping theory to be modified, Folkman (1997), revised the widely accepted model of the cognitive theory of stress and coping, previously developed by Lazarus and Folkman (1984), incorporating positive psychological states. Folkman (1997), integrated meaning-based coping as a response to distress involving the activation of beliefs, values and goals that help search for and find positive meaning in the stress-event, which leads to renewed or sustained coping. Meaning-based coping relates to both problem and emotion-focused coping. Folkman (1997) found that those who engaged in meaning-based coping reported a more positive psychological state. In essence, meaning-based coping can activate beliefs, values, or goals and can help redefine an event with positive significance. Folkman (1997) also introduced a sustained coping process, which results from the outcome of positive emotion and enables re-appraisal. This process may help the individual to redefine the stressor and re-engage in coping efforts to manage an on-going stressor.

Stress has become an inevitable part of human life in recent times. It makes life more challenging and fascinating if it is within limits. However when stress is beyond the coping ability of a person, it causes disturbances in his/her life sphere. Stress has its roots in the demands of organizational and personal life. Thus it is clear that, stress is a naturally occurring experience which may have beneficial or destructive consequences, depending upon how it is managed.

The Information Technology industry being an ever growing employment generating sector is a cause of concern for the organizations and government. They have to look into the physical, mental and social health of its employees. The EQ (Emotional Quotient) of the IT employees seems to be in trouble and needs to be addressed immediately. In spite of plum salaries, there have been several cases where there have been incidents like killing, drug abuse, alcoholism, frustration leading to family problems.

Since there have been many incidents, where stress has led to destructive consequences, especially among the information technology employees, it has been found necessary to carry out this study. This study aims at throwing light on the reasons for stress and, how it can be effectively managed. Hence managing stress has become a subject of prime importance. Better management of stress leads to a happy and efficient work force.
1.3 NEED FOR THE STUDY

Research on stress is of great relevance to modern society as it provides a new dimension to the understanding and dealing of social problems. The social psychological approach to the problem of stress has widened the scope of stress research as it calls for the study of social institutions and situations from which the stressor variables originate. A substantial number of studies have been reported about stress under normal as well as isolated work environment. The results of these studies have revealed that certain occupations are more stressful than others.

A review of occupational stress research clearly reveals that most of the research in this area has concentrated only on industrial and commercial organizations especially under normal work environment. Stress is becoming a global phenomenon affecting all professions and all categories of employees. It is often assumed that employees of information technology because of their nature of work are more vulnerable than other professionals to the ravages of stress. Stress is one of the most deliberating personal and medical problems of modern complex organizations. Challenges posed by the changing business scenario are forcing information technology employees to perform their task under a very compelling situation.

1.4 STATEMENT OF THE PROBLEM

Stress has become an inevitable part of human life in recent times. It makes life more challenging and charming if it is within limits. However when stress is beyond the coping ability of a person, it causes disturbances in his/her life sphere. Stress has its roots in the demands of organizational and personal life. Thus it is clear that, stress is a naturally occurring experience which may have beneficial or destructive consequences, depending upon how it is managed.

Information Technology industry being an ever growing employment generating sector, there is a cause of concern by the organizations and government to look into the physical, mental and social health of its employees. The EQ (emotional quotient) of the IT employees seems to be in trouble and needs to be addressed immediately. In spite of plum salaries, there have been several cases where there have been incidents like killing, drug abuse, alcoholism, frustration leading to family problems.
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1.5 REVIEW OF LITERATURE

Stress is a major emotional problem in the modern world. Stress is becoming a global phenomenon affecting all categories of workers. Stress is generally considered as a negative and undesirable emotional element. Stress can be classified into three types: the negative, the positive and the neutral. Negative stress is distress. Anxiety, tension, worry, strain, fear, anger, hatred etc., are examples. This has to be destressed. This type of stress causes confusion and exasperation. Positive stress is exciting and challenging. Emotions are experienced in challenging jobs, promotions, friendship, the prospect of meeting successfully an unexpected situation etc known as eustress, which is the opposite of distress.

Mental stress arises from normal day to day events like change of job, minor illness, and performance targets to be achieved or even a casual visit by the boss to the house unexpectedly. Different people have different tolerance levels of stress with regard to both intensity and duration. Optimum stress leads to high performance and high level of motivation with consequential job satisfaction. Stress above the optimum level leads to adverse consequences both physically and emotionally. Physical consequences of this can be seen when the employee absents himself often, while emotional consequences may be accidents, conflicts, interpersonal relation problems etc.

A variety of variables have been under investigation in order to identify the sources of stress and its relationship with physical illness. A review of literature in the present study aims to highlight the different variables in relation to stress. Kahn et.al (1964), view stress as an environmental characteristic thought to effect people adversely. Mechanic (1970), defines stress as a state wherein, expected functioning gets disrupted.
Psychological stress has been explained by the stimulus dimension (Appley & Trumbell, 1967) or the response dimension (most clinical studies). Stress is defined by a set of circumstances under which an individual cannot respond adequately or instrumentally to environmental stimuli or can so respond only at the cost of excessive wear and tear on the body, for example chronic fatigue, tension, worry, physical damage, nervous breakdown etc.

The empirical evidences related to the study have been presented under,

- Studies on Occupational Stress
- Studies of Occupational stress on Information Technology and
- Studies on Coping.

1.5.1. **Studies on Occupational stress**: The empirical evidences on occupational stress have been presented under,

a. Western Studies &
b. Indian Studies

1.5.1.1: **Western studies**:

Many western and Indian researchers have found relationship between stress, psychological symptoms and mental health.

According to Suttle (1977) by improving the quality of working life, the mental health of the workers improves. He held that improved quality of work life leads to healthier, more satisfied and more productive employees and more consequently more efficient, adaptive and profitable organizations. Quality of working life refers simply to the objective, situational on the job environmental conditions, plus the subjective experience of the workers related to such work. Studies show that stressful working conditions are actually associated with increased absenteeism, tardiness, and intention of quitting their jobs- all of which has a negative effect on the bottom line.

Schmitt *et al* (1980), in their study on the causes of physical symptoms of stress among workers in 80 organizations in the U.S. found that age is related to psychosomatic and physical symptoms. Weiss, Ilgen, and Sharbaugh (1982) in their
study related demographic variables to stressful events and job search. The findings indicated that age, tenure, and the hierarchical positions in the organization were negatively related, while marital status and education are unrelated to stress and job search.

Kobasa (1982) has shown that hardy persons develop fewer physical complaints under highly stressful conditions than do persons who are not hardy. Thus, hardiness may moderate the effects of stress through the way people evaluate and interpret experiences and events in their lives.

Parker and Decotiis (1983), in an attempt to test the model of job stress’ collected data from 367 managers of a large organization. Factor analysis which was used to analyze the data revealed that job stress is multi-dimensional. The study reported two distinct dimensions of job stress, (1) feeling of being under substantial time pressure (time stress), and (2) job related feelings of anxiety (anxiety). Further, factors intrinsic to the job; structure, climate, information; career development opportunities, and role in the organization have emerged as major contributors to both types of stress.

Ganster et al. (1986), in their research concerning 326 employees of a large contracting firm examined (a) the main effects of social support on strain outcomes, (b) the interactive or moderating effect of social support in combination with work stressors, and (c) higher order interactions involving social support, stressors and personal and job variables. Results of the study indicated that no evidence emerged demonstrating any buffering effect for social support. Further, no support for higher order interactive models was found.

Lasky, Gordon and Srebalus (1986), studying occupational stress among federal correctional officers across different levels found that the degree of stress across all the security levels, to be high. It was also found that the federal correctional officers experience greater level of psychological distress than expected from a non-patient normal male sample. To have a balanced approach to understanding work stress, it is necessary to recognize that employment provides rewards that are both internal (intrinsic) and external (extrinsic) (Locke & Taylor, 1990), (e.g., skill
development, self-esteem, money, variety from domestic surroundings, social contacts, and personal identity).

