Chapter - I

INTRODUCTION
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Stress means different things to different people. From a layperson’s perspective, stress can be described as, “Feelings are all the manifestations of the stress experience, a complex programmed response to perceived threat that can have both positive and negative results.” Virtually all of the definitions can be placed into one of the two categories however stress can be defined as either a stimulus or a response.

A stimulus definition treats stress, “as some characteristic or event that may result in disruptive consequences.” It is in that respect, an engineering definition of stress was borrowed from the physical sciences. In physics, stress refers to, “the external force applied to an object,” for example, a bridge girder, the response is "strain", which is the impact, the force has on the girder.

In a response definition, “stress, is seen partially as a response to some stimulus, called a stressor.” A stressor is more than simply a response to a stressor. However, in a response definition, “stress is the consequence of the interaction between an environmental stimulus (a stressor) and the individual’s response.” That is, “stress is the result of a unique interaction between stimulus conditions in the environment and the individual's predisposition to respond in a particular way.” Using a response definition, we will define stress as:

“An adaptive response moderated by individual differences, that is a consequence of any action, situation, or event that places a special demands on a person".

Organizational Stress: A Model

For most employed, work and related activities and preparation time represent much more than 40 hours a week commitment. Work is a major part of our lives, and work and non-work activities are highly interdependent. A model of organizational stress is illustrated below.
The phenomenon of increasing occupational stress was formally identified in 1989, when the Commonwealth Commission for the Safety, Rehabilitation and Compensation of Commonwealth Employees initiated several research projects. During the same period the percentage increase in claims for work-related psychological injury has been greater than any other injury (Pearson et al. 1999). Stress, is the body's physical and psychological response to anything that's perceived as irresistible. When challenge flips over into stress, it creates an imbalance that can trigger a whole variety of negative health effects.

Job stress can be defined as the harmful physical and emotional responses which occur when the requirements of the job do not match the capabilities, resources or needs of the worker. Job stress can lead to poor health and even injury (Stress at work, United States National Institute of Occupational Safety and Health, Cincinnati, 1999).

Occupational stress is becoming increasingly globalized and affects all the countries, all the professions and all the categories of workers, as well as families and society in general (Ahmad & Ahmad. 1992; Beehr & Newman. 1978; Sharma & Sharma, 1984). The Canadian Centre for Occupational Health and Safety (CCOHS) adds that stress can worsen when there are high demands placed on a worker in a particular job, but the worker has little control over those demands. Some of the early warning signs of job stress include: short temper, headache, shortness of breath, sleep disturbances, difficulty in concentrating, upset stomach, apathy and job dissatisfaction. Over the long run, constant workplace stress can also lead to several types of chronic health problems. The Encyclopaedia of Occupational Safety and Health Research say many studies show positive links between stress and these conditions:

- Cardiovascular diseases -many related to lack of control in tension.
- Musculoskeletal disorders -particularly in the back and upper.
- Psychological disorders -mainly depression and burnout.

The literature on occupational stress has revealed many different classes of job related stressors and related them to such issues as job satisfaction and worker productivity (Beehr and Bhagat, 1985). One of the major sources of occupational
stress is “whether the person is satisfied with the job or not.” Majority of the researchers found that job related stress factors are related to variables like role ambiguity, role conflict, employee performance and satisfaction, work overload, need for achievement and organizational effectiveness (Funnettee, 1976; Ghosh and Ghorpade, 1981; Mohanty, 1986) (conducted research on "Work Stress Factors among Information Systems Professionals in Minnesota"). This research paper found that the IS workers faced with rapidly and continuously changing technologies and methodologies, a phenomenon which cause stress in employees. While technological change has had an impact on individual in many professions. This change is even more immediate, more direct for the IS worker. He/she is often forced to change working languages, equipment and even entire development paradigms amidst comprehensive re-structuring with its initial ambiguities and amidst ever increasing demands.

Research conducted in the financial services sector identified that stress can also increase the likelihood of mistakes and confrontation as workers cut corners to achieve targets. About 81 percent workers believe anger in the workplace has negative effect on morale, 74 percent are less productive when in a bad mood and 15 percent work slower (in fear of making a mistake) when their boss is angry. Fear of violence is often on the minds of individuals who handle cash on a regular basis, and can be a major cause of menial and physical distress (Violence and Stress in the Workplace, 2003).

A survey of K299 employees from 37 organizations identified ten factors as the more important contributors to employee stress. These are

- Employees not being free to talk with one another.
- Personal conflicts on the job.
- Employees not being given control over their work.
- Inadequate staffing or budget.
- Management and employees not talking openly.
- Management perceived as being unsupportive.
- Below average sick and vacation benefit.
- Reduction in employees benefit.
- Lack of recognition or reward for doing a good job.
Another research, "Managing Stress at Work" by Kate Jenkins conducted in 2001, outlined number of factors which contributed stress in work places, which are

1. People working for longer hours.
2. Taking shorter or no breaks with increase development in information technology and globalization.
3. Decrease in leisure time and less sleep and there are more time and travel pressures.
4. If key staff and large number of workers are affected, work stress may challenge the healthiness and performance of their organization.
5. Unhealthy organizations do not get the best from their workers and this may affect not only their performance in the increasingly competitive market but eventually even their survival.

Work stress is thought to affect organization by:

- Increasing absenteeism.
- Decreasing commitment to work.
- Increasing staff turn-over.
- Increasing complaints from clients and customers.
- Increasing unsafe working practice.

Adversely affect staff recruitment by damaging the organization image both among its workers and externally.

Job stress is experienced by the work force mainly because

- There is too much or too little work.
- Time pressure and deadlines having too many decisions.
- Fatigue from the physical strains of the work environment.
- Exclusive travel, long hours having to cope with changes at work and
- The expenses of making mistakes (Shamir.B. and Salomon, 1985).

Other major sources of stress at work are:

- Lack of group cohesiveness.
- Intergroup conflict.
- Role overload and
- Role ambiguity (Khan et al., 1964).
A potential stress associated with organization’s role is
  • Responsibility.

The other major causes for stress are
  • Relationship at work.
  • Lack of job security and
  • Status incongruity (Ivancevich and Matterson, 1980).

Stress is part of life and every one experiences stress daily. But, people may differ in their level of stress experience. It may range from mild to severe. People living in the urban area are exposed to stress more frequently than the people living in rural area. About 75 percent of the bodily diseases are said to be stress related. Two major causes of death such as heart diseases and cancer are stress related. Several billion tranquilizer pills are prescribed in the United States each year to get relief from stress related disorders. The consequences of stress are unhappiness, irritability, dissatisfaction and reduced work efficiency and output.

Stress is the stirred up bodily state of the organism. According to Hans Selye (1957), who is the father of stress research, stress is the non-specific response of the body to any demand made upon it. During stressful situation, Autonomic Nervous System is active and helps the individual to meet the stress. Educated people who are engaged in white-collar jobs, especially teachers, may be experiencing more mental or psychological stress than others who are experiencing physical stress. Teachers working in the Universities have to manage the grown up students in the class room, and also have to concentrate in their own research apart from family commitments. Teachers working in the Arts faculty may have more stress and strain than the Teachers working in the Science faculty.

Of all the above mentioned consequences of job stress, psychosomatic illnesses have received very scanty research attention either in western societies (Quick, Horn and Quick, 1986; Quick and Quick, 1984; Cooper and Marshal, 1984) or in India (Prasad, 1991; Sharma and Shukla, 1993).
In United State of America, Quick, Horn and Quick (1986) and Quick and quick (1984) have reported that the psychological consequence of job stress were psychiatric problems include family problems, sleep disturbances, sexual dissatisfaction, depression, psychogenic disability, headache, heartburn, backache, and burnout. Where as Greenhaus and Suraman (1984) emphasizes tension, anxiety, abandon, self esteem as the psychosomatic sequences.

In United Kingdom, from a national study, Ridson and Cooper (1984) reported nervousness, tension, headache, tiresomeness, difficulty in getting up morning, cry easily, spells of dizziness nightmares, not eating, want to be left alone, mental exhaustion as the psychosomatic diseases predominant among female managers. They have also reported that female managers experienced more often a far greater number of psychosomatic symptoms compared to male managers.

