
■ Editor's Introduction

Anxiety and stress are an expected part of daily life. From the beginning of existence, animals and humans alike had to determine an adaptive manner of coping with lived experiences, essential for survival. Anxiety begins as an ordinary feeling of general unease. Over time—ranging from seconds to days—the physical, neurochemical, emotional, and behavioral toll of anxiety begins to significantly impact everyday living. The individual may report apprehensive thoughts, difficulty with concentration, muscle tension, nausea, breathing difficulties, dizziness, chest pain, or irritability, among other symptoms.

In 1915, the term “fight-or-flight” was operationalized to describe the mechanisms of survival; that is, the ability for a living creature to determine if they can fight the feared stimulus or flee from it to remain living and thrive. Researchers learned that during this process, the body responds to a threat by readying it for continued survival. This process involves the brain and nervous system: a detection of sensory input, neurochemical changes, which then leads to various physical effects, (e.g., dilated pupils, increased blood flow and oxygen to the muscles for movement that is a result of an elevated heart rate and hyperventilation, as well as slowed digestion). This process remains an adaptive trait.

However, at some point, these neurobiological and physiological responses to perceived threats in the environment became maladaptive and generalized to scenarios inessential to survival. For instance, if one were to come upon a grizzly bear in the wilderness, instincts and knowledge of bear safety would likely help the individual determine how to react in order to escape that situation unscathed. Conversely, if someone is shopping in a grocery store and begins to experience a sensation of panic without warning, with no immediate threat to their life and well-being, this may lead other shoppers present to wonder about the reasons this individual is having this reaction. These two examples illustrate how anxiety and stress may present in a variety of ways, some of which may be pathological.

The dysfunctional experience of the fight-or-flight response caused disruptions of the daily lives of individuals and occurred commonly enough that mental

health professionals began classifying this experience as a syndrome or disorder. There are a number of psychological conditions identified in the *Diagnostic and Statistical Manual of Mental Disorders-Fifth Edition (DSM-5)* that involve the disordered experience and generalization of anxiety, fear, and ascribing a threat where one is not or is no longer present. These group of disorders are known as Anxiety Disorders. Of note, other conditions that involve anxiety, namely obsessive-compulsive disorder, acute stress disorder, and posttraumatic stress disorder, are now located in the section on Obsessive-Compulsive and Related Disorders and Trauma- and Stressor-Related Disorders, respectively, in the fifth edition of the *DSM*. The *DSM-5* followed a developmental organization, grouping diagnoses a treatment provider may observe in a patient's childhood at the beginning of a given chapter, with diagnoses one may see throughout the lifespan towards the end of the chapter.

Principles of Health: Anxiety and Stress contains 169 topics pertaining to anxiety and stress. We begin describing types of anxiety and stress; sources of anxiety and stress; assessment methods used by mental health professionals; conditions related to anxiety and stress; treatment, psychotherapy, and ways to cope with anxiety and stress; and finally, complementary and alternative treatments for anxiety and stress. From historical perspectives of Sigmund Freud's psychoanalytic viewpoint on anxiety, to Aaron T. Beck's cognitive-behavioral approach—the foundation of psychology remains omnipresent in these articles, with an infusion of the most up-to-date psychology and physiological resources.

In this edition, some of the topics were updated to assist high school students, undergraduates, and others interested in continuing education to address current anxieties and stressors experienced in the US. Specifically, these topics include Mass Casualties; Sexuality and Gender; Ethnic and Cultural Anxieties; and new treatments, such as Motivational Interviewing, Attachment Theory, Recreational Therapy, and Transcranial Magnetic Stimulation.

—Lindsey L. Wilner and Megan E. Shaal

Types of Anxiety and Stress

■ Agoraphobia and Panic Disorders

Panic disorders, such as agoraphobia, are characterized by severe anxiety coupled with avoidance of a wide range of situations. Considerable progress has been made toward understanding their causes and treatment.

Introduction

Panic disorder is a condition characterized by frequent panic attacks—that is, intense surges of anxiety. These episodes of anxiety often occur unexpectedly. The individual frequently is unable to identify an external trigger for them. Between episodes, the patient often ruminates about the possibility of additional episodes.

Panic attacks tend to be accompanied by a number of physical symptoms. Hyperventilation, overly rapid breathing, is common. Choking and smothering sensations, dizziness, faintness, and paresthesia, the sensation of numbness and tingling, particularly in the extremities, are often expressed by patients with a diagnosis of panic attacks. Other common symptoms during panic attacks are sweating, trembling, nausea, abdominal distress, hot or cold flashes, accelerated heart rate, chest pain, and heart palpitations. Not surprisingly, many individuals who experience a panic attack believe that they are having a heart attack or dying.

Panic attacks are also frequently characterized by a number of psychological symptoms, of which depersonalization and derealization are among the most common. Depersonalization is marked by feelings of unreality regarding oneself or one's body, such as sensations of being disconnected from oneself or of watching oneself as an outside observer.