Motovidle et.al (1986) carried out a study on occupational stress and its relation with antecedent variables and job performance using a sample of 104 nurses. The information from respondents was collected through group discussion and the survey method. It was found that dominant stressful events for nurses were work overload, non co-operative patients, criticism, negligent co-workers, lack of support from supervisors, and difficulties they experience with physicians.

DiTecco and Cwitco (1992), in their study on operator stress and monitoring practices, attempted to identify the major sources of work related stress among telephone operators in call centers, with special emphasis on computer monitoring and telephone surveillance. Call time pressure items were most linked to job stress by operators. With 70% reporting difficulty in serving a customer well and still keeping call time down, it contributed to their feelings of stress to large extent. About 55% of operators reported that telephone monitoring contributed to their feelings of job stress. If given the opportunity 44% of operators stated that they would prefer not to be monitored by telephone at all, while 23% stated they would prefer some monitoring.

Geller and Pamela (1994) compared the amount of tedium, job stress at home and work, and social support available for 61 men and 55 women employed by 4 Ohio employers. The differential effects of each source of support (supervisors, co-workers and partners) on tedium and job stress were also assessed. Results from self-report questionnaires show that women and men reported similar amounts of job stress and similar amount of work support. It was found that women reported the experience of more tedium than men, and men reported the receipt of more household assistance than women.

Daniel and Guppy (1994), in a study on 244 accountants confirmed that those with an internal locus of control and high social support were significantly less affected by stress than those with an external locus of control.

Rolf (1994), in a study on perceptions of organizational stress among female executives in the U.S. government investigated the psychometric properties and factor stress of a 15 item self-reporting instrument measuring perception of stress
precipitators in a sample of 146 female senior executive service employees of the
U.S. federal government. Cluster analysis revealed the presence of 3 relatively
homogenous subgroups of sample respondents based on the source and level of their
perceived stress. It was found that concerns about one’s performance was the highest
ranked stressor, followed by concerns about work load, responsibility and authority,
ambiguities and the fear of making wrong decisions. The cluster analysis resulted in 3
groups of stress patterns. The highest stress group included women who put their job
above all else. The second highest group had a high propensity for job achievement
while the lowest stress group represented women who placed a high emphasis on self
– actualization and outside job considerations.

Lerner and Debra (1994) examined the relationship of job stress to more
comprehensive health status measures, encompassing a health related quality of life.
Job stress was significantly associated with physical functioning, role functioning
related to physical health, vitality, social functioning, and mental health. Job stress
made a statistically significant contribution beyond the effects of chronic illness and
psychosocial variables. Results provide justification for investigating job strain as an
independent risk factor for a health related quality of life.

Frone and Micheal (1995) carried out a study on job stressors, job
involvement and employee health, using a test of, identity theory. Identity theory
postulates that the psychological importance or salience of the job role may intensify
relationships between job stressor and employee health. This study tested the
moderating influence of job involvement and the relationships of work pressures, lack
of monotony, and role ambiguity to depression, physical health and heavy
consumption of alcohol. Data were obtained through household interviews with a
randomly selected community sample of 795 employed adults. Moderator regression
analyses provided limited support for the stress. Exacerbating influence of job
involvement, of the 9 interactions tested, 3 were found to be significant. High levels
of job involvement specifically exacerbated the relationship between role ambiguity
and physical health.

Driscoll and Richard (1995) examined the psychological effects of physical
assault at the work place and the effects of more traditional psychological job
stressors (high demands, low control, and low social support) among approximately
5,000 public service employees. Subjects who were assaulted were more likely to report depression, anxiety and low job satisfaction than their co–workers who were not. Evidence for a moderating effect of work related social support on the relationship between assault and depression is noted.

Siu, Oi-Lung and Donald (1995), in an exploratory study, on psycho-social factors at work and workers’ health in Hong Kong, interviewed 142 males and 190 females from 8 occupational groups and found that the most common health complaints were muscle ache, nervousness, headache, and gastro-intestinal problems. There was a significant relationship between subjects’ perceived work stress and psycho-social factors at work. Subjects’ perceived stress was also related to health complaints and job satisfaction. Perceived environmental conditions and relationships to superiors were common predictors of health complaints and job satisfaction. Results show that subjects who were dissatisfied with the physical conditions, had a stronger awareness of the harmful effects of the work environment, work shifts, overtime and bad relationships with co–workers and superiors, and in general had a higher level of perceived stress and more health complaints. Females working in shifts reported more health complaints and males who received no payment for overtime reported more perceived stress and health complaints.

Brook and Brook (1995), analyzed data from a study of 178 managers using sequential decision tree method that segmented the sample into homogeneous sub groups and gave insight in to the relationship between job satisfaction and mental health. Results suggest that these are sub groups of managers whose response to work stressors depends on those aspects of the work environment they consider to be most important.

Nelson, Cooper and Jackson (1995), in a study of 397 employees of a regional match authority agency in Britain, which was changing from public to private ownership, showed how stressful such an upheaval and re-organization can be. Three levels of employees like, administrative, management and manual workers were studied. All groups displayed decline in job satisfaction and in measures of mental and physical health. Those affected most by the change were the manual workers, the group that could exercise the least control over the situation.
John (1995), in a study on 418 employees in 143 different jobs in 65 organizations found that employees in complex jobs who believed their abilities were not high enough to meet the demands of their jobs experienced significantly higher stress than did employees who believed that their abilities matched their jobs demands. Employees in a situation of work overload who did not feel competent to cope with the required tasks reported a high level of stress.

Montman and Kempier (1995), in a study on 662 blue-collar workers in the Netherlands found that the percentage of workers in factory jobs, farming, and highway transport dealing with physical stressors, such as excessive noise, is as high as 30%. Other physical working conditions that are common sources of job stress are temperature extremes, poor lighting, working in shifts and indoor pollution.

Peters and Maria (1995) assessed social interactions, stressful events and negative effects at work in 41 female secretaries of the Netherlands. Results show that social interactions of these secretaries were characterized by 3 dimensions: ‘intimate support’, ‘instrumental support’, and ‘rewarding companionship’. These dimensions appear to have different relationships with occupational stress. Instrumental support played the most important role in the work of the subject, whereas rewarding companionship played no role at all in alleviating stress.

Barnett and Rosalind (1995) examined the relationship between 7 job conditions and psychological distress in 240 male and 264 female full time employees. Job conditions identified as potential job stressors included skill discretion, decision authority, schedule control, job demands, pay adequacy, job security and relations with supervisor. Results showed that only skill discretion and job demands were related to self reported psychological distress. For both men and women, the additive effects of feeling concerned about having to do monotonous work and having to work under pressure of time and conflicting demands were associated with psychological distress. The magnitude of the relationships between job experiences and psychological distress did not differ between men and women.

Scheck and Christine (1995), in a longitudinal study of a multivariate model of the stress process, using structural equation modeling, developed and tested a longitudinal multivariate model of the stress process using an intensive structural
equations modeling (SEM) approach based on Anderson and Gerbings two-stage process and analysis. Findings from both the stages contribute to understanding stress by uncovering some dynamic components underlying the stress process.

Melamed, Green et al. (1995), in a study on blue-collar workers in Israel found that ratings of job satisfaction and psychological distress as well as absences due to illness, were directly related to the self-reported monotony of the work. The higher the monotony, the lower the job satisfaction, and the higher the psychological distress the greater the absences due to sickness.

Doby and Caplan (1995), in a study of 102 accountants revealed that they considered role ambiguity (as well as work load) to be a high job stressor because it threatened their reputations with their supervisors. With this sample of subjects, the stress of role ambiguity was also found to generate anxiety on the job.

