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Stress Disorders
Part I Stress, Anxiety, Illness
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Stress is a normal response to threatening or dangerous circumstances in our lives. Stress evokes defensive mechanisms in our minds and bodies which protect us during danger. However, stress can also have negative influences on our lives as is evidence by the increase in physical illness, particularly in the elderly, after events such as Gustav and Ike. And, acute stress can be the cause of chronic health problems in our lives. Over the next several weeks, we will examine the role of stress in our lives and ultimately will examine post-traumatic stress disorder (PTSD). While we commonly associate this with the military, PTSD can affect anyone.

The best way to envision the brain's response to a threat is to imagine being chased by a bear.

The Brain's Response to Acute Stress.

- In response to seeing the bear, a part of the brain called the hypothalamic-pituitary-adrenal (HPA) system is activated.
- Release of Steroid Hormones and the Stress Hormone Cortisol. The HPA systems trigger the production and release of steroid hormones (glucocorticoids), including the primary stress hormone cortisol. Cortisol is very important in marshaling systems throughout the body (including the heart, lungs, circulation, metabolism, immune systems, and skin) to deal quickly with the bear.
- Release of Catecholamines and Activation of the Amygdala. The HPA system also releases certain neurotransmitters (chemical messengers) called catecholamines, particularly those known as dopamine, norepinephrine, and epinephrine (also called adrenaline).
- Catecholamines activate the amygdala, a small structure deep in the brain, which regulates control of major emotional activities, including anxiety, depression, aggression, and affection. In fact, the amygdala is sometimes known as the "fear" center.
- Effects on Long- and Short-Term Memory. During the stressful event, catecholamines also suppress activity in areas at the front of the brain concerned with short-term memory, concentration, inhibition, and rational thought. This sequence of mental events allows a person to react quickly to the bear, either to fight or to flee from it. (It also hinders the ability to handle complex social or intellectual tasks and behaviors during that time.)
- On the other hand, neurotransmitters at the same time signal the hippocampus (a nearby area in the brain) to store the emotionally loaded experience in long-term memory. In primitive times, this brain action would have been essential for

survival, since long-lasting memories of dangerous stimuli (the large bear) would be critical for avoiding such threats in the future.

Response by the Heart, Lungs, and Circulation to Acute Stress.:

- As the bear comes closer, the heart rate and blood pressure increase instantaneously.
- Breathing becomes rapid and the lungs take in more oxygen.
- The spleen discharges red and white blood cells, allowing the blood to transport more oxygen throughout the body. Blood flow may actually increase 300 - 400%, priming the muscles, lungs, and brain for added demands.

The Immune System's Response to Acute Stress.

- The effect on the immune system from confrontation with the bear is similar to marshaling a defensive line of soldiers to potentially critical areas.
- The steroid hormones dampen parts of the immune system, so that specific infection fighters (including important white blood cells) or other immune molecules can be redistributed.
- These immune-boosting troops are sent to the body’s front lines where injury or infection is most likely, such as the skin, the bone marrow, and the lymph nodes.

The Acute Response in the Mouth and Throat.

- As the bear gets closer, fluids are diverted from nonessential locations, including the mouth.
- This causes dryness and difficulty in talking.
- In addition, stress can cause spasms of the throat muscles, making it difficult to swallow.

The Skin's Response to Acute Stress.

- The stress effect diverts blood flow away from the skin to support the heart and muscle tissues. (This also reduces blood loss in the event that the bear catches up.)
- The physical effect is a cool, clammy, sweaty skin.
- The scalp also tightens so that the hair seems to stand up.

Metabolic Response to Acute Stress.

- Stress shuts down digestive activity, a nonessential body function during short-term periods of physical exertion or crisis.

The Relaxation Response: the Resolution of Acute Stress.

- Once the threat has passed and the effect has not been harmful (the bear has not eaten or seriously wounded the human), the stress hormones return to normal. This is known as the relaxation response. In turn, the body's systems also normalize.

Anxiety Disorders

Fear and stress reactions are essential for human survival. They enable people to respond appropriately to danger. In a healthy individual, the stress response (fight, fright, or flight) is provoked by a genuine threat or challenge and is used as a spur for appropriate action.

An anxiety disorder, however, involves an excessive or inappropriate state of arousal characterized by feelings of apprehension, uncertainty, or fear. The word is derived from the Latin, *angere*, which means to choke or strangle. The anxiety response is often not attributable to a real threat. Nevertheless it can still paralyze the individual into inaction or withdrawal. An anxiety disorder persists, while a healthy response to a threat resolves, once the threat is removed.