Stress is common cold of life; a natural byproduct of our all activities. Stress is an experienced state of emotions accompanied by a high level of arousal. Experts on the subject view stress as a response to homeostatic imbalance which is caused either by physiological or psychological factors or both with the predominance of one or the other. Richard Lazarus (1968) who added psychological dimensions to stress concept viewed that stress occurs when a situation is appraised as exceeding the individual's adaptive resources. This definition allows us to account for the stress tolerance threshold of the individual beyond which it looses its adaptive value. Growing complexities of work-life in modern times, has made stress a costly problem both for individuals and organizations; that is why job stress has been a widely researched topic both in India and abroad specifically from the second half of the 1970s. In India, it were Agarwal, Malhan and Singh (1979) who reviewed literature on the subject and pointed out that the Indian researchers must give more importance and include psychological factors in the purview of their studies of job stress.

The quality of life of modern man is no doubt a massive improvement upon his forefathers. But the modern civilization with all its advancements has made the life hazardous of his own creation which in turn has produced more stress for him. A natural corollary would be that all the efforts should be made to improve the quality of work life by removing or minimizing the unfavourable factors and maximizing all the favourable ones. Organizational stress is one of the major factors that works as a
threat to quality of life. Thus, work stress has become immediate focal point of interest. Numerous studies have been conducted on stress and on the physical health of employees. Stress is associated with high blood pressure and coronary heart disease (Beehr and Newman, 1978, and House 1974). Nervousness, tensions and anxiety were observed (Pestonjee, 1987 and Sharma and Sharam, 1984; Savita and Asnani, 1993). The ill effects of stress also include absenteeism, accidents, low productivity and job dissatisfaction (Ahmad et al., 1991; Ahmad and Ahmad 1992, Ahmad and Khanna, 1992 and Frares, 1983).

**Occupational stress among different professions**

Teachers, doctors, managers, IT Professional engineers and people in all the professions experience different types of occupational stress.

There is a little doubt that teaching has become a more demanding and intense job. Despite the wealth of research on teachers’ job satisfaction and stress, job attrition and absenteeism rates and stress related issues still continue to be a cause of concern in the profession (DWYs 2005, Rosenblatt and Shison, 2005, Towson 2005).

Antecedents of occupational stress are also referred to as source of stress or stressors (Luthans, 2002 and Spector 2000). Stressors that have been identified among samples of teachers include Role overload (being overwhelmed by the amount of complexity of work), role ambiguity (uncertainty about job description), conflicting job role, lack of influence over the work environment, inadequate work environment, demands made by external agencies, poor relations with students, lack of support from the principal, School climate and culture (Borg and Falzon, 1991; Dincham, 1993; Kyriacou, 1989; Manther and YILMORE, 1996). Ravichandran, R., and Rajendran, R., (2007) reported that teachers stress show that the greater part of stress is associated with the rapid pace of changes in education and a lot of expectations from the parents towards their children's education and the development of personalities.
II. Occupational stress among public sector organizations.

Job related attitudes and outcomes play a pivotal role in moulding behaviour of managers in organizations. Job involvement has been given different connotations by different researchers. Kannugo (1982) identified two contracts, viz. work involvement and job involvement. A study by Srivastava and Sinha (1983) related that employees experiencing higher job involvement reported to be less stressed. A study of Srilata (1988) revealed that managers in large organizations have experienced more role stress than those working in small or medium organizations. Monon and Akhilesh (1994) found that role ambiguity has significantly contributed to managerial stress.

III. Occupational stress among IT Profession.

Globalization and technological innovations are bringing about new challenges to the study of mental health and stress management. History has demonstrated that with each new technological innovation, there have been copious changes in the quality of life of human beings; societal changes follow to suit the scientific changes. Followers of the pioneering economist, Joseph Schumpeter's fifty year model, assert that the first wave of change in modern history (1780s-1840s) brought steam power that initiated the Industrial Revolution; next came the railroads (1840s - 1890s) followed by electric power (1890s - 1930s) and then cheap oil and the automobile (1930s - 1980s). Now the fifth wave is being driven by information technology.

Lim and Teo (1999) identified through surveys and interviews the key factors at the workplace which generate stress among 308 information technology (IT) personnel in Singapore. They suggested that factors which generate stress can be grouped into 4 broad categories as lack of career advancement related to the problem of high rate of employee turnover, work overload resulting in spillover of workload at home and guilt and dissatisfaction for being less attentive to family, risk taking and decision making consisting of fear of making mistakes and employee morale & organizational culture related to a lack of participation in decisions affecting their work, undue blame for machine failure and difficulty in team work considering the fluid and noninvolved nature of work.
In a study on, ‘Work Stress among Information Systems Professionals in Manitoba”, Kaluzniacky (1999) found that employees reported the commonly experienced feelings: Frustration, pride in accomplishments, being overwhelmed, anxiety and common stress symptoms: decrease in energy, anxiety, muscle tension, headache, and stomach upset, negative thinking and insomnia. Thus both positive and negative affects were reported. Sanderlin (2004) discussed employee's difficulties with stress within organization that continually introduce new technology and computer software into the work environment. Symptoms of stress are reviewed and employer and employee options to reduce stress are examined.

IV Occupational stress among engineers executive

Developing countries like India aims at rapid industrialization and concentrates on developing human resources which enhance productivity of employee and lead to increase organizational productivity. Job performance is the backbone of organizational productivity. Job performance is an outcome of workers’ action on the job. It is determined on the individual's extent of performance on the job. Job performance is essential not only for the development of the organization but also for the career growth and social status of employee. In western countries, many research studies have been carried out in this area exploring the factors contributing and straining job performance.

Modern living has brought with it, not only innumerable means of comfort, but also a plethora of problems and demands that tax human body and mind. Now-a-days, everyone talks about stress. It is cutting across all the socio economic groups of population and becoming the great leveller. Not only just high pressure executives are its key victims but it also includes labourers, slum-dwellers, working women, businessmen, professionals and even children. Stress is an inevitable and unavoidable component of life due to increasing complexities and competitiveness in living standards. The speed at which change is taking place in the world today is certainly overwhelming and breathe- taking and path breaking. In the fast changing world of today, no individual is free from stress and no profession is stress-free. Everyone experiences stress, whether it is within the family, business, organization, study, work or any other social or economical activity. Thus of late, stress in general and job stress in particular has become a part of the life and has received ample attention in recent
years. Stress has become the core concern in the life of everyone, but everybody wants stress-free life. Stress is a subject which is hard to avoid. Stress is a part of day-today living. Every individual is subjected to stress either knowingly or unknowingly. Stress, long considered alien to Indian lifestyle, is now a major health problem / hazard.

Stress is difficult to define precisely. The concept of stress was first introduced in the life sciences by Selye Hans in 1936. It was derived from the Latin word ‘stringere’; it meant the experience of physical hardship, starvation, torture and pain. Selye Hans, 1936 defined stress as “the non-specific response of the body to any demand placed upon it”. Further, stress was defined as “any external event or internal drive that threatens to upset the organismic equilibrium” (Selye Hans, 1956). Another definition given by Stephen Robbins (1999) for stress is “a dynamic condition in which an individual is confronted with an opportunity, constraint or demand related to what he / she desires and for which the outcome is perceived to be both uncertain and important.” Stress affects not only our physical health but our mental well-being, too. To successfully manage stress in everyday lives, individual can learn to relax and enjoy life. The best way to manage stress is to prevent it. This may not be always possible and hence the alternatives are to reduce stress and make life easier.

Stress refers to any environmental, organizational and individual or internal demands, which require the individual to readjust the usual behavioural patterns. Degree of stress results from events or situations which are potential to cause change. Stimuli or situations that can result in the experience of stress are called stressors. There are three major sources of stress- environmental, individual and organizational.

Environmental stress is not only caused by the factors intrinsic to job, but also influenced by the environmental or extra organizational factors. Stress results because of the individual’s interaction with environmental stimuli or factors such as societal or technological changes, political and economical uncertainties, financial condition, community conditions etc. The stress, which an individual experiences in an environment, is carried with him in an another environment also, thus increasing the stress and subjecting stress to others too.
There are many factors at the level of individual which may be generated in the context of organizational life or his personal life like life and career change, personality types and role characteristics. Any change in career life of an individual puts him in disequilibrium state of affairs and he is required to bring equilibrium and in this process, an individual experiences stress. Personality types/characteristics such as authoritarianism, rigidity, masculinity, femininity, extroversion, spontaneity, locus of control are particularly relevant to individual stress. When people become members of several systems like family, voluntary organization, work organization etc., they are expected to fulfill certain obligations to each system and to fit into defined places in the system. These various roles may have conflicting and simmering demands and people experiences role stress as they are not able to fulfill the conflicting demands or requirements.