Leong and Furnham (1996) conducted a study on the effect of organizational commitment as a stress moderator of the stress outcome. According to previous findings individuals with a high organizational commitment suffered less negative outcome in terms of job satisfaction, mental and physical health and intention to quit as compared to those who were less committed. Regressions showed commitment as the main effect, but not in overall interaction. Stress was a significant predictor of all 4 dependent variables, job satisfaction, mental health, physical ill health and intention to quit. Results showed that commitment was significant only in the relationship between stress due to factors intrinsic to the job and to mental ill health. Commitment was found to affect the outcome variables directly while occupational stress was only found to predict mental and physical health.

Schwartzberg and Dytell (1996), in a study on the importance of work stress and family stress for psychological well being, found that no significant differences between men and women were found on levels of work stress, family stress, job-home interference and depression/self-esteem. However, there was significant difference in some of the dimensions of family stress.

Coleman and Jackson (1996), in a study on 1,301 women employed in a variety of jobs ranging from daily wage labourers to upper-level managers found that
perceived race based discrimination was a major source of job stress. This stressor rated even higher among younger (24-29 age) and better educated working women.

Manning and Jackson (1996), in a study involving 260 employees of a chemical company and a life insurance company in the United States found that stressful job events as measured by self-report inventory correlated positively with health care claims and costs. Employees who reported the greater amount of job stress cost their employees significantly more in health care benefits than employees who reported experiencing little stress on the job.

Guppy, Andrew and Rick (1996), carried out a study on the influences of gender and grade on perceived work stress and job satisfaction, in white collar employees. Results revealed that higher levels of job satisfaction were reported by employees in higher grades. It was also observed that higher grades perceived, more control within their working environment. No gender differences were found concerning reported stress problems, although significant differences were observed across grades in relation to role differentiation. Multivariate analyses revealed that grade effects were largely accounted for by differences in perceived control, role based and organizational stressors as well as gender which were the strongest contributors in predicting reported job satisfaction.

Bourbonnais and Renee (1996), in a study on job strain and psychological distress in white collar workers determined whether workers submitted to high job strain, a combination of high psychological demand and low decision latitude developed more psychological distress than workers who were not, and whether social support at work modified the association between job strain and psychological distress. Results show that a combination of high psychological demand and low latitude was associated with psychological distress. Social support at work was significantly associated with psychological distress.

Saunders, Driskell, Johnston and Salas (1996), in a study, a meta-analysis of 37 studies involving 1,837 participants showed that stress-inoculation techniques significantly reduced anxiety and enhanced job performance.

Manning and Micheal (1996), examined the relationship between healthcare use and stressful work events, strain, social support, type of job and industry, and the
individual characteristics of control, commitment and length of time in service. Correlational analyses suggested that health care claims and costs were positively related to stressful work events and negatively related to employees’ length of time in service. Industry type also predicted the health care variables. Multivariate analyses suggested that environmental stressor and strain variables accounted for up to 16% of variance in health care costs.

Siegriest (1998) carried out a study on emotions and health in occupational life, which describes a theoretical model of effort–reward imbalance at work. The model states that the role in adult life defines a link between self-regularity functions of a person and the social structure of opportunities of rewards. It defines job conditions where high costs are associated with low gain and two different sources of high effort; an extrinsic source (the motivation of individual workers in a demanding situation) evidence from 3 epidemiologic studies on work-related distress and cardiovascular risk in middle aged male populations shows that workers who exhibit high effort in combination with low reward and especially with low job security or promotion prospects suffer from a 3 to 4 fold increased risk of cardiovascular disease. These workers also exhibit higher blood pressure, blood lipids and fibrinogen.

Long (1998), in a study on women employees in Canada, compared 214 clerical workers (the low control group) with 249 managers (the high control group). Those with low job control were described as more distressed and less satisfied than those with high job control. The managers reported fewer hassles on the job and less depression, anxiety and health complaints.

Dormann and Zapf (1999), in a study involving 543 workers in Germany found that social support offered by supervisors reduced the symptoms of depression that resulted from social stressors on the job.

Frese (1999), in a study on 90 German workers showed that social support given by supervisors, co-workers friends and family members significantly reduced physical and psychological effects of stress both on and off the job.

Lundberg and Franken (1999), studied 42 men and women managers in Sweden. Both groups reported that their jobs were challenging and stimulating, but
women showed greater physiological stress responses than did men. Women managers continued to experience high levels of stress after the work day because of greater responsibilities connected with home and family life.

Cavanaugh and Boswell et al. (2000), in a study of 1,886 business managers in the United States identified the following kinds of daily work stress. Challenge related stress, which includes time pressure and a high level of responsibility that lead to feelings of fulfillment and achievement. Hindrance related stress, included excessive job demands and constraints such as job insecurity and poor support from higher management that interferes with achieving goals.

Porbst (2000), in his study of 283 employees in a company undergoing a major re-organization showed that their sense of job insecurity, from worrying about their being laid off, was related to a decrease in their organizational commitment and an increase in stress levels and health problems. Employees who reported a high sense of job involvement experienced health problems and greater stress than did employees who were less involved with their jobs.

Hill and Rinaldi (2003), in a survey on stress, found that it affects not only the well-being of the individual but also the productivity of businesses. They carried out two separate studies in the Borough of Merton in order to assess what policies help employers to deal with employee stress and how they promoted mental health. Findings indicated that stress was a factor in staff reporting sick and almost one in four of the staff absences were stress-related. Although the majority of employers saw it as the responsibility of the NHS to deal with such stress and only a third of businesses had a stress management policy, the majority recognized a need for further initiatives to promote mental health in the workplace. The main recommendation arising from this work is the need for employers to take a more active organizational role in monitoring and managing work-related stress. An approach based on the work of Cox (1990) is proposed, which moves away from working at a personal level to a more strategic organizational level when thinking about occupational stress.

Manshor (2003) examined the sources of occupational stress among Malaysian managers working in multinational companies (MNC's). It was found that workloads, working conditions and relationship at work were the main concerns of
managers, which lead to stress at the work place. The results also indicated that certain demographic variables do influence the level of stress among managers.

Kalimo (2004) carried out a study on maintenance of subjective health during a merger - the role of experienced change and pre-merger social support at work in white- and blue-collar workers. The results indicate that all sources of social support had a significant effect on the experience of change in one's job position. A decline in job position strongly increased the risk of poor subjective health after the merger.

Bhowon (2004) examined the relationship of perceived organizational climate and stress. They found significant relationship between dimensions of stress and climate indicating that an employee's perceptions of the organization's structure and processes determine stress experience.

Tharakan (2005), in a study on occupational stress and job satisfaction among working women hypothesized that professional women and nonprofessional working women differ in their job-related stress and level of job satisfaction. The Occupational Stress Indicator Scale developed by Cooper et al (1988) was administered to measure occupational stress and job satisfaction. The relationship between occupational stress and job satisfaction was significantly associated with job status. It suggested that professional working women experienced greater work-related stress than non-professional working women because the expectations of the former group were much higher than those of the latter.

Mahmoud (2005) carried out a study on occupational stress in an Algerian petroleum company. The investigation was carried out by using Spielberg Job stress survey (JSS) questionnaire to explore professional events and their impact on subjects, and the Amiel-Lebigre life events questionnaire to measure more general stress of life (psycho-social stress). It was found that employees did experience occupational stress and the most stressed were obviously the youngest subjects and middle managers.

Jamal (2005), examined the relationship of job stress, Type-A behavior and its two components (time pressure and hard driving/competitiveness) with burnout, health problems, job satisfaction, organizational commitment and turnover motivation among employees in Canada (N = 535). Job stress, global Type-A and its two components were significantly related to a number of dependent variables in both countries.
Leitner Konrad (2005) conducted a longitudinal study with observational stressor measures among 222 office workers (131 women, 91 men) from 12 German companies to measure stressors independently of worker appraisal. Stressors were determined twice (1990, 1991), along with 7 health indicators separately assessed by questionnaire. Health indicators were assessed again in 1992 and once more in 1998. This two-wave, two-variable design with two follow-up measurements of health indicators determines (a) the causal directions using cross-lagged partial correlations (stressors seem to have an impact on health); (b) the strength of the impact (cross-lagged correlations for Waves 1 to 4 range from .18<r<.41); and (c) the persistence of stressor effects for 5 of 7 indicators after 8 years (.21<r<.34).