Anxiety disorders have been classified according to the severity and duration of their symptoms and specific behavioral characteristics. Categories include:

- Generalized anxiety disorder (GAD), which is long lasting and low-grade
- Panic disorder, which has more dramatic symptoms
- Phobias
- Obsessive-compulsive disorder (OCD)
- Post-traumatic stress disorder (PTSD)
- Separation anxiety disorder (which is almost always seen in children)

GAD and panic disorder are the most common. Anxiety disorders are usually caused by a combination of psychological, physical, and genetic factors, and treatment is, in general, very effective.

Generalized Anxiety Disorder

Generalized anxiety disorder (GAD) is the most common anxiety disorder. It affects about 5% of Americans over the course of their lifetimes. It is characterized by the following:

- A more-or-less constant state of worry and anxiety, which is out of proportion to the level of actual stress or threat in their lives.
- This state occurs on most days for more than 6 months despite the lack of an obvious or specific stressor. (It worsens with stress, however.)
- It is very difficult to control worry. For a clear diagnosis of GAD, the specific worries should be differentiated from those that would define other anxiety disorders, such as fear of panic attacks or appearing in public. Moreover, they are

not obsessive like people with obsessive-compulsive disorder. (It should be noted, however, that over half of those with GAD also have another anxiety disorder or depression.)
- Patients with anxiety may experience physical symptoms (such as gastrointestinal complaints) in addition to, or even in place of, mental worries. (This latter case may be more common in people from non-Western cultures such as those with Asian backgrounds.)
- People with GAD tend to be unsure of themselves, overly perfectionist, and conforming.

Given these conditions, a diagnosis of GAD is confirmed if three or more of the following symptoms are present (only one for children) on most days for 6 months:

- Being on edge or very restless
- Feeling tired
- Having difficulty with concentration
- Being irritable
- Having muscle tension
- Experiencing disturbed sleep

Symptoms should cause significant distress and impair normal functioning and not be due to a medical condition, another mood disorder, or psychosis. It should be noted that pure GAD is uncommon. It typically occurs with other mood disorders (anxiety or depression) or substance use.

Panic Disorder

Panic disorder is characterized by periodic attacks of anxiety or terror (panic attacks). They usually last 15 - 30 minutes, although residual effects can persist much longer. The frequency and severity of acute states of anxiety determine the diagnosis. (It should be noted that panic attacks can occur in nearly every anxiety disorder, not just panic disorder. In other anxiety disorders, however, there is always a cue or specific trigger for the attack.) A diagnosis of panic disorder is made under the following conditions:

A person experiences at least two recurrent, unexpected panic attacks.
For at least a month following the attacks, the person fears that another will occur.

Symptoms of a Panic Attack. During a panic attack a person feels intense fear or discomfort with at least four or more of the following symptoms:

- Rapid heart beat
- Sweating
- Shakiness
- Shortness of breath
- A choking feeling or a feeling of being smothered

- Dizziness
- Nausea
- Feelings of unreality
- Numbness
- Either hot flashes or chills
- Chest pain
- A fear of dying
- A fear of going insane

Women may be more likely than men to experience shortness of breath, nausea, and feelings of being smothered. More men than women have sweating and abdominal pain. Panic attacks that include only one or two symptoms, such as dizziness and heart pounding, are known as limited-symptom attacks. These may be either residual symptoms after a major panic attack or precursors to full-blown attacks. (It should be noted that panic attacks can also accompany other anxiety disorders, such as phobias and post-traumatic stress disorder. In such cases, however, additional characteristics differentiate these disorders from panic disorder.)

- Frequency of Panic Attacks. Frequency of attacks can vary widely. Some people have frequent attacks (for example, every week) that occur for months; others may have clusters of daily attacks followed by weeks or months of remission.
- Triggers of Panic Attacks. Panic attacks may occur spontaneously or in response to a particular situation. Recalling or re-experiencing even harmless circumstances surrounding an original attack may trigger subsequent panic attacks.

Phobic Disorders

Phobias, manifested by overwhelming and irrational fears, are common. In most cases, people can avoid or at least endure phobic situations, but in some cases, as with agoraphobia, the anxiety associated with the feared object or situation can be incapacitating.

