Phobia

A **phobia** is a type of anxiety disorder defined by a persistent and excessive fear of an object or situation.[1] Phobias typically, result in a rapid onset of fear and are present for more than six months.[1] Those affected will go to great lengths to avoid the situation or object, to a degree greater than the actual danger posed.[1] If the object or situation cannot be avoided, they experience significant distress.[1] Other symptoms can include fainting, which may occur in blood or injury phobia,[1] and panic attacks, which are often found in agoraphobia.[6] Around 75% of those with phobias have multiple phobias.[1]

Phobias can be divided into specific phobias, social phobia, and agoraphobia.[1][2] Specific phobias include those to certain animals, natural environment situations, blood or injury, and specific situations.[1] The most common are fear of spiders, fear of snakes, and fear of heights.[7] Specific phobias may be caused by a negative experience with the object or situation in early childhood.[1] Social phobia is when a person fears a situation due to worries about others judging them.[1] Agoraphobia is a fear of a situation due to a difficulty or inability to escape.[1]

It is recommended that specific phobias be treated with exposure therapy, in which the person is introduced to the situation or object in question until the fear resolves.[2] Medications are not useful for specific phobias.[2] Social phobia and agoraphobia are often treated with some combination of counselling and medication.[4][5] Medications used include antidepressants, benzodiazepines, or beta-blockers.[4]

Specific phobias affect about 6–8% of people in the Western world and 2–4% of people in Asia, Africa, and Latin America in a given year.[1] Social phobia affects about 7% of people in the United States and 0.5–2.5% of people in the rest of the world.[6] Agoraphobia affects about 1.7% of people.[6] Women are affected by phobias about twice as often as men.[1][6] Typically, the onset of a phobia is around the ages of 10–17, and rates are lower with increasing age.[1][6] Those with phobias are at a higher risk of suicide.[1]

Phobia

The fear of spiders is one of the most common phobias.

Specialty	Psychiatry, clinical psychology
Symptoms	Fear of an object or situation[1]
Complications	Suicide[1]
Usual onset	Rapid[1]
Duration	More than six months[1]
Types	Specific phobias, social phobia, agoraphobia[1][2]
Causes	Unknown, some genetic effects[3]
Treatment	Exposure therapy, counselling, medication[4][5][2]
Medication	Antidepressants, benzodiazepines, beta-blockers[4]
Frequency	**Specific phobias**: ~5%[1] **Social phobia**: ~5%[6] **Agoraphobia**: ~2%[6]

Contents

Classification

Most phobias are classified into three categories and, according to the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (DSM-V), such phobias are considered sub-types of anxiety disorder. The categories are:

1. Specific phobias: Fear of particular objects or social situations that immediately results in anxiety and can sometimes lead to panic attacks. Specific phobia may be further subdivided into four categories: animal type, natural environment type, situational type, blood-injection-injury type.[8]

2. Agoraphobia: a generalized fear of leaving home or a small familiar 'safe' area, and of possible panic attacks that might follow. It may also be caused by various specific phobias such as fear of open spaces, social embarrassment (social agoraphobia), fear of contamination (fear of germs, possibly complicated by obsessive–compulsive disorder) or PTSD (post-traumatic stress disorder) related to a trauma that occurred out of doors.

3. Social phobia, also known as social anxiety disorder, is when the situation is feared as the person is worried about others judging them.[1]

Phobias vary in severity among individuals. Some individuals can simply avoid the subject of their fear and suffer relatively mild anxiety over that fear. Others suffer full-fledged panic attacks with all the associated disabling symptoms. Most individuals understand that they are suffering from an irrational fear, but are powerless to override their panic reaction. These individuals often report dizziness, loss of bladder or bowel control, tachypnea, feelings of pain, and shortness of breath.[9]

Specific phobias

A specific phobia is a marked and persistent fear of an object or situation. Specific phobias may also include fear of losing control, panicking, and fainting from an encounter with the phobia.[10] Specific phobias are defined in relation to objects or situations whereas social phobias emphasize social fear and the evaluations that might accompany them.

