Panic Disorder

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The nature of the problem

DSM-IV (American Psychiatric Association, 1994) and ICD-10 (World Health Organization, 1994) define a panic attack as a discrete period of intense fear or discomfort, which starts suddenly, reaches a peak within a few minutes, and is associated with at least four symptoms. The symptoms (which vary slightly between DSM-IV and ICD-10) include: breathlessness; palpitations; chest pain; dizziness; trembling; sweating; a feeling of choking; dry mouth; nausea; derealisation; paresthesias (e.g. numbness or tingling, especially in the lips and fingers); chills or hot flushes; and fears of losing control, dying, or going crazy. Defined this way, occasional panic attacks are common in all anxiety disorders (Barlow et al., 1985). For example, a patient with spider phobia might experience a panic attack when confronted with a large spider and a patient with obsessive-compulsive disorder might have a panic attack after touching a "contaminated" objection. The diagnosis of panic disorder, however, is restricted to a subset of individuals who experience *recurrent* panic attacks, some of which come on *unexpectedly*. That is to say, the attacks are not always triggered by anticipating a phobic situation, entering a phobic situation or a sudden increase in the severity of a phobic situation (e.g., the spider moves). In addition, the main fear in panic disorder is a fear of having a panic attack and of its consequences, rather than a fear of a specific situation, activity or object (e.g., heights, public speaking, or small animals). Diagnostically, panic disorder is sub-divided into panic disorder with and without agoraphobia. Individuals diagnosed as panic disorder with agoraphobia can identify certain situations in which they think attacks are particularly likely to occur, or would be especially catastrophic, and tend to avoid these situations. Individuals diagnosed with panic disorder without agoraphobia tend

not to be able to identify such situations and show no gross situational avoidance. However, because they cannot predict when a panic attack occurs, these individuals often show high levels of generalised anxiety between attacks.

The apparently "out-of-the-blue" or unexpected nature of some of the attacks in panic disorder led many biologically oriented researchers to suggest that panic disorder might best be understood as a neurochemical disorder (Charney, Heninger & Breir 1984; Klein, 1993). However, in the mid-1980s several investigators (Beck, Emery and Greenberg, 1985; Clark, 1986, 1988; Ehlers & Margraf, 1989: Margraf, Ehlers & Roth, 1986; Rapee, 1985; Salkvoskis, 1988) argued that panic disorder is best understood in cognitive terms. Subsequent research (see Clark, 1996 for a review) supported the cognitive approach and lead to the development of the cognitive therapy programme that is described in this chapter. The theoretical model on which the therapy is based is presented first, followed by a detailed description of the therapy procedures. At the end of the chapter, the randomized controlled trials that demonstrated the effectiveness of the therapy are reviewed.

The cognitive model of panic disorder

The cognitive model of panic disorder (Clark, 1986, 1988) states that the panic attacks that are characteristic of the disorder result from the catastrophic misinterpretation of certain bodily sensations. The sensations that are misinterpreted are mainly those involved in normal anxiety responses (e.g., palpitations, breathlessness, and dizziness) but also include some other sensations. The catastrophic misinterpretation involves perceiving these sensations as much more dangerous than they really are and, in particular, interpreting the sensations as indicative of an *immediately* impending

physical or mental disaster – for example, perceiving a slight feeling of breathlessness as evidence of impending cessation of breathing and consequent death, perceiving palpitations and a tight chest as evidence of an impending heart attack, perceiving a pulsing sensation in the forehead as evidence of a brain haemorrhage, or perceiving a shaking feeling as evidence of impending loss of control and insanity.

The suggested sequence of events that occurs in panic attacks is shown in Figure 1. External stimuli (such as a department store for a patient with panic disorder and agoraphobia) and internal stimuli (bodily sensations, thoughts, images) can both provoke panic attacks. The sequence that culminates in an attack starts with a stimulus being interpreted as a sign of impending danger. This interpretation produces a state of apprehension, which is associated with a wide range of bodily sensations. If these anxiety-produced sensations are interpreted in a catastrophic fashion (e.g. indicating impending insanity, fainting, death, loss of control, etc.) a further increase in apprehension occurs, producing more bodily sensations, leading to a vicious circle that culminates in a panic attack.

Different types of panic attack.

The cognitive model provides an explanation for both panic attacks that are preceded by a period of elevated anxiety and for panic attacks that are not and instead appear to come on "out of the blue". In attacks preceded by heightened anxiety, the sensations that are initially misinterpreted are often a consequence of the preceding anxiety, which in turn is due to anticipating an attack or to some anxiety-evoking event that is unrelated to panic attacks (e,g., worry about a financial crisis). In attacks that are not preceded by heightened anxiety, the misinterpreted sensations are initially caused by a different emotional state (often anger or excitement) or by innocuous events such as

exercising, (breathlessness, palpitations), drinking too much coffee (palpitations), or standing up quickly after sitting (dizziness). In such attacks patients frequently fail to distinguish between the triggering bodily sensations and the subsequent panic and so perceive the attack as having no cause and "coming out of the blue". This is understandable given patients' beliefs about the meaning of an attack. For example, if a patient believes there is something wrong with his heart, he is unlikely to view the palpitations that trigger an attack as different from the attack itself. Instead, he is likely to view both as aspects of the same thing – a heart attack or near-miss.

Nocturnal attacks. This type of explanation for the occurrence of spontaneous attacks can also be applied to nocturnal/night-time attacks, in which the patient wakes up in a panic (Clark, 1988, p. 75; Craske & Barlow, 1989). Sleep studies (Oswald, 1966) have shown that we monitor the external world for significant sounds while we are asleep and tend to have our sleep disturbed or are awoken by such sounds. The cognitive model proposes that we also monitor our *internal* environment for significant events. There are many bodily changes that occur during sleep. An individual who is concerned about his or her heart might have a panic attack triggered by a palpitation or increased difficulty in breathing that is automatically detected and misinterpreted during sleep. He or she would then wake up in a state of panic. Misinterpretations are most likely to occur when an individual does not have a readily available and straightforward explanation accessible. In this context, it is interesting to note that nocturnal panic attacks are less likely in the rapid eye movement (REM) sleep phase (Mellman & Uhde, 1990) in which dreams are common. The events that happen in a dream (for example, being chased down street by a lion) will often provide a straightforward explanation for bodily sensations and hence make a

misinterpretation less likely. Craske and Freed (1995) have provided experimental support for psychological explanations of nocturnal panic.

The first attack versus subsequent attacks. When applying the cognitive model to individual patients, it is frequently useful to distinguish between the first panic attack and the subsequent development of repeated attacks and panic disorder. Community surveys (Brown & Cash, 1990; Norton, Dorward & Cox, 1986; Wilson et al., 1991) indicate that up to 28% of the normal population will experience an occasional, unexpected panic attack sometime in their life. It is unlikely that there is a single explanation for these relatively common, but occasional autonomic episodes. Stressful life events, hormonal changes, illness, caffeine, drugs and a variety of transit medical conditions could all produce occasional perceived autonomic changes. However, the cognitive model assumes that individuals only go on to develop the rarer condition of repeated panic attacks and panic disorder (approximately 3-5% of the general population; Wittchen & Essau, 1991; Kessler et al. 1994) if they develop a tendency to interpret these autonomic events in a catastrophic fashion. Such a tendency could either be a consequence of learning experiences that pre-date the first attack (e.g. observing one's parents panicking or modelling an illness-related behaviour; Ehlers, 1993) or could arise as a consequence of the way the patient, physicians, and significant others respond to the first attack (e.g., implying by one's alarm or other behaviour that the attack might indicate a potentially fatal condition).

Panic disorder and agoraphobic avoidance.

A substantial proportion of panic disorder patients develop at least some agoraphobic avoidance. The cognitive model suggests that agoraphobic avoidance is particularly likely to occur if individuals' initial attacks occured away from home in situations where help may be difficult to obtain and/or the nature of the individuals' fears is

such that consequences of having a panic would be particularly bad in an agoraphobic situation. Consistent with this suggestion, Craske and Barlow (1988) reported that patients with panic disorder and agoraphobia tend to have more of their first panic attacks when out of the house and alone; by contrast, patients with panic disorder and no agoraphobia tend to have their first attacks at home when accompanied. In addition, although misinterpretation of panic related sensations in terms of physical disasters (e.g. heart attack, suffocate, faint) seems to characterize of all panic disorder patients (Clark et al, 1997), panic disorder patients with agoraphobia are more likely than those without agoraphobia to be concerned about the social consequences of having a panic attack (Amering et al. 1996; Rapee & Murell, 1988).

There has been controversy about the extent to which agoraphobia can occur in the absence of a history of panic attacks (see Horwath et al, 1993). Klein and Klein (1989) claimed that "agoraphobia is almost always preceded by spontaneous panics". However, a recent epidemiological study (Wittchen, Reed & Kessler, 1998) has indicated that agoraphobia without panic is quite common in the community but rarer in clinical settings because the presence of panic attacks is particularly linked to treatment seeking behaviour. The present chapter only focuses on agoraphobia in the context panic disorder. For guidance on the treatment of agoraphobia without a history of panic, the reader is referred to the Chapter 7, which covers specific phobias.

Factors that prevent cognitive change in the absence of treatment.

Research studies with panic disorder patients (see Clark, 1996 for a review) have provided support for the cognitive model's assertion that repeated panic attacks occur because patients have distorted beliefs about certain body sensations. Given this point, we must ask what maintains the negative beliefs? Seligman (1988) has pointed out

that many panic disorder patients persist in maintaining distorted beliefs about their bodily sensations despite numerous experiences that would appear to contradict their fearful beliefs. For example, patients who are concerned that they might be having a heart attack during a panic episode may persist in this belief despite having had thousands of attacks during which they did not die and repeated visits to emergency rooms during which they were told that their heart was normal. From an outsider's perspective, such persistence seems puzzling. Why are panic disorder patients unconvinced by the repeated non-occurrence of their worst fears? Cognitive theorists (Clark, 1988; Ehlers & Margraf, 1989; Salkovskis, 1988) have highlighted two processes that appear to maintain patients' distorted beliefs.

Enhanced Interoception. As a consequence of their beliefs about the dangerousness of certain sensations, panic disorder patients become hypervigilant for those sensations and repeatedly scan their body looking for signs that something is going wrong. This internal focus of attention allows them to notice sensations that are present in everyone but most people are only partly aware of (see Figure 2 an experimental demonstration of enhanced interoception in panic disorder). Once noticed, the sensations are taken as evidence for the presence of some serious physical or mental disorder. In this way, subjectively impressive evidence is generated in support of the mistaken beliefs. This evidence can also be used to discount negative medical tests. For example, "I know the doctor said the test indicated there is nothing wrong, but I have sensations that other people don't, so there must be something wrong".

Safety-Seeking Behaviours. Salkovskis (1988, 1991) suggested that panic disorder patients engage in a wide range of behaviours that are intended to prevent their feared catastrophes (e.g., faint, die, lose control, etc) from occurring. As the fears

are unrealistic, the behaviours (which Salkovskis termed "safety-seeking behaviours") have the consequence that they maintain patients' negative beliefs because the non-occurrence of the catastrophe can be attributed to engaging in the safety seeking behaviour, rather than to the fact that the catastrophe would not have occurred in any case. The avoidance of, or escape from, feared situations (public transport, crowds, etc) that is common in panic disorder with agoraphobia is a classic example of safety seeking behaviour. However, Salkovskis argues that even when patients do not escape from a feared situation, they invariably engage in safety seeking behaviours during a panic attack. Common examples include: trying hard to control your thoughts if you fear you are going crazy in a panic attack; holding onto solid objects (such as a supermarket trolley) or walking with stiff legs if you feel dizzy and fear you will faint; taking deep breaths if you feel short of air and fear you will suffocate; resting to take the strain off your heart if you fear you are having a heart attack; and keeping tight control of your behaviour if you fear you are about to lose control. Each of these behaviours prevents patients from discovering that the sensations they experience in their panic attacks are not as dangerous as they think they are. In addition, some of the behaviours have the unfortunate consequence that they amplify the feared sensations. For example: trying to push distressing thoughts from one's mind can make them more likely to intrude (Wegner, 1989); walking with stiff/rigid legs makes people feel more unsteady; and breathing more quickly and deeply (hyperventilation) makes some people feel *more* short of breath. In addition to using safety-seeking behaviours during a panic attack, many patients also engage in safety-seeking behaviours between attacks. For example, a patient who is worried about having a heart attack might try to avoid straining what he sees as a weak heart by avoiding sex if he feels tired, avoiding heavy meals and drastically reducing exercise. Similarly, someone

who is concerned that high anxiety could kill or send her mad, might avoid any type of stressful event. In line with Salkovskis' suggestion, subsequent research confirmed that safety-seeking behaviours are ubiquitous in panic disorder (Salkovskis, Clark & Gelder, 1996) and play a role in maintaining patients' negative beliefs (Salkovskis, Clark, Hackmann, Wells & Gelder, 1999).

From model to treatment

The cognitive model implies that panic disorder can be effectively treated by correcting patients' negative beliefs about their panic related body sensations. A specialised form of cognitive therapy which attempts to achieve this goal was developed by Clark, Salkovskis and colleagues in the late 1980s/early 1990s and is described in detail in the rest of this chapter. Evidence for the effectiveness of this treatment is summarised at the end of the chapter. The treatment has three main goals:

- Help patients identify their catastrophic misinterpretations of panic related bodily sensations.
- Generate alternative, non-catastrophic interpretations of the body sensations. Usually the alternative interpretation is the cognitive model.
- Test out the validity of the catastrophic and non-catastrophic interpretations by discussion *and* behavioural experiments. In panic disorder, behavioural experiments are particularly important. Many patients with panic disorder are rather like doubting Thomas in The Bible. Thomas was not impressed by verbal information alone (e.g. the disciples' explanation that Christ had risen from the dead) and instead required something more experiential (e.g., putting his hand in Christ's wound to see that he had risen again). In an analogous fashion, panic disorder patients are particularly impressed by behavioural

experiments in which their feared sensations are increased or decreased by manipulations derived from the cognitive model.

A wide range of discussion techniques and behavioural experiments are used in treatment. Each is described in detail and separately later in the chapter. However, in practice they are interwoven within a therapy session in order to maximise belief change. As the way in which the different techniques are interwoven is particularly important, we start with a brief overview of treatment that shows how discussion techniques and behavioural experiments can be combined to generate substantial belief change.

