

Perception of Discrepancy between the Environmental Demand & Response Capability of the System: The Stress

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ABSTRACT

A condition or circumstance (not always adverse), which can disturb the normal physical and mental health of an individual is stress. In medical parlance 'stress' is defined as a perturbation of the body's homeostasis. This demand on mind – body occurs when it tries to cope with incessant changes in life. Extreme stress conditions are detrimental to human health but in moderation stress is normal and in many cases, proves useful. Stress, nonetheless, is synonymous with negative conditions. Today, with the rapid diversification of human activity, we come face to face with numerous causes of stress and the symptoms of stress. In challenging situation the brain prepares the body for defensive action – the fight or flight response by releasing stress hormones, namely cortisone and adrenaline. These hormones raise the blood pressure and the body prepares to react to the situation. With a concrete defensive action (fight response) the stress hormones in the blood get used up, entailing reduced stress effects and symptoms of anxiety. When we fail to counter a stress situation (flight response) the hormones and chemicals remain unreleased in the blood stream for a long period of time. It results in stress related physical symptoms such as tense muscles, unfocused anxiety, dizziness and rapid heartbeats. We all counter various stressors (causes of stress) in everyday life, which can accumulate, if not released. Subsequently, it compels the mind and body to be in an almost constant alarm state, in preparation to fight or flee. This state of accumulated stress can increase the risk of both acute and chronic psychosomatic illness and weaken the immune system of the human body.

Key words: Stress, Stressors, Eustress, Distress, Resistance, Hormones, Psychological factors.

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INTRODUCTION

“Nothing gives one person so much advantage over another as to remain always cool and unruffled under all circumstances.”

- Thomas Jefferson

Stress has existed throughout the evolution. About 4 billion years ago, violent collision of rock and ice along with dust and gas, led to the formation of a new planet. The planet survives more than 100 million years of meltdown to give birth to microscopic life. These first organisms endured the harshest of conditions – lack of oxygen, exposure to sun’s UV rays and other inhospitable elements, to hang on to their dear life. Roughly 300,000 years ago, the Neanderthals learnt to use fire in a controlled way, to survive the Glacial Age. And around 30,000 years, Homo sapiens with their dominant gene constitution and better coping skills, won the game of survival. Each step of evolution a test of survival, and survival, a matter of coping with the stress to changing conditions.

Millions of trials and errors in the life process have brought men to this stage. Coping with events to survive has led men to invent extraordinary technologies, beginning with a piece of sharpened stone.

From the viewpoint of micro evolution, stress induced transpositions is a powerful factor, generating new genetic variations in populations under stressful environmental conditions. Passing through a ‘bottleneck’, a population can rapidly and significantly alters its population norm and become the founder of new, evolved forms.

In 17th century the word stress was used to mean hardship, strain, adversity or affliction. It was used in 18th & 19th century to denote force, pressure, strain or strong effort with reference to an object or person. The 21st century is called the Century of Stress. We can work a stress condition

to our advantage or protect ourselves from its adverse effects. The choice is between becoming a slave to the stressful situations of life or using them to our advantage.

MEANING & CONCEPT OF STRESS

'Stringere' is the Latin word from which the word stress is derived. Every system & subsystem has an optimal level of capability for receiving and transforming the inputs depending on the characteristics of the system & subsystem. Environmental stimulations are received and are appraised in terms of task requirements and system & subsystems' competence or capability in relation to the demand and the relations of system & subsystem's role to task requirements are some form of environmental constraints. Stress is said to occur in this process of evaluation whenever there is a perception of imbalance or discrepancy between the environmental demand and response capability of the system & subsystem, such that the system's & subsystems structured relationship among the parts is disturbed. The excess of one variable tends to restrict the operation of other variables.