Stress has been considered as one of the major factors in work organization (Agrawal et al., 1979). Sources of stressors in the employment organization identified by Pestonjee (1992) are work, role, personal development, interpersonal relations and organization’s climate.

Work that requires a lot of manual dexterity has a greater chance of inducing stress in the worker who works there. Work in the organization can induce stressors when the activities to be performed are either too difficult and complex or repetitive and monotonous. Uncomfortable working conditions extract extra energies from the worker. Stress is inevitable / unavoidable, when large amount of work is expected beyond the capacities of the worker and work has to be performed keeping in view the set deadlines. The five aspects related to stressors are intrinsic to work like, boredom, physical working conditions, time pressure and dead lines, work demands, job design and technical problems.

Role can be a source of stress when there is an ambiguity about job responsibility and limits of authority. The role set members have conflicting expectations on the way in which a role should be performed. Thus, role in terms of its normative, interpersonal and self congruence aspect can give rise to stress.
Major clusters of potential stressors identified to measure personal development stressors in the employment organization are over promotion, under promotion, role stagnation, job security, ambitions, success and gender discrimination. The kind of relationship the role incumbent has with members in the organization determines the level of interpersonal relations stressor he or she experiences. Relationships with boss, peers and subordinates were the three aspects included under this stressor component.

The climate that persists in the organization can be potential source of stressors. The freedom given to plan the work, weightage given to the views and opinions, participation in decision making, sense of belonging, free and fair communication and sympathetic approach towards personal problems were considered to measure the stressors in organizational climate.

It is immensely interesting to note that stress has two faces. It is a good servant but a bad master. In other words, it can be one’s best friend or worst enemy. A certain amount of stress is dire necessary to achieve success, but undue stress causes dogmatic distress. Although we tend to think of stress as caused by external events, events in themselves are not stressful. Rather, it is the way in which an individual interprets and reacts to events which makes them stressful. Stress is received by different people differently. If two people experience the same amount of stress or pressure, one may take it as positive or healthy type or the other may accept it as negative. Stress is often referred to as having negative connotation. The calamitous consequences of stress can affect an individual in three ways, i.e. physiological, psychological and behavioural.

Mental stress may be accompanied by anger, anxiety, depression, nervousness, irritability, tension and boredom. Physical stress is accompanied by high blood pressure, digestive problem, ulcers and indigestion, palpitation, chest pain, skin disorder muscle tension, head ache, loss of appetite, restlessness, ulcers, shut down of menstrual cycle, impairment of fertility in males and depletion of vitamin C, B and D in the body. Behavioural Stress may be symptomized in the behaviour such a overeating or under eating, loneliness, sleeplessness, absenteeism, alcohol consumption, increased smoking and drug abuse.
Moreover, the stress can affect either positively or negatively to employee’s performance. Positive qualities are those in which an individual may feel more excited and agitated and perceived the situation positively as a form of challenge (Selye, 1956). Stress is also described as posing threat to the quality of work life as well as physical and psychological well-being (Cox, 1978). A high level of occupational stress, not only detrimentally influences the quality, productivity and creativity of the employees but also employee’s health, well-being and morale (Cohen and Williamson, 1991) Job related stress tends to decrease general job satisfaction.

Stress can be either temporary or long-term, mild or severe, depending mostly on how long it continues, how powerful they are and how strong the employee’s recovery powers are. But major stress problems are sustained for quite long period. If one does not react to the stress, it may create some other trauma. It is another severe form of stress. The nature of loss may have an effect on the individual’s perception of the stressful events as well as the avoidance, intrusion and hyper arousal symptoms of post traumatic stress.

The specific stress experienced by people, often depends on the nature and demands of the setting in which people live. Thus, teachers, engineers, doctors, managers and people in other professions experience different types of stresses to different degrees. The professional role is extremely demanding because they serve the society. Stress among teachers has become a topic of professional interest but studies relating to teacher’s stress have not been carried out on large scale. Research comparing the stress level between teachers and others professional group is also scanty.

Stress disturbs the equilibrium of the body. It affects physically, emotionally and mentally. When individuals experience stress or face demanding situation, they adopt ways of dealing with it, as they cannot remain in a continued state of tension. How an individual deals with stressful situations is known as ‘coping’. There are two major targets of coping: changing ourselves or changing our environment. Coping refers to a person’s active efforts to resolve stress and create new ways of handling new situations at each life stage (Erikson, 1959).
The goals of coping include the desire to maintain a sense of personal integrity and to achieve greater personal control over the environment. Then he modifies some aspects of the situation or the self in order to achieve a more adequate person-environment fit. Coping, thus, is the behaviour that occurs after the person has had a chance to analyze the situation, take a reading of his or her emotions and to move to a closer or more distant position from the challenge.

There is an increasing consensus in the scientific community that Occupational Stress is a threat to Human Health (CB, 2001). Engineers originally defined stress as “Force which deforms bodies” (Levi, 1998). The biomedical understanding of stress began with the observation that the human body works to maintain an internal steady state (homeostasis) in the face of sometimes dramatic alternations in the external environment (McEwen, 1998). Research demonstrated that exposure to physical stimuli such as extremes in temperature or noise would trigger an adaptation response- a “hard-wired” physiological programme designed to return the body’s internal environment to a homeostatic equilibrium as quickly as possible (Selye, 1976). Stress, according to Hans Selye (one of the originators of the stress concept) was the non-specific component, the common denominator, of all the body’s physiological adaptation responses to environmental demands (Selye, 1976). More recently, the term allostatic load (explained further below) has been developed to describe the long-term cumulative costs to the body of these repeated and sustained adaptation efforts which may eventually lead to functional and physiological changes (Murphy and Sauter, 2003).

STRESS AND COPING STRATEGIES

What is stress?

Psychologists have been studying stress and its impact on psychological and physical health for several decades. Stress is negative emotional experience accompanied by predictable biochemical, physiological, cognitive and behavioural changes that are directed either toward altering the stressful event or accommodating to its effects (Baum, 1990).
What is a stressor?

Initially, researchers focused on stressful events themselves, called stressors. Such events include noise, crowding, a bad relationship a round of job interviews or the commute to work. A stressful experience may be stressful to some people but no to others. If the “noise” comes from your tape recorder playing the latest song music, then it will probably not be stressful to you, although it may be to you neighbour. Whereas, one person might find the loss of a job highly stressful, another might see it as an opportunity to try a new field, as a challenge rather than a threat.

Person-Environment Fit

Stress is the consequence of a person’s appraisal process and the assessment of whether personal resources are sufficient to meet the demands of the environment. Stress is then, is determined by person-environment fit (Lazarus& Folkman, 1984; lazarus, Launier, 1978; Pervin, 1968).

When a person’s resources are more than adequate to deal with a difficult situation he or she may feel little stress and experience a moderate amount of stress. When the individual perceives that his or her resources will probably not suffice to meet an environmental stressor, he or she may experience a great deal of stress.

Stress, then, results from the process of appraising events (as harmful, threatening or challenging) of assessing potential responses and of responding to those events.

Theoretical contributions to the study of fight or flight

Fight or Flight

One of the earliest contributions to stress research was Walter Cannon’s (1932) description of the fight or flight response. Cannon proposed that when an organism perceives a threat, the body is rapidly aroused and motivated enroute the sympathetic nervous system and the endocrine system. This concreted physiological response mobilizes the organism to attack the threat or to flee and hence, it is called the fight or flight response (Kemeny, 2003).
At one time, fight or flight literally referred to fighting or fleeing in response to stressful events such as attack by a predator. Now more commonly fight refers to aggressive responses to stress, whereas flight may be seen in social withdrawal or withdrawal through substance use such as alcohol or drugs.

The fight or flight response is an adaptive because it enables the organism to respond quickly to threat. On the other hand, it can be harmful because stress disrupts emotional and physiological functioning, and when stress continues unabated, it lays the ground work for health problems.