Overview of treatment

A thirty-two year old woman presented with a six year history of panic attacks, in each of which she thought she was dying of a heart attack. Medical examination had indicated that there was no sign of cardiovascular disease. Treatment started by deriving an idiosyncratic version of the cognitive model. This was used to contrast two possible explanations of her problem. First, she was actually in danger of dying in her panic attacks. This was the explanation she initially favoured. Second, her problem was her belief that she was in danger of dying, which generated anxiety and further bodily sensations, which tended to confirm the belief (the "cognitive model"). It was agreed that therapy would aim to find out which explanation was correct. One of the discussion techniques used to distinguish between these two explanations capitalised on the effects of naturally occurring distraction. The patient was asked to recall whether she had ever been suddenly and completely

distracted during a panic attack. She recollected an incidence when she had been at home alone and had become fearful that she was having a heart attack after she noticed a missed heart beat and some chest discomfort. She was about to call her doctor when the telephone rang. Her mother-in-law was ringing to arrange a protracted (several weeks) visit. The patient was reluctant to have more than a brief visit and a delicate discussion requiring all of the patient's attention ensued. The patient was able to minimise the duration of the visit. At the end of the telephone conversation, she noticed that she was no longer experiencing palpitations or chest pain. The therapist asked the patient what she made of this. Did she think that the stressful conversation with her mother-in-law had cured a heart attack? "No", she replied. Instead, it was agreed that a more likely explanation was that the conversation had distracted her from her sensations and fearful thoughts. As the cognitive model would predict, the attack then ceased. Establishing that a sufficiently absorbing distraction can stop a panic attack was followed by a behavioural experiment in which the therapist attempted to produce a panic like state by activating the patient's negative thinking. Without advance explanation, the patient was asked to read pairs of words that represented her feared bodily sensations and catastrophes (e.g. palpitations - dying; chest tight - heart attack) while dwelling on the meaning of the word pairs. To her surprise, she found that while reading the pairs of words she became short of breathe, had a tight chest and her heart raced. The overall experience was similar to her naturally occurring panic attacks. Taken together, the discussion of the effects of distraction and the behavioural experiments involving reading sensation-catastrophe word pairs established that negative thinking plays a key role in generating panic related sensations and anxiety. A further experiment tested her beliefs about the consequence of the sensations. Since developing panic disorder, she

had avoided exercise because she was concerned that it might provoke a heart attack. Now that the therapy had raised doubts about her cardiovascular fears, the patient could be encouraged to exercise and see what happened. Accompanied by the therapist, she ran several hundred yards in the street outside the therapy office. The exercise provoked tightness in her chest that she would normally have responded to by stopping and resting. However, on this occasion and with the therapist's encouragement, she continued to run and found that a heart attack was not provoked. Taken together, the discussion and two behavioural experiments greatly reduced her belief that in a panic she was experiencing a potentially fatal cardiovascular event (heart attack) and noticeably reduced the frequency of her panic attacks. Further discussion and behavioural experiments completely eliminated the catastrophic beliefs and therefore the attacks.

Assessment

Normally the assessment interview would start by asking the patient to provide a brief description of the main presenting problem(s), how it started and how it has developed. If this description reveals that the patient is experiencing *repeated* panic attacks, that some of the attacks are *unexpected*, and that there is a marked *fear of the attacks* themselves, a diagnosis of panic disorder is likely. Differential diagnoses to consider include: specific phobia (where attacks only occur when confronting the phobic object or situation); social phobia (where the attacks would be confined to social-evaluative situations or anticipating such situations); substance induced anxiety disorder (where the attacks are largely confined to taking or withdrawing from drugs or medication); obsessive-compulsive disorder (where the attacks are cued by

thoughts of, or exposure to, an object or situation related to an obsession); and post-traumatic stress disorder (where the attacks are cued by reminders of a traumatic event).

Table 1 summarizes the main information about an individual's panic disorder that is likely to be needed for planning treatment. Information about recent (last month or so) panic attacks should include: the *frequency* and *severity* of the attacks; the main *body sensations* and fearful *thoughts* that were present in the attacks; *safety–seeking behaviours* (attempts to prevent or minimize feared catastrophes) that were used during the attacks; and the *first signs* of the attacks (usually a mild body sensation, such as feeling slightly dizzy, or an image). Such details are best obtained by discussing a recent, specific and severe attack in detail and then briefly reviewing other attacks to see if any additional features are present in the other attacks. A recent attack is chosen to ensure that the patient has a clear memory for the attack. A severe attack is chosen because it is easier to identify negative thoughts in highly frightening episodes. (As a general rule, within pathological emotions more intense affect is associated with more distorted thinking).

The vicious circle model (Figures 1 and Figure 3) shows the sequence of events in a panic attack, including how the attack builds up. However, it is often useful to start one's assessment by focussing on the worse moment in the attack. In this way, the most feared sensations and the most negative thoughts can be immediately identified. Drawing out the full vicious circle is usually postponed until the end of the assessment interview when the therapist has most of the key information about the patient's attacks and so has a clearer idea where (s)he is going.

When reviewing a recent attack, the therapist starts by asking patients to briefly describe where they were and what they were doing when the panic started.

Patients are then asked to go forward in their mind to the middle of the attack when their anxiety was at its worst. Keeping that moment in mind, they are first asked, "At that moment, what sensations did you notice?" What was happening in your body?" As patients start to describe the sensations, the therapist summarises using the patient's own words (e.g. "at that moment you felt short of breath, were sweating, dizzy, and had tingling lips") and probes for further symptoms(e.g. "did you notice any other sensations?"). The therapist summarises using the patient's own words (rather than paraphrasing) because this tends to elicit more detailed recollection from the patient. Once all of the symptoms have been elicited, the therapist asks: "Which symptoms bothered you most?", "Which were most frightening?" The thoughts associated with the symptoms are then elicited. Particularly helpful questions for eliciting thoughts are: "When you are at your most anxious, what was the worst that you thought might happen?" and "When you had (insert the patient's own sensations), what went through your mind?" Often feared outcomes are encapsulated in spontaneously occurring mental images. Such images are rarely mentioned unless specifically probed by asking: "Did you have an image or picture of the worst that you thought might happen?".

Although the above questions usually elicit patient's key thoughts (e.g.. catastrophic misinterpretations of body sensations such as; "I'll die, faint, collapse, go crazy, lose control, etc*)* some patients require more detailed probing. This is particularly likely with the chronic agoraphobic patient. Such patients often leave a feared situation during an attack and subsequently mention that their main thought was, "I have to get out of here". To go beyond this thought it is necessary to ask: "And if you had not been able to get out and the sensations continued to get stronger, what is the worst that you thought might happen?". After a number of panic attacks,

some patients are able to recognize that their fears are unrealistic, at least when they are feeling calm. Such patients may initially state that they used to think they would die, collapse etc in an attack but now realise that will not happen. For these individuals it is can be useful to say something like: "It is excellent that you have managed to make such progress in answering your thoughts, but I wonder if you are always confident that nothing bad will happen? If we think back to your last attack, when the anxiety was at it's worst, were you absolutely convinced that you would not (specify the catastrophe) or was there a moment of doubt?". This question usually reveals that the catastrophic thinking is still present during attacks. Occasionally, patients continue to indicate that they are only bothered by the anxiety, which is unpleasant. For such patients, it is often useful to probe further by asking them to imagine a really bad attack which is extremely "unpleasant" and ask them, "What would be so bad about that?". This can reveal that the patient is concerned that such high anxiety will never stop and, as a consequence, the patient will become a nervous wreck/go crazy.

When listing the fearful thoughts that are present in panic attacks, therapists should try to help patients see the links between specific sensations or groups of sensations and specific thoughts (interpretations). This can be achieved particularly easily if the panic sensations and thoughts have been written on a white board. The therapist can then ask which sensations go with which thoughts. Common sensation-thought links are given in Table 2. Thoughts that that represent catastrophic misinterpretations of body sensations (e.g., "I'll will die", "I am having a heart attack", "I will faint", "I will go crazy", "I will lose control", "I will stop breathing", "This anxiety will kill me", "I will collapse") are present in all panic disorder patients. Additional thoughts that are more concerned with escape and/or the social

consequences of panic are particularly common in patients with agoraphobia. Examples are: " I will be ignored, no-one will help me", "I will never get home", "I will embarrass myself and be ridiculed" and " I will be trapped".

The meaning of many thoughts may appear self-evident. However, with some thoughts further enquiry is required to reveal their full meaning. For example, the thought "I'll lose control" covers dozens of different possibilities, which can be most easily be assessed by asking, "If you did lose control, what would people see? What would you do?". Similarly, the thought "I'll die" may be particularly distressing because of fears about the process of dying (pain etc), or because of fears about what happens after one's death. These meanings can be revealed by questions such as, " Dying is of course something that is very alarming for all of us, but I wonder what was particularly frightening about it for you at that moment?".

Safety seeking behaviours are attempts to prevent a feared catastrophe from occurring or to minimize its adverse effects. For this reason, it is best to enquire about safety seeking behaviours after the feared catastrophes in an attack have been identified. Particularly useful questions for identifying safety-seeking behaviours are: "Did you do anything to try to stop (specify the catastrophe) from happening?"; " Did you choose not to do anything because you feared it might make (specify the catastrophe) worse or more likely?" and "Did you do anything to control the sensations? If so, what did you think at the time was the worst that could happen if you hadn't done that?". Some patients will only venture into a feared situation if accompanied by someone they trust, if holding a mobile phone, or if they have a tablet or a paper bag in their pocket. Usually these precautions are safety-seeking behaviours. The trusted person is usually taken along to speed access to help during a catastrophe (e.g., by calling an ambulance in a "heart attack") or to explain

away/cover up embarrassing behaviour (e.g., "losing control"). The tablet/paper bag is usually to control the panic sensations.

Once the main details of what happens during a panic attack (e.g., body sensations, thoughts, safety behaviours) have been elicited, a list of the *situations and activities in which the attacks were most likely to occur* (e.g., when alone, in crowds, after exercise) is drawn up by asking; "Are their any situations in which you are particularly likely to have a panic attack?", " Do attacks tend to happen when you are engaged in a particular activity?". Many patients who have panic disorder without agoraphobia find it difficult to identify panic triggering situations. However, review of several recent attacks often reveals a theme that the patient hasn't noticed (e.g., When I am feeling tired and am having difficulty concentrating; When I have done something that makes me feel out of breath, have a tight chest, etc). *Avoidance* behaviour is identified by asking questions such as, "Are there any situations or activities that you avoid because you fear they will bring on a panic attack?". Patients who do not avoid particular situations (e.g. panic disorder without agoraphobia) nevertheless often avoid activities (e.g., exercise, drinking coffee, watching frightening movies, etc) that they think will trigger feared sensations and make a feared catastrophe more likely. Sometimes such avoidance is dependent on their physical state (e.g., avoid emotional/stressful discussions with a partner or work colleague when one is tired to prevent the "strain" triggering a heart attack). *Checking* for feared body sensations and *Monitoring* one's body between attacks is common in panic disorder. For example, a patient who was concerned about cardiac abnormalities listened to the strength of his heart beats in his ear while lying on a pillow before going to sleep. A useful question for identifying checking/monitoring is: " Do you check your body for physical symptoms between attacks? How do you do that?".

Asking patients to rate how much they believe that their feared catastrophe (heart attack, go mad, collapse, lose control, etc) would have happened if they had not performed a safety behaviour can be used to help patients see the crucial role of safety seeking behaviours in maintaining their fears. For example, "To summarize, you believe 95% that if you had not found a quiet place to sit down and rest when you had chest pain you would have had a heart attack. Another possibility is that the chest pain was harmless and you weren't going to have a heart attack in any case but resting prevented you from discovering this. Indeed, it may have even made you more convinced that the pain was dangerous. Does that make sense to you?"

Attitudes and Behaviours of Significant Others, such as the patient's spouse, close friends or doctor, can be assessed by asking "What does X think about the problem?", "What does X do when you have a panic attack?". Sometimes such questions reveal that significant others share the patient's mistaken beliefs, (e.g. panic attacks are a sign that one is going crazy) or behave in ways that tend to reinforce the beliefs (e.g., encourage rest and avoidance). In such cases, therapy is likely to be assisted by educating the significant other. The patients' *evidence for their catastrophic beliefs* should assessed as it will need to be addressed in therapy (see below). *Medication, alcohol, and recreational drug use* should also be assessed. If patients are continuing to experience panic attacks despite taking prescribed medication, our group normally advises continuation of the medication at the same dose until patients have developed confidence that they can deal with their panic attacks through psychological means. Once this has happened, most patients are keen to gradually withdraw from their medication. If prescribed medication has completely blocked panic attacks, it is often helpful to withdraw the medication in order to allow the patient to experience some panic in order to learn how to deal with the problem.

Alcohol and recreational drugs may be taken to control panic but can also exacerbate the problem (e.g. panic attacks triggered by withdrawal symptoms). *Previous treatment* should be assessed in order to identify expectations about therapy. For example, patients who have received psychodynamic treatment may need more extensive socialisation into the active problem-solving orientation of cognitive therapy. The circumstances surrounding the *onset* of the panic disorder and the way it has fluctuated during its *course* should be briefly reviewed. Panic disorder often starts during a stressful period in the patient's life and fluctuates in response to events that make panic relevant beliefs more salient (e.g., a close friend developing a psychotic condition for patients who are concerned that they may be going mad). Identifying such fluctuations can assist therapy by demonstrating that the course of the disorder is consistent with the cognitive model. *Co-morbidity* with other psychiatric disorders is common in panic disorder. Once a co-morbid condition has been identified, therapists should try to determine whether the condition is functionally linked to the panic disorder or independent (see chapter 2). Clarifying historical patterns (e.g., Which disorder started first? Has one disorder persisted even when the other was in remission? Has worsening of one disorder tended to be associated with a worsening or an improvement in the other disorder?) is often helpful. Another particularly useful question is the "magic wand question". Once two conditions have been identified (say panic disorder and depression) the therapist asks; "Imagine I had a magic wand which would allow me to completely remove your panic attacks, your fear of attacks and your associated avoidance. If that happened do you still think you would be depressed in a way that needed professional help?". If patients reply NO, they are usually correct. Their depression is secondary to the panic

disorder and largely resolves with successful treatment of the panic. If patients reply YES, additional treatment focusing on the depression should be planned.

Using Questionnaires in the assessment interview.

Several self-report questionnaires covering panic related thoughts and behaviours are available. While these questionnaires are not a substitute for an assessment interview, asking patients to complete the questionnaires before the interview can provide the assessor with helpful leads for the interview. In addition, some patients find it easier 2to identify thoughts and safety behaviours when completing a questionnaire than during a face-to-face interview. The Mobility Inventory (Chambless, Caputo, Gracely, Jasin & Williams, 1985) provides a broad assessment of agoraphobic avoidance. Chambless, Caputo, Bright & Gallagher's (1984) Agoraphobic Cognitions Questionnaire assesses the frequency of panic related thoughts. As cognitive therapy focuses on changing beliefs, we have found it useful to add an extra column so that patients can rate how much they believe a particular thought as well as how often it occurs. The instruction to patients is: "When you have the symptoms of panic, how much do you belief each of the thoughts to be true?". Belief is rated on a 0-100 scale where 0 represents, "I do not believe this thought at all" and 100 represents, "I am completely convinced this thought is true". Finally, the Safety Seeking Behaviours Questionnaire (reproduced in the Appendix) was developed by our group to identify panic related safety-seeking behaviours.

Deriving an idiosyncratic version of the cognitive model.