Derealization refers to feelings of unreality concerning the external world; objects or people may seem somehow strange or unfamiliar. Also common during panic attacks are fears of dying (e.g., from a heart attack or stroke), losing one's mind, or performing embarrassing behaviors (e.g., screaming uncontrollably).

A number of patients with panic attacks, develop an often debilitating syndrome called agoraphobia. Agoraphobia is a fear of situations in which escape is difficult, inconvenient, or potentially embarrassing, or in which assistance might not be readily available. Specifically, what appears to occur is that many panic patients, dreading the possibility of a future attack, begin to fear and as such avoid situations that might precipitate such an attack. The situations and locations feared or avoided by individuals with agoraphobia are extremely varied, and may include public transportation, open spaces, shopping malls, supermarkets, large social gatherings, elevators, driving in heavy traffic, passing over bridges or through tunnels, standing in long lines, and sitting in crowded theaters or churches.

In mild cases, those diagnosed with agoraphobia may experience moderate discomfort while traveling or shopping alone and may avoid those situations in certain cases. In severe cases, those diagnosed with agoraphobia may be unwilling to leave the house unaccompanied or may remain at home regardless. The fears of those diagnosed with agoraphobia are generally alleviated by the presence of another individual, particularly one close to the patient, as this person could provide help in the event of an emergency.

The prevalence of panic disorder with agoraphobia in the general population of the US has been

estimated to be approximately 5%; an additional 2% of those in the US have been estimated to have panic disorder without agoraphobia. Thus, panic disorder is relatively common, and it is perhaps the most frequent reason individuals seek outpatient psychiatric care. In addition, isolated panic attacks occur frequently among individuals in the general population. G. Ron Norton and his colleagues, found approximately 34% of college students experience occasional panic attacks.

Panic disorder and agoraphobia have been reported to occur more frequently among women than men, although this difference is probably more marked for agoraphobia than for panic disorder. In addition, the prevalence of panic disorder appears to decline with age; its frequency has generally been reported to be highest among individuals under 30 and those over 65 the lowest. The course of panic disorder tends to be chronic and fluctuating. In other words, its symptoms often persist for many years, but they typically wax and wane depending on the level of life stress and other factors.

In addition, panic disorder patients appear to have elevated rates of several medical conditions. A subset of these patients reported to have mitral valve prolapse syndrome, a condition in which the heart's mitral valve bulges into the atrium. This syndrome results in physical symptoms, such as palpitations and chest pain; thus, it may be a risk factor for panic disorder in some individuals. In addition, a subset of patients with panic disorder appear to have disturbances of the vestibular system, an apparatus in the inner ear responsible for maintaining balance. As dizziness is a common symptom of panic attacks, vestibular dysfunction may be an important precipitant of some panic attacks.

A number of psychiatric conditions are commonly found among patients with panic disorder and agoraphobia. Depression is a particularly frequent complication of both syndromes; in many cases, it probably results from the distress produced by panic attacks and the constriction of activities produced by agoraphobia. This depression may have tragic consequences; panic disorder patients have been reported to be at greatly increased risk for suicide compared with individuals in the general population. In addition, many panic disorder patients utilize alcohol or other substances to alleviate the anxiety. Also commonly associated with panic disorder is social phobia, a condition characterized by

fears of the possible scrutiny or criticism of others. Like patients with panic disorder, many individuals with social phobia experience panic attacks. Nevertheless, in social phobia these attacks are almost invariably triggered by situations in which the patient is the perceived focus of others' attention.

Possible Causes

A variety of models have been proposed for the causation of panic disorder and agoraphobia. Early explanations tended to focus largely or exclusively on physiological factors. In the 1960s, Donald Klein and his colleagues reported that panic disorder improved following administration of imipramine, a drug traditionally used to treat depression, whereas more sustained and long-lasting generalized anxiety did not. Based on this finding, Klein and his colleagues argued that panic is biologically distinct from other forms of anxiety. Although Klein's observation was important, it should be noted that making inferences about the nature of a disorder from the treatment of that disorder is logically flawed: A condition's treatment bears no necessary implications for its cause (e.g., one would not be justified in concluding that headaches are caused by a lack of aspirin).

Nevertheless, it is likely that physiological factors play an important role in panic disorder. Identical twins (i.e., those who share the exact same genes) with panic disorder are more likely than are fraternal twins (i.e., who share only half of their genes) to have co-twins with panic disorder. This finding suggests genetic factors are included in this disorder. It is not known whether these genetic factors predispose a person to panic disorder per se or to anxiety in general.

There is evidence that the locus coeruleus, a structure in the pons, located at the back of the brain, is overactive during panic attacks. The locus coeruleus activates norepinephrine, a chemical transmitter in the nervous system that when activated creates physiological changes of arousal and anxiety. Finally, it was determined patients diagnosed with panic disorder, unlike those without the condition, develop panic attacks following infusion of certain substances, such as sodium lactate and caffeine. It is possible that this is simply attributable to greater arousal on the part of panic disorder patients; the infusion of these substances may provoke

attacks in these patients because they are already on the verge of panicking.

