Survey on Various Types and Causes of Stress

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Abstract: ***Biochemical parameters such as epinephrine and adrenal steroids,***
(ii) physiological parameters such as heart rate and blood pressure and
(iii) behavioral effects such as anxiety, fear and tension. In essence, stress is an umbrella term that encompasses physical trauma, strenuous exercise, metabolic disturbances and anxiety as they produce challenges to the body's homeostasis. The wear and tear that stressors subject our body too is termed as stress. "Stress is how people react to demands placed on them and arises when there is worry about one's capacity to cope. Seventy-five to 90 per cent of adult visits to primary care physicians are for stress-related problems." For the lay person, however, the word stress has mental rather than physiological connotations. As Anandi Iyer, Deputy Director at German Technical Cooperation (GTZ) says: "Stress occurs when you are incapable of handling a given situation. For instance, for soldiers constantly at the border, the situation is no longer so stressful. But for others, it would be."

Key Words: Encompasses Physical Trauma, Strenuous Exercise, Metabolic Disturbances, And Anxiety.

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INTRODUCTION

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' situations can actually boost our inner potential and can be creatively helpful. Sudha Chandran, an Indian danseus, 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 spirits.

REVIEW OF LITERATURE

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 and 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. 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 Brokovich, 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, Brockovich 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 U.S. 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 and principle in our life. Very often, at various crossroads of life, stress may remind you of the transitory nature of your experiences, and may prod you to look for the true happiness of life.

MATERIAL AND METHOD

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 constitutions 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 of 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 microevolution, stress induction of 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.

Gene transposition through Transposable Elements (TE)—'jumping genes', is a major source of genetic change, including the creation of novel genes, the alteration of gene expression in development, and the genesis of major genomic rearrangements. In a research on 'the significance of responses of the genome to challenges,' the Nobel Prize winning scientist Barbara McClintock characterized these genetic phenomena as 'genomic shock'. This occurs due to recombinational events between TE insertions (high and low insertion polymorphism) and host genome. But, as a rule TEs remain immobilized until some stress factor (temperature, irradiation, DNA damage, the introduction of foreign chromatin, viruses, etc.) activates their elements. The moral remains that we can work a stress condition to our advantage or protect ourselves from its untoward follow-throughs subject to how we handle a stress situation. The choice is between becoming a slave to the stressful situations of life and using them to our advantage.

Stress is a handmaiden of modern life. But it is possible to convert stress-building thoughts into stress-busting ones in one of his masterpieces on *shikar*, hunting, the legend of Kumaon, Jim Corbett, narrates the account of a day-long excursion in the neighboring hills with a guest. They departed before the break of dawn, caught a breathtaking glimpse of the sun rising over the Himalayas, were entertained by birdsong throughout the day, and encountered quite a few denizens of the jungle. Returning home at nightfall, they were asked how the day went. Before Corbett could wax eloquent, his companion broke into a litany of complaints of how hard the going had been, plodding uphill and downhill, getting pricked by thorns, with pesky flies and frightening jungle noises to contend with, besides close encounters with wild creatures. In short, it was a sheer waste of time, cribbed Corbett's stressed-out companion. What to the nature lover was a wonderful outing in the jungles happened to be a day of fear, worry and apprehension for the city slicker! Stress, in a way, lies in the eye of the beholder. And with stress-related cases growing phenomenally, it's no coincidence that stress has been termed a 20th century disease. "The number of stress-related cases is about thousand times more now than it was ten years ago," reveals Dr Sanjay Chugh, a consultant psychiatrist. The 'disease' goes back a long way in time, however. A complex concept, it has both mental and physiological components. Though some forms of stress are predominantly psychological, they trigger a variety of physiological changes, including ones in the immune function, indicating a link between the nervous and immune systems.

In the days when prehistoric man had not yet attained self-consciousness, he reacted to any signs of danger in two ways: he fought or he fled. This is the 'fight-or-flight' response—a term coined by W.B. Cannon in 1914. During this, the body reacts with alarm to the threat: there is a rapid increase in metabolism, with hormonal, physiological and biochemical changes taking place instantly.