The assessment interview usually concludes by deriving with patients an individualized version of the cognitive model (vicious circle) using their particular thoughts, sensations and behaviours. Forearmed with information about the patient's

main feared sensations and linked thoughts, the therapist starts by asking the patient, "What was the first thing you noticed as the panic started?" and then traces the sequence of events that culminated in a panic attack. When doing this, it is helpful to remember that the vicious circle model has three elements (in sequence). The elements are: bodily sensations; thoughts about the sensations; and, an emotional response to the thoughts. The first thing that the patient notices could be any one of these three elements. If a body sensation is noticed, a particularly useful question is: "As you noticed (specify the sensation), what went through your mind? What was the worst that you thought could happen?". If a thought is mentioned, a useful question is, "As you thought (specify the feared outcome), how did that make you feel? Did you become more anxious?" If an emotional response is mentioned, a particularly useful question is: "As you started to become anxious/became more anxious, what went through your mind? What was the worst that you thought could happen".

The way in which the questions are used to elicit an idiosyncratic vicious circle is illustrated in the following (abbreviated) transcript. During the interview, the evolving vicious circle (see Figure 3) was drawn on a white board so that it could be seen by both therapist and patient. We have found this procedure to be particularly helpful as it allows both people to stay in the same moment of time.

Therapist: Could we look at the full-blown attack you had last Saturday? We'll see if we can work out the sequence of events. Can you set the scene for me? Where were you? When did it happen?

Patient: We were shopping. Doing nothing in particular, just browsing.

T And you felt OK at first?

P I had this continual edgy feeling but at that particular time it wasn't so bad.

T So it sounds as though the panic came out of the blue?

P Yes

T What was the first thing you noticed as the panic started?

P My chest was getting tighter. It is a feeling in my chest like a muscular spasm.

T So it started with a muscular spasm in your chest. What does that feel like?

P It's like a blip, that's the only way I can describe it – like a blip. I know it sounds strange, but it's like the muscle bends.

T So it sounds as if you might have a picture in your mind of what is happening when you get that?

P Yes, the muscle bending and then it works its way down to the heart. But not directly. I have had them on such a regular basis now that I get used to the first one. It's the second one that affects me. The first one is not so bad and then the second one is like a muscle has been picked up and bent. A twinge.

T And when you felt the second twinge, what went through your mind?

P It instantly makes me think that something is happening in my chest area.

T What did you think was happening in your chest area?

P I thought that maybe I was possibly going to have a heart attack.

T When you had that thought, how did that make you feel? How did you feel emotionally?

P Anxious, without a doubt

T OK, you have the thought, you get more anxious, what happens next? What bodily sensations do you notice as you get more anxious?

P Well, I get this general feeling of my muscles tightening up.

T Let's go slowly here because I want to get all of these down. Muscles tightening up. OK. Is that just in the front of your chest?

P It seems to be on my back as well, a general stiffening as it were.

T Any other sensations? You have written some in your diary, haven't you? Yeah, we had dizzy and unreal.

P Yes, I felt that.

T Anything else? Anything happening to your heart rate at this point?

P It was racing.

T Racing heart. Anything else?

P I got a very dry throat?

T OK, you have quite a few sensations coming along at this point. What happened next? What went through your mind when you noticed all of those sensations?

P I simply wanted to get home.

T Right. You wanted to escape from the situation?

P Yeah

T If you couldn't have escaped from the situation and the sensations had continued to escalate in this way, what's the worse thing that could have happened?

P The worst thing?

T Do you think anything bad could have happened?

P I think what I probably would have done is gone into a corner somewhere and thought that I was going to die.

T So, on Saturday, did that thought go through your mind at all? Did you have the thought – this could be it, I could be dying?

P Yeah, it was going through my mind, lots of things were flying through my mind at the time.

T What else was flying through your mind at the time?

P Well, obviously I was concerned about my family and what was going to happen to me, what other people were thinking of me, lots of concerns.

T When you say, what other people would think of you, what do you mean?

P Obviously being in a shopping environment where the people would be looking at me.

T Seeing that you are anxious, panicking?

P Yeah, that concerned me. What if people look at me? What will they think?

T What did you think they might think of you if they saw you were anxious in the shop"

P I guess they'd think, "There is something wrong with him. He's odd".

T OK. Then, we have two thoughts. One is, "I might die from a heart attack" and the other is, "People might notice I am anxious and think I am odd". Is that correct?

P Absolutely, yeah.

T When you think of a heart attack, what do you think happens? Some people think their heart bursts, others think it just stops.

P It stops, and then like I'm going away, shooting off into space.

T OK. So, on Saturday, at the worst point in the attack, how much did you believe that, "My heart will stop and I'll die"? Lets say 0 represents, "I don't believe it at all" and 100 represents, "I am absolutely convinced". Can you give me a number?

P Well, I would say 90%.

T How much did you think other people will notice that you are anxious and think you are odd?

P Less, maybe 25%

T So at the height of the attack, when you had that thought that you might die and believed it 90%, what happened to your anxiety? Did it get worse?

P Yes, I was terrified.

T Ok, so we'll draw an arrow back to "anxious" to show that you got even more anxious. And by now, I guess you were into full blown panic.

P Yes, it's like everything wants to burst within me.

T Did the sensations get stronger? Was your heart racing more?

P Yes. But also it's like as if I wasn't there. Unreal you could say, yes.

T So it's a sort of vicious circle. As you become more anxious, the feelings get stronger and then you are even more afraid you'll die. Is that right?

P Yeah

T OK, that must be really frightening. (Pause) Now, before we finish this diagram on the whiteboard, there is one more thing I want to ask you about. In the panic, did you do anything to try and stop yourself having a heart attack? Or to try and stop people from looking at you, stop attracting attention? These would be things you'd do to try to make yourself safe, so we'll call them safety-seeking behaviours. *(Therapist writes the term "safety behaviours" on the whiteboard).*

P Well, I took a paracetamol tablet. I always have some with me.

T Why paracetamol?

P Well, I'm not sure. I think I read somewhere it is good for the heart but maybe its just psychological.

T Did you do anything else?

P I take deep breaths and try to calm down. I found a quiet place to sit down.

T When you did that, were you focusing on your heart, monitoring how it was going, trying to work out what was happening?

P Yes, but I also tried to distract myself.

T OK, so you did quite a lot of things to try to take the strain off your heart. You took paracetamol, tried to breathe deeply and calmly, sat down and rested, and distracted yourself. If you hadn't done these things, do you think you would be more likely to have died?

P Well, I don't really know, but I think so.

T Right, so we'll draw a final arrow from the "safety behaviours" back to the thoughts. That's because we think of the safety behaviours as things that might be keeping your fearful thoughts going. If you do the safety behaviours, you never get to know whether the things you are most afraid of will really happen. Does that make sense?

P Yes, I guess so, but I am not sure I dare to drop them at the moment.

T I understand. That's something we'll work on together. In the meantime, lets take a final look at what we've drawn on the whiteboard to check we've got all the details of the attack.

P OK.

(Therapist and patient both look at the whiteboard. Therapist points to the relevant parts of the vicious circle during the ensuing summary).

T So, the attack was on Saturday when you were out shopping. You had been feeling on edge for a while but the first sign of the panic was a spasm in your chest muscles. At that point you had the thought, "There is something wrong in my chest area. Maybe I am going to have a heat attack". That thought made you feel more anxious. As you became more anxious, you experienced a range of body sensations. These were: muscles tightening up in your chest and back; dizzy; feeling unreal; your heart racing; a dry thought. As the body sensations built up you had two main thoughts. First, "My heart will stop and I will die", which you believed 90% at the worst moment. Second, "People will notice

that I am anxious and think I am odd", which you believed 25% at the worst moment. These thoughts made you incredibly anxious, which in turn made the sensations worse, creating a vicious circle and the full blown panic attack. Finally, you did various things to try to stop yourself having a heart attack, to try to control the feelings and to stop other people noticing. We have called these things "safety behaviours". They included: taking a paracetamol (because you think you have heard somewhere that is good for the heart); taking deep breaths and trying to calm down; going to a quiet place and sitting down (to be out of view and to take the strain off your heart); monitoring your heart but also trying to distract yourself. Is that correct? Have we got everything down or is there something missing?

P No. I think that gets it very well. It is amazing how much can happen in such a short period of time.

Monitoring Progress

Once treatment has started, it is important to monitor progress continually in order to decide whether a particular treatment strategy is working or whether a modification is required. Three of the most common monitoring procedures are:

(i) *Self-Report Questionnaires*. Several self-report questionnaires can be used to monitor progress week by week. The Panic Disorder Weekly Summary Scale (Clark et al, 1994), which assesses panic frequency and severity is reproduced in the Appendix. The Agoraphobic Cognitions Questionnaire (Chambless et al. 1984) assesses the frequency and believability of common panic related thoughts (see page 21 for details of belief scale added by our group). The Beck Anxiety Inventory (BAI; Beck & Steer, 1993) and the Beck Depression Inventory (BDI; Beck, Rush, Shaw, & Emery, 1979) are useful general measures of anxious and depressed mood respectively. The Mobility Inventory (Chambless, Caputo, Gracely, Jasin & Williams, 1985) and the Safety Seeking Behaviours Questionnaire (reproduced in the Appendix) can be given at pre-treatment, mid-

treatment, and post-treatment to assess change in avoidance and safety behaviours respectively.

(ii) *Panic Diary*. A daily diary of panic attacks is particularly useful for identifying panic triggers, sensations and thoughts, and for helping patients to answer their panic related thoughts during an attack. A sample diary is reproduced in Figure 4 and a general model of a panic disorder patient's attacks which utilises trigger information obtained from the patient's panic diary is reproduced in Figure 5. At the beginning of therapy, patients only complete the left-hand side of the diary. As proficiency in answering panic related thoughts develops, the whole diary is completed.

(iii) *In-session Belief Ratings*. The success of in-session therapy interventions is assessed by rating the targeted belief before and after the intervention. A 0-100 belief scale where 0 represents, "not at all" and 100 represents "absolutely convinced" is used.

Suitability for Treatment

Cognitive therapy is suitable for most panic disorder patients. However, some of the behavioural experiments described in this chapter may need modifying for patients with concurrent physical illness. For example, strenuous hyperventilation is medically contraindicated in patients who are pregnant or have suffered from cardiac disease, emphysema, epilepsy, or severe asthma. However, therapists can still demonstrate the role of hyperventilation in producing bodily sensations by overbreathing themselves and then describing the effects of overbreathing to their patients. When panic disorder appears to be secondary to some other major psychiatric disorder, such as an acute psychotic reaction or major depression, the primary disorder should be treated

first. Similarly, some patients who are persistently intoxicated are likely to benefit from a detoxification programme before the start of cognitive therapy for panic disorder.

Description of Treatment

The style of therapy.

The general style of therapy is similar to that of cognitive therapy for depression (see chapter 6). Patients are generally seen weekly for between five and fifteen sessions. The style of therapy is "collaborative empiricism" (Beck, Rush, Shaw & Emery, 1979). Although therapists may be convinced of the irrationality of their patients panic related thoughts, they should not "lecture" their patients about the validity of a positive alternative to the thoughts. Instead, therapy is closer to the work of a scientific team. The patient's negative thoughts are treated as hypotheses, and patient and therapist work together to collect evidence to determine whether the hypotheses are accurate or helpful. Instead of providing all the answers to the patient's negative thoughts, therapists ask a series of questions and design a series of behavioural experiments which aim to help patients to evaluate and provide their own answers to their thoughts.

Therapy sessions are highly structured. They start with the therapist reviewing the self-report questionnaires that the patient completed shortly before the session (usually the Panic Disorder Weekly Summary Scale, the modified Agoraphobic Cognitions Questionnaire, BAI, and BDI) and the daily panic diary entries for the period since the last session. Particular attention is paid to the panic diary and any rational responses that the patient was able to develop. Next, patient and therapist agree an agenda for the session. The agenda always includes a review of the previous

week's homework and then covers one or two specific topics that will be the main focus of the session. Within the session, frequent feedback is used to guarantee understanding and sessions *always* end with the setting homework assignments that further develop the work that was done in the session. As a considerable amount of material may covered in a session, care needs to be taken to ensure that patient (and therapist!) remember the important points. Two techniques that help the patient remember the main points are: 1) writing down answers to panic related thoughts as they are identified; and 2) recording the session on audio-tape and listening to the tape during homework. Our group have found that patients remember much more of a session if they have the opportunity to listen to it again afterwards and to make further notes on salient points. For this reason, listening to the audiotape of the session is always on the patient's homework list. While listening to the tape, patients are encouraged to make notes about discussions/behavioural experiments that were particularly helpful and also, if relevant, about any reservations or doubts that they may have. Therapists should enquire at the beginning of the next session whether the patient has reviewed the tape (e.g. " Did you have a chance to listen to the tape? Are there any points that you thought about while listening to the tape that we should discuss further today?). The therapist should also make detailed notes after each session (covering the main thoughts and behaviours that were addressed, how they were tackled, what the patient has learnt, and a tentative plan for next session) and read the notes before the start of the next session.

Getting Started.

Therapy takes as its starting point the individualized vicious circle model developed with the patient during the assessment interview (see figure 3). The therapist checks that the patient agrees that the model is a good description of what happens in a panic

attack. Once this is accepted, the therapist enquires, "looking at the model, can you see any way in which we might be able to break into the vicious circle and stop your panic attacks? Some patients immediately focus on challenging their negative thoughts. However, it is more common for patients to mention that some technique for controlling the their feared sensations (for example, training in relaxation or use of particularly potent medication) would be helpful. In such cases, the therapist might reply, "Yes, that is one possibility. However, there is a problem with focussing on controlling the sensations. What happens if you decide you no longer want to take your medication or you are too rushed to do the relaxation?" This opens up a discussion in which it becomes clear that the panic would return if attempts to control the sensations were dropped. The therapist can then suggest as an alternative approach looking at the negative thoughts to determine whether they are correct. The advantage of this approach is that if it results in the patient no longer believing that panic-related sensations are dangerous, panic attacks will cease without the patient having to practice techniques (such as relaxation, controlled breathing or distraction) for controlling the sensations.

A wide variety of techniques are used to challenge patients' catastrophic misinterpretations of their body sensations. Broadly speaking the techniques can be divided into discussion techniques and behavioural experiments. Examples of each are given below. Although the techniques are described in isolation, most sessions will utilise several techniques in an interconnected fashion in order to help a patient challenge a panic related belief and change a maintaining strategy. (see Overview of Treatment p11-13).

Discussion techniques

Discussion techniques are largely verbal methods for assessing the evidence for and against patient's panic related beliefs and developing alternative perspectives.

Discussing patients' evidence for their panic related beliefs.

It is an axiom of cognitive therapy that patients' beliefs are not arbitrary. Instead, for most patients there are particular observations that have led them to conclude that their beliefs are realistic. The therapist needs to know what these observations are. A useful question is, " Could you tell me what are the things that suggest to you that you fear may be true? What is it that particularly makes you think that (specify feared sensations) might lead to (specify anticipated catastrophe)?". Often, patient's main subjective evidence is the intensity and apparently inexplicable nature of the symptoms they experience during in their attacks. Sometimes very idiosyncratic observations are also be involved. The observations are usually events that really happened but the patient's conclusion is erroneous. In such instances, identifying the events and challenging the conclusions can be a particularly helpful intervention.

