

WHAT IS ANXIETY

ANXIETY is an emotion associated with a sense of uneasiness and apprehension. It is a future orientated emotional response in reaction to the perception of threat of some kind. Anxiety, fear and panic tend to revolve around the perception of threat toward one's physical well-being and safety, one's acceptability in social situations or one's emotional state. The thought processes associated with anxiety tend to be future orientated. Thinking is often repetitive and rumination is often present. Anxiety tends to be accompanied by behavioural responses that are orientated toward avoidance of the anxiety-provoking stimulus.



A diversity of physical symptoms of varying intensities associated with autonomic nervous system arousal may develop. These would include:

- Heart palpitations or accelerated heart rate
- Sweating
- Trembling or shaking
- Sensations of shortness of breath or an elevated respiratory (breathing) rate
- Chest pain or discomfort or a sense of pressure on the chest
- Nausea or abdominal distress
- Feelings of dizziness or light-headedness
- Derealization (feelings of unreality) or depersonalization (feeling detached from oneself)
- Feelings of numbness or tingling
- Cold chills or hot flushes
- Impaired attention and concentration
- Restlessness

FEAR is seen as a response to a known, external, definite threat (e.g. a snake or a gun being pointed at you) as oppose to anxiety that is often experienced in response to an unknown or more vague and less definite threat that is often not immediately present.

PANIC on the other hand is defined as an intense episode of intense dread or fear. Panic tends to have an abrupt onset as oppose to gradually building anxious arousal. It is associated with an intense urge to escape and less often with urges to fight. The tendency to flee or escape is supported by strong autonomic nervous system arousal and includes intense symptoms such as those listed above. The perception of threat is imminent with panic, whereas with anxiety the threat is seen as more future orientated.

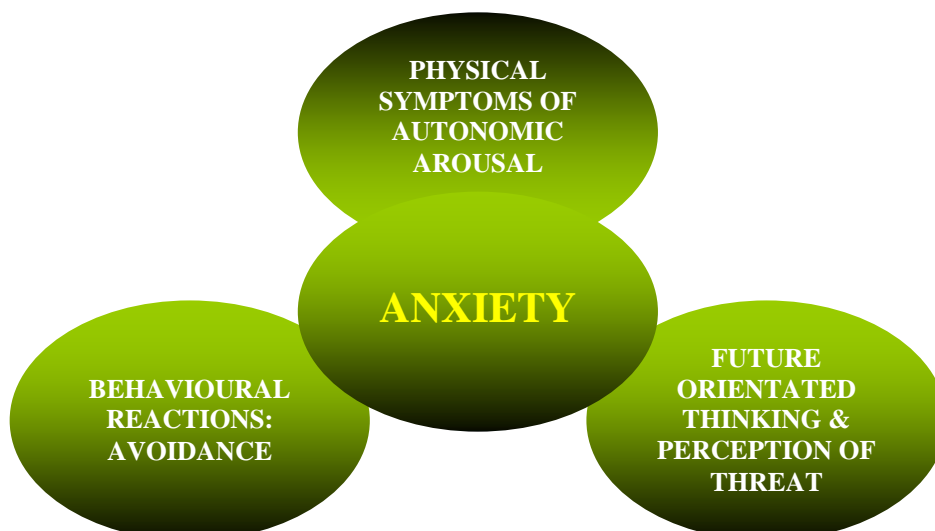


Figure 1: Representation of the cognitive-biological-behavioural nature of anxiety



ANXIETY DISORDERS

HEALTHY VS UNHEALTHY ANXIETY

Many “negative” or unpleasant emotional reactions may be seen as either healthy and functional or unhealthy and dysfunctional.

For instance, if someone feels extreme fear during the course of an armed robbery or symptoms of anxiety before or during an oral examination then this may be unpleasant and uncomfortable but it may not necessarily be unhealthy or dysfunctional. In fact, fear and anxiety may actually be extremely helpful. If humans (and animals) did not have the ability to fear, then we would all have been extinct by now! Fear and anxiety really does help keep us alive! Certain scenarios really do require fear as a protective mechanism, such as swimming with sharks in deep water, falling from a dangerous height, walking down a dangerous alley at night or sleeping with your doors unlocked. If we did not fear these scenarios or feel some concern or anxiety about them, then none of us would behave in such a manner so as to prevent these realistically dangerous situations from occurring.

Unhealthy or dysfunctional anxiety on the other hand can generally be defined by the following criteria:

- The perception of threat is seen to be greater than the objective degree of threat
- The anxiety tends to impair an individual’s ability to function within their respective roles and their environment
- The anxiety is perceived as distressing and unwanted
- The anxiety and its associated symptoms are experienced over an extended period of time which is not objectively necessary.

WHAT IS AN ANXIETY DISORDER?

Anxiety disorders are probably the most common of all psychiatric and psychological disorders. They are however also probably one of the most responsive groups of psychological disorders to treatment from a CBT perspective.

In order for a diagnosis of an anxiety disorder to be made, a thorough clinical assessment is required and such an assessment would need to reveal the following:

- That prominent symptoms of anxiety are present and that those symptoms are experienced as distressing.
- That the symptoms have been present for a significant period of time (that meets the minimum time period criteria for that diagnosis)
- That the symptoms cause a sufficient amount of disturbance or impairment in an individual’s ability to function at work or school, within social settings and in other important areas of functioning

While some individuals may experience what is referred to as sub-clinical or “less severe and disabling” symptoms of anxiety, most anxiety symptoms fall into one of the following categories:

- [Panic disorder and agoraphobia](#) *(discussed at the end of this document)*
- [Specific phobias](#) *(discussed at the end of this document)*
- [Social phobia](#) *(discussed at the end of this document)*
- [Obsessive-compulsive disorder](#) *(discussed at the end of this document)*
- [Post-traumatic stress disorder](#) *(discussed at the end of this document)*
- [Generalized anxiety disorder](#) *(discussed at the end of this document)*

Professionals trained in the diagnosis of anxiety disorders would include psychiatrists, psychologists and general practitioners. For an accurate diagnosis to be made, a mental health professional well trained in the assessment, diagnosis and treatment of anxiety disorders is often required. Making an accurate diagnosis is of extreme importance. The reason for this is that CBT-based treatments for anxiety disorders are becoming more disorder specific. This is as a result of ongoing theoretical and treatment developments that inform more specific treatment planning. As a result, successful treatment is generally highly dependent upon an accurate diagnosis being made. Knowing that someone has anxiety is insufficient for disorder specific treatment planning.

WHAT IS THE COGNITIVE-BEHAVIOURAL PERSPECTIVE ON THE DEVELOPMENT OF ANXIETY DISORDERS

Cognitive-behavioural theory for anxiety disorders has grown rather significantly over the last few decades. More recent additions to our understanding of the development and treatment of anxiety disorders have taken place as a result of significant advances in neuroscience (McNally, 2007). See our link ([go to links](#)) to the very interesting Le Doux Laboratory website in this regard. These developments together with pre-existing cognitive and behavioural theory have assisted in informing our theoretical understanding and treatment approaches within modern day clinical psychology.