Agoraphobia. Agoraphobia has been somewhat misleadingly described as fear of open spaces, the term having been derived from the Greek word agora, meaning outdoor marketplace. In its severest form, agoraphobia is characterized by a paralyzing terror of being in places or situations from which the patient feels there is neither escape nor accessible help in case of an attack. (One patient described the terror of going outside as opening a door onto a landscape filled with snakes.) Consequently, people with agoraphobia confine themselves to places in which they feel safe, usually at home. The patient with agoraphobia often makes complicated plans in order to avoid confronting feared situations and places.

Social Phobia. Social phobia, also known as social anxiety disorder, is the fear of being publicly scrutinized and humiliated and is manifested by extreme shyness and discomfort in social settings. This phobia often leads people to avoid social situations and is not due

to a physical or mental problem (such as stuttering, acne, or personality disorders). The incidence of social phobia is about 13% and has been termed "the neglected anxiety disorder" because it is often not properly diagnosed.

The associated symptoms vary in intensity, ranging from mild and tolerable anxiety to a full-blown panic attack. (Unlike a panic attack, however, social phobia is always directly related to a social situation.) Symptoms include sweating, shortness of breath, pounding heart, dry mouth, and tremor.

The disorder may be further categorized as generalized or specific social phobia:

- Generalized social phobia is the fear of being humiliated in front of other people during nearly all social situations. People with this subtype are the most socially impaired and also the most likely to seek treatment.
- Specific social phobia usually involves a phobic response to a specific event. Performance anxiety ("stage fright") is the most common specific social phobia and occurs when a person must perform in public. These patients usually feel comfortable in informal social situations.

Children with social anxiety develop symptoms in settings that include their peers, not just adults, and they may include tantrums, blushing, or not being able to speak to unfamiliar people. These children should be able to have normal social relationships with familiar people, however.

Specific Phobias. Specific phobias (formerly simple phobias) are an irrational fear of specific objects or situations. Specific phobias are among the most common medical disorders. Most cases are mild and not significant enough to require treatment.

The most common phobias are fear of animals (usually spiders, snakes, or mice), flying (pterygophobia), heights (acrophobia), water, injections, public transportation, confined spaces (claustrophobia), dentists (odontiatophobia), storms, tunnels, and bridges.

When confronting the object or situation, the phobic person experiences panicky feelings, sweating, avoidance behavior, difficulty breathing, and a rapid heartbeat. Most phobic adults are aware of the irrationality of their fear, and many endure intense anxiety rather than disclose their disorder.

Obsessive-Compulsive Disorder

Obsessive-compulsive disorder (OCD) has been described as hiccups of the mind. OCD is time-consuming, distressing, and can disrupt normal functioning. Much research suggests that a critical feature in this disorder is an overinflated sense of responsibility, in which the patient's thoughts center around possible dangers and an urgent need to do something about it.

- Obsessions are recurrent or persistent mental images, thoughts, or ideas. The obsessive thoughts or images can range from mundane worries about whether one has locked a door to bizarre and frightening fantasies of behaving violently toward a loved one.
- Compulsive behaviors are repetitive, rigid, and self-directed routines that are intended to prevent the manifestation of an associated obsession. Such compulsive acts might include repetitive checking for locked doors or unlit stove burners or calls to loved ones at frequent intervals to be sure they are safe. Some people are compelled to wash their hands every few minutes or to spend inordinate amounts of time cleaning their surroundings in order to subdue the fear of contagion.

Over half of OCD-sufferers have obsessive thoughts without the ritualistic compulsive behavior. Although individuals recognize that the obsessive thoughts and ritualized behavior patterns are senseless and excessive, they cannot stop them in spite of strenuous efforts to ignore or suppress the thoughts or actions. OCD often accompanies depression or other anxiety disorders. There is some evidence that the symptoms improve over time and that nearly half will eventually recover completely or have only minor symptoms.

Symptoms in children may be mistaken for behavioral problems (taking too long to do homework because of perfectionism, refusing to perform a chore because of fear of germs). Children do not usually recognize that their obsessions or compulsions are excessive.

Associated Obsessive Disorders. Certain other disorders that may be part of, or strongly associated with, the OCD spectrum include the following:

- Body dysmorphic disorder (BDD). In BDD, people are obsessed with the belief that they are ugly, or part of their body is abnormally shaped.
- Hypochondriasis. People who have hypochondiasis have an excessive fear of having a serious disease.
- Anorexia nervosa. OCD frequently accompanies this eating disorder, where the compulsive behavior focuses on food restriction and thinness.
- Trichotillomania. People with trichotillomania continually pull their hair, leaving bald patches.
- Tourette syndrome. Symptoms of Tourette syndrome include jerky movements, tics, and uncontrollably uttering obscene words.