Selye’s General Adaptation Syndrome

Another important early contribution to the field of stress is Hans Selye’s (1956, 1976) work on the general adaptation syndrome. Although Selye initially intended to explore the effects of sex hormones on physiological functioning, he became interested in the stressful impact his interventions seemed to have. Accordingly, he exposed rats to a variety of stressors- such as extreme cold and fatigue and observed their physiological responses. To his surprise, all stressors, regardless of type, produced essentially the same pattern of physiological responding. In particular, they all led to an enlarged adrenal cortex, shrinking of the thymus and lymph glands, and ulceration of the stomach and duodenum. Thus, whereas Cannon’s work explored adrenomedullary responses to stress- Specifically, catecholamine secretion- Selye’s work more closely explored adrenocortical responses to stress.

From these observations, Selye (1956) developed his concept of the general adaptation syndrome. He argued that when an organism confronts a stressor, regardless of the cause of the threat, the individual will respond with the same physiological pattern of reactions. Over the time with repeated or prolonged exposure to stress, there will be wear and tear on the system.

The general adaptation syndrome consists of three phases. In the first phase, alarm, the organism becomes mobilized to meet the threat. In the second phase, resistance, the organism makes efforts to cope with the threat thorough confrontation. The third phase, exhaustion, occurs if the organism fails to overcome the threat and depletes its physiological resources in the process of trying.
The substantial impact of Selye’s model on the field of stress continues to be felt today. One reason is that it offers a general theory of reactions to a wide variety of stressors over the time. As such, it provides a way of thinking about the interplay of physiological and environmental factors. Secondly, it posits a physiological mechanism for the stress-illness relationship. Specifically, Selye believed that repeated or prolonged exhaustion of resources, the third phase of the syndrome is responsible for the physiological damage that lays the groundwork for disease. In fact, prolonged or repeated stress has been implicated in a broad array of disorders, such as cardiovascular disease, arthritis, hypertension and immune-related deficiencies.

**Criticism of the General Adaptation Syndrome**

Selye’s model has also been criticized on several grounds. First, it assigns a very limited role of psychological factors, and researchers now believe that the psychological appraisal of events is important in the determination of stress (R.S. Lazarus and Folkman, 1984 b). A second criticism concerns the assumption that responses to stress are uniform. (Hobfoll, 1989). There is ample evidence that not all stressors produce the same endocrinological responses (Kemeny, 2003). Moreover, how people respond to stress is substantially influenced by their personalities, perceptions and biological constitutions. A third criticism concerns that fact the Selye assessed stress as an outcome, such that stress is evident only when the general adaptation syndrome has run its course. In fact, people experience many of the debilitating effects of stress while a stressful event is going on and even in anticipation of its occurrence. Albeit all these limitations and reservations, Selye’s model remains a cornerstone of the field of stress.

**Tend –and- Befriend**

Animals, whether non human or human, do not merely fight, free and grow exhausted in response to stress. They also affiliate with each other, whether it is the herding behaviour of deer in response to stress, the huddling one sees among female rats or the coordinated responses to a stressor that a community shows when it is under the threat of flood, tornado, tsunami or other natural disaster.
To address this issue, Taylor and Colleagues (S.E.Taylor and Klein et al., 2000) developed a theory of responses to stress tend-and-befriend. The theory maintains that in addition to fight-or-flight, humans respond to stress with social and nurturant behaviour. These responses may be especially characteristic of females. During the time that responses to stress evolved, males and females faced somewhat different adaptive challenges. As where males were responsible for hunting and protection, females were responsible for foraging and child care. These activities were largely segregated, with the result that female responses to stress would have evolved so as to protect not only the self but offspring as well. The off-spring of most species are immature and would be unable to survive were it not for the attention of adults. In most species, that attention is provided by the mother.

Because tending to offspring, particularly in times of stress, is a complex task, the tend-and-befriend theory maintains that befriend—that is affiliating with others and seeing social contact during stress may be especially characteristic of females and may help in self-preservation and the protection of off-spring.

Like the fight or flight mechanism, tend-and-befriend may depend on underlying biological mechanisms. In particular, the hormone oxytocin may have significance of female responses to stress. Oxytocin is a stress hormone, rapidly releases in response to at least some stressful events, and its effects are especially influenced by estrogen, suggesting a role in the responses of women to stress.

The potential contribution of oxytocin to stress responses is to act as an impetus for affiliation. Numerous animal and human studies show that oxytocin increases affiliative behaviours of all the kinds, especially mothering (S.E.Taylor, 2002). In addition, animals and humans with high levels of oxytocin are calmer and more relaxed, which may contribute to social and nurturant behaviour (McCarthy, 1995). Opioids may also contribute to affiliative responses to stress in females(S.E.Taylor et al. 2000).

In support of the theory, there is strong evidence that women are consistently more likely than men to respond to stress by turning to others (Lucknow, Reifman and McIntosh, 1998; Tamves, Janicki, and Helgeson, 2002). Mother’s responses to offspring during stress also appear to be different from those of fathers in ways
encompassed by the tend-and-befriend theory. Nonetheless, men, too, show social responses to stress, and at present, less is known about men’s social responses to stress than women’s.

In addition to offering a bio-behavioural approach to differences in male and female responses to stress, the tend-and-befriend theory brings social behaviour into stress processes. We are affiliative creatures who respond to stress collectively as well as individually and these responses are characteristic of men as well as women.

**Psychological appraisal and the experience of Stress**

In humans, psychological appraisals are an important determinant of whether an event is responded to as stressful.

**Primary Appraisal Process**

Lazarus, a chief proponent of the psychological view of stress (R.S.Lazarus, 1968; R.S.Lazarus & Folkman, 1984b), maintains that, when individuals confront a new or changing environment, they engage in a process of primary appraisal to determine the meaning of the event.

Events may be perceived as positive, neutral or negative in their consequences. Negative or potentially negative events are further appraised for their possible harm, threat or challenge. Harm is the assessment of the damage that has already been done by an event. Thus, for example, a man who had just been fired from his job may perceived present harm in terms of how he loose self-esteem and his embarrassment as his coworkers silently watch him pact up his desk.

The aim of the present research work is to investigate the level of significance of the relationship existing among occupational stressors, psychological/physical symptoms and accident/injury/near-miss outcomes and lost work days as experienced by industrial construction manual workers engaged in a range of construction occupations. Responses about perceived levels of occupational physical and psychological stressors and psychological/physical symptoms were collected from workers by administering a questionnaire used in previous research (Goldenhar et al., 2003). Injuries and the resulting lost work days were obtained through recorded
OSHA accident reports along with self-reported injuries. Correlation and Regression analyses were carried out to determine the relationships among the following sets of data acquired:

1. Occupational stressors and (a) the duration of routinely doing a particular construction task, (b) physical/psychological symptoms exhibited by workers, (c) all accident/near-miss/injury outcomes and (d) lost work days
2. The duration of routinely doing a particular construction task and (a) physical/psychological symptoms, and (b) all accident/near-miss/injury outcomes.
3. Physical/psychological symptoms and (a) all accident/near-miss/injury outcomes, (b) lost work days.

The significance of research investigating the link between occupational stress and workplace injury among construction workers engaged in a range of occupations is that it will allow for the opportunity to identify elements specific to a particular type of construction occupation that initiate stress processes, which, in turn, can be mediated to ensure worker’s safety.

Stress is quite often termed as twentieth century syndrome, born out of high competition and its subsequent complexities. It is a state of an affair involving demand on physical or mental energy that can disturb the normal physiological and psychological functioning of an individual. Although stress in moderate doses is dire necessary as it gives an impetus to increase one’s performance and can actually stimulate one’s faculties to delve deep into and discover one’s true potential but if the magnitude of the stressor exceeds the individual’s capacity to cope, it leads to negative moods and emotions and excessive demands made upon the energy, strength and resources of a person lead to burnout. A stress condition can be real or perceived. The process of stress depends on the person’s appraisal of the situation. Different individuals react differently on the same stress conditions. It is created by what we think rather than by what has actually been happened.
**Occupational Stress:**

Stress at work has touched almost all the professions. Occupational stress can be defined as the experience of unpleasant, negative emotions such as tension, anxiety, frustration, anger and depression resulting from aspects of work. The primary difference between occupational stress and many other forms of stress is the nature of the stressors and their interaction with the overall stress process. Work related stress of the employees consequently affects the efficiency of the organizations because when one is under stress, his ability to carry out job responsibilities gets affected. Unresolved occupational stress results in low job satisfaction, poor work performance, psychological distress, unfocused attention and lack of motivation poor health, poor mental and physical wellbeing, absenteeism, turnover rate and intent to quit. It also has indirect negative effect on organizational commitment. Occupational stress may be caused by a complex set of reasons. Some of the most visible causes of workplace stress are job insecurity, high demand for performance, meeting deadlines, increased workload, personal or family problems, extremely long work hours, less salary, workplace culture, office politics and conflicts with colleagues. All these factors can actually leave an employee physically and emotionally drained. Emotions are personal and subjective experiences caused by the complex interplay of physiological, cognitive and situational variables. Emotions if properly used are an essential tool for successful and fulfilling life as they alter our perception, memory and thought processes, increase adaptability, build trust, make us confident and motivate us to achieve our goals and shape our future behaviour. But, if emotions are beyond control, the result can be disastrous. Therefore, conscious effort are imperative to manage emotions and harness their tremendous powers in the right direction.