The body muscles become tense and the hypothalamus activates the pituitary gland, which secretes hormones that then activate other hormone-producing centers like the adrenal glands. The release of adrenaline and other hormones sustains the alarm reaction and physiological changes occur in response to the stress stimulus. The body now needs glucose for the muscles to function properly. The liver responds by releasing some into the bloodstream. For the glucose to be transformed into energy, extra oxygen is required. The heart begins pumping blood faster to carry this extra supply, leading to a rise in blood pressure.

The amount of blood available in the body is, however, limited. In order to deliver extra blood to select areas—the muscles, heart, lungs, kidneys and the brain—there is a temporary cutoff in blood supply to non-priority areas. Consequently, the digestive system slows or stops altogether, the salivary glands stop secreting, blood vessels in the kidneys and the abdomen constrict and the immune system slows down. These physiological effects are categorized as 'arousal'. Concomitant emotional manifestations like fear, apprehension and worry are termed 'anxiety'.

Once the Neanderthal dealt with the threat-usually an animal, which he fought off or fled from—the body's reactions quickly returned to normal. All of which was fine in the good old days of yore."Unfortunately," says corporate consultant Santhosh Babu, "this wonderful survival tool hasn't adapted to modern forms of stress. Today we react the same way with the boss as our ancestors reacted to a tiger-despite the fact that we have choices other than fighting or fleeing!" If this stressful situation is not resolved (the Neanderthal could be up a tree with a saber-toothed tiger snarling below all day long!), the body goes into a second stage, the adaptation stage. This also happens when you aren't able to resolve the conflict with your boss. The changes that have occurred become chronic, that is, they take place all the time. This is the stage when the body is most prone to illness.

The third stage, according to Hans Selye (1956), was the "stage of exhaustion" which came about if the stress was constant and prolonged. Here, the body's resistance finally crumbles and death is usually the consequence. Medically, stress is defined as a perturbation of the body's homeostasis. The common indices of stress include changes in:

(i) Biochemical parameters such as epinephrine and adrenal steroids,
(ii) physiological parameters such as heart rate and blood pressure and
(iii) behavioral effects such as anxiety, fear and tension. In essence, stress is an umbrella term that encompasses physical trauma, strenuous exercise, metabolic disturbances and anxiety as they produce challenges to the body's homeostasis. The wear and tear that stressors subject our body too is termed as stress.

Says Dr Chugh: "Stress is how people react to demands placed on them and arises when there is worry about one's capacity to cope. Seventy-five to 90 per cent of adult visits to primary care physicians are for stress-related problems."

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According to Janki Chopra, associated with the Delhi center of the Vedanta Institute: "Stress is an agitated mind, a state that's caused by unfulfilled desire. Stress has nothing to do with an external situation."

PRIME CAUSES

A stress-free existence is, perhaps, a mirage. Hans Selye aptly commented: "Complete freedom from stress is death!" The pressures of modern living ensure that stress is always lurking in the background. It is generally assumed that adverse life events or challenges called stressors cause stress. If this stress becomes very intense or chronic, it leads to stress-related diseases. However, this phenomenon is not as simplistic as it sounds. Different individuals subjected to the same stressful event may react differently, with responses ranging from extreme to mild to absent. Although the causes of stress are myriad, we could loosely categorize these into common and uncommon stressors. Common stressors comprise disease, academic stress (heightened during examinations), marital discord, separation or divorce, career stress, bereavement and unemployment.

CONCLUSION:

The uncommon ones include overcrowding, commuting, sleep deprivation, shifts (home, school, career), malnutrition, drug abuse, phobias, excessive exercise, noise pollution, et al. It isn't just adults who fall prey to stress. Modern lifestyles are exacting a toll on impressionable kids and unsuspecting teenagers too. In the words of Dr Chugh: "A fairly large number of children have stress problems related to studies and unrealistic parental expectations. And there are huge numbers of stressed teenagers. These are cases related to academics, relationships, parental expectations, drug and alcohol abuse and even sexual experimentation that backfires. Examination stress is phenomenally high, especially during board exams."Frustration through sexual deprivation, social or peer pressure to conform, and the struggle for professional advancement all cause stress. It was Sigmund Freud (1856-1939) who pointed out that if psychic energy is unable to meet its original objective, it fixes upon an alternative. This impulse leads to sublimation. It can also lead to stress. While the individual adapts to the situation, if pressures become unbearable or persistent, he may enter a state of chronic stress. Most of these stressors can ultimately impair immune functions.

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