For example, an elderly woman developed panic disorder after a serious road traffic accident. While skidding towards another vehicle, the patient thought she was going to die. Thankfully, she was not seriously injured. However, as she emerged from her vehicle she experienced a surge of arousal and had her first panic attack. Repeated attacks quickly developed, in each one of which she believed that she was in danger of dying. Assessment indicated that she believed that high anxiety can kill. This belief meant that as soon as she started to feel anxious, she would think she could die, which further amplified the anxiety. The therapist asked, "What evidence do you have for the idea that high anxiety can kill?" The patient replied, "I know it is true because I have seen it with my own eyes". She went on to explain that as a youngster during the Second World War she had entered Dresden shortly after the fire bombing of that city by the allies and assisted rescue teams. Several times she observed that when underground cellars were opened up the people who had been sheltering in them during the fire storm were either dead or seemed extremely confused and apparently out of touch with reality. She noted that fire did not appear to have gotten into the cellars and concluded that the extreme anxiety of being under the firestorm must have killed the people or sent them mad. Being unclear about how to deal with this observation, the therapist did what most cognitive therapists do when stuck. He

asked questions and, in particular, asked for more details. A revealing additional detail was the patient's comment that everyone from the cellars had very bright red lips. This is a well know symptom of carbon monoxide poisoning. Carbon monoxide is a heavy gas and would have concentrated in the cellars. With the therapist's help, this information allowed the patient to see that the people had not died or gone mad because of fear. As a consequence, her belief that high anxiety can kill was substantially reduced.

Education

Education about the nature of anxiety and the meaning of different body sensations plays a prominent role in treatment. Many patients are impressed by the strength of the sensations they experience in a panic attack. In such instances, explaining about the fight/flight response can be helpful. In particular, the idea that the body's reactions during an anxiety attack are all appropriate ways of dealing with a real danger (for example, release of adrenaline and re-distribution of blood flow to the muscles are excellent ways of getting one ready to flee or fight) and are not dangerous. Indeed, they are a sign that the body's anxiety alarm system is working as it was intended. The only problem is that the system is being triggered by an imaged danger, rather than a real danger. Other useful aspects of education include explaining: the lack of relationship between panic attacks and insanity; the fact that the cardiac acceleration in a panic attack is more modest than that generated by running upstairs (see Margraf et al, 1987; Margraf, 1990); the positive health advantages of exercising muscles (such as the heart); and the reason why one experiences pins and needles in the fingers (redistribution of blood flow) and shortness of breath (tightening of the intercostal muscles) when anxious. The similarity between the sensations that are experienced in different emotional states which all involve autonomic arousal can also be usefully exploited as a way of showing patients that the sensations themselves are not dangerous. For example, when asked to describe the sensations that they experience at times of great excitement (or anger) many patients report sensations that

are similar to some experienced in their panic attacks but they (rightly) did not think the sensations were dangerous then. Rather than provide patients with large amounts of information about anxiety, the style of therapy is to tailor the information to the particular beliefs of the patient. Two examples of this process are given below.

Example 1. This example is a transcript illustrating the way education is used to address a patient's belief that the dizziness he experiences in a panic attack means that he is in grave danger of fainting.

Patient: In the middle of a panic attack, I usually think I am going to faint or collapse.

Therapist: How much do you believe that sitting here right now and how much would you believe it in the situation you get in a panic attack? Would you belief it if you have the sensations you get in a panic attack?

P 50% now and 90% in an attack.

T OK, let's look at the evidence you have for this thought. Have you ever fainted in an attack?

P No

T What is it then that makes you think you might faint?

P I feel faint and the feeling can be very strong.

T So, to summarise, the evidence that you are going to faint is the fact that you feel faint?

P Yes

T How can you then account for the fact that you have felt faint many hundreds of times and have not yet fainted?

P So far, the attacks have always stopped just in time or I have managed to hold on to something to stop myself from collapsing.

T So, one explanation of the fact that you have frequently felt faint, had the thought that you will faint, but have not actually fainted, is that you have always done something to save yourself just in time. However, an alternative explanation is that the feeling of faintness that you get in a panic attack will never lead to you collapsing, even if you do not control it.

P Yes, I suppose so.

T In order to decide which of these two possibilities is correct, we need to know what has to happen in your body for you to actually faint. Do you know?

P No

T Your blood pressure needs to drop. Do you know what happens to your blood pressure during a panic attack?

P Well, my pulse is racing. I guess my blood pressure must be up.

T That's right. In anxiety, heart rate and blood pressure tend to go together. So, you are actually *less* likely to faint when you are anxious than when you are not.

P That's very interesting and helpful to know. However, if it is true, why do I feel so faint?

T Your feeling of faintness is a sign that your body is reacting in a normal way to the perception of danger. Most of the bodily reactions that you are experiencing when anxious are probably designed to deal with the threats experienced by primitive man, such as being approached by a hungry tiger. What would be the best thing to do in that situation?

P Run away as fast as you can.

T That's right. And, in order to help you run, you need the maximum amount of energy in your muscles. This is achieved by sending more of your blood to your muscles and relatively less to the brain. This means that there is a small drop in oxygen to the brain and that is why you *feel* faint. However, this feeling is misleading in the sense that it doesn't mean you will actually faint because your overall blood pressure is up, not down.

P That's very clear. So, next time I feel faint, I can check out whether I am going to faint by taking my pulse. If it is normal, or quicker than normal, I know I won't faint.

T That's right. On the basis of what we have discussed so far, how much do you believe you might faint in a panic attack.

P Less, say 10%

T And, if you experience any sensations?

P Maybe 25%

In this example, the patient had never fainted. However, some panic patients have fainted in the past. Then the line of argument outlined above needs to be slightly modified to take this into account. First, the therapist should enquire whether the patients were anxious when they fainted. Usually, they were not and in fact the faint occurred very early on in the development of their panic attacks. It was probably produced by a variety of common physiological changes unrelated to panic (such as hormonal shifts, a virus, etc) but the patients were not aware of this and so subsequently whenever they were anxious and felt faint, they erroneously interpreted this feeling as evidence that they would faint. The misinterpretation then produced more anxiety and a more intense feeling of faintness. The only anxiety condition in which fainting commonly occurs is blood injury phobia. Some patients suffer from blood injury phobia as well as experiencing panic attacks. For these, the therapist should explain that they are only likely to faint at the sight of blood and injury and also invite the patient to compare the feelings that precede an actual faint with those experienced in a panic attack. Invariably, they are not the same. Before actually collapsing, people often feel that they are fading away. In a panic attack, patients are all too painfully aware of their intense feelings of faintness. If questioning identifies blood injury phobia as an additional, co-morbid problem, therapist may wish to consider training the patient in applied tension (see Chapter 7) as a technique for dealing with feeling faint at the sight of blood or injury (but not otherwise).

Example 2. When asked why they believe that they are in danger of having a heart attack during a panic, some patients mention that they experience left-sided chest pain. Knowing that the heart is on the left side, patients take this observation as particularly strong evidence that there is something seriously wrong with their heart. In fact, cardiac chest pain is predominately central. This point can be nicely

illustrated by showing patients Figure 5 which illustrates the location of chest pain in three groups of patients who were referred to a cardiovascular clinic. Patients are asked to look at the three drawings and comment on any differences between the figures. Most comment that only one of the figures shows predominately left sided pain. The therapist can then explain that the two figures with evenly distributed pain both have cardiovascular pathology (MI = myocardial infarction; AP = angina pectoris). The figure with predominately left sided pain did not have cardiovascular pathology (NCCP = non-cardiac chest pain) and represented the pain of individuals who are predominately diagnosed as panic disorder. Through questioning, therapists can help the patients see that the link between panic attacks and left sided pain is likely to be mediated by beliefs and selective attention. That is to say, the panic disorder patients are likely to experience pain on both sides of their body at different times. However, they only panicked when the pain was on the left side. This discussion is often an effective way of reducing patient's belief that the left sidedness of their pain necessarily means that they have a cardiovascular problem. Of course, further discussion and behavioural experiments are required to demonstrate that their problem is their false belief that they have a cardiovascular problem.

Understanding the significance of old information that contradicts patients' catastrophic beliefs

If, as the cognitive model assumes, patients' beliefs about the meaning of their bodily sensations are incorrect, there must have been many events that contradict the patients' beliefs. Considerable progress can be made in therapy by identifying such events and using questions to help patients understand the significance of the events. For example, the fact that a panic attack can sometimes be stopped by distraction is highly consistent with the cognitive model but problematic for the idea that the attack

represents a serious physical abnormality (such as a heart attack). Similarly, the fact that many patients notice that their attacks are more likely to occur when they are alone fits well with the cognitive model (because they would more be concerned that they would not be able to call for help) but not with the idea that there is a serious physical abnormality (how would the physical abnormality know that they were alone?). The relationship of chest pain to exercise in patients who are concerned that they have a serious cardiac abnormality can be similarly illuminating. Often such patients report that the pain comes on not during exercise (when cardiac load is maximal) but shortly afterwards (when they have more opportunity to focus on their heart). Detailed discussion of the way in which the frequency of patients' panic attacks has fluctuated during the course of the disorder can be similarly helpful. In particular, identifying life events that are associated with exacerbations and improvements in panic often leads to the conclusion that panic attacks get worst when events happen that tend to reinforce patients' beliefs about the dangerousness of their sensations. For example, hearing that a close friend had a heart attack while playing squash led to a temporary increase in a patient's cardiac pre-occupation and panic attacks. When the patient subsequently shifted to a low cholesterol diet and *believed* that her heart was being protected by the diet, her cardiac pre-occupation and panic attacks declined.

Modifying Images

Images representing feared outcomes (for example, seeing oneself collapsed on the floor after fainting or running from the room having "lost control") are common during the build up to panic attacks and during the attacks themselves. Often such images can be dealt with by challenging the meaning of the image with verbal

questioning. However, in some cases, it is necessary to work in imagery as well as using verbal questioning. This is particularly likely when patients experience vivid and repetitive images during their panic attacks. For example, a young woman had a recurrent image in which she saw herself fainting. In the image, she was usually on a part of the staircase in her house that could not be seen from outside. The location was particularly threatening as she thought it meant nobody would be able to help. Her image always stopped at the point when she had lost consciousness and collapsed to the ground. However, discussion helped her to see that in reality she would only briefly lose consciousness and would then slowly get up and return to normal. "Finishing out" the image by visualising herself regaining consciousness after fainting helped to reduce the distress normally produced by her image and lead to a marked reduction in the frequency of the image.

Of course "Finishing out" an image only works if the natural conclusion to the event that is encapsulated in the image is positive. For some panic related images, that is not the case. In such instances, an alternative image has to be developed which still answers the negative image. This process is illustrated by the case of a woman who feared that she was going crazy in her panic attacks. Her mother had a history of in-patient treatment in mental hospitals and she was concerned that she would also be detained against her will. The image that accompanied her panic attacks involved being in a room and seeing two men in white coats entering the room with a straightjacket in their hands. When asked what was the worst thing about the image, the patient replied that she felt small and powerless next to the men and it was as if they already had the straightjacket on her. In discussion with the therapist, the patient agreed that the image was simply an image, rather than reality. However, at the moment that the image occurred, she was genuinely concerned that she was going

crazy. In order to create an alternative image that encapsulated her intellectual understanding that the image was not realistic, the therapist first worked on the patient's feeling of being small and powerless. She was asked to close her eyes and visualise the two men in white coats and to hold the image until she started feeling afraid. She then described what she could see. The therapist asked if she could reach the shoulders of the men in white coats if she stood on her tiptoes and stretched out her hands. She did this in imagery and then was encouraged to bring down her hands and at the same time shrink the men until they were smaller than her. At this point, she reported feeling much less frightened. However, she indicated that the men were screaming at her, "she's mad, she's mad, she's mad". Therapist and patient briefly discussed how this distressing sound could be transformed. The patient mentioned that it reminded her of dogs barking. She was then encouraged to close her eyes again and transform the men in white coats into dogs. After a little effort, she succeeded and laughed. It appeared that the men in white coats had been transformed into ridiculous looking white poodles! This transformation was highly successful in preventing the patient from experiencing the insanity image.

From the above examples, the reader may have noticed several formal characteristics of image restructuring. First, therapist and patient discuss the image and intellectually agree that it is unrealistic. Second, this intellectual understanding is inserted into the imagery mode by eliciting the negative image and then transforming it into a positive image. Third, the transformation process is an affective manipulation. The patient holds the negative image in mind until he or she feels anxious. It is only at that moment that the negative image is transformed into a positive image. Whether the transformation has been successful is largely indexed by the resulting change in affect. Fourth, the therapist is not prescriptive in suggesting a

positive image, but instead patients are encouraged to generate images that are particularly appealing to them. Fifth, often the image needs to be transformed in stages, with the most distressing elements being selected for transformation first. Finally, the technique is intended to have an enduring effect. After a successful restructuring session and (sometimes) the homework assignment of practising the image transformation several times during the subsequent week, our group has usually observed a marked decline in the frequency and believability of the image.

Behavioural Experiments

Behavioural experiments are ways of testing patients' beliefs in action. They play a central role in the treatment of panic disorder and are closely integrated with the discussion techniques. As we have seen, many of the discussion techniques draw on patient's past experiences. The behavioural experiments provide an opportunity for patients to collect new, experientially based, information that is directly relevant to their beliefs. Broadly speaking, panic-relevant behavioural experiments can be divided into two categories. First, experiments in which the patient's main feared sensations are reproduced in order to demonstrate the true, non-catastrophic, cause of the symptoms. Second, behavioural experiments that aim to demonstrate that the sensations that accompany panic attacks are not dangerous. The latter experiments either involve not controlling feared symptoms when they occur or intentionally inducing/exaggerating the symptoms while refraining engaging in from any safety-seeking behaviours.

Behavioural experiments involving the reproduction of panic sensations to demonstrate their true cause.

Several behavioural experiments have been developed to demonstrate the true cause of panic-related sensations. Each involves a manoeuvre that induces panic like sensations. As the aim is to help patients discover the true cause of the sensations that occur in their panic attacks, only manoeuvres that relate to things that are likely to be happening before or during panic attacks are used. Generally patients are not told in advance that a particular manoeuvre may induce their feared sensations. This is for two reasons. First, because of their fears, patients are less likely to whole heartedly take part in the manoeuvres if they are forewarned that they might induce feared sensations. Second, none of the manoeuvres work for everyone.