Many subsequent models of the causation of panic disorder attempted to move beyond physiological abnormalities to examine how panic disorder patients react to and construe their environment. One of the most influential of these might be termed the “fear of fear model.” According to Dianne Chambless, Alan Goldstein, and other proponents of this model, individuals who are afraid of their own anxiety are particularly prone to the development of panic disorder. During frightening experiences, the fear of fear may cause a panic attack.

A more recent theory of panic disorder is the cognitive model of David Clark, Aaron T. Beck, and other researchers. According to this model, panic attacks result from the catastrophic misinterpretation of unusual or unexpected bodily sensations. In other words, panic attacks may occur when a physical symptom (e.g., rapid heartbeat or dizziness) is misinterpreted as presaging a disastrous outcome (heart attack or stroke). Interestingly, many of the physical symptoms of anxiety, like a rapid heartbeat, can themselves be exacerbated by anxiety. Thus, the misinterpretation of certain physical sensations may set in motion a cycle in which these sensations progressively increase in intensity, giving rise to further misinterpretations and ultimately culminating in a panic attack. The cognitive model is also consistent with the evidence, described earlier, that some individuals diagnosed with panic disorder have physiological abnormalities, such as mitral valve prolapse and vestibular dysfunction. These abnormalities might be chronically misinterpreted by some individuals as indicative of serious consequences, and thereby provide a repeated trigger for panic attacks.

Evidence supports that many cases of panic disorder and agoraphobia are treatable by means of either medication or psychotherapy. Antidepressant medication, such as selective serotonin reuptake inhibitors (SSRIs) or serotonin-norepinephrine reuptake inhibitors (SNRIs), ameliorate the symptoms of these syndromes. It is unclear whether these drugs actually exert their impact on panic, or if they alleviate common co-occurring symptoms of depression. Alleviating depressive symptoms may then provide individuals diagnosed with agoraphobia with the energy and confidence needed to confront previously avoided situations.

Panic disorder and agoraphobia also are amenable to interventions involving confrontation with feared situations. For example, many individuals diagnosed with panic disorder improve following flooding, a technique involving prolonged and intense exposure to feared stimuli. In the case of panic disorder, patients typically are exposed, in graduated fashion, to increasingly anxiety-producing situations. Patients are encouraged to remain in the situation until their anxiety subsides.

The efficacy of flooding and related treatments for panic disorder and agoraphobia can be explained in at least two ways. One possibility is that flooding works by a process known as habituation. Habituation is a process in which physiological or psychological responses decline in intensity with repeated stimulation. For example, many parachute jumpers find that anxiety reactions gradually decrease with each succeeding jump; habituation may be the basis of this phenomenon. A second possibility is that flooding works by means of the cognitive model. That is, prolonged exposure to feared stimuli may demonstrate to patients that these stimuli are not as dangerous as they believed.

History

The term “panic” derives from the Greek God Pan, who let out a terrifying scream whenever he was awakened by a person who passed by. Most of the earliest accounts of panic attacks emphasized their physiological nature. In 1871, Jacob DaCosta described a syndrome he termed “irritable heart,” which was characterized by palpitations, shortness of breath, dizziness, and other symptoms now recognized as typical of panic disorder. DaCosta observed this condition both in Civil War soldiers and in individuals not involved in military combat. Irritable heart syndrome became a frequent diagnosis among anxiety-stricken soldiers in the Franco-Prussian and Boer Wars. Other early names for this syndrome were effort syndrome and neurocirculatory asthenia; again, both of these terms emphasized overexertion of the heart and circulatory system as the principal causes of panic symptoms.

At approximately the same time, Sigmund Freud described a syndrome he called anxiety neurosis. Freud noted this neurosis could occur in a diffuse, long-lasting form (i.e., generalized anxiety) or in sudden, discrete attacks marked by symptoms such

as excessive heartbeat and respiration (i.e., panic disorder). In contrast to DaCosta and other writers of this period, Freud emphasized unconscious psychological factors as the primary determinants of panic disorder. According to Freud, anxiety attacks resulted from a massive damming up (repression) of sexual impulses. In his later writings, Freud revised his position to assert that anxiety served as a signal to the individual that impulses needed to be repressed. According to this later view, anxiety (including panic) is a cause, rather than a result, of repression and functions as a defense mechanism to ward off trauma. Although many psychologists did not concur with Freud's conjectures, by World War II, there was increased appreciation that many of the panic reactions witnessed among soldiers were largely of psychogenic origin.

The term "agoraphobia" stems from the Greek word *agora*, meaning marketplace. As noted earlier, although those diagnosed with agoraphobia fear marketplaces and similar situations, their fears tend to be extremely varied. Agoraphobia was coined by Alexander Westphal in 1871, who observed that many patients experienced anxiety while walking across open spaces or deserted streets. Interestingly, Moritz Benedikt observed a similar syndrome in 1870; he labeled it *Platzschwindel* (dizziness in public places), a term that presaged findings of vestibular dysfunction in some of these patients.