The development, maintenance and successful treatment of anxiety disorders is seen as being related to a number of factors.

PREDISPOSING DEVELOPMENTAL FACTORS are factors that are present from early on in childhood, that tend to increase the risk of the development of an anxiety disorder. These would include factors such as:

- Family history of anxiety (genetic predisposition)
- Temperamental style associated with anxiousness and greater physiological reactivity and...
- ... a particular thinking style that may predispose one toward anxiety
- Early trauma, early parental separation or unstable living conditions in childhood

PRECIPITATING DEVELOPMENTAL FACTORS are factors that contribute greatly toward the onset of a first episode of anxiety or an experience during which fear conditioning (see below) may take place. These may vary across the different anxiety disorders. They may include a variety of factors such as:

- A traumatic event (motor vehicle accident or mugging)
- An unpleasant and uncomfortable encounter with an animal (e.g. a bird or a dog) especially during childhood
- Unpleasant and uncomfortable physical symptoms associated with a medical condition (e.g. feelings of shortness of breath related to asthma)
- Experience of someone else suffering a serious medical condition (e.g. parent having a heart attack)
- Unremitting pressure and stress at work
- Some other uncomfortable experience during which one responds with a significant amount of anxiety.

Precipitating developmental factors may also include a number of other internal physiological factors that may “set one up” with high levels of physiological arousal such as intoxication, illness, sleep deprivation or caffeine intoxication or physiological factors such as thyroid problems, intense headache or migraine, a heart attack or changes in other biological variables such as blood carbon dioxide levels.

FEAR CONDITIONING is the process during which all of the above factors come together. During fear conditioning, neutral or “non dangerous” stimuli are strongly associated with “dangerous” stimuli or the perception of threat and the fear response (Mc Nally, 2007).

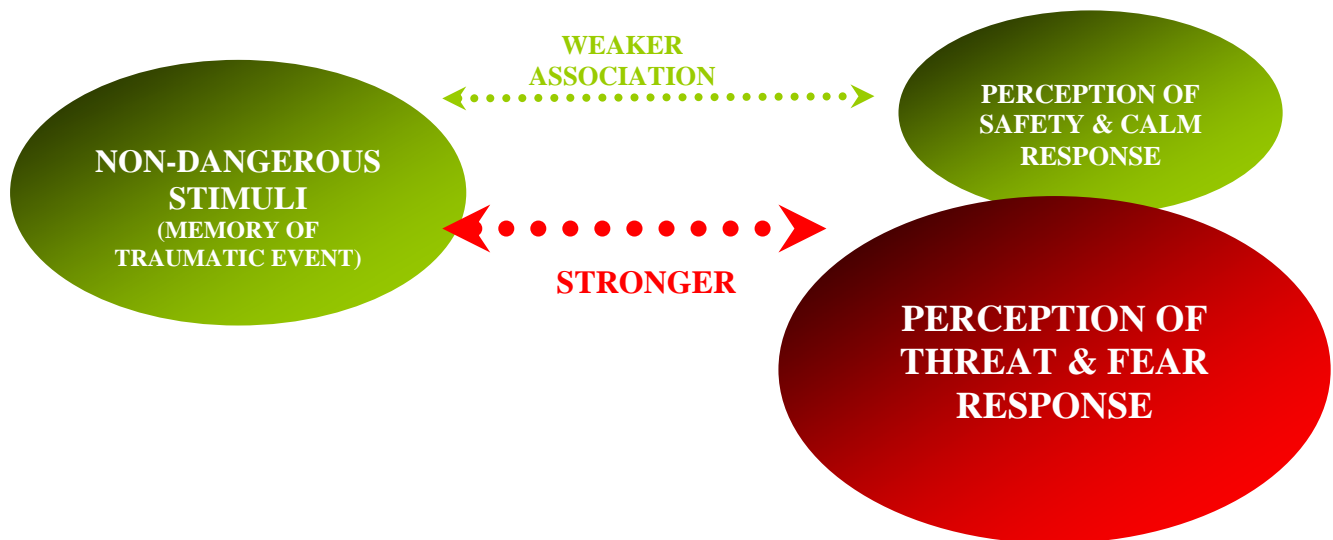


Figure 2: A diagrammatic illustration of the way in which a non-dangerous stimulus (memory of a traumatic event) becomes a conditioned stimulus for the perception of threat and the fear response. The example relates to an individual suffering from PTSD

These neutral stimuli may be internal. For example:

- **Elevated heart rate or light-headedness** in the case of people suffering from panic disorder
- The **thought that one's hands are dirty and must be washed** in the case of people suffering with OCD – contamination type
- A **memory of a past traumatic event** in the case of someone suffering from PTSD

These stimuli are however often also external. For example:

- **Driving on the N1** in the case of people suffering from post-traumatic stress disorder after a motor vehicle accident
- **Standing on a ladder** in the case of someone with a phobia of heights
- **Being the last one to enter a room full of people** in the case of someone suffering with social phobia

The brain learns that these “previously neutral” stimuli are dangerous and should be feared and avoided. Fear conditioning may occur during a single event or over a period of time as a result of repeated experiences.

This learning tends to however be inaccurate in the case of anxiety disorders where the degree of threat associated with these stimuli tends to be overestimated and the fear response is thus exaggerated.

There are a number of different learning systems within the brain. The anatomical structure most central to fear condition is the amygdala, a tiny pea shaped structure that lies alongside the hippocampus (also involved in learning, memory and anxiety) in an anatomical cluster of nuclei referred to as the limbic system. Other structures within the limbic system have however also been implicated as being highly involved with anxiety disorders.

Once fear conditioning has taken place, the anxiety disorder and fear response that goes along with that tends to be rather resistant to change. The amygdala learns what “should be feared” very quickly and it remembers those fear stimuli very well but it's not all that good at later learning that those stimuli are not actually dangerous. This is a much slower, more resistant process that relies on the strengthening of inhibitory pathways from the medial pre-frontal cortex that shut the amygdala's fear response down (Davis, 2002). The amygdala is a structure lower down in the brain and it is what we would refer to as a more primal structure. Without it we would have no fear response and thus be extremely vulnerable to danger, death and extinction.

The problem with the overly-sensitive or overly-reactive amygdala is that it is not very good at distinguishing between various contexts. An overly sensitive and reactive amygdala is also not very good at distinguishing more subtle differences between stimuli involved during fear conditioning vs. non-dangerous stimuli that are encountered after fear conditioning has taken place. As a result, it sees anything that resembles the feared stimulus as signalling danger. This is why an individual with a snake phobia will have a phobic response to a picture of a snake in a magazine, two metres away. The non-dangerous stimulus (picture of snake in magazine) is present and this is all the amygdala needs to react. It does not distinguish between contexts and therefore does not realize that this stimulus and this context is non-dangerous.