Experts tell us that stress, in moderate doses, are necessary in our life. Stress responses are one of our body's best defense systems against outer & inner dangers. In a risky situation (in case of accidents or a sudden attack on life *et. al.*), body releases stress hormones that instantly make us more alert and our senses become more focused. The body is also prepared to act with increased strength and speed in a pressure situation. It is supposed to keep us sharp and ready for action. On the other hand, stress can cause headaches, irritable bowel syndrome, eating disorder, allergies, insomnia, backaches, frequent cold and fatigue to diseases such as hypertension, asthma, diabetes, heart ailments and even cancer. In fact, Sanjay Chug, a leading Indian psychologist, says that 70% to 90% of adults visit primary care physicians for stress related problems. An article published in 'The Times of India' Kannur, Kerala dated June 4, 2019 states that Physician Long Term Stress linked to individual's work (Burnout) is costing the US \$ 4.6

billion (Rs. 3,000/- crore) each year, according to a study published in the Annals of Internal Medicine. Scary enough, but where do we err? People react to it in their own ways.

STRESS CAN BE POSITIVE

The words 'positive' and 'stress' may not often go together. But, there are innumerable instances of athletes rising to the challenge of stress and achieving the unachievable, scientists stressing themselves out over a point to bring into light the most unthinkable secrets of the phenomenal world, and likewise a painter, a composer or a writer producing the best paintings, the most lilting of tunes or the most appealing piece of writing by pushing themselves to the limit. Psychologists second the opinion that some 'stress' situation can actually boost our inner potential and can be creatively helpful. Sudha Chandran, an Indian danseuse, lost both of her legs in an accident. But, the physical and social inadequacies gave her more impetus to carry on with her dance performances with the help of prosthetic legs rather than deter her sprits.

Research suggests that stress can actually increase our performance. Instead of wilting under stress, one can use it as an impetus to achieve success. Stress can stimulate one's faculties to delve deep into and discover one's true potential. Under stress the brain is emotionally and biochemically stimulated to sharpen its performance.

A working class mother in down town California, Erin Brokovic, accomplished an extraordinary feat in the 1990s when she took up a challenge against the giant industrial house Pacific Gas & Electric. The unit was polluting the drinking water of the area with chromium effluents. Once into it, Brockovic had to work under tremendous stress taking on the bigwigs of the society. By her own account, she had to study as many as 120 research articles to find if chromium 6 was carcinogenic. Going from door to door, Erin signed up over 600 plaintiffs, and with attorney Ed Masry went on to receive the largest court settlement, for the town people, ever paid in a direct action lawsuit in the US history - \$333 million. It's an example of an ordinary individual

triumphing over insurmountable odds under pressure. If handled positively stress can induce people to discover their inherent talents.

Stress is, perhaps, necessary to occasionally clear cobwebs from our thinking. If approached positively, stress can help us evolve as a person by letting go of unwanted thoughts in our life. Very often, at various crossroads of life, stress may remind us of the transitory nature of our experiences, and may persuade us to look for the true happiness of life.

Present day researchers and practitioners visualize the phenomenon of stress in a new perspective. They have come to the conclusion that each individual needs a moderate amount of stress to be alert and capable of functioning effectively in an organization. Indian scholars, e.g., Pestonjee (1987) & Mathew (1985) in their conceptual papers agree with this contention. Mathew (1985) has gone to the extent of advocating that particular types of stresses are essential for being a creative manager. However no empirical work has been done on these lines.

Mathew (1985) in his conceptual paper on role stress of a creative manager raises queries pertaining to the relationship between creativity and stressors. He feels that these queries are relevant for two reasons: (i) creativity and innovation in organizations have become a top priority for organizational practitioners and thus a creative manager can be better equipped to cope with particular stressors which are identified to be associated with creative activities and (ii) creativity involves performance of unconventional tasks in the organizational setting. It is likely therefore that some kinds of stresses are associated with creative work.

DEFINITION OF STRESS

The word 'stress' is defined by the Oxford Dictionary as "a state of affair involving demand on physical or mental energy".