Obsessive-Compulsive Personality. OCD should not be confused with obsessive-compulsive personality, which defines certain character traits (being a perfectionist, excessively conscientious, morally rigid, or preoccupied with rules and order). These traits do not necessarily occur in people with obsessive-compulsive disorder.

Post-Traumatic Stress Disorder

Post-traumatic stress disorder (PTSD) is a severe, persistent emotional reaction to a traumatic event that severely impairs one's life. It is classified as an anxiety disorder because of its symptoms. Not every traumatic event leads to PTSD, however. There are two criteria that must be present to qualify for a diagnosis of PTSD:

- The patient must have directly experienced, witnessed, or learned of a life-threatening or seriously injurious event.
- The patients' response is intense fear, helplessness, or horror. Children may behave with agitation or with disorganized behavior.

Triggering Events. PTSD is triggered by violent or traumatic events that are usually outside the normal range of human experience. There is some evidence that events most likely to trigger PTSD are those that involve deliberate and destructive behavior (murder, rape) and those that are prolonged or physically challenging. Such events include, but are not limited to, experiencing or witnessing sexual assaults, accidents, military combat, natural disasters (such as earthquakes), or unexpected deaths of loved ones. PTSD may also occur in people who have serious illness and receive aggressive treatments or who have close family members or friends with such conditions.

Symptoms of PTSD. There are three basic sets of symptoms associated with PTSD. They may begin immediately after the event or can develop up to a year afterward:

- Re-experiencing. In such cases, patients persistently re-experience the trauma in at least one of the following ways: in recurrent images, thoughts, flashbacks, dreams, or feelings of distress at situations that remind them of the traumatic event. Children may engage in play, in which traumatic events are enacted repeatedly.
- Avoidance. Patients may avoid reminders of the event, such as thoughts, people, or any other factors that trigger recollection. They tend to have an emotional numbness, a sense of being in a daze or of losing contact with their own identity or even external reality. They may be unable to remember important aspects of the event.
- Increased Arousal. This includes symptoms of anxiety or heightened awareness of danger (sleeplessness, irritability, being easily startled, or becoming overly vigilant to unknown dangers).

To further qualify for a diagnosis of PTSD, patients must have at least one symptom in the re-experiencing category, three avoidance symptoms, and two arousal symptoms. Symptoms are chronic (3 months or more). Symptoms should also not be associated with alcohol, medications, or drugs and should not be intensifications of a pre-existing psychological disorder.

Acute Stress Disorder. Experts have identified a syndrome called acute stress disorder, in which symptoms of PTSD occur within 2 days to 4 weeks after the traumatic event. Acute stress disorder can accurately identify up to 94% of victims at risk for PTSD. Between 50 - 80% of these patients actually develop the more chronic and serious

disorder. In other words, it is very sensitive for identification of those at highest danger for PTSD but less successful in determining specifically who will or will not recover emotionally.

Long-Term Outlook. The long-term impact of a traumatic event is uncertain. In one study of people who survived a mass killing spree in Texas, less than half of those who suffered PTSD (28% of all survivors) had recovered after a year. In another study, PTSD became chronic in 46% of the subjects. In fact, PTSD may cause physical changes in the brain, and in some cases the disorder can last a lifetime.

Separation Anxiety Disorder

Separation anxiety disorder almost always occurs in children. It is suspected in children who are excessively anxious about separation from important family members or from home. For a diagnosis of separation anxiety disorder, the child should also exhibit at least three of the following symptoms for at least 4 weeks:

- Extreme distress from either anticipating or actually being away from home or being separated from a parent or other loved one
- Extreme worry about losing or about possible harm befalling a loved one
- Intense worry about getting lost, being kidnapped, or otherwise separated from loved ones
- Frequent refusal to go to school or to sleep away from home
- Physical symptoms such as headache, stomach ache, or even vomiting, when faced with separation from loved ones

Separation anxiety often disappears as the child grows older, but if not addressed, it may lead to panic disorder, agoraphobia, or combinations of anxiety disorders.

Part 2 of this series will deal with the causes of anxiety disorders.