Panic disorder and agoraphobia are recognized as two different, although often overlapping, conditions; however, professional opinion vacillated on this point. In the third edition of the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders (DSM-III, 1980)*, for example, panic disorder and agoraphobia were listed as separate disorders. Then, in the *DSM-IV (1994)*, the two were specifically linked in three diagnoses: panic disorder with agoraphobia, panic disorder without agoraphobia, and agoraphobia with no history of panic disorder. In the *DSM-V (2013)*, the pendulum of professional consensus returned to the *DSM-III*, with the two listed as separate disorders, in recognition of the sizable number of individuals with agoraphobia who do not experience panic attacks.

—Scott O. Lilienfeld

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■ Anxiety Disorders

Anxiety is a central concept in many different schools of psychology, and there are many widely varying theories concerning it; theories of it created a variety of approaches to treating anxiety disorders.

Introduction

The concept of anxiety is one of the most often used and loosely defined concepts in psychology. It can be used to describe a temporary state ("You seem anxious today") or an enduring personality trait ("He is an anxious person"). It is used to assign cause ("He stumbled over the words in his speech because he was anxious") and to describe an effect ("Having to give a speech sure makes me anxious"). It may be the result of discrete objects or situations, such as snakes or heights, or as evolving from basic existential problems, such as the trauma of birth or the fear of death.

All major theories in psychology have an understanding of anxiety.

Due to the preeminence of anxiety in the field of psychology, there are many different theories about the nature and origin of anxiety disorders. Anxiety disorders include generalized anxiety disorder, social anxiety disorder, panic disorder, obsessive-compulsive disorder, and specific phobias. Posttraumatic stress disorder was once categorized as an anxiety disorder; however, it is now categorized as a trauma and other stressor related disorder. The two most important and influential viewpoints on anxiety are Freudian and behavioral viewpoints. Although these theories attempt to explain many anxiety disorders, an examination of how they apply to phobias presents an understanding of how each theory is applied to anxiety. A specific phobia can be defined as an anxiety disorder involving an intense fear of a particular object (e.g., horses) or situation (e.g., heights).

Freudian Approach

Sigmund Freud, who said that understanding anxiety “would be bound to throw a flood of light on our whole mental existence,” had two theories of anxiety. In the 1917 theory, libido (mental energy, often equated with sexual drive) increases until it is discharged by some pleasurable activity. Sometimes the energy cannot be discharged, for example, when the sexual object is not attainable or is morally unacceptable. This undischarged energy is anxiety, and it remains even when its original, unacceptable object is repressed or eliminated from conscious awareness. This anxiety may attach itself to an otherwise harmless object, resulting in a phobia. This theory is best illustrated in one of Freud’s most famous cases, that of Little Hans, a five-year-old who developed a phobia of horses. Freud believed that Hans had a sexual desire for his mother and wanted his father dead so that he could have his mother to himself. This desire for his mother and hatred of his father were unacceptable impulses and so they were repressed from consciousness, resulting in anxiety. Freud believed this anxiety attached itself to horses because the black blinders and muzzle of the horse symbolized his father’s glasses and mustache.

In Freud’s first theory, repression causes anxiety. In psychoanalytic theory, repression is a defense mechanism that keeps unacceptable thoughts and impulses from becoming conscious. In the 1926

theory, the relationship between unacceptable thoughts and impulses changed: anxiety causes repression. In this theory, anxiety acts as a signal to the ego (in Freud’s theory, the rational, conscious part of the mind) that a forbidden impulse, such as Little Hans’s desire for his mother, is trying to force its way into consciousness. This signal alerts the ego to try to repress the unwanted impulse. If the ego cannot successfully repress the forbidden impulse, it may try to transfer the forbidden impulse to an irrelevant object (horses, in Little Hans’s case). This object can arouse all the emotions associated with the forbidden impulse, including the signal anxiety. In this way, it becomes a phobic object.

Two-Factor Theory

One influential behavioral approach to anxiety is O. Hobart Mowrer’s two-factor theory. It uses the principles of Pavlovian learning—in which two stimuli are presented one after the other, and the response to the first changes because of the response automatically elicited by the second stimulus—and operant conditioning—learning in which a behavior increases or decreases depending on whether the behavior is followed by reward or punishment—to explain fear and phobic avoidance, respectively. Fear is acquired through Pavlovian conditioning when a neutral object or situation is paired with something painful or punishing. For example, having an automobile accident can result in a fear of driving. At this point, operant learning principles explains phobic avoidance. In operant learning, any action that leads to a reward is likely to be repeated. The person who is anxious about driving might avoid driving. As this avoidance is rewarded by reduced anxiety, the person is more likely to avoid driving in the future. Due to continued avoidance, it is then harder for the individual to return to driving.