**Stress and Coping**

Although the concept of stress has been around for over 60 years, a consensus on its definition has yet to be established. The origin of the concept is rooted in a physiological definition of stress attributable to Canadian researcher, Hans Selye, who made us aware of the role of the mind in the function of the body. Selye elaborated on his physiological concept of stress by explaining it in terms of a process, “the general adaptation syndrome.” This syndrome consists of three stages, viz. 1) alarm reaction (when the body reacts to a stimulus by releasing stress hormones, such as adrenaline
or cortisol); 2) resistance (the body’s adaptation to a continued stressor) and 3) exhaustion (under prolonged exposure to a stressor the body's resistance may gradually be reduced, resulting in a lack of energy or reduced immune function) (Ice & James, 2007 and Selye, 1991). According to Selye, stress involves not only the physical responses but also the wear and tear that is produced by these responses in an individual (Humphrey, 2005).

Selye’s work was in part inspired by Walter Cannon’s early research on the physiological processes involved in the “fight or flight syndrome.” Cannon also coined the term “homeostasis” to describe the process of preserving internal stability when confronted by environmental change (Cannon, 1932; Rosche, 1984 and Selye, 1991). At the same time Selye and other researchers focussed on the physical aspects of stress, others began to focus on the psychosocial aspects of stress and examined traumatic or major life events. Credit has been attributed to Adolf Meyer and Harold Wolff for the development of research on stressful life events and illness in the 1930s and 1940s (Ice & James, 2007). Throughout the 1960s, stress research concentrated on life events (still working within the Selyean model) and the development of the Social Readjustment Rating Scale (Holmes and Rahe, 1967) became the foundation for assessing stress.

It was not until the late 1960s that a cognitive perspective of stress emerged, as Lazarus and other researchers came to recognize individual differences in responses to stressful life events. Lazarus and his colleagues developed a transactional theory of stress emphasizing appraisal and coping as key components to the stress process and suggested that researchers shift focus from major life events to daily hassles (Lazarus, 1984, 1999; Monat & Lazarus, 1991; Ice & James, 2007). Although there is no universal definition for “stress”, a highly accepted definition proposed by Monat and Lazarus (1991) examines stress as “any event in which environmental demands, internal demands, or both tax or exceed the adaptive resources of an individual, social system or tissue system”. Common stress processes are the following components: 1) the input or stimuli; 2) physiological and psychological processing systems and 3) the output or stress response. Monat and Lazarus (1991) identified three types of stress viz. physiological stress, psychological stress (with cognitive factors leading to the evaluation of threat, e.g., Lazarus, 1966) and social
stress (with the disruption of a social unit or system, e.g., Smelser, 1963). Humphrey (2005) clarifies stress as a state which is distinct from any object or agent producing this state and the stress-producing objects or agents are referred to as stressors.

While there is no consensus on a proper definition of stress, there is an agreement that stress is a natural and expected part of life which requires individuals to cope or adapt. If coping is ineffective, the effects of stress may be detrimental for physical and psychological health and functioning in all areas of life. If coping is effective, stress is likely to remain under control and the challenge may lead to a sense of gratification and increased self-efficacy. By effectively coping with stress, we can achieve more than we may have thought of to accomplish. Effective coping may also lead to a positive reorganization of our lives resulting in increased productivity and life satisfaction (Lazarus, 2006). The fundamental objective in stress research is to discern the relationships between stress and health, or stress and adaptation.

Threat is the assessment of possible future damage that may be brought about by the event. Thus, the man who has just lost his job may anticipate the problems that loss of income will create for him and his family in the future. Primary appraisal of events as threats has important effects on physiological responses to stress. For example, blood pressure is higher when threat is higher or when the threat is high and challenge is low (Maier, Waldenstein and Synowski, 2003).

Finally, events may be appraised in terms of their challenge, the potential to overcome and even profit from the event. For example, the man who has lost his job may perceive that a certain amount of harm and threat exists, but he may also see his unemployment as an opportunity to try something new. Challenge appraisals are associated with more confident expectations of the ability to cope with the stressful event, more favourable emotional reactions to the event and lower blood pressure (Maier et al. 2003; N. Skinner & Brewer, 2002).

The important of primary appraisal in the experience of stress is illustrated in a classic study of stress by Speisman, Lazarus, Mordkoff and Davidson (1964). College students viewed a gruesome film depicting unpleasant tribal initiation rites that included genital surgery. Before viewing the film, they were exposed to one of four experimental conditions. One group listened to an Anthropological account about the
meaning of the rites. Another group heard a lecture that deemphasized the pain, the initiates were experiencing and emphasized the pain and trauma that the initiates were undergoing. A fourth group was given no introductory information, and the film they viewed has no sound track. Measures of autonomic arousal (Skin conductance, heart rate) and self-reports suggested that the first two groups experienced considerable less stress than did the group whose attention was focused on the trauma and pain. Thus, the study illustrated that stress not only was intrinsic to the gruesome film itself but also depended on the viewer’s appraisal of it.

Secondary appraisal processes

At the same time, the primary appraisals of stressful circumstances are occurring, Secondary appraisal is initiated. Secondary appraisal is the assessment of one’s coping abilities and resources and whether they will be sufficient to meet the harm, threat and challenge of the event. Ultimately, the subjective experience of stress is a balance between primary and secondary appraisal. When harm and threat are high and coping ability is low, substantial stress is felt. When coping ability is high, stress may be minimal. Potential responses to stress are many and include physiological, cognitive, emotional and behavioural consequences. Some of these responses are involuntary initiated in a conscious effort to cope.

Cognitive responses to stress include beliefs about the harm and threat an event poses and beliefs about its causes or controllability. They also include involuntary responses, such as distractibility and inability to concentrate; performance disruptions on cognitive tasks and intrusive, repetitive or morbid thoughts, cognitive responses are also involved in the initiation of coping activities.

Potential emotional reaction to stressful events ranges widely including fear, anxiety, excitement, embarrassment, anger, depression and even stoicism and denial. Emotional responses can be quite insistent, promoting rumination over a stressful event, which in turn, may keep biological stress responses elevated (Glynn, Christenfend & Cerin, 2002).
Stress

Stress, according to WHO, has become the epidemic of the new age. Mainly caused by, and feeding on, fast paced life-style and attitudinal disorder. This Stress and Stress induced psychosomatic ailments have out done old human ravages like TB, Malaria and has become at par with smoking as a killer. Stress seems to have engulfed homosapiens of all ages including children, and the worst part of it is that it remains silent and hidden until it has translated into a manifest ailment.

Stress can be turned to distress by just self-introspection. We already know enough to lead perfect lives. Our trouble is not ignorance but an inaction. It is rightly said, “ We all have the power to create the life we really want to have, the KEY is finding the tools, resources and support system that would help us to most easily and quickly bring forth from within, our highest and best.”

Stress can be defined as body response to physical and mental demands or “An interaction between environmental forces and events called stress precipitators, which appear threatening to the person’s reaction to the threat” (Rogers, Li & Shani, 1987). Occupational stress is anything regarding the working environment or nature of work itself that causes individual perceives stress (Rohany, 2003). Whereas, Leka, Griffiths and Cox (2004) refer to occupational stress as “the response people may have when presented with work demands and pressures that are not matched to their knowledge and abilities and which challenge their ability to cope.”