The other problem with the amygdala is that it is extremely quick in its perception of threat and its reaction to it. The primal nature of this structure allows it to receive incoming sensory information and react to it before the conscious brain is even aware of it (Harvey, Bryant & Tarrier, 2003). This is why people with anxiety disorders will often report that they started to feel anxious before they have even had any thoughts going through their mind. The amygdala is a protective structure that will initiate the fear response before we are consciously aware of the stimulus. It's similar to the automatic response that you have to placing your hand on a hot object. The brain and spinal cord have automatic reflex mechanisms that perceive the danger of the hot object and allow you to immediately remove your hand from the object before you have necessarily consciously realized that your hand is burning. If we had to wait for the thinking part of the brain (the cortex) to first realize that there is some threat then we would take too long to react to it. This is also why it is difficult to "think your way out of anxiety", because the fear response is often initiated before conscious cognition is present, so the anxiety has a head start. This is also why traditional "talk therapy" is rather unhelpful in treating anxiety disorders and why reconditioning or prolonged exposure is so important.

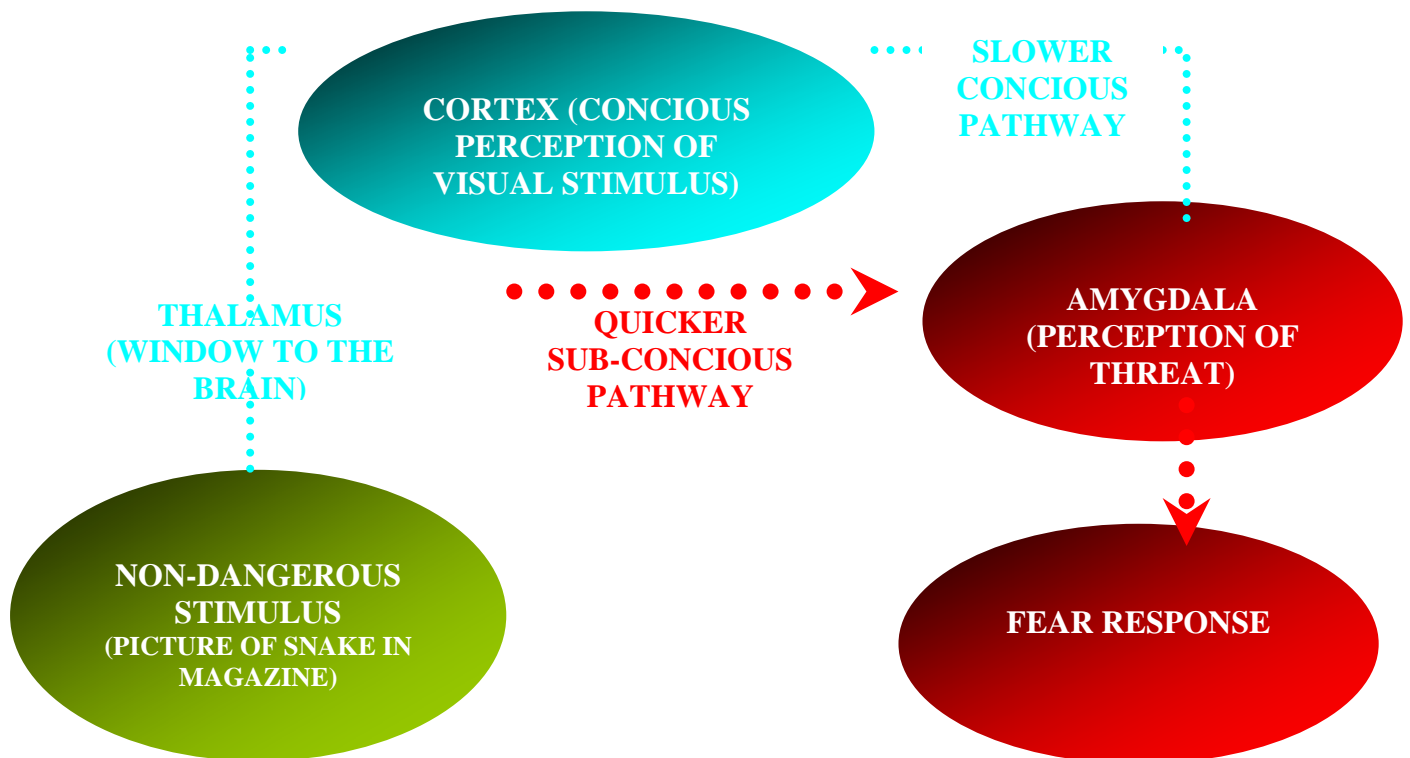


Figure 3: A diagrammatic illustration of the neural pathways involved in the perception of threat and the fear response. Note how the amygdala would tend to react to a stimulus before the "thinking brain" can challenge the reaction!

DYSFUNCTIONAL THINKING is associated with the development and maintenance of anxiety disorders (Beck & Emery, 1985). It is possible that dysfunctional ways of thinking may sometimes cause anxiety on their own but dysfunctional thinking is often the conscious brain's reaction during fear conditioning. Dysfunctional thinking may however also develop in response to anxiety. We call this secondary disturbance (Walen, DiGiuseppe & Dryden, 1992) and much of the initial stages of cognitive therapy is orientated toward reducing anxiety about anxiety. Exactly when during the development of anxiety, thinking plays its role, is less important than the fact that we know that it contributes toward maintaining it and that it's helpful to challenge dysfunctional thinking as a critical component to treatment.

The dysfunctional thinking styles that people with anxiety disorders present with tend to revolve around multiple themes. Some examples of dysfunctional thinking would include the following:

- **Overestimation of the degree of threat of a particular situation**
 Snake Phobia "if I walk on the mountain then *I will be bitten* by a snake (and die)"
 Panic Disorder "if I have a panic attack, then *I will have a heart attack* (and die)"
 PTSD "if I drive on the N1 again then *I will end up in an accident*"
 OCD "If I have a blasphemous thought again like this, then *something terrible will happen* to me"
- **Confusing low probability with high probability**
 PTSD "there is a *50% chance* that I will be sexually assaulted again"
 Flying Phobia "there's a *fifty-fifty* chance that the plane could crash"
- **Catastrophising or Awfulizing or regularly predicting the worst-case scenario**
 Social Phobia "they'll think I'm crazy if they see that I'm anxious and that *would be terrible*"
 GAD "it *would be horrible* if I don't get the job, and then I *may never get another one*"
 Panic Disorder "it *would be awful* if I had another panic attack"
- **Underestimating one's ability to cope with an adverse situation also referred to as Low Frustration/Discomfort Tolerance (LFT)**
 Panic Disorder "I *can't handle* the panic attacks"
 All Anxiety "I *can't handle* those feelings of anxiety"
 OCD "I *can't stand the urge* to wash my hands, it's too much"
 OCD/GAD "The uncertainty is *just too much to bare*, I must know for certain"
- **Overgeneralization (predicting that if something bad had happened once, that it will always happen again)**
 PTSD "I'll *never be able to* drive on the N1 without having an accident again"
 PTSD "*All men* are thinking of sexually assaulting me when they look at me"
 Social Phobia "I'll *always be anxious* in front of strangers"
- **Demandingness: "Should" or "Must" statements or imperatives that tend to increase anxiety**
 Agoraphobia "I *must not be* anxious"
 Social Phobia "Other people *must not have a negative opinion* of me or judge me"
 GAD/Performance Anxiety "I *have to get* an A for my exam"
 Panic Disorder and Agoraphobia "I *should have total control* at all times over my anxiety"
- **Negative Self-Rating, where one judges the whole of oneself as bad, inadequate, worthless or unlovable**
 Social Phobia "Getting so anxious makes me a *weak person* and other people will think this of me "
 GAD/Performance Anxiety "I'm *such a failure* for having failed at that task"
 Anxiety within Relationships "If I do all these things and I still can't get John to love me then *I must be unlovable*"
- **Misinterpretation of the meaning or danger of physical symptoms**
 All Anxiety "If I allow myself to get so anxious then It might *become totally out of control*"
 Panic Disorder "I'll *have a stroke* if these panic attacks continue"
 Claustrophobia "I *won't be able to breath* and I'll end up suffocating"