Many problems were found with two-factor theory; thus, modifications were made to the theory. Two problems will be discussed here to illustrate these changes. First, the theory predicts that people will be likely to fear items or situations that are most often associated with pain. There are very few people in modern society; however, who are phobic of electrical sockets and end tables, even though most have received a shock from the former and stubbed a toe on the latter. Conversely, many people are afraid of snakes and spiders, even if they were never been bitten by one. This was explained through the

concept of preparedness: Evolutionary history prepared people to learn that some objects or situations—such as reptiles, insects, heights, darkness, and closed spaces—are dangerous. These objects and situations are “easy” to learn to fear, and they account for a large proportion of phobias. Contrary, people’s evolutionary ancestors had no experience with electric sockets or guns, so people are not prepared to become phobic of these objects even though they cause more pain in modern society than do snakes or spiders.

Two-factor theory states that for an object to cause fear, it must be paired with a painful or punishing experience. Yet, people may become phobic of objects or situations with which they have never had a bad experience. Indeed, many people who have never seen a live snake are afraid of snakes. Thus, there must be other ways in which fear is acquired. One of these is vicarious transmission: seeing someone act afraid of something can lead to acquiring that fear. For example, whether an infant becomes afraid of being in a high place depends on whether its mother is smiling or has an expression of fear on her face. In an ingenious set of experiments, Susan Mineka and her colleagues revealed vicarious transmission of fear is influenced by preparedness. She found rhesus monkeys that watched a videotape of other monkeys acting afraid of a snake became afraid of snakes themselves. However, monkeys that watched other monkeys act afraid of rabbits, did not become afraid of rabbits because they were not evolutionarily prepared to fear rabbits. Human beings may acquire fear by being told that an object or situation is dangerous. Children can learn to avoid running in front of oncoming cars by being told not to do this by their parents; luckily, they do not have to be hit by a car or watch someone get hit to acquire this information.

Treating Anxiety

All theories of anxiety disorders attempt to explain and organize what is known about fear and anxiety. Some of the theories, including the ones described here, were applied in developing treatments for anxiety disorders. As might be expected, clinical psychologists with different ideas about the cause of anxiety will recommend different treatments to cope with or eliminate it.

In the case of Little Hans, Freud believed Little Hans’s anxiety about horses was caused by repressed

sexual impulses toward his mother and hatred of his father. From this, the repressed impulses would need to be discussed openly and resolved before his anxiety about horses would diminish. This was the basic goal of the psychoanalytic therapy Freud recommended for Hans.

On the other hand, if Little Hans’s parents had taken him to behavioral therapy, the therapist would have assumed that the child’s fear stemmed from a fright he suffered in the presence of a horse. In fact, Freud stated the phobia began when Hans saw a horse fall while pulling a bus. Further, the therapist would assume that now Hans was rewarded for avoiding horses by anxiety reduction and receiving extra attention from his parents. Treatment would involve the boy gradually thinking about, looking at, and even petting horses, and it would include being rewarded for approaching, versus avoiding, horses.

No one theory or treatment is correct. Each client that presents with an anxiety disorder will respond differently to the varying types of treatment. Thus, it is imperative for the provider to be well-versed in the treatment of anxiety disorders and work with their client to assist them with the reduction, or elimination, of anxiety.

Cognitive Theories

Cognitive theories of anxiety illustrate how theory is applied to develop a treatment. There are different cognitive models of anxiety, but all are similar in that they assume there is a cognitive cause of the fear state. This cognitive step is called an irrational belief. A cognitive theorist might explain Little Hans’s fear in the following way: Hans is afraid of horses because he has an irrational belief that horses are dangerous. The specific belief might be “The horse will bite me,” “The horse might get spooked and run into me,” or “Horses have germs, and if I go near one, I’ll catch its germs and get sick.” The theory assumes that anxiety will stop when the irrational belief is eliminated. Thus, a cognitive therapist would first carefully question Hans to determine the specific irrational belief causing the fear. Once that is determined, the therapist would use persuasion, logical reasoning, and evidence to try to change the belief. Little Hans was used here only to continue with the same example. A therapist would likely not try to reason with a five-year-old, and a different

treatment would be used. Cognitive therapies are commonly used with adults.

Physiological Theories

Physiological theories of anxiety are increasing in importance. As with behavioral, psychodynamic, and cognitive theories, there are many physiological theories. They differ with respect to the brain areas, pathways, or chemicals implicated in anxiety. Anxiety is a complex state, involving multiple interacting parts of the nervous system, and additional research is warranted to develop a complete model of the brain's role in anxiety.

One physiological variable that was integrated into many theories of anxiety is the panic attack. This is a sudden and usually short-lived episode that includes trouble breathing, heart palpitations, dizziness, sweating, and fear of dying or becoming mentally unstable. These episodes appear purely physiological at first in that they seem to occur randomly; however, psychological factors determine whether they progress into a full-blown disorder. People can become anxious about having panic attacks, and this added anxiety leads to more attacks, producing panic disorder. Some people become afraid of having an attack in a place where they will be unable to cope or receive help. These people may progressively avoid more and more places. This is known as agoraphobia, which at its worst can result in people who are afraid to leave their homes.