Nancy (2005), in a study on the responses of male and female managers to workplace stress examined the impact of downsizing on worker health, and interviewed managers and employees, to identify possible questions for a data collection survey. This presents observation summaries of qualitative interviews with 19 managers from a large manufacturing organization. Participants were asked semi-structured questions on health behaviors, stress coping strategies, alcohol and substance use, job stress, and work overload with latitude to digress as different issues emerged. Responses from female managers and male managers revealed differences in judgments about work motivators, stressors, and coping strategies. Female managers displayed a greater tendency to use alcohol as a coping mechanism in response to stressful conditions. Gender differences also emerged regarding impressions of the treatment of women in the workplace. Men viewed relationships between genders as significantly improved from ten to twenty years ago. Women noted improvements over the same time frame, but gave numerous examples where men continue to dismiss the contributions of female workers.

Jackson (2006), carried out a study on “call centers can be considered as lean service systems, with leanness being described in terms of both dialogue scripting and performance monitoring”. Findings confirm that employees who experience greater dialogue scripting and more intensive performance monitoring show higher levels of strain. These relationships are fully mediated by work design. These findings demonstrate the importance of considering the impact of lean working practices on employee health.
Mansell (2006), in study on recent changes in employment conditions have resulted in the increased exposure of workers to unfavorable job characteristics and to consequential increases in adverse individual and organizational health outcomes. The authors evaluated the steps undertaken by one proactive employer to reduce these adverse outcomes. Staff retention and employee satisfaction significantly improved over time and these increases were attributable to workplace improvements. Stable predictors of job satisfaction included minor daily stressors, positive work experiences, job control, and perceived supervisor support.

Reviews of about 52 studies were made to find out the various views put forth by different researchers on occupational stress. There were several studies on this subject, and the researchers attempted to study several important works from 1977-2005. Many researchers have studied the relationship between demographic variables and occupational stress. Some of the researchers have highlighted the importance of social support as a moderator of occupational stress. Kobasa (1982) highlighted the importance of hardiness as a moderator of stress. Daniel and Guppy (1994) found that internal loci of control moderated the effect of stress.

Siegriest and Johannes (1995) studied the effort-reward imbalance which led to the risk of cardio-vascular diseases. Montman and Kempier (1995) found working conditions as the sources of stress. Bourbonnais and Renee (1996) found that high physiological damage and low latitude was associated with physiological distress. Some researchers related job involvement and stress. Hill and Rinaldi (2003) found that stress affected the well being of individuals as well as the productivity of businesses. He suggested that employees need to take more active role in monitoring and managing work related stress. According to Cox (1990) one should work at the organizational rather than at the individual level, when thinking about occupational stress.

1.5.1.2: Indian studies:

Das (1982), in a study has reported that the primary cause of managerial stress is the work environment and the perceived power is the secondary cause of managerial stress. According to the research, ambiguity did not emerge as a
significant cause of stress. Dominant causes of stress are negative group climate and
powerlessness, as experienced by the Indian managers.

Panda (1983) conducted a study on Indian organization and found that mental
overload is a prominent factor in producing stress among organizational workers. If
the job with which one is engaged satisfies the needs of the individual, the degree of
such mental health on the job is reduced. Work occupies a major portion of one’s life
in terms of both time spent and importance. It contains the potential for many forms
of gratification and challenge and harm. It is not surprising that people at times find
work life stressful. Indeed, stress at work is so common that one tends to accept it as
part of the necessary frustration of daily living. It is often assumed that the manager
and executives because of the typical nature of their work are more vulnerable than
non-managers, to the ravages of stress.

Mishan and Bhatacharya (1984) carried out a study on the executives and non
executives of private organizations suggested that social support can counter balance
the experiences and painful events and evaluate the functional relationship between
work environment, work culture and psychological well being.

Bhandarkar and Singh (1986), in a sample of 300 managers from public and
private sector enterprises of southern India found that there is no relation between
perceived social support and stress. They concluded that the presence of social
support in no way contributes to stress reduction.

Bhandarkar (1986) examined the impact of personal habits and way of life on
stress reduction by taking a sample of 300 managers. Variables like ‘belief in internal
control’ and positive habits such as yoga, meditation, breathing exercises, walking,
prayer, etc were subjected to correlation analysis with the overall stress score. The
analysis revealed that sports and breathing exercise were negatively and significantly
related with stress variables and played a vital role in reducing stress.

Singh and Sinha (1987), examined the relationship between ten dimensions of
organizational stress and two job related outcomes, among 250 executives belonging
to three public and seven private sector organizations. The two job-related outcomes
were job performance and job satisfaction. The result showed that six of the ten
dimensions of stress, namely, (a) lack of group-cohesiveness, (b) experience of
inequity, (c) role ambiguity, (d) lack of group leadership support, (e) mismatch between job and job requirement capability and (f) inadequacy of role authority had significant negative correlation with both the outcome variables.

Jagadish and Srivastava (1989), in a study on 400 first level technical supervisors of Diesel Locomotive works, at Varanasi concluded that perceived occupational stress impairs employees’ self confidence, perception of reality, environmental mastery, and group oriented attitudes, and consequently result in poor mental health.

Mehra, Gita and Mishra (1991), explored the relationship between perceived Occupational Stress (OS) and Job Satisfaction (JS) as well as the moderating effect of the employees’ mental health on the relationship between the two factors. Regression analysis suggested that mental health has a moderating effect on the relationship of Intrinsic Job Satisfaction and Occupational Stress.

Ahmed, Sameena, James, Jessy et.al (1991), examined the relationship between Organizational Role Stress (ORS), as measured by a rule developed by Pareek (1981), and job satisfaction and personality dimensions of neuroticism-stability, extraversion and introversion, as indicated by the Mandsley Personality Inventory. Results indicated that ORS was significantly but negatively correlated with all factors of job satisfaction. The neuroticism stability dimension of personality was significantly and positively related to six dimensions of ORS including male ambiguity.

Beena and Paduval (1991) studied the gender differences in relation to stress of 80 first and second level executives with age as another independent variable. Results indicated that stress experience increased with increasing age. Gender was found to be a major factor affecting stress condition.

Bharathi et.al (1991), investigated the effect of occupational stress on job satisfaction. Occupational stress was significantly related to job satisfaction, such that, the greater the stress higher the effects on job satisfaction.

Mishra (1991) explored the potential moderating effect of the powerlessness stressor in relation to job satisfaction and job involvement. Moderated regression
analysis and sub-group analysis indicated that the powerlessness stressor does not represent a moderating effect upon job involvement – job satisfaction relationship.

Pestonjee (1991) in a study on “Top Management Stresses”, suggested HRQ interventions and investigated organizational stress among 221 top managers (aged 33-57 years) with the help of the organizational role stress scale. Leading stressors identified were role erosion, role expectation, role conflict, role isolation and inter role distance. Suggested HRQ interventions include respectively, improving the executives’ integration in the organization, undertaking role clarity exercises, role playing and communicating exercises, and helping the individual to fulfill the demands of different roles.

Prakash (1991) tested a model of stress that describes the importance of perception in the experience of stress, using 50 university teachers classified in either a high or low stress group. According to the model the disparity between perceived demand and perceived capability produces a feeling of stress. Responses to the occupational stress inventory indicated a negative relationship between perceived capability and perceived demand. The difference between the two stress groups was significant on the basis of perceived capability and perceived demand.