The father of stress research- Hans Selye (1950, 1974, and 1976) defined stress as 'the nonspecific response of the body to any demand made on it'. Each demand made upon our body

is in a sense unique or specific. For example, each drug or a hormone has specific actions – diuretic drugs increase the production of urine, the hormone adrenalin augments the pulse rate of blood pressure etc. Aside from these specific reactions, all these change agents have one thing in common, that is, they also increase the demands for readjustment. The demand is non – specific which leads to perform adaptive functions and thereby, to normalcy. This is independent of the specific activity that caused the rise in requirements. The non-specific demand for activity as such is the essence of stress. It is immaterial whether the agent or situation we face is pleasant or unpleasant. For example, the businessman who is suddenly told that his financial empire has collapsed suffers a terrible mental shock. Later he experiences extreme joy when he realizes that these were unfounded reports and in fact he is doing well in business. In this context, the results of these two events – sorrow and joy – are completely different, in fact, opposite to each other. However, the non-specific demand to adjust oneself to an entirely new situation may be the same. This non – specific demand is called stress. The effect of stressor in terms of its non – specific demand upon the body depends on the kind of adaptive reaction that is required to meet it.

Selye's General adaptation Syndrome (GAS) has been widely held as a comprehensive model to explain the stress phenomenon. His 3 stage model states that when an organism is confronted with threat, the general physiological response occurs in 3 stages:

- I. **Alarm reaction** - sometimes called the emergency reaction consists of the physiological changes that are the organism's first response to a stress – provoking agent or stressor. Alarm reaction is characterized by autonomous excitability, adrenalin discharge, increased heart rate, muscle tone, blood content, and gastrointestinal ulceration.
- II. **Stage of Resistance** – Stage of maximum adaptation and hopefully successful return of the equilibrium for the individual. If exposure to the injurious stressor continues

too long or defensive mechanism does not work, he will have to move on the third phase.

III. ***Stage of Exhaustion*** – When adaptive mechanisms collapse and death may occur.

One of the most common definitions of stress is that “it is anything which causes an alternative of the psychological homeostatic processes (Selye, 1976). The term stress is applied to the total transaction (Lazarus, 1971) between the stressors and the coping responses in interaction together over time so that one may speak of a system being ‘under stress’ (Selye, 1974) as well as a particular situation being stressful.

For Ivancevich and Matteson (1980) stress means an incredibly different array of things to different people. In simple words stress is something that involves the interaction of the individual with the environment. According to them most definitions of stress recognize the individual and the environment in terms of a stimulus interaction, response interaction, or stimulus – response interaction.

Ivancevich and Donnelly (1982) have defined stress in four different ways:

I. ***A STIMULUS DEFINITION:*** ‘Stress is the force or stimulus acting upon the individual that results in a response of strain, where strain is pressure or in a physical sense deformation.’ This definition fails to recognize that two people subjected to the same level of stress may show for different levels of strain.

II. ***RESPONSE DEFINITION:*** ‘Stress is the physiological or psychological response of an individual to an environmental stressor, where a stressor is an external event or situation which is potentially harmful’. In this definition stress is an internal response. This definition fails to enable anyone to predict the nature of stress response or even whether there will be a stress response.

III. **STIMULUS – RESPONSE DEFINITION:** Stress is a consequence of the interaction between an environmental stimulus and the response of the individual. Stress is viewed as more than a stimulus or a response; it is the result of a unique interaction between stimulus conditions in the environment and the individual's predisposition to respond in a certain way.

IV. **WORKING DEFINITION:** 'Stress is an adaptive response, mediated by individual differences and/or psychological process, *i.e.* a consequence of any external (environmental) action, situation or event that places excessive psychological and/or physical demands upon a person.' According to this definition stress is portrayed in a negative way called as Distress. This definition contains the word 'excessive'. It is a fact that a stress is not negative. According to Dr. Hans Seyle, the positive stress which is called as eustress stimulates an individual in a positive way and it is necessary in our day today lives.