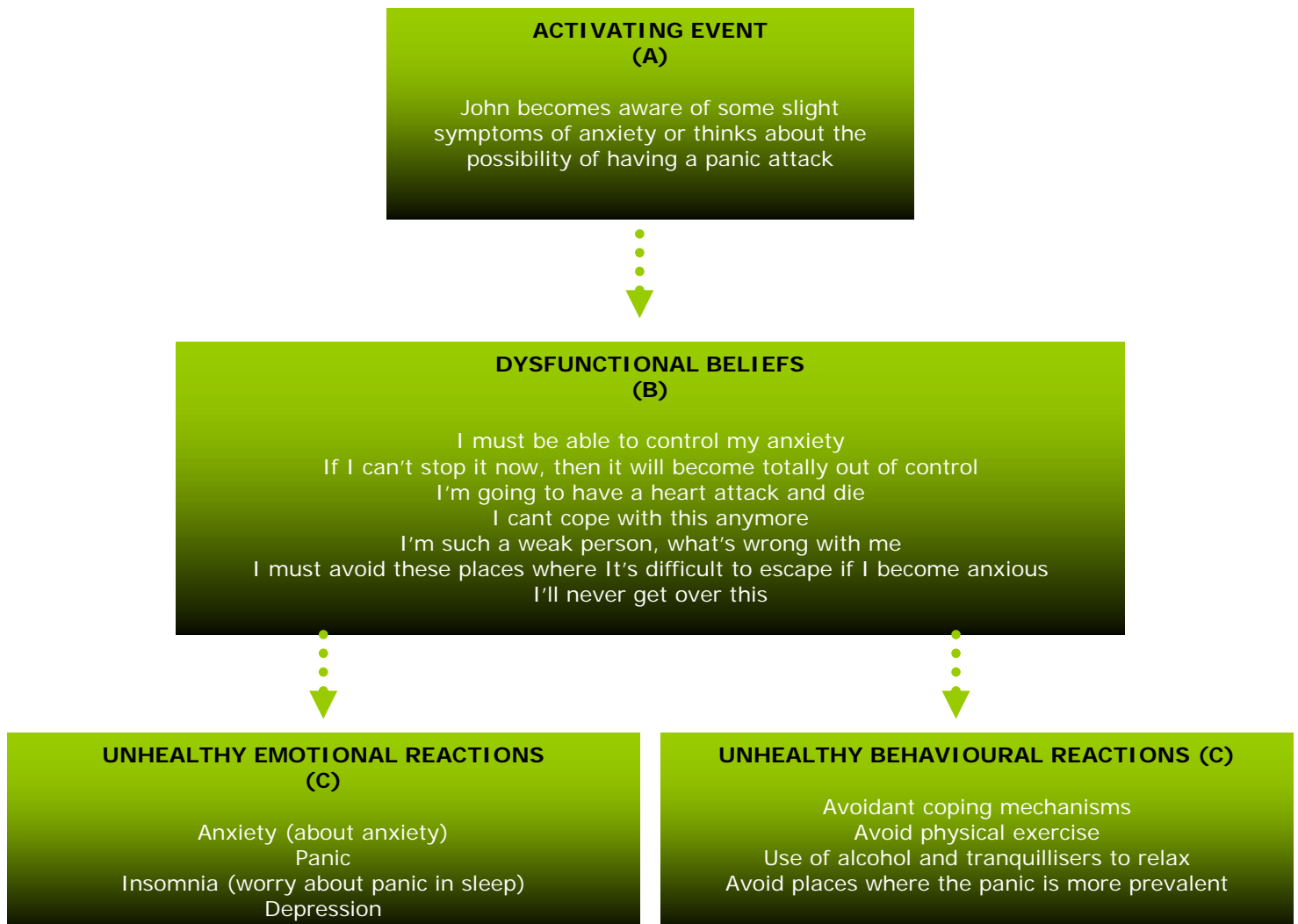


As previously mentioned, there are at least two parallel systems involved in fear conditioning. The one is involved in more sub-conscious fear conditioning and reaction to sensory cues and the other involves more conscious sensory perception and thought (Brewin, 2001; Dalgleish, 2004).

Anxiety provoking or anxiety maintaining beliefs may be the result of years of repetitive dysfunctional thinking patterns which may be driven by what is referred to as underlying dysfunctional cognitive schemas or core beliefs, which often develop out of experience. For example, a child that grows up experiencing numerous unexpected and traumatic or difficult events may develop certain beliefs about the probability of "something bad happening". This may later on lead to an intolerance of uncertainty and an associated tendency to catastrophize and predict the worst-case scenario. This may function as one of the thinking or cognitive mechanisms that underlies generalized anxiety disorder or chronic worry.

Dysfunctional beliefs may however also develop in conjunction with or in reaction to more automatic fear conditioning. For example, people with panic disorder may not have any particular dysfunctional thinking styles that result in their initial panic attack. Further panic attacks may however be initiated by dysfunctional thinking about the nature of panic.

Figure 4: Using the example of John suffering with Panic Disorder and Agoraphobia, the cognitive model would explain the influence of dysfunctional cognitions or thinking in the following way:



MAINTAINING FACTORS tend to revolve around avoidance behaviour. Avoidance behaviours tend to actually exacerbate or maintain anxiety. Avoidance always seems like a good solution (because in the short term it is anxiety-reducing) but it's actually a symptom of an anxiety disorder and tends to make things worse.

The brain falsely learns during fear conditioning that certain “non-dangerous” stimuli “are dangerous” and should be feared and avoided”. There is really only one way in which the brain is able to learn that this is in fact untrue and that the “feared stimulus” is in fact quite safe and does not need to be feared or avoided. This is through a technique referred to as prolonged exposure or extinction training (Rothbaum & Foa, 1992).

During prolonged exposure the brain learns that the “non-dangerous” feared stimulus is in fact not dangerous and as a result the brain stops reacting to it with fear and the behavioural tendency to avoid.