Krishna (1991), analyzed the relationship of different degrees of occupational stress and job performance. Results revealed that subjects who experienced a moderate level of stress performed their job efficiently. Low occupational stress correlated positively and high stress correlated negatively with job performance. A moderate degree of stress correlated positively, but not highly, with performance.

Srivastava (1991) examined the effect of approach and avoidance modes of coping on the relation between occupational stress and job performance. A significant inverse relationship was obtained between perceived occupational stress and performance.

Singh (1991) investigated the impact of job stress dimensions on frustration, physical strain, alienation and the intent to quit. The results indicated that experience of inequity, role conflict, job requirement and capability mismatch and role overload, significantly influenced all job strain dimensions, namely, frustration, physical strain,
alienation and intention to quit. Constraints of change and lack of group cohesiveness had an influence on frustration and physical strain respectively.

Pandey and Ashok (1991) examined the relationship between role conflict and anxiety, and between role ambiguity and anxiety. Role conflict and role ambiguity were both high having a low correlation with anxiety.

Mathew (1992) investigated variations in managerial satisfaction in relation to the reality in managerial activities performed. Findings indicate that managers’ satisfaction with the job is determined by what managers really do at their job. Managers’ actual work and the frequency of performance of various activities are important in determining the effect of various factors in different aspects of satisfaction.

Menon and Akileshe (1992) viewed that stress among executives in Indian organizations may be high in comparison to stress among their western counterparts, given the fact that Indian executives perform in a more complicated environment than their counterparts in western countries. This makes Indian managers extremely susceptible to pressure.

Menon and Akhilesh (1994), in an empirical inquiry examined 128 managers in terms of the stress they experienced. The managers representing personnel, marketing, finance, etc., revealed that the stressors identified were not found to be dependent on age, hierarchical level or tenure in the organization. On the other hand, stress is viewed as being functionally dependent (i.e., dependent on the department to which the manager belongs).

Raju and Madhu (1994) examined the influence of organizational level on stress in 457 employees of an Indian Zinc manufacturing company. Subjects at higher organizational levels experienced significantly lower Role Conflict (RC) and Role Ambiguity (RA) than subjects at lower organizational levels. It is concluded that subjects promoted to higher organizational levels, developed skills to cope with RC and RA and perhaps did not perceive the stressful nature of some events. Significant differences in mean RC and RA scores were not observed for middle and lower organizational level subjects.
Ahmad, Safia, and Kapoor (1995) examined the relationship between occupational stress and locus of control in 50 white collar industrial employees in India. Results show that occupational stress was negatively correlated with an external locus of control. There were significant differences between high and low stress groups in relation to both external and internal loci of control. Findings suggested that subjects with internal locus of control, experience lower amounts of stress than those with internal locus of control.

Satyanarayana (1995), in a study of stressors among 75 executives and 75 supervisors of Bharath Heavy Electricals Ltd. (BHEL), found that personal inadequacy, resource inadequacy and role stagnation were experienced as dominant contributors of role stress in executives and supervisors. Further, two groups differed significantly in respect of inter-role distance, role overload, and personal inadequacy and role ambiguity dimensions.

Agarwal and Krishna (1998) studied job satisfaction and job stress in 3 hierarchical ranks and employees working in 2 private organizations. Results reveal that those who perceived themselves to be close to the management were satisfied and less stressed than those who did not perceive themselves to be close to the top management.

Kumar and Murthy (1999), in a study relating to 100 women managers found that the most frequent stressor for women managers was office politics. The possible reason could be that the women generally have less experience in corporate politics than their male counterparts. The second most frequently experienced stressor among women managers is the conflict between work and family.

Patnayak and Sarangi (2000), in a study on, role stress in work life management in the public sector examines organizational role stress and quality of work life among Indian public sector employees according to the type of organization, area of work and role position. Service area subjects reported less organizational role stress and greater quality of work life than subjects in the production area. Older public sector subjects experienced more role expectation conflict and greater self- role distance than did new public sector subjects. Total organizational stress was experienced differently by executive and non-executive, new versus old public sectors.
subjects and production versus service subjects. Subjects of older organizations experienced a higher degree of stress arising from inadequacy of resources than did new organizations. There were significant differences in quality of work life among the 3 categories of new organizations. Service and non-executives subjects scored higher on quality of work life.

Desai and Hetal (2000) in a study on performance appraisal (PA) and occupational stress focus on PA of employees in organizations which has been recognized as an important tool of HRD. Significant differences were found in the perception on high and low stress groups on some aspects relating to the objectives and PA. On all these counts the high stress group viewed the situation more negatively and was dissatisfied with the manner in which personality traits and skills were judged by appraisers.

Vashishtha and Archana (2000), in a study, examined the moderating effect of appraisal support on the relationship between occupational stress and organizational commitment. Moderated multiple regression analysis and sub group analysis revealed partially moderating effects of appraisal support on the occupational stress and organizational commitment relationship.

Ghosh and Anjali (2000) investigated the pattern of occupational stress and strain in two different occupational groups, executive and non-executives. In general both groups were within the normal range of occupational stress though executive experienced more occupational stress than non-executives. It was observed that executive differed significantly from non-executive in terms of role insufficiency and responsibility indicating that there was a mismatch between their skills and the job they were performing. Coping resources were found to be high in the areas of social support and rational coping i.e. both the groups used these resources to solve their problems.

Mishra and Kumar (2001), in an exploratory study of performance and role stress in a power plant examined the relationship between human functional states, performance and role stress in a sample of 30 junior level managers who were classified as high performers and low performers. Results revealed that human functional states were not significantly related to either performance or to job.
experience. In the low experience group, a significant negative correlation was seen between human functional states and perceived role stress. On the basis of an analysis of subjects’ narratives, suggestions were made for improving human functional states in the organization.

Mehra, Gita and Misra (2001), explored the potential moderator effect of participation in decision making on the relationship between job satisfaction and occupational stress. Moderated regression analysis revealed the moderating effect of participation in decision making on the relationship between job satisfaction and occupational stress but sub group analysis did not confirm the moderating effect.

Sharma (2001) examined the impact of job stress on mental health. The sample comprises of 120 women in the age group of 25-35 yrs and 50 years and above, experiencing low, moderate and high job stress. The moderate job stress group was less prone to psychological depression, manifested least symptoms of neurotic disorders and had better mental health as compared to the low or high job stress group.

Srivastava and Urmila (2002) examined the relationship between job and life stress and health outcomes of management personnel. A sample of 200 male managers completed questionnaires covering occupational stress, life stress, Psychosomatic Health Complaints (PHC) and Pathogenic Health Habits (PHH). Data on blood pressure were also collected. Job stress was significantly related to PHC and PHH. As compared to job stress, life stress was found to be a stronger predictor of health.

D’Souza, Urs and Siddegowda (2005), aimed at comparing the occupational stress level as experienced by executives, managers, and engineers. The results revealed that executives have the highest role overload combined with strenuous working conditions. Engineers were found to score the highest in role ambiguity, role conflict, unreasonable group and political pressure, under participation, and powerlessness; and lowest in low status and highest overall occupational stress. Managers have least strenuous working conditions, as compared to executives and engineers.