The DSM breaks specific phobias into five subtypes: animal, natural environment, blood-injection-injury, situation and others.[11] In children, blood-injection-injury phobia and phobias involving animals, natural environment (darkness) usually develop between the ages of 7 and 9, and these are reflective of normal development. Additionally, specific phobias are most prevalent in children between ages 10 and 13.[12]

Causes

Environmental

Rachman proposed three pathways to acquiring fear conditioning: classical conditioning, vicarious acquisition and informational/instructional acquisition.[13]

Much of the progress in understanding the acquisition of fear responses in phobias can be attributed to classical conditioning (Pavlovian model).[14] When an aversive stimulus and a neutral one are paired together, for instance when an electric shock is given in a specific room, the subject can start to fear not only the shock but the room as well. In behavioral terms, this is described as a conditioned stimulus (CS) *(the room)* that is paired with an aversive unconditioned stimulus (UCS) *(the shock)*, which leads to a conditioned response (CR) *(fear for the room)* (CS+UCS=CR).[14] For instance, in case of the fear of heights (acrophobia), the CS is heights such as a balcony on the top floors of a high rise building. The UCS originates from an aversive or traumatizing event in the person's life, such as almost falling down from a great height. The original fear of almost falling down is associated with being in a high place, leading to a fear of heights. In other words, the CS *(heights)* associated with the aversive UCS *(almost falling down)* leads to the CR *(fear)*. This direct conditioning model, though very influential in the theory of fear acquisition, is not the only way to acquire a phobia.

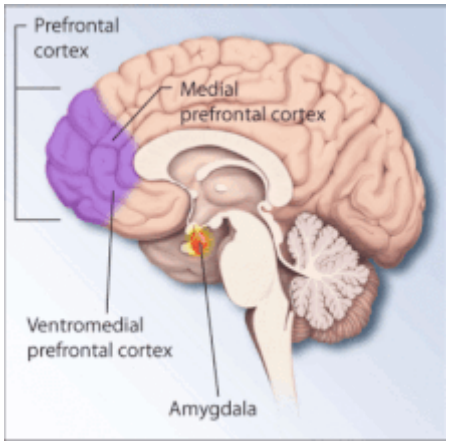
Vicarious fear acquisition is learning to fear something, not by a subject's own experience of fear, but by watching others reacting fearfully (observational learning). For instance, when a child sees a parent reacting fearfully to an animal, the child can become afraid of the animal as well.[15] Through observational learning, humans can to learn to fear potentially dangerous objects—a reaction also observed in other primates.[16] In a study focusing on non-human primates, results showed that the primates learned to fear snakes at a fast rate after observing parents' fearful reactions.[16] An increase of fearful behaviours was observed as the non-human primates continued to observe their parents' fearful reaction.[16] Even though observational learning has been proven effective in creating reactions of fear and phobias, it has also been shown that by physically experiencing an event, chances increase of fearful and phobic behaviours.[16] In some cases, physically experiencing an event may increase the fear and phobia more so than observing a fearful reaction of another human or non-human primate.

Informational/instructional fear acquisition is learning to fear something by getting information. For instance, fearing electrical wire after having heard that touching it causes an electric shock.[17]

A conditioned fear response to an object or situation is not always a phobia. To meet the criteria for a phobia there must also be symptoms of impairment and avoidance. Impairment is defined as being unable to complete routine tasks whether occupational, academic or social. In acrophobia, an impairment of occupation could result from not taking a job solely because of its location at the top floor of a building, or socially not participating in a social event at a theme park. The avoidance aspect is defined as behaviour that results in the omission of an aversive event that would otherwise occur, intending to prevent anxiety.[18]

Mechanism

Beneath the lateral fissure in the cerebral cortex, the insula, or insular cortex, of the brain has been identified as part of the limbic system, along with cingulated gyrus, hippocampus, corpus callosum and other nearby cortices. This system has been found to play a role in emotion processing[20] and the insula, in particular, may contribute through its role in maintaining autonomic functions.[21] Studies by Critchley et al. indicate the insula as being involved in the experience of emotion by detecting and interpreting threatening stimuli.[22] Similar studies involved in monitoring the activity of the insula show a correlation between increased insular activation and anxiety.[20]



Regions of the brain associated with phobias[19]

In the frontal lobes, other cortices involved with phobia and fear are the anterior cingulate cortex and the medial prefrontal cortex. In the processing of emotional stimuli, studies on phobic reactions to facial expressions have indicated that these areas are involved in processing and responding to negative stimuli.[23] The ventromedial prefrontal cortex has been said to influence the amygdala by monitoring its reaction to emotional stimuli or even fearful memories.[20] Most specifically, the medial prefrontal cortex is active during extinction of fear and is responsible for long-term extinction. Stimulation of this area decreases conditioned fear responses, so its role may be in inhibiting the amygdala and its reaction to fearful stimuli.[24]

The hippocampus is a horseshoe-shaped structure that plays an important part in the brain's limbic system because of its role in forming memories and connecting them with emotions and the senses. When dealing with fear, the hippocampus receives impulses from the amygdala that allow it to connect the fear with a certain sense, such as a smell or sound.

