

*The Roots
of
Anxiety and Panic*



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Introduction

You see a rattlesnake.

The image is sent to a part of your brain called the amygdala. It is the part of your brain that is primitive and thinks literally. When unregulated, it produces immediate and uncontrolled reactions. The hippocampus and the cortex, on the other hand, are able to process a stimulus *in context* by using memories of previous experiences. They allow us to react differently when we see a rattlesnake that is safely behind glass and one that is coiled at the base of our feet. Put another way, your amygdala is quick to put the gas pedal to the floor (raising your heart rate, speeding up your breathing), while the hippocampus can hit the brakes to help calm you down (Wallin, 2007, p. 72).

This passage from the book “Fear itself” describes the process in greater detail:

The primitive fear system kicks in around the first tenth of a second after our initial perception, prior to conscious awareness. The rational fear system begins to operate when sensory data processed by the cortex enter conscious awareness a fraction of a second later. [...] When we are in a dangerous situation, the primitive fear system stimulates an intense form of alertness to any potential threat.
[...]

Panic is the hallmark of the primitive fear system. This system evolved to meet the primal needs of the savage, brutish, life-or-death environment of one hundred thousand years ago, an environment in which most human beings never reached their thirtieth birthday. (Dozier, 1998, pp. 10–13)

Let's define it

Anxiety is:

- A state of unease, apprehension and worry.
- Disruptive to your life.
- May include physical symptoms such as heart palpitations, trembling and dry mouth

Panic is:

- Intense fear
- You dread the possibility of another attack
- Symptoms can last for hours. Symptoms can include:
 - Difficulty breathing or feeling “smothered”
 - Fear that you are “going crazy”
 - Racing heart or chest pain
 - Nausea or heartburn
 - Feeling lightheaded or “not there”
 - Sweating

If you have anxiety and/or panic, you are not alone

According the 1999 report by the Surgeon General, anxiety disorders affect about 16% of adults age 18–54. That’s about 1 in every 6 people. Some type of panic disorder affects about 1.5% of that same group. (U.S. Department of Health and Human Services).

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Having anxiety or panic doesn't mean that there is something wrong with you or that you are "going crazy." To the contrary, it is a strong indicator from your subconscious that something scary and dangerous has happened in your past and to be careful in the future. And since phobias are often the result of a one time experience, the fact that you remembered means that you are a fast learner (Andreas, Faulkner, 1994, p. 194). Learning quickly has a strong survival value. Remember, the zebra that doesn't learn to check for crocodiles before drinking at the river doesn't live very long.

Underlying biology

There are several medical issues that could be causing or contributing to anxiety and panic. These are hypoglycemia, hyperthyroidism, mitral valve prolapse, PMS and inner ear disturbances, to name a few (Bourne, 2005, pp.43-44).

The biological causes of anxiety and panic are the subject of a growing body of evidence. I will note two critical structures that are implicated in anxiety and panic (see the [recommended reading](#) for additional information). A key structure in the brain is the hippocampus. When adrenal steroids (stress hormones) reach the hippocampus, it starts a chain reaction that eventually inhibits additional adrenal activity. Hence, the hippocampus is important in modulating stress response. Current research indicates that prolonged periods of stress, such as those experienced in child abuse or neglect, cause damage to the hippocampus. Vietnam veterans and survivors of long term child abuse actually have a shrunken hippocampus, as well as impaired memory (LeDoux, 1996, pp. 240-242). But this damage appears to be at least somewhat reversible, as recent research shows that the hippocampus can regenerate nerve cells (Bremner, Narayan, 1998).

In contrast, the positive effects of “maternal care, handling and soothing touch [...] protect the hippocampus from stress” (Cozolino, 2006, p. 236). For more information on the effects of early maternal care and stress, see the April 2008 newsletter [Early childhood and the ability to cope with trauma](#).

A second brain structure related to fear and anxiety is the amygdala. As stated previously, the amygdala gets sensory input first and, if it is a hint of a threat, it begins to prime your body for reaction. Research suggests that the amygdala has an indelible memory. Once a major stressful or traumatic event has occurred, the amygdala records it forever (LeDoux, 1996). While this might seem like a hopeless obstacle to recovery, it can be counterbalanced by new learning. For example, imagine someone is bitten by a dog and subsequently becomes afraid of dogs. Over time, if that person begins approaching friendly dogs and they can create new, more positive memories. These memories are laid down in the brain as new knowledge, such as “most dogs don’t bite”. This new learned knowledge can then act as a counterbalance to the amygdala’s initial response of fear. There are several psychological techniques (to be discussed in the next newsletter, the Treatment of Anxiety and Panic) that can facilitate this new learning.