Ahmed, Safia and Kapoor (1995) found that those with internal locus of control experience lower amounts of stress than those with external locus of control. Satyanarayana (1995) found that personal inadequacy, role inadequacy and role stagnation as major contributors to stress. Some studies were on the relationship between performance appraisals and occupational stress. Studies on Organizational Role Stress (ORS) and Quality of Work Life (QWL) among the Indian public sector employees according to type, area of work and role position were carried out. Some researchers studied the relationship between performance appraisal and occupational stress. Mehra, Gita and Misra (2001) found that there was no significant effect of participation in decision making as a moderator between job satisfaction and occupational stress. Some studies were on the impact of job stress on mental health. Srivastava and Urmila (2002) found that life stress was a stronger predictor of health outcomes than job stress. Researches on comparative studies to access the levels of occupational stress among different levels of employees were carried out by some researchers. To conclude, stress research has vast scope as there are several dimensions on which one can carry out a study. Later on, an attempt was made to review the literature relating to occupational stress in the Information Technology sector.
1.5.2: Review of literature of stress on Information Technology sector:

The empirical studies on Information Technology have been presented under,

- Western Studies
- Indian Studies

1.5.2.1: Western studies:

Mogens and Aarhus (1985), who undertook to survey 917 office workers in a large provincial Danish town to obtain data on stress resulting from computer-based technology. Most employees had a positive attitude toward the new technology, even those who were familiar with its drawbacks. Most employees indicated that job factors such as level of interest in job tasks, demand on job skills, and knowledge increased (from 24 to 44%), and stress factors such as work pressure and psychological strain increased (from 26 to 34%) or remained at about the same level as a consequence of using new technology. It is concluded that the introduction of new technology is not a stressor by itself; rather, its negative effects are the result of poor use of personnel resources and the work environment.

Howard and Cary (1986) undertook to review literature on the psychological stress effects of working with computer systems. Current research on the sources of computer-related stress has tended to concentrate on employees who operate visual display units (VDUs), either on a full-time professional basis or employees who use the VDU irregularly as part of their other duties. A few studies have looked at specific occupation groups, such as printers, information technology professionals, process workers, and college students. Generally, research has been carried out on office workers, and more often on women, carrying out administrative tasks. An attempt is made to identify those potential work-related stressors that have been isolated by these studies, and also included are criticisms of the general methodologies used in many of them.

Johannes, Thomas and Holger (1991), carried out a study which compared the application of computer-aided design (CAD) systems (used by 28 mechanical engineering students) by using different stress variables (design task,
design/operational characteristics of the CAD system, environmental variables) and their effect on strain measured by psycho-physiological and psycho-physical data. In single and multiple experiments, continuous measurements of psycho-physiological parameters (strain measurements) were correlated to different stress situations in the various phases of the design process and/or operation of the CAD system. As a result, different strain reactions were registered depending on the type of CAD system used and on the respective design phases.

Paul and Siegfried (1991) undertook to develop a model of human stress in a computer-related job situation. Components of user satisfaction are defined, and a conceptual measure of user satisfaction is constructed. Based on the conjecture that stress, or lack thereof, is an appropriate indicator of the user's level of (dis)satisfaction with a system, a measurement methodology is proposed. The methodology is intended to determine how satisfied a user is with the interface and what might be the causes of (dis)satisfaction.

Zapf and Zeitschrift (1991) in a study on stress-related job analysis of work with various office software systems tested 232 employees in 15 different industrial offices who used various software systems for word processing, computation, graphics, and other programs. A stress-related job analysis program, originally developed for industrial work places, was adjusted for office work with scales for work content, stressors, and availability of resources. There were both behavioral ratings and questionnaire responses. The scales showed high internal consistency. There were positive correlations between stressors and psychological dysfunctions that varied for the different tasks. Daily work time on a computer was correlated negatively with stressors and the work content.

Pascale (1992) examined the effects of computer use on task characteristics and worker stress (WS) in a sample of 262 office workers from 3 organizations. Increased frequency of computer problems was related to increase in computer use intensity. As the frequency of computer problems and computer use intensity increased, perceived workload and perceived work pressure increased, and perceived job control decreased. Perceived workload, work pressure, and job control were related to several indicators of WS.
Michael (1992), carried out a study on “Technological change and the older employee and the implications for introduction and training” interviewed 34 older German office employees (aged 45-60 yrs); 23 supervisors, personnel managers, and representatives of workers; and 7 computer trainers. The older employees were classified according to their dominant form of appraisal of computers threat/challenge/irrelevant. While participants who experienced computers as a challenge favored information-seeking activities, older staff who felt threatened by computers reacted passively and often complained about increasing time-pressure and health-related problems. So those who appraised computers as irrelevant were satisfied with their work and reported hardly any coping behavior. Organizational factors were closely connected with the dominant form of appraisal.

Sabine, Felix and Torsten (1994), undertook to test the hypothesis that in a technical profession, work stressors are related to burnout and that this relationship is moderated by control at work, task requirements, and the quality of team interaction. Moderated regression analyses revealed that high cognitive requirements, high learning requirements, and low competition within the team enhanced the relationship between stressors and burnout.

Chien-Lin (1995), examined the effects of cognitive demands on worker stress in computerized offices. Three aspects of the work system were considered. Task characteristics, usage of VDT, and job design factors. Results of the bivariate and multivariate analyses showed that some aspects of cognitive demands (focused attention, divided attention and decision-making, and concentration) were related to increased worker stress. Task characteristics (i.e., variety of computer tasks) and usage of VDT (i.e., computer system performance) were significant contributors to increased cognitive demands and worker stress. Cognitive demands seem to mediate the relationship between task characteristics, usage of VDT, and worker stress. The results of this study of computer users showed modest support for the proposed research model. Cognitive demands seem to be an important stressor for computer users, the joint effects of task required.

Elizabeth, Alan, Thomas, and Roland (1996), compared the work, family, and work-family environments of dual-career adopters and non-adopters of computer-supported supplementary work-at-home (SWAH). Data show that adopters of
computer-supported SWAH have higher task variety, role overload, interference, and stress than non-adopters. There were no significant differences in marital or family satisfaction despite concerns that computer technology would create computer widows and be perceived as a major intrusion of the office into the home. Results indicate that computer-supported SWAH may provide benefits for organizations that facilitate their employees' acquisition of home technology.

Berg, Peter and René (1997), undertook to investigate the relationships between the Type ‘A’ Behavior pattern, work overload, role-related stress, and well-being in computerized office work. One implication for personnel management is that Type ‘A’ individuals should be trained to perceive the job demands in a realistic way. Another implication is that communication should be improved to solve the problems of role-related stress and work overload.

Drimmer and Boehmer (1999) carried out an investigation on professional and organizational commitment as moderators and relationships to organizational citizenship behavior and misbehavior. Previous research has found that discrepancies between personal, professional and workplace values can be a source of job stress (Edwards, 1992). Firstly, the more important a discrepancy is to an employee, the greater the level of perceived job stress. Secondly, the relationships among organizational commitment, job stress, organization citizenship behavior and organizational misbehavior were studied.

Christian and Vitouch (1999) investigated the effects on staff of the implementation of new office information technology in ten companies in Vienna using a longitudinal design. While the implementation of new technology as such made no significant contribution to the explanation of strain variables, a reasonable model fit was achieved when implementation characteristics were taken into account. The data suggest that negative effects of implementation must be expected if (1) adaptation demands do not include the enhancement of employee qualifications, (2) character-based user interfaces are not replaced, and (3) employees have few or no opportunities to participate in the implementation process.

Fox and Robert (2002), carried out a survey, which implies that information technology (IT) professionals are as vulnerable to the mental pressures of work-
related stress as any other workers. More than 5,000 IT employees were polled, which found three in five IT managers agree that workdays have become more stressful. Some of this pressure may stem from job uncertainty, but half of the 120 business-technology managers claim their staffs had been saddled with increasing responsibility for showing returns on IT investments.

Henry (2003), examined relationships among stress, cognitive style and job satisfaction of computer programmers as related to four cognitive styles, Concrete Sequential, Abstract Sequential, Abstract Random, and Concrete Random. Results revealed that Statistical analysis revealed a dominant Concrete Sequential cognitive style among this sample. Correlation analysis revealed several significant associations. CS style predicted Total job satisfaction, and Total job satisfaction predicted Cumulative Severity (stress) inversely.