Sources of Occupational stress

Source or Stressor is an element that causes a stress reaction. Research in behavioural psychology has shown that stress can be good or be a threat to the person depending on the level of stress perceive. Occupational Stress is due to Organisational aspects, long work hours, lack of organizational support and organizational change (Davey et al., 2001), lack of support from supervisors and colleagues and conflict with demands and pressures (Leka et al., 2004).
What is Occupational Stress?

The human body has a natural chemical response to a threat or demand, commonly known as the “fight or flight” reaction that includes the release of adrenalin. Once the threat or demand is over, the body can return to its natural state. A STRESSOR is an event or set of conditions that causes a stress response. STRESS is the body’s physiological response to the stressor and STRAIN is the body’s longer-term reaction to chronic stress.

Occupational Stress can affect human health when the stressors of the work place exceed the employee’s ability to have some control over their situation or to cope in other ways. For example:

- Workers are burdened over with work loads which remain high regardless of their efforts; the work load is the STRESSOR.
- Employees feel anxious and their heart rate speeds up because they can not control their workloads; that is STRESS.
- Increased blood pressure, insomnia or chronic headaches.

What are the Sources of Stress?

PEF members have experienced dramatic changes in the work place. There has been a constant barrage of anti-government, anti-state worker rhetoric from inside and from outside of the state service. Delayed state budgets, budget deficits and prolonged contract negotiations have become the norm.

This has lead to stressful working conditions for PEF members faced with.

- Downsizing/Privatization
- Hiring freezes
- Contingent work (e.g. Part-time or temporary)
- Shift work/ Rotating Schedules
- Quality Programmes/ Worker, Participation Schemes.
These changes foster an environment that gives rise to a number of sources of stress, including: Little autonomy or control over one’s job.

- Non-existent career ladders.
- Inadequate resources to do the job.
- High demands, work load and time pressures
- Lack of job security.
- Understaffing.
- Mandatory over time.
- Violence/ Harassment.

Stress has received a great deal of renewed attention during the last two decades (Beehr, 1998). In a 1997 survey, thirty three percent of Americans believed that their job was more stressful than it had been just a year previously, and over two thirds of Americans believed their jobs had become more stressful over the previous five years (Cohen, 1997). Small business owners, in particular, may face high levels of stress because work and its demands often dominate their lives (Jamal, 2007). Clear separation between work and non-work activities are frequently nonexistent. Moreover, an average work day can easily extend to 12 hours or longer (Jamal and Badawi, 1995).

Although, stress is widely accepted as potential drawback of small business ownership (Akande, 1992; Buttner 1992; Rahim, 1996), there clearly is a dearth of information regarding this subject. Conceptual and definitional issues within the field have effectively inhibited any real analysis (Jamal, 1997). The work that has been done has concentrated almost solely on comparisons of entrepreneurs with their corporate management counterparts. Any discussion of the relationship between occupational stress and its antecedents among small business owners has received little, if any, attention in the literature.

**Stress in the Work Place**

Even though, Americans and citizens of other industrialized nations are enjoying the fruits of the industrial revolution through ever-higher standards of living, they are enjoying those fruits less than were anticipated. This may be due in large measure to the excessive levels of stress in their lives (Karasek & Theorell, 1990;
Schor, 1991; Wachter, 1989). For many people, a great deal of this surfeit of stressful events comes from the work place (Dorsey, 1994; Karasek & Theorell, 1990).

In a recent national survey of 600 workers, 46 per cent of the subjects believed that their jobs were very stressful and more than a quarter of them said that the job was the greatest cause of stress in their lives (Murphy, 1995). Work related stress has been associated with increased worker injuries and psychological disorders (Landy, Quick, & Kasi, 1994). Work-related stress is also significantly positively associated with both depression and hostility (Mostowidlo, Packard & Manning 1986). While there is a great deal of disagreement among researchers regarding terminology and research methodology, there is clear consensus on the importance of this issue and its potential consequences for individuals, organizations and society (Khan & Byosiere, 1990).

Occupational stress has become one of the major influences on the health and well-being of employees in the modern workplace. Although there is clearly a personality component in an individual’s susceptibility to work place stress (Lazarus, Delongis, Folkman & Gruen, 1985), it is none-the-less a long accepted fact that the work place is a major source of socio-psychological stressors, strains and subsequent ill-health (Margolis, Kroes & Quinn, 1974). The accumulation of stressful events can lead to psychopathology- real illness (Dohrenwend & Dohrenwend, 1978; Dohrenwend & Shrout, 1985). The effects of work place stress can sometimes be so severe that some researchers have been prompted to equate its effects with “combat stress” or “battle fatigue” (Nelson, Quick & Quick, 1989).

Managing stress and its attendant health and productivity consequences may be one of the biggest challenges faced by the organizations in the 1990s (Murphy, 1995). The effects on the organization can be substantial, ranging from lost production time to increased workers compensation claims and skyrocketing health insurance costs (Pelletier & Lutz, 1991; Sullivan & Bhagat, 1992), to lawsuits, and even the death of the employee (Tubbs, 1993). Estimates of stress-related costs to businesses in the U.S. have been put at over ten percent of the gross national product (Ivancevich & Matteson, 1980). Yet, this problem is an often overlooked issue in the complicated world that many organizations find themselves in today (Winnubst, 1984).
In addition to physiological responses, work-related stress also causes severe psychological reactions in employees, including depression and aggression (Kahn & Byosiere, 1990). Significant positive relationships have been found between supervisor behaviour and incidence of union grievances and employee turnover (Fleishman & Harris, 1962). The same study showed that trust, rapport and communication reduced incidences of grievance and turnover. Excess stress, or distress, results in lowered individual and organizational performance, with both production and quality suffering (Nelson & Quick, 1996). In the case of executives, stress can result in faulty decision-making (Nelson, Quick & Quick, 1989) with obvious ramifications for the organization. It has even been suggested that managers of organizations who persist in ignoring the presence of unhealthy jobs may actually threaten the very economic survival of the firm (Rosen & Berger, 1991).

Numerous studies have explored the causes of occupational stress. These include deadline pressures, job dissatisfaction, job insecurity, poor supervision and boring, repetitive work (Kasl, 1973). Excessive levels of worker stress often result from inadequate feedback regarding performance, lack of training, lack of control and lack of meaningfulness or knowledge of how the individual contributes to the organisation’s goals (Doby & Caplan, 1995). Individuals who feel unable to control important outcomes suffer anxiety and continual feelings of low control can lead to a chronic state of anxiousness (Archer, 1979). It is utmost important to note that anxiety is not the same thing as stress. Although it is a common reaction to stressful events (Quick & Quick, 1984). It has been both theorized and empirically verified that the combination of high job demands (frequent in modern organizations) and low decision latitude significantly increases stress (Ganster & Schaubroeck, 1991), resulting in high blood pressure, and higher levels of potentially harmful chemicals and hormones in the bloodstream (Fox, Dwyer & Ganster, 1991).

Another significant factor in increasing workplace stress has to do with lack of opportunity to interact with co-workers which can act as a sort of stress release mechanism. Wachtel (1989) theorizes that many workers are likely to see themselves as simply being an extension of whatever machine they are working on and not connected to their fellow employees. These feelings of isolation from other humans can be a significant source of added stress. Jobs which are often judged to be boring
and repetitive, such as assembly line work or computer data entry, tend to increase employee stress levels (Karasek & Theorell, 1990). These same jobs often serve to isolate workers from their colleagues.

There have been a number of laboratory studies and field studies, findings of that lead to some specific suggestions of ways to reduce work-related stress. Researchers have found that employee involvement significantly reduces job related strain (Jackson, 1983). Landy, Quick and Kasl (1994) found that employee participation in decision making lowers worker stress levels. Ivancevich and Donnally (1975) found that employees in firms with flat organizational structures reported greater levels of job satisfaction and self actualization and lower levels of anxiety stress than did employees in other types of organizations. Researchers have also found that ability to cope with stressful situations is directly related to the individual’s perceive ability to control the situation (Latack, Kinicki, & Prussia, 1995). In a Swedish study of the effects of increased job control exhibited a significant positive association with reduced worker stress, absenteeism, depression and heart disease.