Avoidance prevents the brain from learning that the non-dangerous feared stimulus is in fact not actually threatening and does not need to be feared or avoided

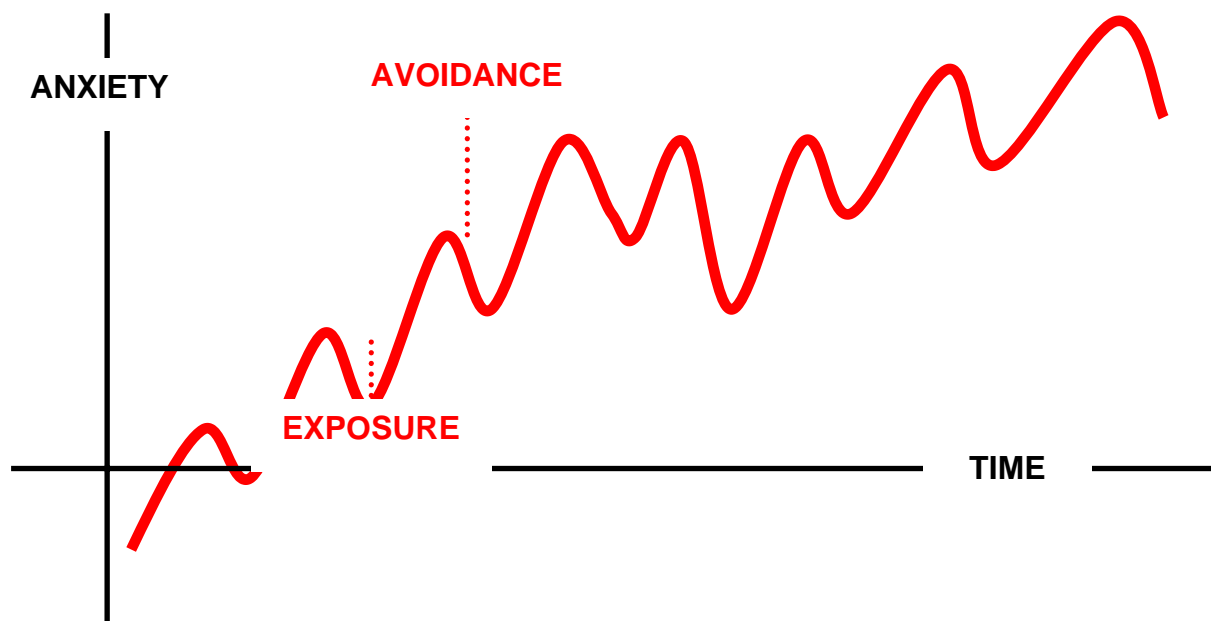


Figure 5: The exacerbation and maintenance of anxiety as a result of escape or avoidance

Avoidance thus ensures that the fear stimulus is either never encountered or is only encountered for short periods of time before escape is initiated, as illustrated in the graph above. As a result, prolonged exposure cannot occur if the feared stimulus is never encountered for significant periods of time.

Avoidance thus ensures that the association between non-dangerous stimuli and the perception of danger and fear remains, which obviously keeps the fear response intact and the anxiety disorder in place.

Avoidance may include basic behavioural avoidance and more subtle avoidance behaviours such as alcohol abuse or the use of prescription medication such as tranquilizers or benzodiazepine medication, that all assist in reducing the symptoms of anxiety (whilst the substance is in ones body) but seldom lead to sustained symptom reduction. This is because the association between the feared stimulus and the fear reaction remains and is merely avoided.



WHAT ARE THE COMPONENTS TO COGNITIVE-BEHAVIOURAL THERAPY FOR ANXIETY DISORDERS

The cognitive behavioural therapy approach toward the understanding and treatment of anxiety disorders differs somewhat between each of the disorders. There are however a number of concepts and treatment approaches that are central to most treatment approaches for all anxiety disorders. These are outlined below. Please refer to the sections on each of the respective anxiety disorders for a short summary of what CBT-based treatment entails for each of the respective disorders.

The purpose of cognitive-behavioural therapy is to assist individuals in altering their emotional distress and dysfunctional behavioural patterns. This is no different to most other psychotherapy approaches. The ways of understanding anxiety and the methods employed in treating it are however very specific and rather unique to CBT. From a cognitive-behavioural therapy perspective, anxiety disorders are seen as the result of inappropriate fear conditioning and dysfunctional ways of evaluating the degree of threat of the feared stimulus.

THE COGNITIVE MODEL proposes that it is not merely a potential adverse situation that leads to panic, fear, anxiety and worry but the way in which we think about it (Beck & Emery, 1985; Ellis & Harper, 1961). Cognitive theory proposes that irrational or dysfunctional ways of thinking about a particular stimulus or event would result in unhealthy fear and anxiety about that stimulus or event.

Cognitive therapy is thus aimed at identifying those thoughts, attitudes and assumptions that create, exacerbate or maintain unnecessary fear and anxiety. Some of these thinking patterns may be very obvious and conscious whilst others may sit a little below conscious awareness, but easily elicited and identifiable with the correct interviewing techniques. Once identified, these thoughts, assumptions and attitudes are assessed in a scientific manner with regards to the following:

- **Whether they follow logical reasoning**
- **Whether or not they are based on any objective evidence**
- **Whether they are helpful or self-defeating and anxiety provoking.**

A variety of different types of irrational ways of thinking may be identified as shown in the section above on Dysfunctional Thinking. Once identified these thoughts, attitudes and assumptions are disputed or challenged and ultimately replaced by healthier, more evidence based, logical cognitions or way of thinking. These healthier thinking styles are then practiced repeatedly and with different methods that enable people to develop a stronger level of conviction for these healthier ways of thinking (Walen, DiGiuseppe & Dryden, 1992).

This tends to assist in reducing anxiety and reducing avoidance. However, as previously mentioned, it is very difficult to “think your way out of anxiety”. This is because the pre-frontal cortex or thinking part of the brain is quite good at activating the amygdala but not all that good at shutting it down. This is where the behavioural model comes into play.

Figure 6: An example is provided on the next page of how someone suffering with panic disorder may be thinking and how their thoughts are identified, disputed and changed to healthier ways of thinking using the cognitive model.

ACTIVATING EVENT (A)

John becomes aware of some slight symptoms of anxiety or thinks about the possibility of having a panic attack



FUNCTIONAL OR RATIONAL BELIEFS (B)

I cannot have absolute control over my anxiety and trying to gain absolute control will only make it worse, I'll have greater control if I don't try to have total control

Trying to stop it now is like trying to have total control of it, I can rather work on tolerating it while it temporarily lasts

The anxiety is a physical symptom but it is not a dangerous physical symptom and I can't have a heart attack or experience any other harmful consequence as a result

I can cope with it while its lasts (because I have always survived it in the past), I just don't like coping with it

I have many strengths and weaknesses, but I am neither completely strong nor weak, even though I'm battling with anxiety. My amygdala may be overly sensitive though!