Above definition focuses attention on specific environmental conditions that are potential source of stress, called stressors. The stress is felt or experienced by a particular individual will depend on the unique characteristics of an individual.

SOURCES OF STRESS

Stress is a reality of everyday life. There are both eustresses and Distresses that come from our work and non work lives. As pointed out by Near, Rice, and Hunt (1980) and Sekaran (1986), among others, the work and non work domains of one's life are closely intertwined. The stresses and strains experienced in one domain are carried over to the other. Thus, if one experienced much distress at work, that stress will be carried over to the home, which will heighten the sense of awareness of even small distresses experienced in the family sphere. For example, if an employee had a nasty argument with his supervisor at work which induced a lot of stress, he might find even the normal crying of his child at home that evening to be extremely noxious and

stressful to bear. Likewise, stresses experienced at home or with friends or from other non work facets can be carried over to the workplace which might heighten and compound the stresses experienced at work.

ORGANISATIONAL STRESS

Stress as became a very wide issue to study, thus the researcher narrowed it down to organizational stress *i.e.* the stress an individual faces in an organization.

In the coming millennium Stress and its implications are going to get even more emphasis. Enormous work has been done on stress and in fact the 21st century is called the Century of Stress. Few themes have been so universally published as that of the stress. In fact, some years ago the numbers of publications on this topic was estimated to have reached 20,000 marks and of course since then the number are considerably increased. Also, it's not as if stress is a new concept. It has been seen in the Vedas, in the scriptures of many religions and in fact Pestonjee (1992) feels that religion itself could have arisen as an antidote and a method of coping with the stresses of day to day living.

Newer and more complete theories of stress emphasize the interaction between a person and his or her environment. By looking at stress as a result of a misfit between an individual and his or her particular environment, we can begin to understand why one person seems to flourish in a certain setting, while another suffers. Cummings & Cooper (1979) have designed a way of understanding the stress process - individuals, for the most part, try to keep their thoughts, emotions and relationships with the world in a 'steady state'; Each factor of a person's emotional and physical state has a 'range of stability' in which that person feels comfortable. On the other hand, when forces disrupt one of these factors beyond the range of stability, the individual must act or cope to restore a feeling of comfort; an individual's behavior aimed at maintaining a steady state makes up his or her 'adjustment process', or coping strategies.

A stress is any force that pushes a psychological or physical factor beyond its range of stability, producing a strain within the individual (Cooper, 1996). Knowledge that stress is likely to occur constitutes a threat to the individual. A threat can cause a strain because of what it signifies to the person.

Stresses experienced at the workplace have several origins. They can emanate from - Role-related factors which are subjectively experienced; the nature of the job or its inherent characteristics; factors related to interpersonal and group dynamics; organizational structural factors such as reporting relationships; and interfacing with the external environment of the organizations.

Role-Related Factors

Individuals can experience such role related stressors as role conflict, role ambiguity, and role overload. In some jobs, they might also face ethical dilemmas. Stress from role conflict is experienced when two or more significant others in the organization expect different things to be done by the individual. For instance, if Mr. Edwin's immediate supervisor Mr. Mohan wants him to credit the day's receipts to one particular account and the department manager Mr. Siva wants to credit it to another account, Mr. Edwin would experience role conflict since there are conflicting expectations from his two bosses. Stresses from role ambiguity arise when an employee does not know what is expected of him or her or how to go about doing the job. For example, if an employee who joins an organization is left to him to figure out what he is supposed to be doing and nobody tells him what the expectations of him (i.e. his role) are, the newcomer will experience a high level of role ambiguity. Even an old timer can be given a responsibility without being offered much information. For instance, a production manager might tell a foreman that he expects 500 units of steel rods to be manufactured in the next five days and leave town immediately without specifying what kinds of additional help will be provided, or what the purpose, cost, weight, or design details are. The foreman is now left with a lot of ambiguity and does not know how he should go about doing his job. *Role overload* refers to the individual being expected to do too many things within a limited time as part of the daily

routine. If Mrs. Geeta is expected to perform the duties of a supervisor, receptionists, public relations person, and an accountant, she is likely to experience a lot of stress from the several roles she has to play during the work day. Though she may be able to manage the various roles for a short period of time, say two or three days, if expected to continue in this fashion on a long term basis, she is likely to fall sick.