Paired associates behavioural experiment. In cognitive therapy for panic disorder, patients are invited to compare two alternative explanations for their panic attacks (sometimes termed "Theory A and Theory B"). First (Theory A), the idea that the panic attacks signify a serious, and more or less immediate, physical or mental disaster (go crazy, faint, die, etc.). Second (Theory B), the idea that the panic attacks are the result of a vicious circle in which anxiety related body sensations are amplified by catastrophic interpretations of the significance of the sensations. A particularly elegant way of demonstrating the role of catastrophic interpretations is the paired-associates experiment (Clark, Salkovskis, Gelder, et al, 1988). In this experiment patients are asked to read pairs of words consisting of a sensation and a linked catastrophe (e.g., dizziness – fainting; unreality – insane). The words are chosen to represent thoughts that are typical in panic disorder. Table 3 shows a standard paired associates sheet, which seems to work well with many patients. However, if a

patient's main feared sensations and linked catastrophe are not prominent in the standard sheet, therapists may wish to make up an individualized sheet .

Patients are *not* told in advance that reading the pairs of words may produce panic sensations as this could lead them to avoid the task or, at the least, to mentally disengage. Instead, the sheet is simply introduced as a diagnostic test, the significance of which will be discussed later. In order to ensure that patients are fully concentrating on the words, and not trying to avoid them, patients are encouraged to read the words out loud as pairs and, for each pair, to think about its meaning and to briefly dwell on it before moving on to the next pair. With these instructions, Clark, Salkovskis, Gelder, et al (1988) found that 10 of 12 (83%) panic disorder patients experienced an increase in bodily sensations while reading the pairs of words and described the overall experience as qualitatively similar to a naturally occurring panic attack. Once the patient has started to experience marked sensations, the therapist terminates the exercise and asks a series of questions to help the patient understand its significance.

Discussions during a therapy session can sometimes inadvertently have a similar effect to paired associates sheet. In particular, while the therapist and patient are discussing the sensations that the patient experiences during attacks and what the sensations might mean, the patient might suddenly become much more anxious. Enquiry can reveal that the discussion has triggered a panic attack. When this happens, it is important that the therapist pauses and then asks questions that help the patient see the significance of the event. This process is illustrated in the following transcript from a session with a panic disorder patient whose attacks were accompanied by a pain in the head and pins and needles. She feared that in a panic attack she was having a brain haemorrhage/stroke. Prior to the start of the transcript,

the therapist had asked the patient what she thought happened in a stroke and had drawn a picture of a blood vessel rupturing on the white board. The patient became very anxious while looking at the picture.

Therapist: What went through your mind when I drew that picture?

Patient: I was thinking about it.

T What were you thinking about?

P About the blood coming out.

T Did you have a mental picture?

P Yes

T When you had that picture, how did you feel?

P Horrible

T Did you feel tense?

P Yes

T Where did you notice the tension?

P In my head, it was a pain.

T Did you notice any other sensations?

P Yes, I was getting that tingling in my face and finger tips.

T Did you have the head pain and the tingling before you had the image?

P No

T What do you make of that? You have a mental picture of your worst fear happening and then you notice a pain in your head and tingling.

P If I think about it, it makes the pain and tingling come.

T Do you think that thinking about it could bring on a stroke?

P No, definitely not.

Hyperventilation behavioural experiment. A feeling of being short of breath is common in panic attacks and is often interpreted as a sign of impending suffocation and possibly death. Given this point, many patients understandably respond to the feeling by trying to take in more air. Some of these patients hyperventilate. The symptoms of hyperventilation (shortness of breath, racing heart, parasthesias, dizziness) further augment the attack. In order to demonstrate the role of hyperventilation in producing bodily sensations, the therapist asks patients to breathe the way they normally breathe when alarmed in a panic attack. After a minute or so of doing this, many, but not all, patients report experiencing symptoms that are subjectively similar to those experienced in their panic attacks. If this happens, questioning is used to help the patient attribute their symptoms to the routine, and harmless, effects of hyperventilation, rather than some adverse physical event. In early versions of cognitive therapy for panic disorder (Clark, Salkovskis & Chalkley, 1985; Salkovskis, Clark & Jones, 1986; Clark, Salkovskis et al. 1994) the hyperventilation behavioural experiment was often followed by systematic training in slow and shallow breathing. Patients were given instruction in smooth, slow, shallow, and diaphragmatic breathing and were asked to practice that type of breathing several times daily for several weeks. Practice was assisted by a respiration pacing tape in which patients heard a calm, soothing voice saying "In" and the "Out" at a rate of either 12 or 8 breathes per minute with the words being extended to cover the full inspiration and expiration. Patients started with a pace that was slightly slower than their normal pace but could be achieved reasonably easily. If the initial pace was 12 per minute, a subsequent transition to the slower rate was encouraged if it could be comfortably achieved but not otherwise. The main emphasis was on smooth, shallow breathing rather than on a slow pace *per se*. While many patients reported that the

training was helpful, it was dropped from later versions of the treatment (Clark, Salkovskis, Hackmann et al. 1999) because a minority of patients used controlled breathing as a safety-seeking behaviour. Although such patients often reported a reduction in the frequency of their panic attacks, they remained fearful of the attacks and concerned that they may not be able to use controlled breathing early enough in an attack in order to prevent it getting out of control. Our group now considers it best to help patients discover that panic-related sensations are harmless even if they are not controlled.

Focus of attention behavioural experiment. For some patients, their main evidence for the idea that there is something seriously physically (or mentally) wrong with them is the fact that they notice a variety of sensations that they did not notice before they developed panic disorder. In addition, they may report that their friends deny experiencing similar sensations. Often the sensations are a consequence of an internal focus of attention (body hyper-vigilance). The plausibility of this explanation can be demonstrated by asking patients to close their eyes and notice as many sensations as they can in their body. After a minute or two, they are then asked to open their eyes and concentrate on something absorbing in the external environment (e.g., describe a picture out-loud). Panic disorder patients often report that shifting focus of attention has a marked effect on the experience of body sensations, as the following case illustrates:

A housewife with panic disorder erroneously believed she was suffering from cardiac disease (belief = 60%). Negative medical tests and reassurance from her physician failed to modify the belief. When asked what evidence she had for the idea that she had cardiac disease, she said that she noticed her heart more frequently than did her husband or colleagues at work and she thought this must indicate that there was something seriously wrong with it. The therapist suggested the alternative interpretation that the problem was her *belief* that there was something wrong with her heart. This belief might lead her to selectively attend to her body, which in turn would increase her awareness of her heart. When asked what she thought of this alternative, she said, "You psychologists are very good at thinking of clever

explanations and this would, no doubt, apply to some people but I don't think that the effects of attention could be strong enough to account for my sensations". Rather than argue with this assertion, the therapist said, "You may be right. Perhaps to get more information it would be good if we did an experiment to see how strong the effects of attention are for you?". The patient was asked to close her eyes and concentrate on her heart for five minutes. To her great surprise, she found that simply attending to her heart enabled her to detect the pulse in her forehead, neck, arms, chest and legs, without touching those parts of the body. Furthermore, when she was subsequently asked to describe out loud the contents of the room for five minutes, she ceased to be aware of her heart. This demonstration reduced her belief that she had cardiac disease (belief = 30%) and increased her belief in the alternative explanation.

Chest pain behavioural experiment. Some patients are particularly alarmed by the chest pain they experience before and during their panic attacks. Posture and breathing pattern are sometimes the cause of the pain. In particular, taking shallow breaths with the upper chest while the chest muscles are constricted and tense can cause the pain. In naturally occurring attacks the chest muscle tension may be the result of having a "puffed up" chest for a period (for example, when in an argument with another person or when feeling challenged by others) or having sat in a slumped posture for a period (for example, while driving in heavy traffic or when in a difficult business meeting). The role of shallow, upper chest breathing can be demonstrated by asking patients to fully breathe in and then take frequent, small, shallow breaths with their upper chest while keeping the chest generally expanded. After a few minutes of this procedure, they often report experiencing the chest pain that is characteristic of their panic attacks. Alternatively, they can be asked to breathe out completely, establish a slumped posture and then take frequent shallow upper chest breathes in that position. If either of these procedures brings on the patient's chest pain, the therapist explores whether the demonstration might apply to patients' panic attacks by with them their posture and how they were breathing in their attacks.

Exploring the effects of safety seeking behaviours and some other procedures for inducing panic related sensations. Paradoxically, some of the sensations

experienced before or during a panic attack are generated by patients' own safety seeking behaviours. This can be demonstrated by asking patients to perform the relevant safety seeking behaviour in the therapy session and observing what effect it has on their feared sensations. Several examples of safety seeking behaviours that can paradoxically induce feared sensations follow.

(1) Unreality: Patients who are concerned that they may be going crazy because of feelings of unreality, often check that they are real. This can involve staring in a fixed manner at a part of their body (say the back of the hand) or at an object in the immediate vicinity (e.g., a row of books, a blank wall). Staring in this manner without moving one's eyes can make objects (and parts of one's body) seem 2-dimensional and unreal. Some patients who are pre-occupied with feelings of unreality also have such feelings triggered by certain types of visual pattern. For example, the closely spaced metal lines on an escalator step can make them feel very dizzy and unreal. This (harmless) process can be demonstrated in the clinic by asking them to stare at visual grids and describe what they are experiencing. If the therapist is lucky enough to be one of those people who is also sensitive to visual grids, therapist and patient can compare their experiences. Both are likely to report feeling dizzy and seeing movements in the lines but only the patient thinks that means there is something seriously wrong.

(2) Unsteady on one's feet: Patients who are concerned that they might fall/collapse often walk with stiff/rigid legs and may also try to maintain a straight line while fixating on a point in the distance. Reproducing this walking style often shows that it enhances the feeling of being unsteady.

(3) Intrusive thoughts: Patients who are concerned that they are going crazy often see their difficulty in controlling certain types of thought as evidence that they are going crazy. Paradoxically, the apparently uncontrolled nature of their thoughts may be a consequence of attempts to control the thoughts. That is to say, the more one tries to think in a particular manner without deviation, the more one is suppressing other types of thought. As Wegner (1988) has demonstrated, attempting to suppress a thought tends to increase the frequency with which it occurs. This point can be demonstrated by asking patients to intentionally not think about a particular object (Wegner used a "white bear") for a short period of time. Invariably, patients find that the object intrudes into awareness despite their best efforts.

(4) Breathlessness: As mentioned above, some patients' respond to feeling short of air in a panic attack by trying to breathe much more deeply and/or quickly (hyperventilating). As well as producing a marked feeling of dizziness, parasthesias (e.g., tingling in the lips and finger tips), and a racing heart, the increase in respiration makes some patients feel even *more* short of breathe. This effect is obviously paradoxical (because respiratory intake has increased) and is probably based on feedback from the inter-costal (chest) muscles, which tighten when the person hyperventilates in order to reduce the amount of breathing. The person who fears suffocation mistakes this feeling as a sign of impending suffocation, struggles to expand their chest more and experiences further tightening and pain.

Behavioural experiments for demonstrating that feared sensations are not dangerous. A particularly convincing approach to showing patients that panic-related sensations are not dangerous involves helping them to experience their feared sensations (e.g. feeling unreal) while not doing anything to prevent their anticipated catastrophes (e.g. going crazy) from occurring. Unlike the experiments described in the preceding section, this type of behavioural experiment is always discussed in detail with the patient in advance. In particular, patients are asked to make clear-cut predictions about what they think will happen and to observe whether their predictions are correct. This type of experiment activates patients' worst fears. For this reason, some discussion of the accumulating evidence that contradicts patient's catastrophic beliefs and supports the cognitive model is usually required before patients are willing to proceed. In addition, it is usually best if the first few experiments are conducted in the therapy session (rather than as homework assignments). Patients are more likely to be willing to experience feared sensations without controlling them in the presence of a trusted therapist than when alone.

Exercising. For patients who have avoided exercise because they fear that it might provoke a panic attack, exercising with the therapist during the session can be particularly helpful. For example, the patient and therapist might run up and down the stairs in the clinic or run for a short distance outside the clinic in order to induce a racing heart and breathlessness and then discover that these do not lead to a heart attack.

Strenuous over-breathing. In patients for whom it has been established that over-breathing plays a role in producing the feelings of breathlessness and dizziness that they experience in their panic attacks, strenuous over-breathing can be an effective way of demonstrating that they are unlikely to faint, if this is one of their

feared catastrophes. Patients are asked to breathe quickly and deeply for several minutes and then to stand up in order to see whether or not they faint. Strenuous hyperventilation produces a marked sense of dizziness so if patients do not faint, their confidence that panic related dizziness is not dangerous is greatly increased. In conducting this behavioural experiment, the therapist needs to be attentive to subtle safety behaviours. Some patients tense their legs or lean against solid objects in order to avoid fainting. If they do these things during the experiment, they are unlikely to be reassured by the fact that they have not fainted.

Trying to go mad. For patients who are concerned that they might go mad in a panic attack, it can be particularly helpful to ask them to reproduce the thoughts and sensations that they take as a sign that they are about to go mad and to not control the sensations. Some patients are naturally hesitant to try this experiment. Modelling by the therapist can be particularly useful in such instances.

Trying to stop breathing. Some patients who feel short of breath in a panic attack believe that they will stop breathing if they do not make a conscious effort to breathe at that moment. In order to demonstrate that breathing is partly under reflex control, it can be useful for the patient and therapist to intentionally hold their breathe for as long as possible. After a minute or two the rising level of CO_2 in the lungs activates a respiratory reflex and forces one to breathe.

Exposure to feared situations. In patients with panic disorder and agoraphobia, a particularly effective behavioural experiment involves intentionally going into a feared situation and not using one's safety behaviours when panic symptoms start to appear. In this way, the patient discovers that the feared consequence of the symptoms (faint, go mad, die, etc) is not going to happen. For example, a patient who is worried about fainting in a supermarket might be

encouraged to go into a supermarket with the therapist. At the point when anxiety starts to increase and the patient starts to feel faint, he or she is encouraged to move away from supporting objects (the trolley or nearby shelves) and discover that she does not faint. For most patients with panic disorder and agoraphobia, some intentional exposure to feared situations is needed in order to fully demonstrate that the sensations that occur in those situations are not dangerous. However, it is a mistake to focus all one's therapy efforts on situational exposure. Early in therapy it is often easier to decompose and disconfirm patient's fears about panic-relevant sensations with in-office behavioural experiments in which the therapist has more precise control over when sensations will be induced and can choose experiments to separately investigate different aspects of patients' fears (for example, concern about physical catastrophes versus adverse social consequences). It also seems easier to keep patients focused on whether or not a feared catastrophe occurs (rather than simply how bad they feel) during planned in office experiments.