Bruno, and Maria, (2006), reports on a survey by Info-Tech Research Group which found that most employees involved in information technology jobs are overworked. According to the survey, most respondents said they feel obligated to some degree to be on call for the office 24 hours, 7 days a week. Only 19 percent said they feel no obligation to be available to their employers after hours. The situation can be a problem for firms because there is an indication of overwork. This will cost companies in the end in employee burnout, healthcare and disability because people feel stressed.

Hayes, (2006), discusses the impact of stress on the health and social condition of almost all information technology (IT) employees. According to reports, the stress of working in an IT department results to several health problems, high divorce rates among IT people with their Type A personalities, and lower quality software and more possible mistakes in IT operations. A professor at a major technical school defines stereotypes of IT people as introverted nerds. This concept became one of the reasons why fewer students chose to become computer science majors.

Tsai, Compeau, Haggerty, and Nicole (2007), studied whether the expectation on today's information technology (IT) professionals to remain technically competent constitutes a significant source of stress. They examined how IT professionals
experience and cope with the threat of technical obsolescence. Interestingly, results revealed that, not all IT professionals consider technology change a threat to their technical competence; some viewed updating as enjoyable and pursued learning for its own sake. However, most viewed the relentless demand to update their technical skills as stressful and used a variety of coping strategies to address this threat. Using this cognitive approach to technical obsolescence, they have described the implications for managerial practice and delineate a direction for future research.

Göran and Johansson (2007), carried out a study on job characteristics, motivators and stress among information technology consultants in a structural modeling approach intended to test a structural model of the relationship between job characteristics (job demand, job control) and perceived stress (e.g. stressed, pressed, and tense) with 'motivators' (e.g. responsibility, recognition, achievement, possibility of growth) as the mediating variable. The results revealed that job demand was positively related to perceived stress. The results further indicate that motivators in part mediate the relation between job control and perceived stress.

Carayon, Haims and Hoonakker (2007), carried out a study on teamwork and musculoskeletal health in the context of work organization interventions in office and computer work. The results show that teamwork affects both psychosocial stress outcomes (anxiety) as well as musculoskeletal discomfort.

Major, Fletcher, Davis and Germano (2008), examined the influence of work-family culture and workplace relationships on work interference with family in a multilevel model. The results demonstrate the value of work-family culture in understanding supportive supervisory and coworker relationships and work interference with family and highlight the need to employ multilevel models to understand these relationships.

In this section, several western studies undertaken during the year 1985-2008 have been reviewed. Studies were carried out on 'the effect of introduction of new technology on worker stress'; 'correlation between stressors and psychological dysfunctions'; 'correlation between cognitive demand and worker stress'; 'correlation between Type A behavior patterns and work overload, role-related stress and well being'. Some studies found that job uncertainty and increasing responsibility were a

Studies were also carried out to find out the impact of technology change as a threat to employees’ technical competence. Researchers also studied the effect of team work on psycho-social stress outcomes as well as musculoskeletal discomfort. Studies on the influence of work-family culture and work-place relationship on work interference with family found that there was an influence. Research studies have also concentrated on employees who use VDU (Visual Display Units) either full time or part time. Some studies looked at specific occupation groups such as printers, IT professionals etc. Studies were also carried out to find motivators as moderators of the relationship between job control and perceived stress. Further an attempt was made to review the Indian studies on occupational stress in information technology.

1.5.2.2: Indian Studies:

Singh and Abhigyan (1990) undertook a study on role satisfaction in 322 Indian computer professionals and whether role stress and job satisfaction emanating from different variables would vary over time. Differences between the two subsamples regarding overall role stress and job satisfaction were insignificant. However, role erosion and inter-role distance had increased, whereas role isolation and role overload had decreased.

Khanna (2001) discusses the double-edged sword of modern information technology, like email, cell phones and laptops that were meant to make life simpler. Conveniences of such technologies; Stress caused by the unrelenting flow of information; Disadvantage of telecommuting; Burnout caused by the struggle of employees to keep pace.

Bhattacharya, Sunetra, Basu and Jayanti (2007), undertook to study distress, wellness and organizational role stress of professionals in the area of Information Technology (IT). The effect of sex and age on the above variables as well as the
predictability of the variables from stressful life events and coping resources taken together were also examined. Results of the study reveal that women experienced greater wellness and older personnel experienced more distress. Distress could not be predicted from the life events and coping resources taken together. Wellness and Organizational role stress could be predicted from these two variables.

Rao and Pradhan (2007) undertook to examine the influence of personality on perceived work deadlines among software professionals. The perceived deadline was measured with the dimensions namely Task support, Task significance, Task identity, Task management, Task uncertainty and Task capability, and personality measured with Myers-Briggs Type Indicator (MBTI)- personality inventory. The results indicate the significance of difference among different personality groups of (i) extrovert and introvert (ii) intuitive and sensing (iii) thinking and feeling and (iv) judging and perceiving on perceived work deadline dimensions.

Raghavan, Sakaguchi, and Mahaney, (2008), in An Empirical Investigation Of Stress Factors In Information Technology professionals, explores whether organizations can employ job design strategies to relieve organizational stress for information technology (IT) professionals. The results suggest that removing role ambiguity and improving work-facilitation to ease work-related stress. Allowing employees to have flexible work schedules was also found to ease their perceptions of workload. Employee support and training strategies were found to influence decision latitude and role ambiguity. Telecommuting did not have any effect on the stressors. Results also indicate that the association between work exhaustion and depressed mood was stronger for males than females.

Several Indian studies have been carried out on occupational stress among IT sector. Studies during the period 1990-2008 have been reviewed in the preceding section. Some studies discussed subjects like ‘the double-edged sword of modern IT like e-mail, cell phones and laptops that were meant to make life simpler’. Further conveniences of such technologies, stress caused by the unrelenting flow of information, disadvantages of telecommuting, etc was also discussed. Studies on subjects like, ‘distress, wellness and role stress, and influence of personality, on perceived work deadlines among IT professionals were also carried out. Raghavan et al. (2008) explored whether organizations can employ job-design strategies to relieve
organizational stress among IT professionals. Solutions suggested were, removing role ambiguity, improving work-facilitation to ease work related stress, and allowing employees to have flexible work schedules which can ease their perceptions of work load. Further studies of literature on coping were explored.

1.5.3: Review of Literature on Coping:

The empirical studies on coping with stress were also studied. However there were limited studies available on coping with stress.

Shrivastava (1991), in a study of role stress-mental health relationship as moderated by adopted coping strategies examined the effects of guidance and approach modes of coping in relation to organizational stress and mental health. The findings suggest that approach mode of coping contributes to immediate perceived stress but in the long run reduces tension and anxiety.

Sharma, Sagar and Acharya (1991), investigated the dominant coping strategies used by 150 male electrical engineers working in a state electricity board to deal with their job hierarchy and job anxiety. Subjects with higher job anxiety exhibited a greater proportion of avoidance-coping relative to total coping efforts.

Gowda, Urs and D’Souza (2000) investigated the type and extent to which Executives, Managers and Engineers apply coping strategies at their work place. The results revealed that executives and managers relied on the highest on problem-solving coping, and relied least on both unproductive coping mechanisms and unhealthy coping habits as compared to Engineers. Engineers relied high on healthy cognitive, social support, spiritual/religious, unhealthy coping, unproductive and high-risk coping mechanisms.

Tyagi and Sen (2000) investigated organizational role stress and coping strategies in male and female managers and supervisors. Results reveal greater role stress among female managers. However, supervisors scored significantly higher on inter role distance, and role stagnation and role expectation conflict, whereas managers scored high on role erosion with regard to coping strategies. Males scored higher on problem focused coping than females.
Hsing-Yi, Deborah and Nicole (2007), carried out a study, "Of races to run and battles to be won, technical skill updating, stress, and coping of IT professionals". They examined how IT professionals experience and cope with the threat of technical obsolescence. Interestingly, not all IT professionals consider technology change a threat to their technical competence; some viewed updating as enjoyable and pursued learning for its own sake. However, most viewed the relentless demand to update their technical skills as stressful and used a variety of coping strategies to address this threat.