Victor J. Callan and Celia Dickson (1993) examined the socio-demographic, personality and contextual predictors behind the use by managers of appraisal-focused, problem-focused and emotion-focused coping strategies. Respondents were 78 male managers employed in a large public sector organization that was experiencing considerable organizational restructuring and change. Managers completed measures of their coping strategies, together with personality measures and their perceptions of levels of uncertainty and disruption. Results revealed that managers most frequently used analysis of the situation and problem-solving as strategies to cope with organizational change. More confident managers and those with a more internal locus of control were more likely to cope by examining the situation and alternative solutions. On the other hand, managers who were less satisfied with the nature of information about changes coped by using emotional outbursts. The greatest use of emotional discharge was also linked with having experienced more physical dislocation during the organizational change. Discussion considers the utility of these findings for managers and their organizations which are attempting to cope with transformational change.
Physiology

Basically there are three types of Stress.

Muscular Stress

Muscular Stress is caused due to wrong sitting habit, wrong walking habit, wrong sleeping habit and wrong postures during day to day activities.

Mental Stress

Now-a-days each one suffers due to over activity of his mental involvement. In this competitive age, you try to do short cut and one try to move very fast. The human value of the society has also changed. Now wealth is considered as the parameter for judging social status. Mental faculty is stretched over it results in Mental fatigue. Thinking over has become a usual phenomenon. These results in mental disorder and many people suffer from this. Constant use of mental faculty has become a way of life. We constantly indulge either in memories of the past and are busy with the planning of the future. To be precise, we live more in the past or in the future and very little in the present. We are very much involved in the work plan of unnecessary memories and thus there is little time for living in the present.

Emotional Stress

Emotional Stress has become also a daily affair in family as well as in office life. Intense craving to possess has desired results in abnormal emotional stress, if there is a hindrance for the same. Likes and dislikes if are encountered results in emotional stress. Everyone wants that others should pay attention to him without bothering whether he is paying any attention to others or not. India which is a multi-regional, multi-lingual and multi-national society, this problem is very much due to diverse situation. We are prone to hurt each other emotionally without any cause or reason. Now-a-days, non-violence and tolerance has become a far cry and are used only for speeches significantly without following in spirit.
Mechanism

Stress unusually increases high demands on our soma-psyché system and
disturbs the equilibrium. To meet these increased demands several neural, chemical
and hormonal changes are triggered in the body which can altogether cause many
behavioural changes, often unpredictable. They known to cause various damages like
rise in blood pressures and consequently likely damages to the arteries and so an
increased cardiac risks.

As a stress response, excess fat and glucose are released into the blood to meet
the extra increased energy demands, but the added fats and glucose are not
immediately metabolized and hence remain in the main blood stream. Excess fat in
the blood stream clogs the arteries, per cursing heart ailments. With the increased
glucose leads to temporary diabetic conditions. The excess fat/ glucose demands also
trigger false appetite urge leading to obesity which further compounds the problems.

The extra neuro-hormones which are released to curb increase adrenaline
during stress conditions weaken, the immunity and potentiality damage the cognitive
ability of the brain, increase the fatigue, depression, anger and irritation and biological
aging.

When we are stressed, the hormones which monitor digestion are thrown out
of gear. Resulting in acidity and gastric problems including ulcer skin problems,
infection, and immune disorder, cancer propagation etc. also have an increasingly
realized bearing on stress related causes.

In an acute stress, pain disorder may result causing abdominal gripping,
frequent nausea and diarrhoea, tremors, wet hands/limbs due to excessive sweating,
difficulty in breathing, faltering speech, numbness and palpations are few known
manifestations.
Management

Stress Management can be done by five means depending on the types of stress. Conventional Modern Medicine covers treatments and health care practice taught widely in medical school. This methodology is beyond the scope of this study and appropriate doctors should be consulted.

Alternative medicine in any form of practice that is outside the realm of conventional modern medicine. It covers a broad range of healing philosophies, approaches and therapies. Most of these treatments and health care practices are not taught widely in medical schools, i.e. naturopathy, chiropractic, ayurveda, homeopathy and acupuncture.

Complementary medicine or therapy is done along with or in addition to conventional medicine; it is referred to as “Complementary Medicine” as the two practices complements each other. For example, many Chinese hospitals use acupuncture to reduce the pain during the surgery instead of anesthetics. This is a complementary medicine. Use of sesame oil is a complementary treatment for cancer.

Holistic treatment or therapy pays profusive attention to the mental, emotional, and spiritual aspects of health, in addition to the physical body. Therapies like hypnosis and visualization claims to be able to change physical conditions through purely mental interventions. They believe that our bodies are remarkably resilient machines, capable with some occasional prodding or intervention, of healing themselves. The name “holistic medicine” came from this unification of the mind and the body. Holistic practitioners treat the “whole person” as opposed to the individual organs of the body where symptoms occur. The importance of self-care and preventing illness are stressed by holistic practitioners.

Natural Medicine or therapy is one that considers and relies on the body’s own healing powers. These include herbal remedies, diet and water therapies.
Stress Management

Unhealthy ways of coping with Stress

These coping strategies may temporarily reduce stress, but they cause more damage in the long run:

- Smoking
- Using pills or drugs to relax
- Drinking too much
- Sleeping too much
- Over eating or under eating
- Procrastination
- Zoning out for hours in front of the TV or computer
- Filling up every minute of the day to avoid facing problems.
- Withdrawing from friends, family and activities.
- Taking out your stress on others (Lashing out, angry outbursts, physical violence)

Learning healthier ways to manage stress

If the methods of coping with stress are not contributing to your greater emotional and physical health, it’s time to find healthier ones. There are many healthy ways to manage and cope with stress, but they all require change. One can either change the situation or change reaction. When deciding which option to choose, it’s helpful to think of the four ‘A’s: Avoid, Alter, Adapt or Accept.

Since everyone has a unique response to stress, there is no “one size fits all solution to managing it. No single method works out for every one or in every situation, so experiment with different techniques and strategies. Focus on what makes you feel calm and in control.

Dealing with Stressful Situations: The Four ‘A’s

<table>
<thead>
<tr>
<th>Change the situation:</th>
<th>Change your reaction:</th>
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<tbody>
<tr>
<td>Avoid the Stressor</td>
<td>Adapt to the Stressor</td>
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<tr>
<td>Alter the Stressor</td>
<td>Accept the Stressor</td>
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Stress management strategy #1: Avoid unnecessary Stress

Not all the stresses can be avoided and it’s not healthy to avoid a situation that needs to be addressed. You may be surprised. However, by the number of stressors in your life that you can eliminate.

- **Learn how to say “no”** - Know your limits and stick to them. Whether in your personal or professional life, refuse to accept added responsibilities when you’re close to reaching them. Taking on more than you can handle is a sure fire recipe for stress.

- **Avoid people who stress you out** – If someone consistently causes stress in your life and you can’t turn the relationship around, limit the amount of time you spend with that person or end the relationship entirely.

- **Take control of your environment** - If the evening news makes you anxious, turn the TV off. If traffic’s got you tense, take a longer but less travelled route. If going to the market is an unpleasant chore, do your grocery shopping online.

- **Avoid bot-button topics** - If you get upset over religion or politics, cross them off your conversation list. If you repeatedly argue about the same subject with the same people, stop bringing it up or excuse yourself when it’s the topic of discussion.

- **Pare down your to-do list** - Analyse your schedule, responsibilities and daily tasks. If you’ve got too much on your plate, distinguish between the “shoulds” and the “musts”. Drop tasks that aren’t truly necessary to the bottom of the list or eliminate them entirely.

Stress management strategy #2: Alter the situation

If you can’t avoid a stressful situation, try to alter it. Figure out what you can do to change things so the problem doesn’t present itself in the future. Often, this involves changing the way you communicate and operate in your daily life.
• **Express your feelings instead of bottling them up:** If something or someone is bothering you, communicate your concerns in an open and respectful way. If you don’t voice your feelings, resentment will build and the situation will likely remain the same.

• **Be willing to compromise:** When you ask someone to change their behaviour, be willing to do the same. If you both are willing to bend at least a little, you’ll have a good chance of finding a happy middle ground.

• **Be more assertive:** Don’t take a backseat in your own life. Deal with problems head on, doing your best to anticipate and prevent them. If you’ve got an exam to study for and your chatty roommate just got home, say up front that you only have five minutes to talk.