Ethical dilemmas such as whether or not one should report the observed unethical behaviors of another person can cause extreme levels of stress in individuals. This will be especially true for those who have strong moral values of right and wrong and a deep sense of personal and corporate social responsibility. Tensions arise because one might have to contend with whistle blowing against one's own colleagues who might be close friends, and may fear reprisal and other undesirable consequences which have to be pitted against one's sense of duty and loyalty to the organization.

Nature of the Job itself

The nature of the job performed by the individual can often cause stress. If a job is too routine, dull, and boring, or happens to be too demanding in terms of frequent transfers or constant traveling which limits the time that can be spent together with the family, the individual is likely to experience stress. Some jobs can also be hazardous or morally conflicting to the individual who interfaces with it, such as working in an explosives manufacturing factory for the individual who is a staunch believer in and advocate of peace. For lack of other job opportunities, the individual may be forced to work in this environment and this might be a constant source of severe stress and anguish to the person. In addition, some duties and responsibilities have built-in stresses such as those of the fire-fighter or the police squad which defuses bombs. Thus the nature of the job itself often induces stresses.

Interpersonal and Group Factors

Interpersonal and group-related stresses include factors such as conflicts, poor communications, unpleasant relationships, and fear of being ostracized from the group as a valued member.

Working with superiors, peers, or subordinates with whom one does not get along can be a constant source of stress. Some people can deal with misunderstandings and conflicts in an open way and resolve issues as they arise. Many, however, find it difficult to do this and build internal stresses for themselves. When conflicts, poor communications, and unpleasant interactions have to be faced at the workplace, individuals try to avoid the stresses by remaining absent as frequently as possible, and even start looking for other jobs.