The development of physiological theories also illustrates an important point in the relationship between theory and therapy. Thus far, it has been stressed that theories of anxiety help determine treatment. This relationship also works in reverse: success or failure of treatments adds information used in theory development. This is most clear in physiological theories. For example, the physiological mechanisms of different types of anxiety-reducing tranquilizers have been investigated to provide clues as to how the brain is involved in anxiety.

Impact on Field of Psychology

Just as most theories in psychology have a view of anxiety, anxiety is an important concept in other areas of psychology. Obviously, anxiety is important in the fields of psychopathology and psychotherapy. It is also important in learning theory; experiments with conditioned fear have advanced knowledge about Pavlovian and operant conditioning. Anxiety

is also an important trait in theories of personality, and it figures in theories of motivation.

Theoretical developments in anxiety have been incorporated into other areas of psychology. For example, in the early 1960s, Peter Lang described fear and anxiety as being composed of three systems—that is, there are three systems in which fear is expressed: verbal (saying “I’m anxious”), behavioral (avoiding or running away from a feared object), and physiological (experiencing an increase in heart rate or sweating). An important point in understanding the three systems of fear is that the systems do not always run along parallel tracks. A person may speak of being anxious about the condition of the world environment without any physiological arousal. Alternatively, a boy’s heart might pound at the sight of a snake in the woods, but he reports no fear and does not run away in the presence of his friends. Describing fear in a three-systems framework presents an important challenge to any theory of anxiety. An adequate theory must explain why the three-systems sometimes provide the same information and other times do not. The three-systems approach was not only influential in anxiety theory and research, but also other areas of psychology, such as studying emotion, stress, and pain. This approach is an important concept in behavioral formulations of anxiety, as it is likely the behavioral, physiological, and verbal components do not necessarily provide the same information.

Another challenge for theories of anxiety is to begin to integrate different positions. The present theories are not all mutually exclusive. The fact that a behavioral theory of anxiety has some validity does not mean that cognitive approaches are wrong. Also, psychological theories need to be integrated with physiological theories that describe brain activity during anxiety. Although theory and research in anxiety has a long and fruitful history, there is still a significant amount of the unknown as it relates to anxiety.

—Scott R. Vrana

Further Reading

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■ Competitive Stress

Overview

The study of competitive stress, or emotional arousal within the sport domain is part of exercise and sport science, more specifically, sport psychology. Scholars in the field of sport psychology began talking about emotional arousal when Coleman Griffith, Father of North American Sport Psychology, wrote about how to mentally prepare teams for performance and competition, as well as how to manage and create methods for dealing with those athletes that

experience anxiety surrounding competition (Gould, Greenleaf, & Krane, 2002). In the 1960s discussion began to emerge on the topic of the optimal level of arousal and what level of arousal is conducive to obtaining one's best performance (Gould, Greenleaf, & Krane, 2002). These discussions and ensuing research led to the development of the Inverted-U hypothesis; however, within the last 15 years criticism of this hypothesis emerged as scholars came to believe anxiety is a multidimensional construct rather than a one-dimensional (Gould, Greenleaf, & Krane, 2002).

Arousal is defined as "an energizing function that is responsible for harnessing of the body's resources for intense and vigorous activity" (Landers & Boutcher, 1998, p. 198) and utilizes both psychological and physiological energy systems (Gould, Greenleaf, & Krane, 2002; Smith, Smoll, & Passer, 2002). Arousal represents the intensity dimension of behavior, which can vary on a continuum from "deep sleep to peak excitement" (Smith, Smoll, & Passer, 2002, p. 502). Physiological arousal can be measured in a number of ways, including heart rate, respiratory rate, blood pressure, electromyography, levels of epinephrine, and galvanic skin response (Gould, Greenleaf, & Krane, 2002). Historically arousal was viewed as a unitary construct that was an indication of how "activated a performer is at a given moment in time" (Gould, Greenleaf, & Krane, 2002, p. 208); however, activation is no longer viewed as the same as arousal. Activation is known as the condition that reflects the anticipatory response to readiness; whereas arousal is defined as the response that happens in an instantaneous response or moment to a new stimulus (Gould, Greenleaf, & Krane, 2002). Keeping in mind this updated view of arousal, optimal or peak performance occurs when a performer is aptly activated and arousal does not hinder the activation level (Gould, Greenleaf, & Krane, 2002).