I would prefer to avoid the anxiety, but avoidance is not a must and it will only make me fear the anxiety for longer. Tolerating it while it lasts in the short term will help to reduce it in the long term

I'll be the first one if I never get over this (and perhaps be famous for it!). It will temporarily last for sometime until it goes



UNHEALTHY EMOTIONAL REACTIONS (C)

Less intense Anxiety (about anxiety)
Reduced tendency to develop Panic
Reduced worry about panic
Reduced risk of Depression



UNHEALTHY BEHAVIOURAL REACTIONS (C)

Less avoidant coping mechanisms
Participation in physical exercise
Reduced use of alcohol and tranquillisers
Greater Tolerance of anxiety
Greater preparedness to participate in exposure therapy (in vivo and interoceptive)

THE BEHAVIOURAL MODEL proposes that anxiety disorders result from inappropriate fear conditioning. This means that the brain inaccurately associates non-dangerous stimuli in non-dangerous contexts with the perception of threat and the fear response. The behavioural model is now substantiated and further informed by significant advances in neuroscience (McNally, 2007). The behavioural model proposes that avoidant coping responses only serve to exacerbate and maintain the inaccurate association between non-dangerous stimuli in non-dangerous contexts with the perception of danger and the fear response.

It proposes prolonged exposure or extinction training as the solution to this inaccurate association and suggests this as the only way in which non-dangerous stimuli in non-dangerous contexts can be accurately associated with the perception of safety and a non-anxious response. The problem with exposure is that anyone with an anxiety disorder will initially respond with the fear response and with significant symptoms of anxiety. As a result, most people tend to leave the situation and escape or avoid it. This does not give the brain sufficient time to learn that the feared consequences do not actually occur or that the anxiety is tolerable or does eventually reduce. This is why exposure must be prolonged. It needs to be long enough for the brain to have the opportunity to realize how these stimuli do not need to be feared. Exposure also needs to be long enough for the brain to begin rewiring itself and developing inhibitory pathways from the medial pre-frontal cortex to the central nucleus of the amygdala, that shut the fear response down.

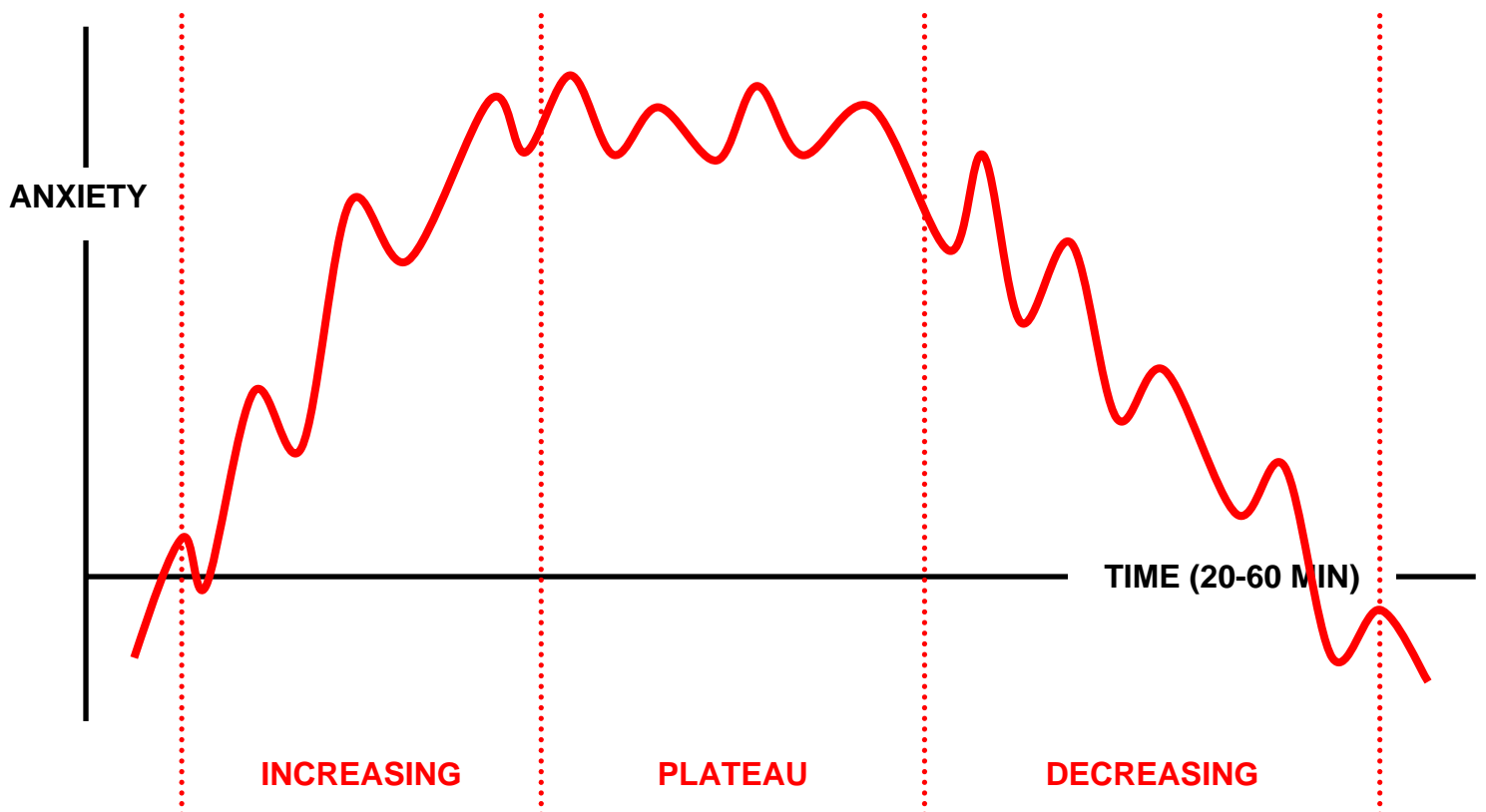


Figure 7: The eventual reduction in symptoms of anxiety during prolonged exposure (without avoidance) over a 20 to 60 minute period.

There are four types of prolonged exposure that are used with varying degrees according to the anxiety disorder that is being treated (Choy, Fyer, Lipsitz, 2007).

PROLONGED IN-VIVO EXPOSURE

Prolonged in-vivo exposure is a technique that is used with individuals who are suffering from anxiety disorders where the feared stimulus is external. Prolonged exposure is done to the feared stimulus that has previously been avoided in response to the anxiety. Prolonged in-vivo exposure is used with most anxiety disorders but most often forms a significant component to treatment planning with specific phobias, social phobia, agoraphobia, obsessive-compulsive disorder and post-traumatic stress disorder.