Organizational Structural Factors

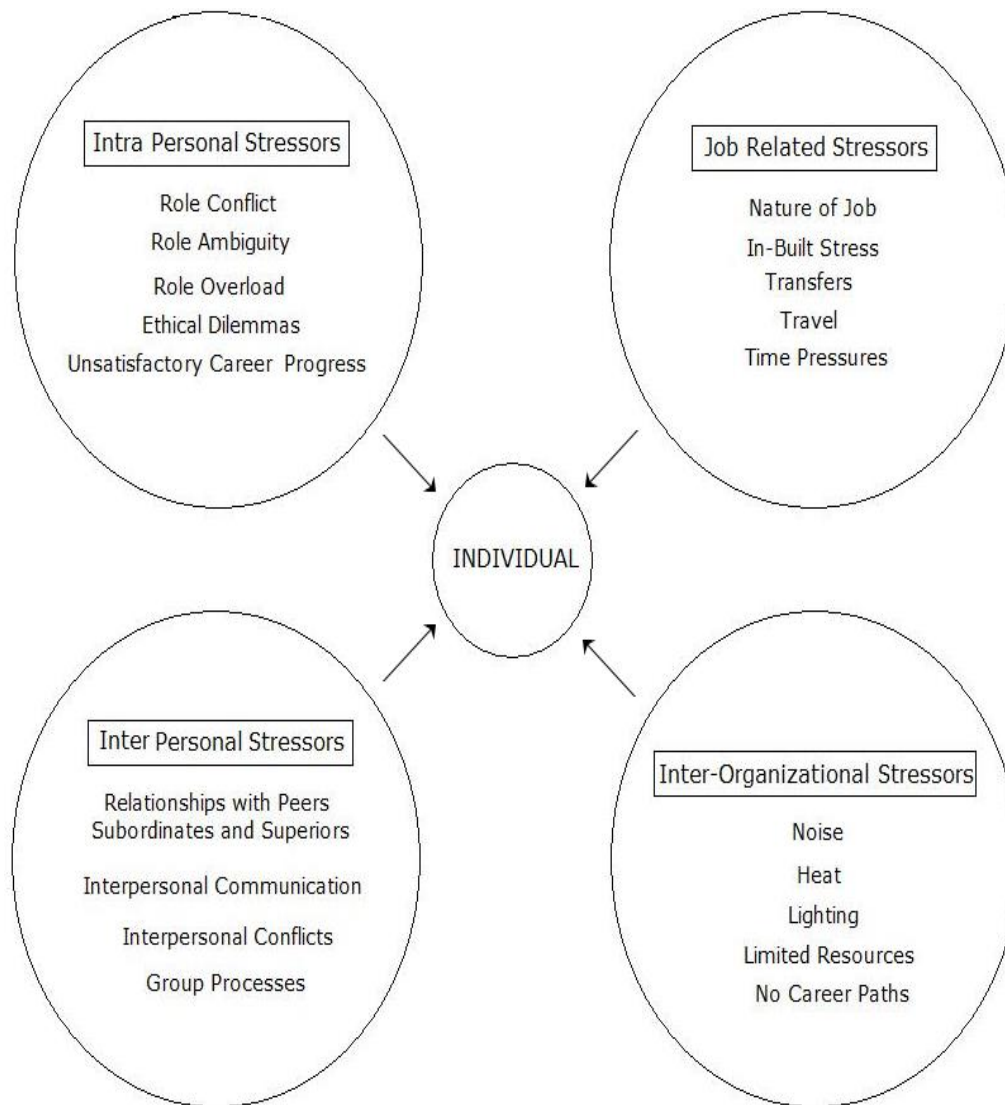
Work environment factors such as noise, heat, poor lighting, radiation, and smoke are stress-inducing agents. Insufficient resources such as time, budget, raw materials, space, or manpower are additional stressors in the work environment. When one has to produce and perform with inadequate resources on a long-term basis, this naturally imposes stresses and strains on the individuals who are responsible for getting the job done. In addition, other *structural factors* in the organizational setting such as staff rules and regulations, and reward system which are not palatable to individuals may act as stressors.

The lack of career paths in organizations may be additional stressors. For many aspiring managers, the lack of *career progress* can be a constant stressor resulting in job burnout. Burnout is the condition where the employees sees no relief or satisfaction in sight and experiences physical, emotional, and mental exhaustion (Etzion, 1984).

External Environmental Factors

Certain types of interactions with significant forces in the external environment of the organization can also be sources of stress. These stresses may arise out of the unreasonable expectations of external agents, as for instance, the outside party wanting some extra inducements in the form of unrecorded money or gifts before they would be willing to cooperate. Government or other agencies might also give stress to those with whom they interface a hard time by not keeping up appointments and unduly following red-tape procedures. Other

environmental stressors include sudden and unanticipated changes in the marketplace, technology, the financial market, and so on, which take top managers off-guard.’



The above figure depicts the various stressors relating to the work sphere.

The lists of stress is not limited to individual, to families to scientists, it affects the whole gamut. Recently stress has been seen as contributing to health costs of companies and countries. Stress is reflected in the workplace in job satisfaction, job performance, absenteeism, turnover of labour

force, and litigation and health care costs, and the latter mostly in Western countries.

The source of stress at work are manifold: Researchers have identified five major categories of work stress (Cooper et. al. 1988) common to all jobs, these factors vary in the degree to which they are found to be causally linked to stress in each job. They are - Factors intrinsic to the job, Role in the organization, Relationships at work, Career development, Organizational structure and climate.