Studies on coping, especially among the IT sector, were very few. Studies, however covered aspects like, Organizational Role Stress (ORS) and Coping Strategies among male and female managers; guidance and approach modes of coping in relation to organizational stress and mental health; and how IT professionals cope with threat of technical obsolescence. Sharma et al. (1991) found that subjects with higher anxiety exhibited a greater proportion of avoidance coping, relative to total coping efforts. Gowda, et al. (2000) investigated the type and extent to which Executives, Managers and Engineers apply coping strategies at their work place. An attempt was made to obtain sufficient data relating to literature on coping from the internet and databases available.

1.6 OBJECTIVES OF THE STUDY

1. To study the conceptual framework of stress and coping.

2. To assess the levels of occupational stress and coping mechanisms adopted by IT employees.

3. To study the influence of secondary variables on occupational stress and coping mechanisms.

4. To study the relationship between occupational stress and coping mechanisms.

5. To suggest strategies to combat stress.
1.7 HYPOTHESES FOR THE STUDY

The present study is targeted to test the following hypotheses;

1. IT employees experience higher levels of stress.

2. To cope with stress IT employees employ various coping mechanisms.

3. There is significant relationship between occupational stress and coping strategies adopted.

4. Demographic variables significantly influence occupational stress and coping.

5. Family environment plays a significant role on occupational stress and coping mechanisms adopted.

1.8 RESEARCH METHODOLOGY

1.8.1 SAMPLE:

The sample for the present study was drawn from different information technology companies. The total of 600 employees were taken up for the research, selected from various organizations. Stratified random sampling technique was employed in the selection of the sample. Out of the total 600 respondents majority of them belong to the age group of 20-40. Gender-wise comparison reveals male respondents were more in number. It was also found that majority of them were unmarried. Taking into consideration the educational levels, graduates were found to be more in numbers.
### Table 1.1

*Showing distribution of the sample by gender and managerial positions*

<table>
<thead>
<tr>
<th>Gender</th>
<th>Top Level</th>
<th>Middle Level</th>
<th>Lower Level</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>%</td>
<td>F</td>
<td>%</td>
</tr>
<tr>
<td>Male</td>
<td>36</td>
<td>90%</td>
<td>127</td>
<td>82.5%</td>
</tr>
<tr>
<td>Female</td>
<td>4</td>
<td>10%</td>
<td>27</td>
<td>17.5%</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100%</td>
<td>154</td>
<td>100%</td>
</tr>
</tbody>
</table>

### 1.8.2 Research Tools:

Following tools were employed in the present study:

- Personal data sheet
- The Occupational Stress Index by Srivastava and Singh (1984)
- Coping Check List by Rao, *et al.* (1990)

### Table 1.2

*Showing the Selection of Tools*

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Tools</th>
<th>Variables Measured</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The Occupational Stress Index by Srivastava and Singh (1974)</td>
<td>Occupational Stress</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(12 subscales)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(8 coping strategies)</td>
</tr>
</tbody>
</table>
1.8.3 PERSONAL DATA SHEET:

The socio-demographic data for the present research was elicited using this personal data sheet. The researcher prepared this schedule herself. This is a detailed schedule, which consists of provision to collect data on age, gender, religion, marital status, income, education, managerial position and family environment of the employee.

1.8.4 PROCEDURE:

The entire study was done in two phases. 1. Pilot study and 2. Main study

1.8.4.1 PILOT STUDY:

A pilot study was conducted initially. A total of 10 employees of each sector, 5 male and 5 female software developers from information technology companies were randomly selected and the following inventories/questionnaires were administered to them.

- Occupational Stress Index.
- Coping Check List.

The employees were first briefed of the importance of the research study and then the set of questionnaires were given to them, asking them to read the general instructions printed in the first page. Confidentiality of the information obtained was reassured. After establishing a rapport with the employees, instructions were given to, “Select any one of the responses by making an ‘X’ mark in the appropriate column.”
1.8.4.2 MAIN STUDY

After incorporating the necessary changes the main study was carried out in two phases.

The main study was conducted in two phases:

<table>
<thead>
<tr>
<th>Session I</th>
<th>Socio-demographic data sheet, Occupational Stress Index</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>After a brief introduction, Socio-demographic data sheet was given to the employee wherein they were asked to fill up the questionnaire.</td>
</tr>
<tr>
<td></td>
<td>Occupational stress index questionnaire was given to them with instructions. It assessed the occupational stress of the employees.</td>
</tr>
<tr>
<td>Session II</td>
<td>The second day after the first session,</td>
</tr>
<tr>
<td></td>
<td>The Coping Check List was given with Instructions.</td>
</tr>
</tbody>
</table>

PHASE I:

The permission from the authority concerned was obtained. The researcher introduced herself to each employee individually and briefed the need for the study and also explained about occupation stress scale and coping scale. They were assured about the confidentiality of their responses. The employees were requested to fill up the demographic data sheet with these instructions “Select any one of the responses by making an ‘X’ mark in the appropriate column. The following rows of information section are optional and can be ignored in case you do not like to divulge the same. The information given by you will be used only for research purpose and is strictly confidential. So please give frank and honest answers. Do not omit any item, as it is important to respond to every item. Please feel free to ask for clarifications”.

In the first session the Occupational Stress Index (OSI) was administered. This questionnaire is meant for a psychological investigation. The questionnaire consists of certain statements that employees say or feel about various components and
conditions of their job. The researcher gave OSI with these instructions “This is a questionnaire to understand the various aspects of this organization and your work. Each statement contains situations describing the conditions that prevail in any work or organization. Please read each statement and decide to what extent it describes your present work or organization. You are required to select any one of the following responses to indicate the extent to which you agree or disagree with each statement to describe the nature and conditions of your job and also your own experiences and feelings about your job. Give your responses frankly; your responses will be kept strictly confidential. There are no ‘right’ or ‘wrong’ answers. Please answer honestly as possible. Do not spend too much time on one item only”. The researcher clarifies the doubts if any. The respondent is asked not to leave any statement unanswered.

PHASE II:

In the second phase, Coping Check List was administered. The employees were asked to respond to the questions appropriately. “Answer the following questions using the key below. They are Never=1, Seldom=2, Sometimes=3, Often=4, Always=5. Please answer all the questions”. When the researcher is sure that the respondent has understood the mode of recording his responses he/she is permitted to record his/her responses. The respondent is asked to return the answer sheet after he/she completes giving responses. The researcher clarifies doubts if any, for the employees, while answering the questionnaire / inventory.

1.8.4.3 ANALYSIS

The aim of the present investigation was to assess and compare the level of occupational stress and coping strategies among the employees of Information Technology (IT) companies. The data obtained from 600 employees was subjected to relevant statistical techniques to test the hypotheses formulated for the study.
Following statistical methods were employed in the present study.

a. Descriptive statistics

b. Contingency coefficient analysis

c. One-way ANOVA

d. Independent Samples ‘t’ test

e. Regression Analysis-Stepwise multiple

f. Pearson’s product moment correlation.

1.9 SCOPE OF THE STUDY

The proposed study “A Study of Stress and its Management in IT Industry” is restricted to Mysore and Bangalore city only. The study concentrated on Software Developers in the Information Technology sector. Employees of Call Centers, B.P.O’s, Software testing etc., were not considered for the study.

1.10 CHAPTERIZATION

Chapter I: This chapter deals with Introduction, need for the study, statement of the problem, review of literature, objectives of the study, hypotheses for the study, research methodology and research design.

Chapter II: This chapter focuses on the conceptual framework relating to Stress and Coping

Chapter III: This chapter deals with the research methodology.

Chapter IV: This chapter deals with data analysis and interpretation.

Chapter V: This chapter deals with major findings and suggestions.