PROLONGED IMAGINAL EXPOSURE

Prolonged imaginal exposure is a technique that is primarily used with individuals who are suffering from post-traumatic stress disorder. Imaginal exposure is used with anxiety disorders where the feared stimulus is imaginal (an image). Memories of traumatic experiences trigger a great deal of anxiety and panic in individuals suffering from PTSD. The memories and all that triggers them are seen as the non-dangerous stimuli, which trigger the perception of threat and the fear response in PTSD. Exposure is thus done to the images and memories of the traumatic event until the brain no longer reacts to them as dangerous (because they aren't, even though they may remain unpleasant). Imaginal exposure may also be used in the treatment of other anxiety disorders as a preparatory step before in-vivo exposure. Imaginal exposure to images relating to the content of worry, may also be done with people with generalized anxiety disorder.

INTEROCEPTIVE EXPOSURE

Interoceptive exposure is a technique during which individuals are exposed to the internal physical sensations that they react to with fear, panic, anxiety or worry. Interoceptive exposure is used primarily with people suffering from panic disorder, agoraphobia or claustrophobia. It is however often also helpful as an adjunct to in-vivo exposure for phobias, especially when people are extremely anxious and fearful of their anxiety.

VIRTUAL EXPOSURE

Virtual exposure is a technique that is used using virtual reality computer software that assists individuals with exposure exercises that would difficult to create in-vivo (real life).

Virtual exposure is most often used with people who have a phobia of flying. This is because it is often difficult and very expensive to do in-vivo exposure with aircraft.

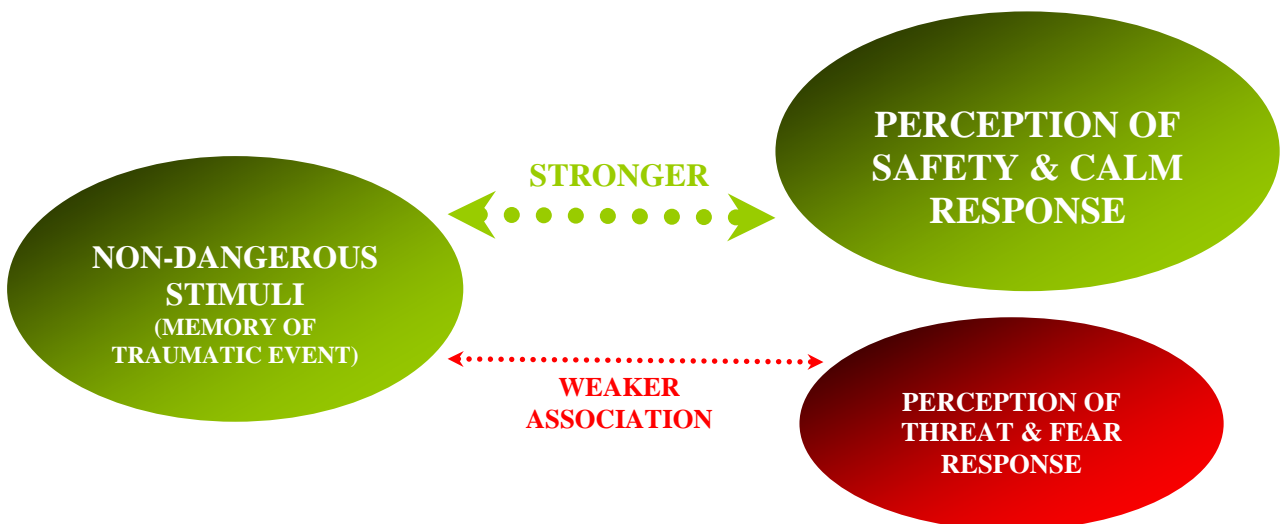


Figure 8: A diagrammatic illustration of the way in which a non-dangerous stimulus (memory of a traumatic event) becomes associated with the perception of safety and a calmer response as a result of prolonged imaginal exposure. As with figure 2 above, the example relates to an individual suffering from PTSD

Each of these exposure techniques are ultimately aimed at assisting the brain to build stronger associations between the non-dangerous stimulus and the perception of safety that tend to overpower associations between the non-dangerous stimulus and the perception of danger and the fear response. Prolonged exposure is a very powerful and extremely successful technique that assist in reducing symptoms of many anxiety disorders. Our clinical experience would suggest that prolonged exposure is most useful after an initial cognitive therapy intervention and a significant amount of psycho-education.

THE ANXIETY DISORDERS DEFINED

PANIC DISORDER AND AGORAPHOBIA

Panic disorder can be an extremely debilitating disorder where people experience frequent and recurrent panic attacks, worry a great deal about panicking and fear that they may experience a heart attack, a stroke, lose control or “go crazy” in response to the panic attack.

Panic attacks may be triggered by certain external triggers later on during the disorder, but they most often “come out of the blue” and may even occur during sleep. The reason for having an initial panic attack and the reason for having subsequent attacks are often very different with panic disorder. The difference between panic disorder and phobias or other anxiety disorders, is that the panic attacks in panic disorder are generally not in response to an external stimulus, but rather come out of the blue or develop in response to a fear of panic. Panic disorder basically results from a fear of panic and changes in physiological state.

Panic attacks are episodes of panic that tend to have a sudden and abrupt onset and tend to peak within several minutes. The following symptoms may occur:

- **Heart palpitations, a pounding heart, or an accelerated heart rate**
- **Sweating**
- **Trembling or shaking**
- **Sensations of shortness of breath or smothering**
- **Feeling of choking**
- **Chest pain or discomfort**
- **Nausea or abdominal distress**
- **Feeling dizzy, unsteady, light headed, or faint**
- **Derealization (feelings of unreality) or depersonalization (being detached from oneself)**
- **Fear of losing control or going crazy**
- **Fear of dying**
- **Numbness or tingling sensations**
- **Cold chills or hot flushes**

Panic disorder can be successfully treated with a combination of psycho-education, cognitive therapy, interoceptive exposure and in-vivo exposure.

Agoraphobia results from a fear about being in places or situations from which escape might be difficult (or embarrassing) or in which help may not be available in the event of having an unexpected or situationally predisposed panic attack or panic-like symptoms. Agoraphobic fears typically involve characteristic clusters of situations that include being outside the home alone, being in a crowd or standing in a line, being in the shopping mall, travelling - especially with public transport or being at school. If these situations are not completely avoided then they tend to be endured with marked distress or anxiety about having a panic attack or panic-like symptoms. People will often also only go out if in the presence of a companion. People suffering with severe agoraphobia would tend to battle to leave their homes (which are often seen as “safety zones”). Agoraphobia may be accompanied by panic attacks but may also occur without panic attacks, but with more lower grade anxiety symptoms. Again, as with panic disorder, agoraphobia results from a fear of panic or anxiety, which increases with certain settings.

As with panic disorder, a significant amount of psycho-education is important. Successful treatment tends to entail a combination of cognitive therapy, interoceptive exposure and in vivo exposure.

SPECIFIC PHOBIAS

A **specific phobia** may be present if an individual strongly fears a specific stimulus that tends to be external to oneself (but may sometimes be internal). Phobias are grouped into four clusters, depending on the feared stimulus, namely:

- Animal Type (spiders, snakes, birds, dogs, insects)
- Natural Environment Type (heights, water, storms)
- Blood-Injection-Injury Type (injections, needles, blood)
- Situational Type (enclosed spaces, flying, lifts, driving, bridges)
- Other Type (vomiting, choking, contracting an illness)

An individual with a phobia would tend to respond with a great deal of anxiety in response to the stimulus and would then tend to avoid the stimulus or other situations that may resemble it or carry a higher risk of exposure to it.