• **Manage your time better:** Poor time management can cause a lot of stress. When you’re stretched too thin and running behind, it’s hard to stay calm and focused. But if you plan ahead and make sure you don’t overextend yourself, you can alter the amount of stress you’re under.

**Stress management strategy #3: Adapt to the stressor**

If you can’t change the stressor, change yourself. You can adapt to stressful situations and regain your sense of control by changing your expectations and attitude.

• **Reframe problems:** Try to view stressful situations from a more positive perspective. Rather than fuming about a traffic jam, look at it as an opportunity to pause and regroup, listen to your favourite radio station or enjoy some alone time.

• **Look at the big picture:** Take perspective of the stressful situation. Ask yourself how important it will be in the long run. Will it matter in a month? A year? Is it really worth getting upset over? If the answer is no, focus your time and energy elsewhere.
• **Adjust your standards**: Perfectionism is a major source of avoidable stress. Stop setting yourself up for failure by demanding perfection. Set reasonable standards for yourself and others, and learn to be okay with “good enough”.

• **Focus on the positive**: When stress is getting you down, take a moment to reflect on all the things you appreciate in your life, including your own positive qualities and gifts. This simple strategy can help you keep things in perspective.

**Stress management strategy #4: Accept the things you can’t change**

Some sources of stress are unavoidable. You can’t prevent or change stressors such as the death of a loved one, a serious illness or a national recession. In such cases, the best way to cope with stress is to accept things as they are. Acceptance may be difficult to digest but in the long run, it’s easier than railing against a situation you can’t change.

• **Don’t try to control the uncontrollable**: Many things in life are beyond our control—particularly the behaviour of other people. Rather than stressing out over them, focus on the things you can control such as the way you choose to react to problems.

• **Look for the upside**: As the saying goes, “What doesn’t kill us makes us stronger?” When facing major challenges, try to look at them as opportunities for personal growth. If your own poor choices contributed to a stressful situation, reflect on them and learn from your mistakes.

• **Share your feelings**: Talk to a trusted friend or make an appointment with a therapist. Expressing what you’re going through can be very cathartic, even if there’s nothing you can do to alter the stressful situation.

• **Learn to forgive**: Accept the fact that we live in an imperfect world and that people make mistakes. Let go of anger and resentments. Free yourself from the negative energy by forgiving and moving on.
Stress management strategy#5: Make time for fun and relaxation

Beyond a take-charge approach and a positive attitude, you can reduce stress in your life by nurturing yourself. If you regularly make time for fun and relaxation, you’ll be in a better place to handle life’s stressors when they inevitably come.

Healthy ways to relax and recharge

- Go for a walk
- Spend time in nature
- Call a good friend
- Have a warm cup of coffee or tea
- Play with a pet
- Sweat out tension with a good work out
- Work in your garden
- Write in your journal
- Get a massage
- Curl up with a good book
- Take a long bath
- Listen to music
- Light scented candles
- Watch a comedy show

Don’t get so caught up in the hustle and bustle of life that you forget to take care of your own needs. Nurturing yourself is a necessity, not a luxury.

- **Set aside relaxation time:** Include rest and relaxation in your daily schedule. Don’t allow other obligations to encroach. This is your time to take a break from all responsibilities and recharge your batteries.

- **Connect with others:** Spend time with positive people who enhance your life. A strong support system will buffer you from the negative effects of stress.
- **Do something you enjoy every day**: Make time for leisure activities that bring you joy, whether it be stargazing, playing the piano or riding on your bike.

- **Keep your sense of humor**: This includes the ability to laugh at yourself. The act of laughing helps your body fight stress in a number of ways.

**Stress management strategy # 6: Adopt a healthy life style**

You can increase your resistance to stress by strengthening your physical health:

- **Exercise regularly**: Physical activity plays a key role in reducing and preventing the effects of stress. Make time for at least 30 minutes of exercise, three times per week. Nothing beats aerobic exercise for releasing pent-up stress and terse tension.

- **Eat a healthy diet**: Well nourished bodies are better prepared to cope with stress, so be mindful of what you eat. Start your day right with breakfast, and keep your energy up and your mind clear with balance, nutritious meals throughout the day.

- **Reduce caffeine and sugar**: The temporary “highs” caffeine and sugar provide often end in with a crash in mood and energy. By reducing the amount of coffee, soft drinks, chocolate and sugar snacks in your diet, you’ll feel more relaxed and you’ll sleep better.

- **Avoid alcohol, cigarettes and drugs**: Self-medicating with alcohol or drugs may provide an easy escape from stress, but the relief is only temporary. Don’t avoid or mask the issue at hand but deal with problems head on and with a clear mind.

- **Get enough sleep**: Adequate sleep fuels your mind, as well as your body. Feeling tired will increase your stress because it may cause you to think irrationally.
Management of Stress through Yoga

The word “YOGA” means to join, unite or merge. Sage Patanjali, the profounder of YOGA philosophy describes yoga as “Chitta vritti nirodhaha” meaning to restrain the modifications or suppression of the fluctuations of consciousness. YOGA works at a physical, mental and spiritual level. The YOGIC posture works on the physical body, and the breath exercises and meditation practices help to control and calm the mind.

There are four branches of YOGA

Karma Yoga : The YOGA of action and self-less service
Bhakthi Yoga : The YOGA of devotion
Raja Yoga : The YOGA of mind control
Jnana Yoga : The YOGA of knowledge

Raja Yoga is the path of systematic analysis and control of the mind. It is also known as ashtanga yoga because its practice can be divided into eight limbs.

1. **Yama** : The don’ts of living; Ahimsa : The Non-violence; Satyam: The Truthfulness Brahmacharya : The Control of senses ; Asteya : The Non-stealing ; Aparigraha: The Non-covetousness

2. **Niyama** : The “do s” of living ; Saucha : The Purity ; Santosha : The Contentment : Tapas : The Austerity ; Swadhayaya : The Study ; Ishwara Pranidhana : Surrendering to God’s Will.

3. **Asana**: The Physical Postures of Yoga

4. **Pranayama**: The Regulation and Control of the breath

5. **Pratyahara**: Withdrawal of the senses in order to still mind

6. **Dharana**: Concentration. The last three steps constitute the internal practice of Raja Yoga. When Dharana is achieved, it then leads to the next step of Dhyana.

7. **Dhyana**: Meditation is the state of pure thought and absorption in the object of meditation. When mastered Dhyana leads to the next step of Samadhi.

8. **Samadhi**: This is the deepest and highest state of consciousness where body and mind have been transcended and the Yogi is one with the Self or God.
Breath is the life force that sustains life. Nobody can survive more than few minutes without air. When the breath stops, life ends. The forefathers of Yoga developed a special system “Pranayama” to increase, develop and control life force. Pranayama is constituted from two Sanskrit words: “Prana” means life or life force and “Ayama” means development or control.

Normal breathing uses only fraction of our potential respiratory capacity. Pranayama helps to control this life force in a superior and extra ordinary way to reap maximum benefits. Some of the popular forms are Ujjuee (Loud Breathing), Shitali (Tongue Hissing), Viloma, Kapalabhati (Cleansing breath), Anuloma viloma (Alternative Nostril breathing), Suryabedana (“Right Nostril Breathing), Bhashrika (Bellows). Proper Practice of Pranayama can control almost any disease.
AN APPRAISAL

Before going for review of various studies related to Occupational stress, Psychological strain and Coping resources and their impact over the productivity in the area of Engineering, it is quite reasonable to have a overview of relation between Psychological variables and the profession of Engineering.

Engineers play vital role in productivity and infrastructure development of a country. Like all other professions, the engineering profession is also having no exception to be away from occupational stress. Though there were studies related to the fields of construction, industry and institution which are having the role of Engineering professionals, there were no comparative studies between Engineering professionals working in two different sectors such as Public sector and State Government sector, especially in the context of Indian administrative set up which is federal in nature.

An attempt is made in this study to observe the basic differences in Non-official and Official hierarchies and their interference on the causative factors related to Occupational stress, Psychological strain and the possible appropriate coping resources most suited for the prevailing stress conditions in Engineering profession.

Though there exist, some limitations for this study, with a hope of analyzing the existing bottlenecks which can be solved with simple interventions, and to project differences in the working environments which may make the administrators to initiate certain changes to bring it to congenial status and also to provide possible required facilities for enhancing Coping resources which in turn increases the efficiency of Engineering profession as a whole in the country of India.