Amygdala

The amygdala is an almond-shaped mass of nuclei that is located deep in the brain's medial temporal lobe. It processes the events associated with fear and is linked to social phobia and other anxiety disorders. The amygdala's ability to respond to fearful stimuli occurs through the process of fear conditioning. Similar to classical conditioning, the amygdala learns to associate a conditioned stimulus with a negative or avoidant stimulus, creating a conditioned fear response that is often seen in phobic individuals. In this way, the amygdala is responsible for not only recognizing certain stimuli or cues as dangerous but plays a role in the storage of threatening stimuli to memory. The basolateral nuclei (or basolateral amygdala) and the hippocampus interact with the amygdala in the storage of memory, which suggests why memories are often remembered more vividly if they have emotional significance.[25]

In addition to memory, the amygdala also triggers the secretion of hormones that affect fear and aggression. When the fear or aggression response is initiated, the amygdala releases hormones into the body to put the human body into an "alert" state, which prepares the individual to move, run, fight, etc.[26] This defensive "alert" state and response are known as the fight-or-flight response.[27]

Inside the brain, however, this stress response can be observed in the hypothalamic-pituitary-adrenal axis (HPA). This circuit incorporates the process of receiving stimuli, interpreting it and releasing certain hormones into the bloodstream. The parvocellular neurosecretory neurons of the hypothalamus release corticotropin-releasing hormone (CRH), which is sent to the anterior pituitary. Here the pituitary releases adrenocorticotropic hormone (ACTH), which ultimately stimulates the release of cortisol. In relation to anxiety, the amygdala is

responsible for activating this circuit, while the hippocampus is responsible for suppressing it. Glucocorticoid receptors in the hippocampus monitor the amount of cortisol in the system and through negative feedback can tell the hypothalamus to stop releasing CRH.[21]

Studies on mice engineered to have high concentrations of CRH showed higher levels of anxiety, while those engineered to have no or low amounts of CRH receptors were less anxious. In people with phobias, therefore, high amounts of cortisol may be present, or alternatively, there may be low levels of glucocorticoid receptors or even serotonin (5-HT).[21]

Disruption by damage

For the areas in the brain involved in emotion—most specifically fear— the processing and response to emotional stimuli can be significantly altered when one of these regions becomes lesioned or damaged. Damage to the cortical areas involved in the limbic system such as the cingulate cortex or frontal lobes have resulted in extreme changes in emotion.[21] Other types of damage include Klüver–Bucy syndrome and Urbach–Wiethe disease. In Klüver–Bucy syndrome, a temporal lobectomy, or removal of the temporal lobes, results in changes involving fear and aggression. Specifically, the removal of these lobes results in decreased fear, confirming its role in fear recognition and response. Bilateral damage to the medial temporal lobes, which is known as Urbach–Wiethe disease, exhibits similar symptoms of decreased fear and aggression, but also an inability to recognize emotional expressions, especially angry or fearful faces.[21]

The amygdala's role in learned fear includes interactions with other brain regions in the neural circuit of fear. While lesions in the amygdala can inhibit its ability to recognize fearful stimuli, other areas such as the ventromedial prefrontal cortex and the basolateral nuclei of the amygdala can affect the region's ability to not only become conditioned to fearful stimuli but to eventually extinguish them. The basolateral nuclei, through receiving stimulus info, undergo synaptic changes that allow the amygdala to develop a conditioned response to fearful stimuli. Lesions in this area, therefore, have been shown to disrupt the acquisition of learned responses to fear.[21] Likewise, lesions in the ventromedial prefrontal cortex (the area responsible for monitoring the amygdala) have been shown to not only slow down the speed of extinguishing a learned fear response but also how effective or strong the extinction is. This suggests there is a pathway or circuit among the amygdala and nearby cortical areas that process emotional stimuli and influence emotional expression, all of which can be disrupted when an area becomes damaged.[20]