When performing behavioural experiments in agoraphobic situations, as well as attempting to not control feared sensations (e.g. dizziness) when they occur, it can be particularly helpful if patients intentionally try to exaggerate their symptoms. For example, when feeling dizzy in the supermarket, a patient may be encouraged to walk away from his or her trolley (so that it can not be used as a support) and then intentionally breathe quickly and deeply in order to make the feeling of dizziness worse. This type of exercise is often introduced by the "bricklayer's apprentice analogy". The analogy runs as follows: In some places, it is conventional for experienced bricklayers to play a trick on new apprentices. After building a wall with cement and bricks for a short while, the experienced builders say that they are going for a tea break and ask the apprentice to hold up the newly laid wall to prevent it from

falling down while the cement is drying. The apprentice complies for an hour or so. On their return, the experienced builders burst out laughing and explain that the wall would have stayed up on its own account. Patients are asked to consider how the apprentice might have avoided the embarrassment. Taking his hands off the wall (dropping his safety behaviour) is often suggested. The therapist might agree but say, "What if there was a wind? How would the apprentice be able to know that the wall would still stand up then?". Discussion then leads to the idea that an even more convincing manoeuvre would be for the apprentice to intentionally push the wall to see that it still remains upright.

Many patients with panic disorder and agoraphobia find it almost impossible to enter some situations at the start of therapy. For these individuals, self-confidence is best developed by focusing initial behavioural experiments on the situations that the patient is willing to enter, albeit with a fair amount of anxiety. Successful behavioural experiments in these situations build confidence and help patients to subsequently test their beliefs in the most difficult situations. It is important that the patient is fully involved in planning behavioural experiments and the tasks that are selected to test a belief are things that the patient is willing to try, even though they are likely to be difficult.

Homework behavioural experiments. Once the therapist and patient have conducted an in-session behavioural experiment, patients are encouraged to drop their safety behaviours at times when they experience feared sensations outside the session and to intentionally induce the sensations (for example, by exercising) during homework assignments. To help ensure that the maximum amount of data is collected from these assignments, patients are encouraged to complete the Record Sheet for Behavioural Experiments. Figure 7 shows a completed example of this

sheet taken from an in-session experiment that was conducted with the therapist. For both in-session experiments and planned homework assignments, patients fill in the first three columns of the sheet (situation, prediction, experiment) in advance and then complete the last two columns (outcome and what I have learnt) afterwards. For unexpected panic attacks or surges of feared sensations, patients are encouraged to intentionally resist engaging in safety behaviours and complete all five columns as soon as possible after the exercise. The reader will notice that the Record Sheet for Noting Behavioural Experiments does not contain a column for recording how anxious the patient felt during the assignment. This is intentional. In some behaviour therapy programmes, habituation is the main rationale for planned exposure to feared sensations and/or situations. It is assumed that anxiety will decline as a consequence of repeated exposure alone and regular measures of anxiety as used as an index of this process. In cognitive therapy, planned exposure is presented as a way of testing specific beliefs with the assumption that anxiety will decline if the beliefs are convincingly changed. As a consequence, whether or not a feared outcome occurred, rather than the anxiety experienced during the assignment, is recorded. At the start of the next therapy session, therapists would normally review all entries in the Record Sheet for Noting Behavioural Experiments and discuss any experiments that seemed unconvincing to the patient. Discussion would focus on planning a more convincing experiment (perhaps by more consistently dropping safety behaviours or having a better way of inducing feared sensations) during the next set of homework assignments.

Special behavioural experiments for panic disorder with agoraphobia. As mentioned above, patients with panic disorder and agoraphobia tend to have additional concerns about their panic attacks. In particular, they are often concerned

about the social consequences of an attack ("I will make a fool of myself") and about their ability to cope. These additional concerns are often best dealt with by behavioural experiments. For example, patients who are concerned with the social consequences of fainting in public can greatly benefit from a role play in which the therapist appears to faint in a public place. The patient can watch from a distance and observe how other people react. Patients are encouraged to predict in advance what they think will happen. Usually, they predict that other people will ignore the person who appears to have fainted or react in a way that indicates that they think the person is extremely odd. Neither usually happens. Similarly, if a patient's worst fear is that they may lose control of their bladder during a panic attack, the therapist could recreate the appearance of a loss of bladder control by putting water on the relevant part of their clothing and allowing the patient to observe other people's reactions as the therapist enters a public space. Again, the reactions of other people are invariably less extreme than the patient would predict (see social phobia chapter for more behavioural experiments of this sort). Finally, some patients are concerned that if they have a panic attack away from home while they are alone, they may forget where they are and not be able to get home. For these patients, a particularly effective experiment involves intentionally covering some distance from home alone and continuing until a panic attack is triggered. The patient can then discover that the attack subsides and that he is able to return home alone. For this experiment, it can be useful to cognitively rehearse some rescue factors such as asking other people for directions, looking for familiar landmarks, pausing until the panic subsides, etc.

The reader will have noticed that many of the behavioural experiments that target fears about the social consequences of a panic involve the therapist modelling a particular behaviour so that the patient can observe how other people respond to that

behaviour. Some therapists feel embarrassed about such modelling. In such instances, we would recommend that therapists try to identify their own negative thoughts about the behaviour and test those thoughts, as well as their patient's, by completing the experiment. In the immortal words of T.S. Eliot (1917) 'Oh do not ask, "What is it?", Let us go and make our visit'.

Using discussion to set up a behavioural experiment. We have mentioned that most behavioural experiments involve experiencing panic related sensations without trying to control the sensations. A fair amount of preparatory discussion is required to encourage patients to engage in such an experiment and to ensure that the maximum amount of information is obtained from the experiment. This process is illustrated in the following case.

A young woman was particularly afraid of the feeling of breathlessness that she experienced in panic attacks and was concerned that this meant she might stop breathing and die. The therapist asked if there were any experiences that made her particularly concerned that feeling short of breath might lead to sudden death. She explained that her mother had suffered from asthma, and had been admitted to hospital during a particularly bad attack. The doctors had provided medication and assured the family that all would be well. However, her mother's breathing difficulties got progressively worse and she died. Since this time, the patient had been concerned that she needed to make a conscious effort to breathe when she felt short of breath and she believed that such efforts were the only reason why she had also not died during breathless episodes. The therapist summarised the discussion by saying that there were two possibilities. First, the patient might be correct. She had survived because she had always made a conscious effort to breathe when feeling breathless. Second, the feeling of breathlessness was not dangerous but she had not discovered this fact because she had always made an effort to breathe at such moments. The patient agreed that each was logically possible. Evidence for the second possibility was then explored. The therapist asked the patient whether she intentionally tried to breathe while she was asleep. She agreed that she did not. An explanation of how breathing is automatically controlled by the respiratory centre responding to rising levels of CO_2 was then provided, with particular emphasis on the idea that there is no need to focus on breathing as it is automatically taken care of. Finally, the patient agreed to a behavioural experiment in which she intentionally held her breath for as long as possible in order to see whether the breathing reflex would take over when she had not breathed for a short while. In order to help her comply with the experiment, the therapist volunteered to do the same but to start one minute in advance of the patient. In that way, if anyone was going to die, it would be the therapist! Naturally,

the breathing reflex forced the therapist to breathe first. When the patient observed this, she felt confident to persist with the experiment herself and discovered that for her also the breathing reflex took over.

Common feared catastrophes and useful procedures. So far, our description of treatment has been organised around procedures. As an additional guide for therapists, Table 4 reiterates and extends the description by taking some of the most common negative thoughts (feared outcomes) in panic disorder and listing the techniques that are most commonly used for dealing with the thoughts.

An idiosyncratic behavioural experiment. Of course, the list in Table 5 is not exclusive. Some patients will require additional interventions. As always in cognitive therapy, the extent to which an intervention is helpful with a particular patient is indexed by observed change in belief ratings. When necessary, therapists should not hesitate to design their own behavioural experiments. Sometimes the particular nature of a patient's fears suggests a one-off behavioural experiment that can be stunningly effective. For example, a patient was particularly afraid of feeling breathless when in a confined space. She believed that in confined spaces she would rapidly run out of oxygen. In discussion, the therapist suggested this was improbable because keyholes and the imperfections around doors and windows mean that in most domestic environments fresh air comes into rooms even when the doors and windows are closed. The patient thought that this was improbable but agreed to test it to see whether a smell could make its way into the room. She sat in the therapist's office while the therapist released an air freshener with a distinctive aroma into a corridor outside of the office. In less than a minute, the distinctive aroma was smelt by the patient even thought the door was closed.

Relapse Prevention

Towards the end of therapy, the emphasis shifts from symptom reduction to preventing relapse. Initial treatment sessions are usually weekly. In order to promote self-reliance, the interval between the last two or three treatment sessions is often greater. Attempts are made to anticipate any future stressors (break up of a relationship, heavy work pressure, unexpected death of a colleague) that might trigger a relapse and a blue print that the patient can consult if panic attacks re-occur is developed. The blueprint summarizes the cognitive model, outlines the main beliefs and safety seeking behaviours that were worked on in therapy, summarises the evidence the patient has developed again the beliefs and contains a plan for reactivating the skills learned in therapy. Clark, Salkovskis, Hackmann et al. (1994,1999) found that panic disorder patients who had a residual tendency to misinterpret body sensations in a catastrophic fashion at the end of treatment had an increased risk of relapse during follow-up. This result applied to both psychological and drug treatment, with the latter having a higher relapse rate because it was less successful at changing misinterpretations. In view of the importance of residual interpretative style, we recommend that therapists should not just aim for a panic–free state. Towards the end of therapy, all the beliefs that have been targeted in therapy should be reassessed. If some panic-related negative beliefs are still considered partly credible, further discussion and behavioural experiments should be used to convincingly dispel patients' residual doubts. A summary of the additional work can then be included in the blueprint. *Point/counterpoint* can be useful at this stage. In a role play, patients state the answers (rational responses) they have developed to a particular negative thought and the therapist puts the counterpoint by trying to argue against the rational responses. This process helps patients to pinpoint weaknesses in

their responses. If weaknesses are identified, additional, more convincing responses are developed.

Alternative treatments

The main alternative to cognitive behaviour therapy is medication (see Spiegel, Wiegel, Baker, & Greene, 2000 for a review). Several benzodiazepines (alprazolam, clonazepam, lorazepam), tricyclic antidepressants (TCAs: imipramine, clomipramine) and selective serotonin reuptake inhibitor (SSRIs: paroxetine, sertraline, fluoxetine, fluvoxamine, citralopam) have been shown to have significant anti-panic effects in placebo-controlled trials. The use of benzodiazepines is not generally recommended for chronic conditions because of concern about long-term dependence. Meta-analyses (van Balkom et al, 1997) indicate that TCAs and SSRIs have similar short-term efficacy. For both medications, a significant proportion of patients relapse after medication discontinuation. Given the established efficacy of both CBT alone and antidepressants (TCAs and SSRIs) alone, it has sometimes been suggested that optimal treatment might involve simultaneously starting CBT and anti-depressants. The largest controlled trial to address this issue (Barlow et al, 2000) concluded that combined treatment was *not* advantageous. Cognitive behaviour therapy was compared with imipramine and with placebo medication, alone and in combination. In the short term, CBT plus imipramine was not superior to CBT plus placebo. In the longer term, adding imipramine to CBT tended to reduce the durability of CBT. In light of these results, we do not recommend combined treatment. Instead, CBT should be started alone. The addition of medication may be considered later if the patient has failed to respond to an adequate course of CBT alone. Of course, some patients who are referred for CBT are already taking medication that has failed to

completely control their panic attacks. Recommendations for how to manage medication during CBT with such patients are given on page 18.

Outcome

Seven randomised controlled trials (Arntz & van den Hout, 1996; Beck et al, 1992; Brown et al, 1997; Clark et al, 1994, 1999; Hoffart, 1998; Ost & Westling, 1995) have investigated the effectiveness of the cognitive therapy (CT) programme described in this chapter. Taken together, the trials have established that : (i) CT is effective (i.e. superior to no treatment); (ii) it is a specific treatment (i.e. superior to an equally credible alternative psychological treatment), (iii) it is more effective than imipramine (Clark et al, 1994), and (iv) it is more effective than supportive psychotherapy (Beck et al, 1992) and two alternative behavioural treatments; namely applied relaxation (Arntz & Van den Hout, 1996; Clark et al, 1994) and guided mastery (Hoffart, 1998). Across all seven trials, the average panic free rate at the end of treatment was 80% using conventional intention-to-treat criteria in which drop-outs are counted as still panicking. Similar panic free rates were reported at one year post-treatment suggesting that treatment gains are generally maintained. However, one longditudinal (as opposed to single time point) follow-up of successfully treated panic disorder patients (Brown and Barlow, 1995) suggests that some of the patients who were panic free at one year follow-up may have had occasional panic attacks during the post-treatment year. The average drop-out rate for CT was low (less than 5%), which suggests that the treatment has high patient acceptability.

Barlow, Craske and colleagues', independently developed, Panic Control Treatment (PCT) shows considerable overlap with the treatment described here but places a greater emphasis on interoceptive exposure. CT and PCT have not been

directly compared but comparisons across trials suggest that the two treatments are similarly effective. Like CT, PCT has been shown to be a specific treatment (Barlow, Craske, Cerny & Klosko, 1989) and superior to both relaxation training (Barlow et al. 1989) and a supportive psychotherapy ("emotion focussed psychotherapy"; Shear, Houck, Greeno & Masters, 2001). PCT has also been shown to be superior to alprazolam (see Klosko et al, 1990 and Barlow & Brown, 1995). Readers who are interested in learning more about Panic Control Treatment can consult Craske, Barlow & Meadows (2000) for a full description.

Normally, CT and PCT are given for 12 to 16 weekly sessions. Attempts to shorten the treatments have had mixed results. Clark et al. (1999) found that the full CT programme could be shortened to 5 sessions without loss of effectiveness, if the treatment is augmented with specially designed patient self-study modules. Black et al. (1993) obtained less positive results with a shortened version of the CT. This could be because the treatment was not augmented with self-study modules. It could also be because Black et al. (1993) added some extra, non-protocol procedures that could be considered safety behaviours. Finally, Craske, Maidenberg and Bystritsky (1995) reported that a shortened version of PCT was less effective than the full version but was still superior to a non-directive psychotherapy control condition.

Most controlled trials of CT and PCT have focused on patients with no more than moderate agoraphobic avoidance. Williams and Falbo (1996) found that more traditional behavioural and cognitive treatments (performance based exposure or cognitive restructuring alone) achieve lower panic free rates in patients with high agoraphobia than in patients with low agoraphobia. The single studies that have evaluated CT (Hoffart, 1998) and PCT (Craske, De Cola, Sachs & Pontillo, 2003) in panic disorder with extensive agoraphobia have reported more positive results with

panic free rates being similar to those obtained with low agoraphobia (e.g., 70% - 80%). The extent to which therapist assisted *in vivo* exposure to feared situations is necessary in addition in office panic treatment procedures in patients with panic disorder and agoraphobia is currently unclear. Most therapists would include some *in vivo* work in agoraphobic situations in treatment programmes for the more agoraphobic patient. However, Craske et al. (2003) recently found that PCT without the addition of *in vivo* exposure was as effective as PCT with *in vivo* exposure. Finally, Salkovskis et al. (in prep) found that if *in vivo* exposure is utilized, significantly better results are obtaining if exposure is accompanied by the dropping of safety behaviours and is set up as a behavioural experiment (as described in this chapter) than if it is presented with a habituation rationale.

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Table 1. Summary of information about panic disorder to be covered in assessment.