While both the hippocampus and the amygdala are affected by stress and trauma, they appear to be affected in opposite ways. The hippocampus will be less likely to record a clear memory of the event, while the amygdala is apt to lay down a strong and permanent record. Again, from LeDoux “It is thus completely possible that one might have poor conscious memory of a traumatic experience, but at the same time form a very powerful implicit, unconscious emotional memories [...]” and “[...] if a conscious memory

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wasn't formed, it can't be recovered" (pp. 245–246). In other words, your fear center may remember a trauma that you cannot.

Underlying psychology

There are many psychological features that are associated with persistent anxiety and panic. Two major categories are attentional focus and cognitive beliefs. Attentional focus is what a person directs their attention to. Cognitive beliefs guide your interpretation of events by a schema or belief system.

Attentional Focus

There is far too much information coming in from all our senses to be perceived all at once. At any moment, you are focused on some aspects of the reality in front of you and selectively ignoring other parts. From "On Intelligence":

At any moment in time, you can directly sense only a tiny part of your world. That tiny part dictates what memories will be invoked, but it isn't sufficient on its own to build the whole of your current perception. [...]

It is my memory model of the world that predicts [...] by analogy to past experience. Most of what you perceive is not coming through your senses; it is generated by your internal memory model. (Hawkins, p. 202)

If someone is scanning the social or physical environment for danger cues, they will be downplaying or missing safety cues. Take a bookshelf with paperweights on it. The anxious person might see the paperweights as potential blunt force weapons while a nonanxious might focus on the book titles.

Attentional focus can also be internal. Being keenly aware of bodily sensations and interpreting those physical sensations negatively is thought make someone more vulnerable to panic attacks (Barlow, 2002).

Internal and external attentional focus can be illustrated by someone who is anxious about public speaking. Externally, the person might locate a few people who look uninterested or bored and then lose sight of the part of the audience that is showing interest. Internally, the person notices tightness in their stomach and begins to focus on it, ignoring the relaxation that they feel in other parts of their body. Negative interpretations of these two focuses will increase the felt sense of anxiety and the possibility of panic. So it is not just what we perceive but also how we interpret those perceptions.

Cognitive beliefs

Anxiety is supported by a view that the world is a dangerous place, and having that view direct your attention toward threat and away from evidence of safety. Combine this danger focus with the belief that you will be unable to cope with the threatened harm and you have a case of escalating anxiety. As the anxiety rises, it begins to create a kind of tunnel vision, through which the ability to reason and assess the situation rationally is degraded. This heightened state makes it even more difficult to see external safety cues or to recall comforting and reassuring memories. Now, add in any of the symptoms of panic (light headedness, heart racing, nausea, sweating) and the likely interpretation would be that a panic attack is arriving.

An excerpt from the study “Attentional Fixation in Panic Disorder” states it succinctly:

Anxious individuals are characterized by the heightened activation of a “danger” schema, which orients them toward threat in their environment and

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directs cognitive resources toward processing threat cues at the expense of safety cues. Schemas also comprise beliefs about the world being dangerous and about the inability to cope with potential harm. When activated, these beliefs prompt catastrophic misinterpretations that occur in uncomfortable situations (Wenzel, Sharp, Sokol, Beck, 2006, p.65).

What would predispose someone to anxiety or panic?

Three major factors that would predispose someone to anxiety or panic are social learning, stress and insecure attachment.

Social learning would include factors like witnessing a heart attack or cancer in a close relative and then becoming anxious about developing that condition. Studies also show that anxious adults are more likely to have had anxious caregivers or caregivers who encourage sick role behavior. (Barlow, 2002, p. 225).

Early stress is another major factor related to anxiety and panic. Barlow writes in “Anxiety and its disorders”:

Now, there is dramatic evidence that early stressful life events may effect rather permanent alterations in brain function [...] that may mediate the neurobiological vulnerability to develop chronic anxiety and depression later in life (p. 217).

As discussed in the biology section, early traumatic experience can actually alter the structure of the brain.

A person’s attachment type (secure vs. insecure, see the [April 2008 newsletter](#) for more details) is critical in determining what resources they will have available when confronting stressful life situations. In insecure/disorganized attachment, it appears that a caregivers frighten their children not only with frightening behavior,

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but also with *frightened* behavior. In situations where the caregiver's own trauma or loss is triggered, they can behave in ways that transmit that fright. It is theorized that this may be how can intergenerational transmission of fearfulness occurs. (Wallin, 2007).

In the next newsletter, I will address the treatment of anxiety and panic.

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Recommended reading

Self help for anxiety and panic

[The Anxiety & Phobia Workbook](#)

A self help encyclopedia for anxiety, phobias and panic

For those seeking a deeper understanding and the research underpinnings:

Biological aspects of anxiety and panic:

[The Emotional Brain: The Mysterious Underpinnings of Emotional Life.](#)

Written by a brain researcher, this book examines the brain structures that are associated with fear and anxiety.

For an exhaustive overview of anxiety

[Anxiety and Its Disorders: The Nature and Treatment of Anxiety and Panic](#)

A tome of research and theory with extensive information about anxiety and panic

More information

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