Mostly however stress is seen to be a risk factor. People who are under stress on a continuous basis may not catch any disease but they nevertheless remain vulnerably exposed. Whether something is stressful or not depends on the observer, what is stressful for one need not be stressful for another. For a Managing Director getting an account from a business house may be the cause of stress, for a housewife it may be emotional attention and for the air traffic controller it could be the constant concentration and vigilance upon which so much depends. Pestonjee (1992) has identified three important sectors of life in which stress originates. These are job and the organization, the social sector and the intra-psychic sector.

EXTERNAL MANIFESTATIONS OF STRESS

Dr. Hans-Seyle has identified 31 signs of Stress related Danger that are easy to detect. They are:

1. General irritability, hyper excitation or depression.
2. Pounding of heart, an indication of high blood pressure.
3. Dryness of the throat and mouth.
4. Impulsive behaviour, emotional instability.
5. The overpowering urge to cry or to run and hide.
6. Inability to concentrate, flight of thoughts and general disorientation.
7. Feelings of unreality, weakness or dizziness.
8. Predilection to become fatigued.
9. "Floating anxiety" – that is to say, we are afraid, though we do not know what we are

- afraid of.
10. Emotional tension and alertness, feelings of being “Keyed up”.
 11. Trembling, nervousness.
 12. Tendency to be easily startled by small sounds.
 13. High-pitched, nervous laughter.
 14. Stuttering and other speech difficulties.
 15. Grinding of teeth.
 16. Insomnia.
 17. Hyper motility.
 18. Sweating.
 19. The frequent need to urinate.
 20. Diarrhoea, indigestion, queasiness in the stomach and sometimes even vomiting.
 21. Migraine headaches.
 22. Pre- menstrual tension or missed menstrual cycles.
 23. Pain in the neck or lower back.
 24. Loss of appetite or compulsive eating.
 25. Increased smoking.
 26. Increased use of legally prescribed drugs like tranquilisers or amphetamines.
 27. Alcohol and drug addiction.
 28. Nightmares.
 29. Neurotic behaviour.
 30. Psychoses.
 31. Prone to accidents.

Cox (1978) on the other hand, has identified five different types of potential consequences or effects of stress. His categories include:

Subjective Effects: Anxiety, aggression, apathy, boredom, depression, fatigue, frustration, loss of temper, low self-esteem, nervousness, feeling alone.

Behavioural Effects: Accident proneness, drug abuse, emotional outbursts, excessive eating or drinking or smoking, impulsive behaviour, nervous laughter.

Cognitive Effects: Inability to make sound decisions, poor concentration, short attention span, hypersensitivity to criticism, and mental block.

Physiological Effects: Increased blood glucose levels, increased heart rate and blood pressure, dryness of mouth, sweating, dilation of pupils, hot and cold flashes.

Organizational Effects: Absenteeism, lower productivity, alienation with co-workers, job dissatisfaction, reduced organizational commitment and loyalty.

These five types are not all inclusive; nor are they limited to only those effects over which there is universal agreement and clear scientific evidence. They represent, however, some of the potential effects that are frequently associated with stress. The types are not intended as a way of inferring that stress always causes the effects listed above. For instance, job dissatisfaction, increased heart rate, or excessive alcohol intake may be totally unrelated to stress. However, the possibility that stress may either is a primary or contributing cause of these effects cannot be ignored.

CONCLUSION

At one point or the other everybody suffers from stress – men, women, children and even fetuses – suffer from stress. Relationship demands, physical as well as mental health problems, pressure at workplaces, traffic snarls, meeting deadlines, growing up tensions – all of these conditions and situations are valid causes of stress. People have their own methods of stress management. In some people, stress-induce adverse feelings and anxieties tend to persist and intensify & to others it acts as a motivator. Learning to understand and master stress management techniques can help prevent the counter effects of this urban malaise. Methods of coping with stress are aplenty. The most significant or sensible way out is a change in lifestyle. Relaxation techniques

such as meditation, physical exercises, listening to soothing music, deep breathing, various natural & alternative methods, personal growth techniques, visualization and massage are some of the most effective of the known non-invasive stress busters.

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