Phobias are probably the most common of the anxiety disorders but are also some of the most easily treatable conditions. Many phobias may even be treated successfully with one or two sessions of in-vivo exposure (Choy, Fyer, Lipsitz, 2007). Treatment entails a significant amount of education and in-vivo exposure. Cognitive therapy and interoceptive exposure tend to assist as useful adjuncts to treatment. Interoceptive exposure is helpful with claustrophobia and virtual exposure is most often used with flying phobia. Most other phobias require in-vivo exposure. Specific blood pressure enhancing techniques are required for those planning in-vivo exposure to a blood-injection type of phobia because of the strong vasovagal response associated with this phobia.

SOCIAL PHOBIA

Social phobia is a diagnosis that is given to individuals who tend to fear certain social situations where they fear being scrutinized or negatively judged by others (these are the stimuli). Individuals with social phobia worry about acting in such a way that may leave them feeling embarrassed or humiliated. People suffering with social phobia also tend to worry a great deal that they will become anxious within social settings and that others will notice this and judge them negatively for it. As a result, avoidance of certain social situations is often prominent and substance abuse (especially alcohol) is often present with adults and used as a means of reducing or managing social anxiety. Social phobia is a condition that is often missed and under-diagnosed. While shyness is often part of social phobia, they are not the same. Social phobia tends to result in marked distress, dysfunctional avoidance and tends to have a negative impact on one's ability to function within work environments, social situations and within relationships.

Treatment tends to revolve around a significant amount of cognitive therapy, behavioural training and in-vivo exposure.

OBSESSIVE-COMPULSIVE DISORDER

Obsessive-Compulsive Disorder is a diagnosis that is characterized by recurrent obsessions and/or compulsions that interfere substantially with daily functioning. Obsessions are "persistent ideas, thoughts, impulses or images that are experienced as intrusive and inappropriate". These obsessions tend to cause a great deal of anxiety and distress. Typical obsessions would include repetitive thoughts about contamination, causing harm to others, self-doubt (e.g. did I lock the door) or other unwanted thoughts that people battle to get out of their minds. Compulsions are "repetitive behaviours or mental acts that are aimed at preventing or reducing the anxiety or distress". Typical examples of compulsive behaviour would include hand washing, ritualistic prayer, checking and counting. Compulsions are often aimed at either preventing the distress brought on by obsessions or at preventing the proposed harm associated with them.

For example, an individual with a contamination obsession would worry a great deal about getting "dirt" or "germs" on his hands. As a result, he would tend to avoid touching a wide variety of "contaminated objects" (e.g. door handles, the floor, towels that have previously been used by themselves, restaurant cutlery, desks at college). He would tend to then frequently wash his hands in an attempt to reduce his anxiety associated with his perceived contamination. This behaviour would cause a great deal of distress and get in the way of his ability to function, firstly because of his avoidance and secondly because of the amount of time that may be taken by his hand washing behaviour.

The treatment of choice for OCD is referred to as prolonged exposure and response prevention (EX/RP) (Franklin & Foa, 2008). During exposure therapy, individuals are introduced to the idea of prolonged exposure to obsessions without the use of the associated compulsive behaviour as a coping mechanism. During prolonged exposure, individuals are encouraged to expose themselves to the very thoughts, images, ideas, situations or other stimuli that they have their obsessions about. This is done for a prolonged period of time until their anxiety begins to habituate or starts to come down without the use of the compulsion. This is a very powerful technique that helps the brain to rewire its circuitry that is involved with OCD symptoms. As with most other exposure-based interventions, most people feel a great deal of anxiety about this before beginning with exposure and a significant amount of psycho-education and cognitive therapy is often required before hand.

POST-TRAUMATIC STRESS DISORDER

Post-traumatic stress disorder is a cluster of symptoms that is given to individuals who have experienced a traumatic event (motor vehicle accident, mugging, hijacking, rape) and who are experiencing a number of symptoms such as recurrent and intrusive thoughts and images relating to the traumatic event. These may take the form of nightmares or flashbacks and run through the individual's mind "like a movie". A significant amount of anxiety would tend to be experienced in reaction to these thoughts or images. Individuals often attempt to avoid the images, places, people or situations that remind them of the trauma, often out of fear that it will happen again, but sometimes also just because it triggers the memory, which is responded to with a great deal of anxiety. A number of symptoms of physiological arousal such as sleep disturbance, irritability and anger outbursts, an exaggerated startle response and difficulties with concentration are experienced. Individuals may also experience numbness and be unable to remember important parts of the trauma memory.

PTSD is a condition that is highly responsive to CBT. Psycho-education and imaginal exposure are central to treatment. Imaginal exposure is required as the memory of the trauma itself is seen as the "non dangerous stimulus" that individuals react to with the perception of threat and the fear response. As a result, exposure to the memory or anything that reminds people of the event, is done so that the memory may be processed in such a way that it is no longer responded to with fear and anxiety. Major changes in the way in which individuals think about themselves and the world are also challenged using cognitive therapy and in-vivo exposure is often also used for exposure to external triggers that remind individuals of the event.

GENERALIZED ANXIETY DISORDER

Generalized anxiety disorder is a diagnosis that is given to individuals who present with persistent, excessive and uncontrollable worry for at least six months about multiple concerns. The worry is also associated with other somatic symptoms such as restlessness, being easily fatigued, irritability, concentration problems or having one's "mind going blank", irritability, muscle tension and sleep disturbance. People with GAD are often perfectionistic and indecisive. GAD often goes undiagnosed because people (including many medical professionals) see worry as normal. This may be true, but excessive and uncontrollable worry is not and so people suffering with GAD often only tend to present at a mental health professional once the anxiety spins out of control (into panic attacks) or once people become depressed. Even at this point people with GAD may receive a diagnosis of panic disorder or depression, where the underlying problem is excessive worry.

GAD was previously thought of as the "waste paper basket" of the anxiety disorders because any cluster of symptoms, which did not clearly fit in with any of the other anxiety disorders, would often receive a GAD diagnosis. This should not be the case and it is important that persistent and recurrent worry must be present in order for a GAD diagnosis to be made.

Cognitive therapy with a number of behavioural interventions form the central component to treatment for GAD. There are two levels to treating worry and GAD. The one is aimed at the content of worry. The irrational and dysfunctional nature of the thoughts associated with worry are identified and corrected and individuals are assisted in drawing more evidence-based conclusions that tend to be less catastrophic. The second level of intervention is aimed at worry itself. Worry is a mental activity (like a mental behaviour) that is believed to be associated with a number of inaccurate beliefs about the usefulness of worry. Meta-cognitive approaches (Wells 2007) help individuals understand their irrational beliefs about the usefulness (or dangerousness) of worry that keeps worry alive and drives the mental behaviour.