STRESS IN BIOPSYCHOSOCIAL MODEL
Definition:
Stress, in biopsychosocial model, refers to the cognitive appraisal of external events in relation to one’s coping resources and its physiological responses in the individual.

Activation of hypothalamo-pituitary-adrenal axis

Release of noradrenaline (sympathetic) and norepinefrin (adrenal medulla)
Components of Stress:
It has three components:

1) **The External Components:**
The environmental events that precede the recognition of stress (Stressors). It involves:

a) Environmental circumstances as natural disasters.
b) Changing life events as losing a job.
c) Chronic conditions as crowding and poverty.
2) **The Internal Components:**

It is the emotional and physical response of the body to stressors (Strain). Objectively measured by hormonal assay and polygraphic monitoring. It passes through three stages:

**a) Alarm:** Fight and flight, by release of sympathetic and pituitary catecholamines.

**b) Resistance:** Persistence of high levels of hormones to adapt.

**c) Exhaustion:** Energy reserve is exhausted and breakdown occurs. Parasympathetic division dominate with low arousal resulting in depression and even death.
3) **The Interaction between the Two Components:**

**Cognition:** The term cognition can be used to refer to the entire range of mental processes from input stimuli to output response.
Cognitive Appraisal *(Cerebral Activity)*

1) **Primary Appraisal:**
That deals with determination of an event as either:

a) Eustress, good, benign and positive uplift capable to produce optimum arousal for task performance (effort facilitation), or

b) Stressful, harmful or threatening hassles produce higher arousal related to distress and deterioration of performance.
2) **Secondary Appraisal**: That deals with determination of one’s coping resources as either:

a) **Sufficient**: Successful coping.

b) **Insufficient**: Vulnerability.

**Coping**: refers to the effort required to manage specific demands of a particular situation.

**Vulnerability**: refers to individual’s lack of actual resources to cope with a situation (exceeding one’s ability).
**Illness:** is related to stress appraised as harm or threat with insufficient coping resources resulting in much distress than effort.

Our actions are not determined by circumstances and events as they exist but as they are perceived or interpreted by the individual.

**Distress:** refers to anxiety, boredom and dissatisfaction. It is experienced as negative emotion.
Physiological Responses to Stress:
Based on effort and distress (Hypothalamo-hypophyseal).

1) **Effort with distress:**
Which leads to increase of both catecholamine and cortisol secretions and results from daily hassles.

2) **Effort without distress:**
Which leads to an increase of catecholamine and suppression of cortisol secretion. It is a joyous state with successful coping and positive emotions.
3) **Distress without Effort:**
Which leads to increased cortisol secretion and possibly catecholamine secretion. The pattern typically found in depression. It is defined as helplessness.
3) **Distress without Effort:**

**Stress Mediators:**
These are factors capable of increasing or decreasing the effects of stress.

**Buffers:** They are mediators that protect from the unhealthful effects of stress they “turn the stress-volume down” under conditions of high stress. Through two mechanisms:
1) **Direct**: that counteracts the physiological responses itself. It ameliorates the physical effects of stress and establishing homeostasis by reducing arousal after stress

2) **Indirect**: that influence transaction affecting cognitive appraisal (primary or secondary). Thus reducing the evaluation of threat and increasing the beliefs in coping abilities.
Some of the studied stress mediators are
1- Type A and B Behaviour patterns.
2- Social support.
3- Personal control.
4- Hardiness.
5- Exercise activity level.
6- Sense of humor.
7- Spiritual support.
1) Type A and B behaviour
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<td>a)</td>
<td>Patient.</td>
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<td>Goal striving without joy.</td>
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<td>b)</td>
<td>Enjoy the process as much as the goal.</td>
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<td>c)</td>
<td>Little anger and hostility.</td>
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<td>Time urgency, impatient.</td>
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<td>Higher reactivity with rapid response to threat.</td>
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Managing Stress
Stress is an inextricable part of living, particularly in our fast-paced, technological world. It cannot be removed from our lives. Some stress is necessary for arousal and may actually be good. Therefore our objective must be to learn how to live with stress while minimizing its unhealthful consequences. That is the goal of stress management not to eliminate stress, but to learn to live compatibly with it.
Applying the Biopsychosocial Model
I. Arousal Management:
It attempts to affect physiological responses to stress by targeting the endocrine and autonomic nervous system. It seeks to reestablish homeostasis by reducing arousal after encountering stress.
It consists of both pharmacological and behavioral techniques that prevent or reduce the physiological responses.

*These therapies include:*

a) Medication  
b) Relaxation Training  
c) Exercise
II. Transaction Management:

It attempts to affect the appraisal of stressors by targeting the environment and the cognition (C.N.S) when facing stress. It seeks to reduce the potential for arousal to occur in the first place. There are two types depending on circumstances and changeability of stress or:
1) Problem focused coping: If the problem is changeable.

2) Emotion focused coping: If the stressful stimulus cannot deal with easily or the situation is perceived as unchangeable. Two type of cognitive intervention:
a) Distracting oneself from the stressful situation: as reading or recreation.

b) Changing cognitive appraisal: as altering the perception of stress or learning to tolerate or accept. It is called cognitive redefinition (Taylor 1983).