Within sport psychology, stress is defined as "a substantial imbalance between (environmental) demand and response capability, under conditions in which failure to meet the demand has important consequences" (McGrath, 1970, p. 20). Stress can also be defined as "a cognitive-affective response involving appraisal of threat and increased physiological arousal" (Smith, Smoll, & Passer, 2002, p. 502). These environmental demands are called stressors. Stress is not always negative, as eustress (positive or good stress) and distress (negative or bad stress)

have also been identified and defined (Gould, Greenleaf, & Krane, 2002). McGrath (1970) proposed a process model of stress that includes four stages. Stage 1 is the onset of the environmental demand (stressor), which leads to Stage 2 and involves the athlete's perception of the environmental demand. Stage 3 reflects the athlete's response to the demand (e.g., physiological arousal, anxiety) and Stage 4 is the resulting behavior or performance (Gould, Greenleaf, & Krane, 2002). Stress is often used inappropriately as being interchangeable with anxiety. It is important to clearly define and understand both terms separately.

Anxiety in Athletics

Gould, Greenleaf, and Krane (2002) defined anxiety as "feelings of nervousness and tension associated with activation or arousal of the organism" (p. 209). Anxiety is a complex construct in that it is one type of stress response that includes the emotional response and motivation to avoid the threatening environmental demand (Smith, Smoll, & Passer, 2002). In sport psychology, anxiety is typically measured with self-report anxiety inventories; however, there is concern that this type of measure lends itself to susceptibility to social desirability. Therefore, it has been recommended that researchers administer a social desirability scale along with the anxiety measures (Gould, Greenleaf, & Krane, 2002). There were four distinctions made regarding the construct of anxiety, including: state-trait distinction, general versus situation specific anxiety, cognitive versus somatic anxiety, and debilitating versus facilitative anxiety (Smith, Smoll, & Passer, 2002).

State anxiety (A-state) is defined as an emotional state that is "characterized by subjective, consciously perceived feelings of apprehension and tension, accompanied by or associated with activation or arousal of the autonomic nervous system" (Spielberger, 1966, p. 17) and varies over time or from moment to moment. State anxiety is considered a temporary emotional state (Smith, Smoll, & Passer, 2002). When an individual is experiencing no anxiety response, he or she will be both physiologically and psychologically calm. An individual who is experiencing a moderate level of anxiety will typically experience worry, tension, nervousness; whereas an individual experiencing very high level of anxiety will experience fear, high physiological arousal, and possibly have catastrophic cognitions. Conversely,

trait anxiety (A-trait) is defined as "a motive or acquired behavioral disposition that predisposes an individual to perceive a wide range of objectively nondangerous circumstances as threatening and to respond to these with state anxiety reactions disproportionate in intensity to the magnitude of the objective danger" (Spielberger, 1966, p. 17).

Trait anxiety is a personality trait and is fairly stable over time (Smith, Smoll, & Passer, 2002). To make the distinction between general and situation specific anxiety, state anxiety refers to anxiety that is experienced during specific situations and trait anxiety is measured as a global or general anxiety that is experienced across all situations or in a specific situation (Smith, Smoll, & Passer, 2002). Anxiety is multidimensional in that there are cognitive and physiological (somatic) components (Smith, Smoll, & Passer, 2002). The cognitive component of anxiety involves the individual making negative assessments about a particular environmental demand and the ability to meet that demand, which results in nervousness, worry, tension or negative mental imagery (Smith, Smoll, & Passer, 2002). On the other hand, the physiological or somatic component of anxiety is reflected in changes in the individual's respiratory rate, muscular tension, or heart rate (Smith, Smoll, & Passer, 2002). The final distinction to be made about the construct of anxiety is how debilitating anxiety differs from that of facilitative anxiety. Debilitating anxiety usually hinders performance while facilitative anxiety is when the anxiety actually serves to help enhance the performance (Smith, Smoll, & Passer, 2002). Englert and Bertrons (2012) found different effects of anxiety on sports performance, depending on an individual's strength of self-control. These distinctions of anxiety are evidence of the multifaceted nature of anxiety as each distinction further defines and clarifies the construct of anxiety.

Sport Performance Anxiety

Sport performance anxiety is a term that specifically describes anxiety within the sport environment. Sport performance anxiety is a trait construct that is defined as the "predisposition to respond with cognitive and/or somatic state anxiety to competitive sport situations in which the adequacy of the athlete's performance can be evaluated" (Smith, Smoll, & Wiechman, 1998, p. 107). Sport performance anxiety is affected by cognitive, affective, and behavioral

components. The fear of failure and disapproval are the most common sources of anxiety in the sport performance (Smith, Smoll, & Passer, 2002). The state anxiety response is contingent upon the nature of the competitive situation, the threat of having a successful or unsuccessful performance, and the demands that are placed on the athlete (Smith, Smoll, & Passer, 2002). Arnold, Fletcher and Daniels (2013) describe organizational stress and its role in sports performance, and have devised an instrument to measure it.

The athlete's appraisal process is an important factor in the performer's level of anxiety. Smith and his colleagues (2002) identified four types of appraisal that are important to the anxiety cycle. These include the "appraisal of the situational demands, appraisal of the resources available to deal with them, appraisal of the nature and likelihood of potential consequences if the demands are not met, and the personal meaning that the consequences have for the individual" (Smith, Smoll, & Passer, 2002, p. 506). The athlete's appraisal of the situation and their perception of readiness and capability to perform within that specific situation will affect the interpretation and physiological, cognitive (e.g., worry, nervous), and behavioral (e.g., avoidance, success) response to the situation.