Diagnosis

It is recommended that the terms *distress* and *impairment* take into account the context of the person's environment during diagnosis. The DSM-IV-TR states that if a feared stimulus, whether it be an object or a social situation, is absent entirely in an environment, a diagnosis cannot be made. An example of this situation would be an individual who has a fear of mice but lives in an area devoid of mice. Even though the concept of mice causes marked distress and impairment within the individual, because the individual does not usually encounter mice, no actual distress or impairment is ever experienced. It is recommended that proximity to, and ability to escape from, the stimulus also be considered. As the phobic person approaches a feared stimulus, anxiety levels increase, and the degree to which the person perceives they might escape from the stimulus affects the intensity of fear in instances such as riding an elevator (e.g. anxiety increases at the midway point between floors and decreases when the floor is reached and the doors open).[28]

Treatments

There are various methods used to treat phobias. These methods include systematic desensitization, progressive relaxation, virtual reality, modeling, medication and hypnotherapy. The good news is that over the past several decades, psychologists and other researchers have developed some effective behavioral and pharmacological treatments for phobia, as well as technological interventions [29]

Therapy

Cognitive behavioral therapy (CBT) can be beneficial by allowing the person to challenge dysfunctional thoughts or beliefs by being mindful of their own feelings, with the aim that the person will realize that his or her fear is irrational. CBT may be conducted in a group setting. Gradual desensitization treatment and CBT are often successful, provided the person is willing to endure some discomfort.[30] In one clinical trial, 90% of people were observed to no longer have a phobic reaction after successful CBT treatment.[30][31][32][33]

There is evidence that supports that eye movement desensitization and reprocessing (EMDR) is effective in treating some phobias.[34] Its effectiveness in treating complex or trauma-related phobias has not been empirically established yet.[35] Mainly used to treat post-traumatic stress disorder, EMDR has been demonstrated as effective in easing phobia symptoms following a specific trauma, such as a fear of dogs following a dog bite.[36][37]

Systematic desensitization

A method used in the treatment of a phobia is systematic desensitization, a process in which the people seeking help slowly become accustomed to their phobia, and ultimately overcome it. Traditional systematic desensitization involves a person being exposed to the object they are afraid of over time, so that the fear and discomfort do not become overwhelming. This controlled exposure to the anxiety-provoking stimulus is key to the effectiveness of exposure therapy in the treatment of specific phobias. It has been shown that humor is an excellent alternative when traditional systematic desensitization is ineffective.[38] Humor systematic desensitization involves a series of treatment activities that consist of activities that elicit humor with the feared object.[38] Previously learned progressive muscle relaxation procedures can be used as the activities become more difficult in a person's own hierarchy level. Progressive muscle relaxation helps people relax their muscles before and during exposure to the feared object or phenomenon.

A soldier stomping his foot to put out the fire rising up his leg during military fire-phobia training

Virtual reality therapy is another technique that helps phobic people confront a feared object. It uses virtual reality to generate scenes that may not have been possible or ethical in the physical world. It is equally as effective as traditional exposure therapy[39] and offers some additional advantages. These include being able to control the scenes and having the phobic person endure more exposure than they might handle in reality.[40]

Medications

Medications can help regulate apprehension and fear of a particular fearful object or situation. Antidepressant medications such as SSRIs or MAOIs may be helpful in some cases of phobia. SSRIs (antidepressants) act on serotonin, a neurotransmitter in the brain. Since serotonin impacts mood, people may be prescribed an antidepressant. Sedatives such as benzodiazepines may also be prescribed, which can help people relax by reducing the amount of anxiety they feel.[41] Benzodiazepines may be useful in acute treatment of severe

symptoms, but the risk-benefit ratio is against their long-term use in phobic disorders.[42] This class of medication has recently been shown as effective if used with negative behaviours such as excessive alcohol use.[41] Despite this positive finding, benzodiazepines are used with caution. Beta blockers are another medicinal option as they may stop the stimulating effects of adrenaline, such as sweating, increased heart rate, elevated blood pressure, tremors and the feeling of a pounding heart.[41] By taking beta-blockers before a phobic event, these symptoms are decreased, making the event less frightening.