Review Panic Attacks in Recent Past
a) Frequency
b) Severity
c) Sensations
d) Thoughts
e) Safety seeking behaviours during the attacks
f) First Signs
g) List of situations in which attacks are most likely to occur/most severe.
h) Avoidance (situations and/or activities) and checking/monitoring between attacks.
i) Modulators (things making the attacks more or less severe)
Attitudes and Behaviour of Significant Others (family, colleagues and doctors)
Evidence for Catastrophe Beliefs
Prescribed Medication
Alcohol and Drugs
Previous Treatment (types, whether successful)
Onset and Course
Co-Morbidity
Personal Strengths and Assets
Social & Financial Circumstances

Table 2 Examples of specific links between sensations and thoughts

Sensation	Thought (interpretation)
Breathlessness	I am going to stop breathing, suffocate and die.
Palpitations, chest tight	I am having a heart attack; there is something seriously wrong with my heart.
Faintness/dizziness	I will faint, fall over, pass out.
Feeling unreal, unusual thoughts	I am going crazy.

Table 3. Body sensation-catastrophe paired associates.

Breathlessness-Suffocate	Dizziness-Fainting
Chest tight – Heart attack	Unreality- Insane
Numbness – Stroke	Palpitations – Dying
Dizziness – Fainting	Numbness – Stroke
Palpitations – Dying	Chest tight – Heart attack
Breathlessness – Suffocate	Dizziness – Fainting
Numbness – Stroke	Palpitations- Dying
Palpitations – Dying	Breathlessness – Suffocate
Chest tight – Heart Attack	Unreality – Insane
Palpitations – Dying	Numbness – Stroke
Unreality – Insane	Chest tight – Heart attack
Dizziness – Fainting	Breathlessness – Suffocate
Unreality – Insane	Dizziness – Fainting
Dizziness – Fainting	Numbness – Stroke
Breathlessness – Suffocate	Palpitations- Dying
Chest tight – Heart Attack	Unreality – Insane
Breathlessness – Suffocate	Numbness – Stroke
Unreality – Insane	Chest tight – Heart attack
Palpitations – Dying	Palpitations – Dying
Dizziness – Fainting	Breathlessness – Suffocate
Chest tight – Heart Attack	Unreality – Insane

Table 4. Some common negative thoughts (feared outcomes) in panic disorder and interventions that can be useful for modifying the thoughts.

I'll faint

- Identify what patient means by, "I'll faint".
- Has patient fainted before? If so, identify circumstances. Refer to pages 30-32 for education options, depending on the patient's answer.
- Consider paired associates experiment (pages 38-39 & Table 3) to demonstrate that thoughts about fainting increase dizziness/feeling faint.
- Consider hyperventilation experiment (page 40) to identify whether patient's breathing during attacks increases the feeling of faintness/dizziness.
- Explore whether patient's other safety behaviours (e.g., walking style), diet (restricted eating) or medications might intensify the feeling of faintness/unsteadiness.
- Identify images and restructure (e.g., "finish out" pages 34-35).
- Behavioural Experiment: Explore whether feeling faint in a panic leads to actually fainting by inducing the feeling (by paired associates, hyperventilation, exposure to feared situation such as a supermarket) and not attempting to control it (dropping safety behaviours) or even making it worse.
- Behavioural Experiment: If concern about other people's reactions to the patient fainting is prominent, (1) explore concern and verbally decatastrophize ("What's so bad about fainting?") and (2) discover how people would react by observing therapist "faint" in public *after* making clear cut predictions.

I'm having a heart attack

- Identify patient's evidence for the belief. Discuss previous negative medical tests (if applicable) and the fact patient hasn't died despite having had many attacks. Identify alternative explanation for attacks (the cognitive model) and any evidence that fits with the alternative (e.g., effects of distraction, course of the disorder, relation of chest pain to exercise, etc. See pages 33-34). Collaboratively discuss and discount evidence that seems to support the negative belief (e.g., left sided chest pain, see pages 32-33).
- Behavioural Experiments to induce feared symptoms: paired associates; breathe with tense, expanded or collapsed upper chest (page 42).
- Behavioural Experiments to demonstrate sensations are not dangerous: try to provoke a "heart attack" by exercising. When breathlessness/racing heart/chest tightness is experienced (either because of exercise or in naturally occurring attack) do not rest or engage in any other safety behaviour to reduce the symptoms. Consider exaggerating the symptoms by more exercise.
- Drop changes in lifestyle (abstaining from sex, driving instead of walking, repeated checking of the heart with blood pressure or pulse devices) that started after onset of panic disorder and are motivated by the belief that panic attacks are heart attacks or "near misses".

I'm going insane / losing control

- Identify what the patient thinks going insane or losing control would consist of. What would happen? What would other people see? How long would it last?
- Identify what makes the patient think the feared outcome is likely to happen (e.g., subjective difficulty in controlling thoughts/images/emotions or in concentrating; periods of feeling unreal; subjective feeling that urges have to be resisted; mental health/behavioural history of significant others) and the alternative explanation (cognitive model).
- Identify monitoring and checking (of thoughts, whether oneself or the world is real, whether one is "in control", etc).
- Education: panic disorder is not associated with an increased risk of psychosis. People who appear to lose control of their behaviour in public (screaming etc) do not suffer from panic disorder.
- Explore why patients think they haven't gone mad yet (What safety behaviours do they think have stopped them? Remember: safety behaviours are often mental operations: e.g., thought/image suppression or control).
- Behavioural experiments: 1) induce feelings of unreality in self or world by fixedly staring at parts of one's body, visual grids, or blank walls (page 44). Paired associates may also induce feelings of unreality (page 39); 2) demonstrate the adverse effects of monitoring/checking by doing so in the session and observing it's effects; 3) demonstrate the adverse effects of trying to keep tight control of one's thoughts/images/behaviour by doing so in the session and discovering that things feel more "out of control"; 4) try to lose control/go crazy in the session and discover that it doesn't happen; observe the way other people would react if the worse happened and one behaved as feared one fears by the therapist or patient "acting" the behaviour (page 50).

I'll vomit, lose control of my bladder, lose control of my bowels.

- Identify meaning of feared event (What would be the worst thing about that?).
- Has the feared event ever happened? If yes, explore the circumstances to see if it was unconnected to panic attacks/ there was a good non-panic reason (e.g., food poisoning, illness, excitement as a child, etc). If no, what does that tell you about how likely it is to happen in a panic?
- Identify any additional evidence the patient has for believing the feared event is likely (e.g., feeling nauseous, urgency feelings, observing other people vomit/lose bladder-bowel control. Also "near misses", that is times when patient felt a strong urge to vomit/urinate/defecate and rushed to bathroom where upon the event happened with some force). Discuss alternative interpretations of the evidence (e.g., feelings of nausea/urgency may be magnified by internally focused attention and attempts to tense the relevant muscles to prevent vomiting or "leakages". Also, the fact that forceful urination/defecation happened when the patient reached the toilet didn't

indicate "near miss" loss of control. On the contrary, defecation happened because the patient intentionally let go once he/she was safely over the toilet).

- Education: e.g., our substantial bladder capacity, feeling nauseous often does not predict vomiting, except in illnesses like gastric flu and transitory conditions such as severe hangovers or food poisoning.
- Identify and change any behaviours that might increase nauseous feelings directly (not eating or problematic dietary content) or increase attention to stomach/bowels/bladder (multiple "preventative" trips to toilet, checking how nauseous one feels, repeated checking of urinary/defecatory urge, planning routes around the location of toilets).
- Behavioural experiments: 1) Intentionally monitor strength of urinary/defecatory urges or nausea in session to demonstrate that monitoring increases the feelings (but not the biological need); 2) Experiment with drinking/eating more and intentionally delaying going to toilet to demonstrate that urges increase but then often decline; 3) Go to places without checking location of toilets in advance and not seeking one out at the first sign of an urge. Cognitive preparation for this exercise might require a cost-benefit analysis (i.e., is it worth risking the worst happening once if it allows you to overcome the problem forever?); 4) Decatastrophize the social cost of the feared event by giving the appearance it may have occurred (fake vomiting in public or put water on one's trousers/skirt) and observe other's reactions.

I'll suffocate/stop breathing and die

- Identify what makes patients think they might suffocate/stop breathing in a panic attack (e.g., feeling short of breathe, stories they have heard, confusing asthma and panic attacks, etc).
- Discuss why they think they have not suffocated/stopped breathing in previous attacks (e.g., made a conscious effort to breathe, took deep breaths, escaped from the situation, tried to calm down, etc).
- Education about breathing: it is mainly automatic (driven by the respiratory centre) but with a degree of voluntary control (to allow us to sing, talk etc) except when breathing has been delayed until CO_2 levels become high at which point a reflex forces us to breathe. Reflex control completely takes over when we are sleeping or unconscious.
- Behavioural experiments: 1) Ask patients to breathe the way they do in panic attacks to see if trying to take in more air makes them *feel* more breathless even though their oxygen levels are increasing (see page 40). If so, explain about hyperventilation; 2) Encourage patients to intentionally hold their breathe until the breathing reflex takes over (page 51) to demonstrate that one doesn't have to concentrate on breathing in order to ensure that one continues to breathe. The therapist may need to model this exercise to reduce patients' fears enough to allow them to do the experiment themselves; 3) Paired associates to demonstrate that fearful thoughts about suffocating can make one *feel* short of breathe, even though there is no objective change in respiration; 4) Intentionally focus on how breathless one feels in order to demonstrate that concerned monitoring can make one *feel* breathless even though there is no objective change in respiration; 5) Smell experiment (page 52) to demonstrate

that one will not run out of air even if stuck in a confined space (such as a lift/elevator or a small room).

The anxiety/stress of panic attacks will kill me

- Identify patients' evidence for the belief (e.g., common sayings, movies, things they have experienced or things they have read and misinterpreted. See example on page 30) and help patient to challenge the evidence.
- Education about the physical effects of stress and panic. Some points that may be relevant are: 1) The literature linking stress reactions with increased mortality implicates *chronic* negative affect (especially hostility and depression) with increased long-term cardiovascular risk. The mechanism is probably structural damage to the cardiovascular system as a result of chronically elevated blood pressure or some other fairly constant physical corollary. In contrast, panic attacks are brief events. 2) The heart is a muscle and benefits from exercise. It is good to give it the experience of sudden accelerations (which is one reason why exercise is recommended by health experts). 3) The objective physiological changes in a panic attack seem large to patients but ambulatory monitoring studies show they are modest (average heart rate increase of 11 beats per minute: see Margraf et al., 1987) in comparison to many everyday events such a jogging, running up the stairs etc. 4) Some people have heart attacks when in an anxious state but the anxiety per se is not the cause of the attack. Instead they are individuals with pre-existing cardiac disease and the any cardiac load (such as turning over a mattress at home) could have the same effect.
- Behavioural Experiments: 1) Identify safety behaviours linked to the belief (e.g., avoiding scary movies, rollercoaster rides, stressful interactions with colleagues, or any other stressors in life) and encourage patient to do the opposite (go to a scary movie/roller coaster ride) in order the disconfirm the belief. 2) Encourage patients to try to make themselves more anxious or to not control their anxiety in a panic as a specific test of the belief. This experiment is usually best done in the therapy session first using one of the standard panic provocation techniques or using scary imagery. The key point is that, with the therapist's encouragement, patients intentionally allow themselves to become anxious and discover the anxiety has no adverse effects even if not controlled.

I'll choke

- Identify: 1) key sensations (lump in throat, difficulty in breathing); 2) what choking means to patient (food sticking/being inhaled/throat closing up) and what they fear will happen if they choke (look foolish, die); 3) evidence that the sensations mean that you are choking
- Identify safety-seeking behaviours (swallowing frequently, tensing throat, over-chewing and careful swallowing).
- Discuss any direct or indirect experience of choking in self or others (e.g. fishbone stuck in gullet) and how unlikely this is.
- Education: Discuss how food and air are kept separate by a "trapdoor" inside the throat which routes food and water into the stomach rather than the lungs. The "trap door" also responds to work about choking (producing the typical

"lump in throat" feeling which simply means that the body's this means protection against things going "wrong way" is in good working order but is triggered unnecessarily.

- Behavioural experiments: Do what you usually do when worried about choking (e.g, swallow more, tense the throat) in order to discover that the safety behaviour is one of the main causes of the feared sensations. Try to trickle water down one's throat without swallowing to show that the swallow reflect will take over and ensure that the water reaches the stomach. Therapist to explain the swallowing reflex. Discuss coughing: what does it do? (it very effectively throws food out of the windpipe). Cough into a rolled up piece of paper tube with something in it (a pencil for example) to see how effective the cough is at expelling the object (the principle behind a child's "pea-shooter").

Figure Captions

Figure 1: The suggested sequence of events in a panic attack for patients with panic disorder. From Clark (1986, p 463). Copyright 1986 by Pergamon Press. Reprinted by permission.

Figure 2: An experimental demonstration that patients with panic disorder have enhanced heat beat perception (i.e. make less errors) compared to patients with other anxiety disorders and non-patients. Data from Ehlers & Breuer (1992).

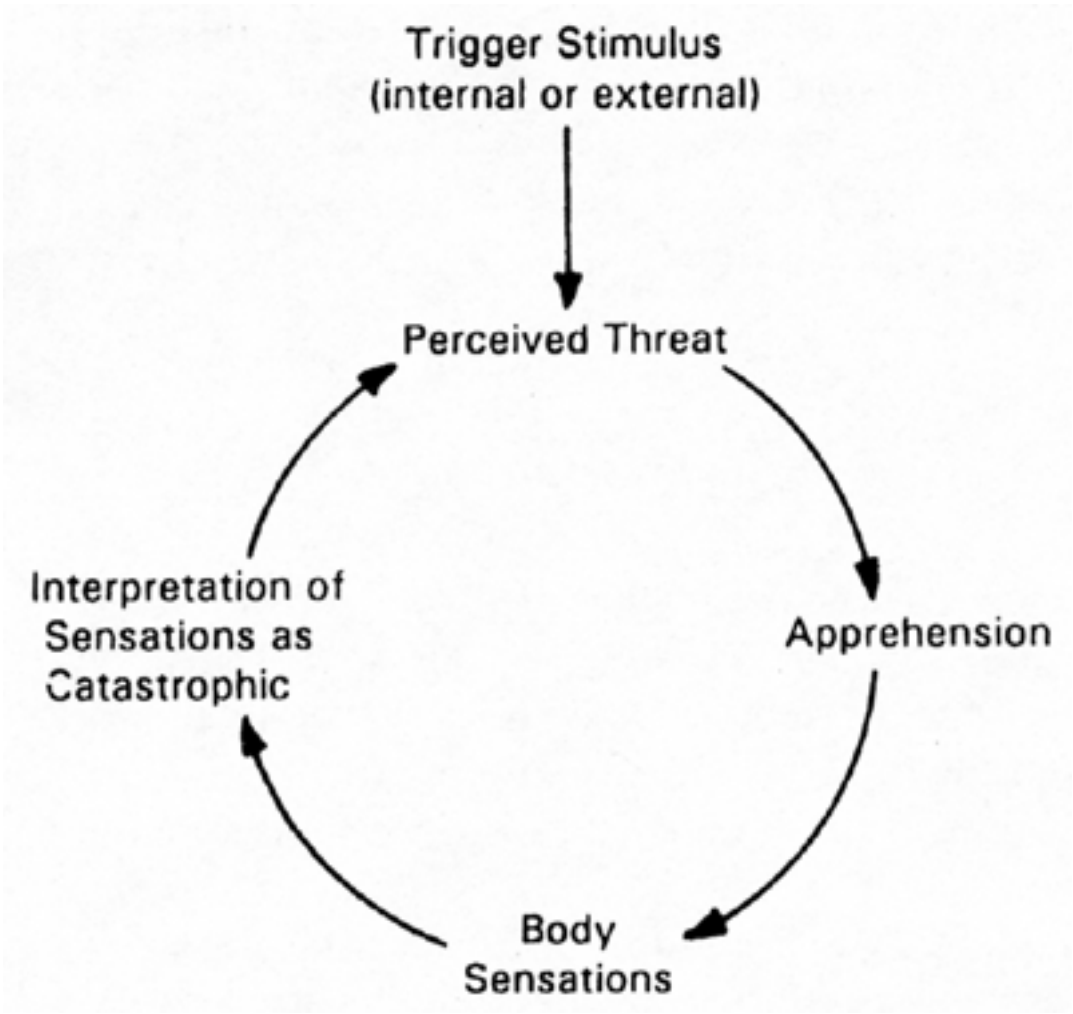
Figure 3: An individual version of the panic disorder model describing a specific attack. Adapted from Clark (1996, p.329). Copyright 1996 by Guilford Press.