Research completed in the area of sport performance anxiety hoped to better understand the determining factors that contribute to the situational and individual differences in developing performance anxiety (Smith, Smoll, & Passer, 2002). Research indicated that situational factors contributing to precompetition anxiety include the caliber of the opponent, whether the event is an individual or team activity, and whether or not the contest is critical (Smith, Smoll, & Passer, 2002). Individual factors that influence levels of precompetition anxiety include performance trait anxiety (A-trait), low self-esteem, high state anxiety (A-state), concern about failing, social evaluation, and parental pressure to participate (Smith, Smoll, & Passer, 2002). Also, research showed that gender, age, and amount of experience were not correlated with precompetition anxiety in young athletes. Young athletes may also experience anxiety during the competition or performance based on the perceived importance of the event/competition or, in some cases, particular situations during a contest (e.g., at bat, when behind),

and performance trait (A-trait) anxiety (Smith, Smoll, & Passer, 2002).

Finally, anxiety that is experienced after the competition is related to two factors. Whether or not the individual athlete or the athlete's team was victorious is an important situational factor contributing to postcompetition anxiety. Individually, the amount of anxiety experienced after the competition is related to how much fun was enjoyed during the game or event (Smith, Smoll, & Passer, 2002). With the variety of factors that may influence a young athlete's anxiety surrounding competition it is important to also review the impact competitive anxiety has on young players.

The sport context has the potential to be very stressful and anxiety provoking for youth and adolescent athletes due to the importance youth often place on their sport participation and how much the young athlete's identity is invested in their participation in sport. As a result, performance-related anxiety can adversely affect these athletes. Research suggested that athletes who experience excessive stress may have an increased risk of injury and are prone to illness, experience sleep and eating disturbances, choose to avoid sports or discontinue sport participation, have lower levels of sport enjoyment, have a greater potential for burnout, and possible performance impairment (Smith, Smoll, & Passer, 2002). Each of these effects of competitive anxiety may be experienced in tandem with other effects and some may lead to further problems. For example, a young athlete who has been injured may experience a prolonged recovery as well as depression, anger, or more anxiety. With these factors in mind, it is important for coaches, sport administrators and teachers to know what can be done to help reduce stress for youth and adolescent athletes.

Stress Reduction Strategies

There are a variety of areas where sport administrators, coaches, parents, and teachers can intervene to make sport participation a more enjoyable and less stressful event for the youth and adolescent participants. Modifications or changes can be made at the situational, cognitive, physiological, and behavioral levels that may reduce sport-related stress (Smith, Smoll, & Passer, 2002). One of the easiest and most practical situational changes that can be made to reduce stress is for sport programs to offer a diverse range of programs that meet the needs of all

■ Glossary

Adaptation: Any heritable characteristic that presumably has developed as a result of natural selection and thus increases an animal's ability to survive and reproduce.

Addiction: Physical dependence on a substance; components include tolerance, psychological dependence, and physical withdrawal symptoms.

Adolescence: The period extending from the onset of puberty to early adulthood.

Affect: A class name given to feelings, emotions, or dispositions as a mode of mental functioning.

Affective disorders: Functional mental disorders associated with emotions or feelings (also called mood disorders); examples include depression and bipolar disorders.

Aggression: Behavior intended to harm or injure another person or thing.

Agoraphobia: An intense fear of being in places or situations in which help may not be available or escape could be difficult.

Allele: One of the many forms of a gene; it may be dominant (needing only one copy for the trait to appear) or recessive (needing two copies).

Altruism: A phenomenon in human and animal behaviors in which individuals unselfishly sacrifice their own genetic fitness in order to help other individuals in a group.

Anorexia nervosa: An eating disorder characterized by an obsessive-compulsive concern for thinness achieved by dieting; often combined with extreme exercising and sometimes part of a binge-purge cycle.

Antidepressants: Drugs that are used in the treatment of depression, many of which affect or mimic neurotransmitters; classes of antidepressants include the tricyclics and monoamine oxidase inhibitors (MAOIs).

Antisocial personality disorder: A personality disorder characterized by a history of impulsive, risk-taking, and perhaps chronic criminal behavior and by opportunistic interpersonal relations.

Anxiety: A chronic fearlike state that is accompanied by feelings of impending doom and that cannot be explained by an actual threatening object or event.

Attachment: An emotional bond between infant and caregiver based on reciprocal interaction patterns.

Autonomic nervous system: The division of the peripheral nervous system that regulates basic, automatically controlled life processes such as cardiovascular function, digestive function, and genital function.

Aversion therapy: A therapy that involves pairing something negative (such as electric shock) with an undesired behavior (such as drinking alcohol or smoking cigarettes).

Beck Depression Inventory (BDI): A brief questionnaire used to measure the severity of depression; developed by Aaron Beck.

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