Hypnotherapy

Hypnotherapy can be used alone and in conjunction with systematic desensitization to treat phobias.[43] Through hypnotherapy, the underlying cause of the phobia may be uncovered. The phobia may be caused by a past event that the person does not remember, a phenomenon known as repression. The mind represses traumatic memories from the conscious mind until the person is ready to deal with them. Hypnotherapy may also eliminate the conditioned responses that occur during different situations. People are first placed into a hypnotic trance, an extremely relaxed state[44] in which the unconscious can be retrieved. This state makes people more open to suggestion, which helps bring about desired change.[44] Consciously addressing old memories helps individuals understand the event and see it in a less threatening light.

Epidemiology

Phobias are a common form of anxiety disorder, and distributions are heterogeneous by age and gender. An American study by the National Institute of Mental Health (NIMH) found that between 8.7 percent and 18.1 percent of Americans suffer from phobias,[45] making it the most common mental illness among women in all age groups and the second most common illness among men older than 25. Between 4 percent and 10 percent of all children experience specific phobias during their lives,[12] and social phobias occur in one percent to three percent of children.[46][47][48]

A Swedish study found that females have a higher number of cases per year than males (26.5 percent for females and 12.4 percent for males).[49] Among adults, 21.2 percent of women and 10.9 percent of men have a single specific phobia, while multiple phobias occur in 5.4 percent of females and 1.5 percent of males.[49] Women are nearly four times as likely as men to have a fear of animals (12.1 percent in women and 3.3 percent in men) — a higher dimorphic than with all specific or generalized phobias or social phobias.[49] Social phobias are more common in girls than in boys,[50] while situational phobia occurs in 17.4 percent of women and 8.5 percent of men.[49]

Society and culture

Terminology

The word *phobia* comes from the Greek: φόβος (*phóbos*), meaning "aversion", "fear" or "morbid fear". The regular system for naming specific phobias to use prefix based on a Greek word for the object of the fear, plus the suffix *-phobia*. Benjamin Rush's 1786 satyrical text, 'On the different Species of Phobia', established the term's dictionary sense of specific morbid fears.[51] However, there are many phobias irregularly named with Latin prefixes, such as apiphobia instead of melissaphobia (fear of bees) or aviphobia instead of ornithophobia (fear of birds). Creating these terms is something of a word game. Such fears are psychological rather than physiological in origin and few of these terms are found in medical literature.[52] In ancient Greek mythology Phobos was the twin brother of Deimos (terror).

The word *phobia* may also refer to conditions other than true phobias. For example, the term *hydrophobia* is an old name for rabies, since an aversion to water is one of that disease's symptoms. A specific phobia to water is called aquaphobia instead. A hydrophobe is a chemical compound that repels water. Similarly, the term photophobia usually refers to a physical complaint (aversion to light due to inflamed eyes or excessively dilated pupils), rather than an irrational fear of light.

Non-medical, deterrent and political use

Several terms with the suffix -phobia are used non-clinically (usually for political or deterrent purpose) to imply irrational fear or hatred. Examples include:

- Chemophobia – Negative attitudes and mistrust towards chemistry and synthetic chemicals.
- Xenophobia – Fear or dislike of strangers or the unknown, sometimes used to describe nationalistic political beliefs and movements.
- Homophobia – Negative attitudes and feelings toward homosexuality or people who are identified or perceived as being lesbian, gay, bisexual or transgender (LGBT).
- Islamophobia - Fear of anything Islamic

Usually these kinds of "phobias" are described as fear, dislike, disapproval, prejudice, hatred, discrimination or hostility towards the object of the "phobia".[53]

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External links

- Media related to Phobias at Wikimedia Commons
- Social Anxiety (https://curlie.org/Health/Mental_Health/Disorders/Anxiety/Social_Anxiety) at Curlie

Classification	**ICD-10**: F40.9 (https://icd.who.int/bro

- Diagnostic criteria for specific phobia (https://web.archive.org/web/20041205053330/http://www.behavenet.com/capsules/disorders/specphob.htm) in the DSM-I.
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	wse10/2019/en#/F40.9) · **ICD-9-CM**: 300.20 (http://www.icd9data.com/getICD9Code.ashx?icd9=300.20) · **OMIM**: 608251 (https://omim.org/entry/608251) · **MeSH**: D010698 (https://www.nlm.nih.gov/cgi/mesh/2015/MB_cgi?field=uid&term=D010698)
External resources	**MedlinePlus**: 000956 (https://www.nlm.nih.gov/medlineplus/ency/article/000956.htm) · **eMedicine**: article/288016 (https://emedicine.medscape.com/article/288016-overview)