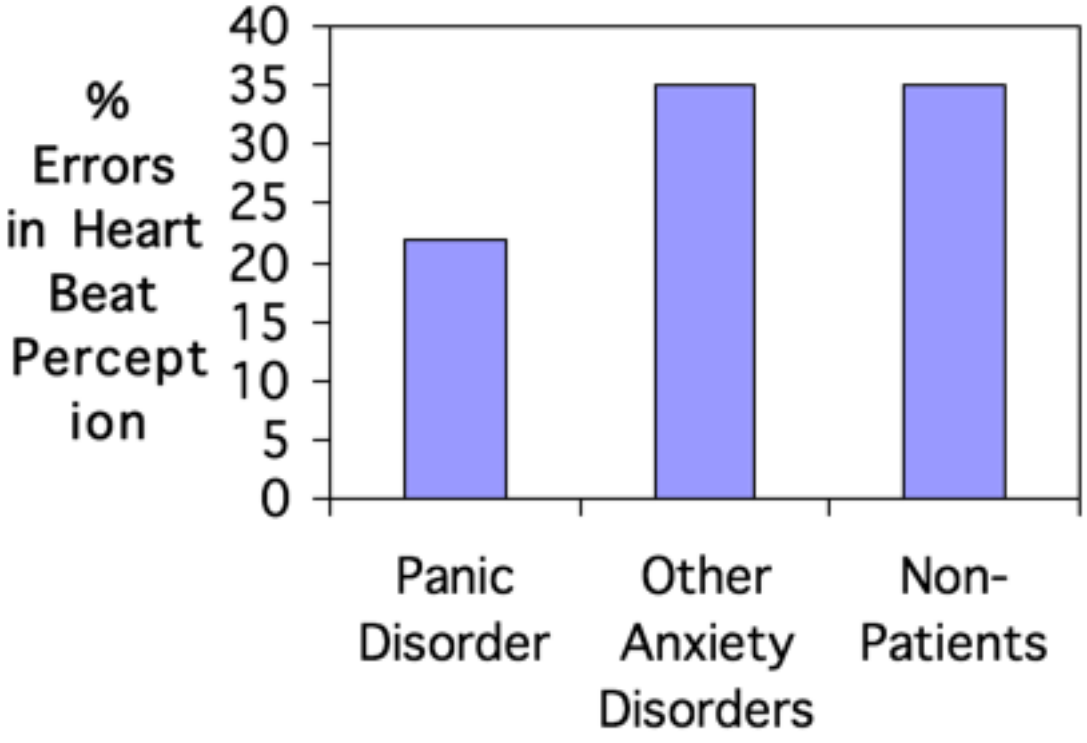
Figure 4: A sample panic diary.

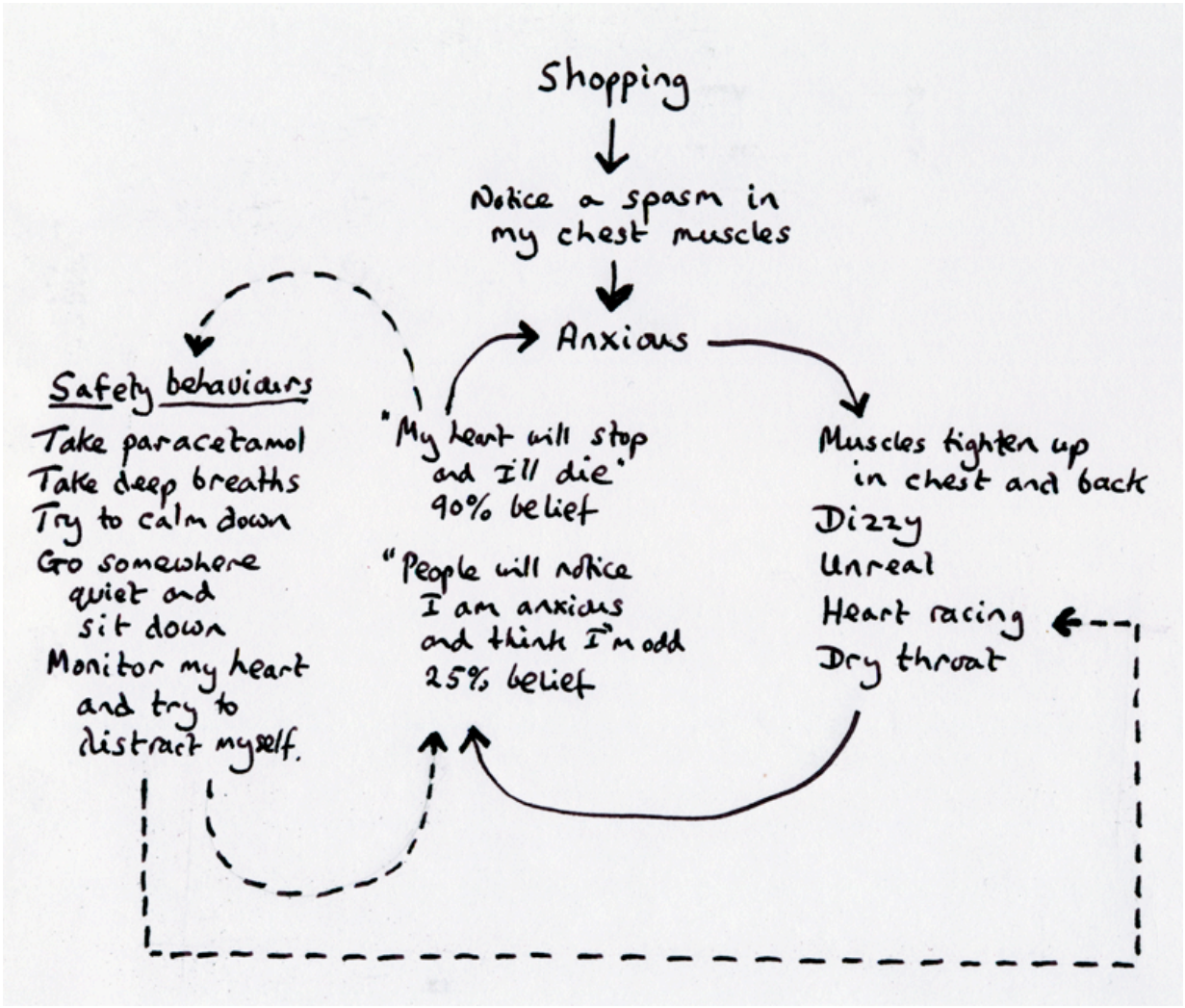
Figure 5: A generic model of a panic disorder patient's panic attacks. From Clark (1996, p.331). Copyright 1996 by Guilford Press.

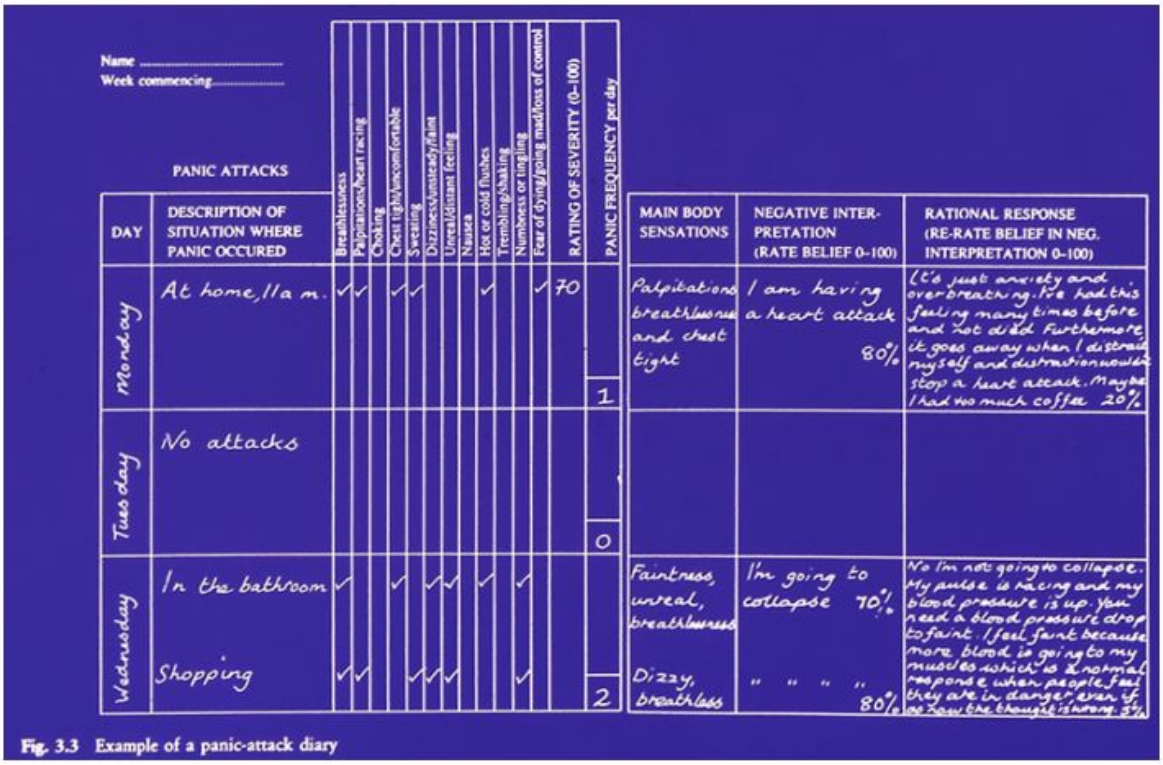
Figure 6: The location of episodic chest pain in patients seen in a cardiology clinic. NCCP = non-cardiac chest pain (mainly panic disorder), AP = angina pectoris, MI = myocardial infarction. From Beunderman et al. (1988). Copyright 1988 Swets & Zeitlinger, Amsterdam.

Figure 7: An example of the Record Sheet for Noting Behavioural Experiments.


Trigger Stimulus
(internal or external)
Perceived Threat
Apprehension
Body
Sensations
Interpretation of
Sensations as
Catastrophic


% Errors in Heart Beat Perception
40
35
30
25
20
15
10
5
0
Panic Disorder
Other Anxiety Disorders
Non-Patients


Shopping
Notice a spasm in my chest muscles
Anxious
Safety behaviours
Take paracetamol
Take deep breaths
Try to calm down
Go somewhere quiet and sit down
Monitor my heart and try to distract myself.
"My heart will stop and I'll die" 90% belief
"People will notice I am anxious and think I'm odd 25% belief
Muscles tighten up in chest and back
Dizzy
Unreal
Heart racing
Dry throat

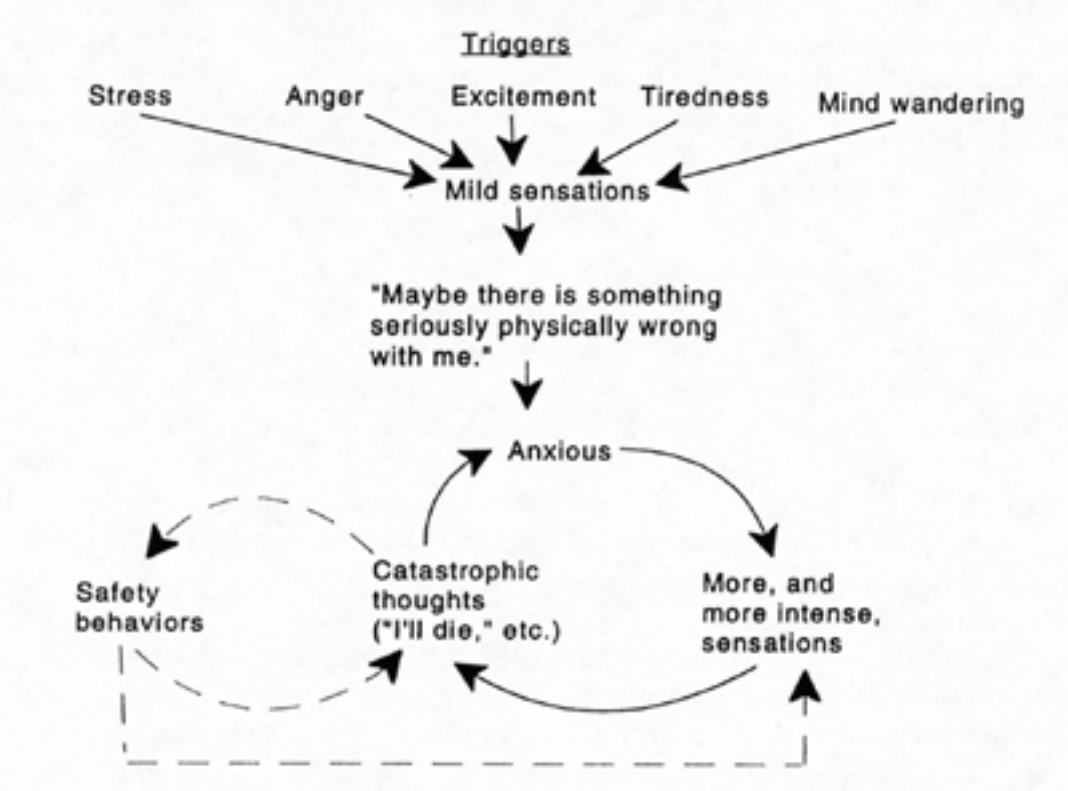


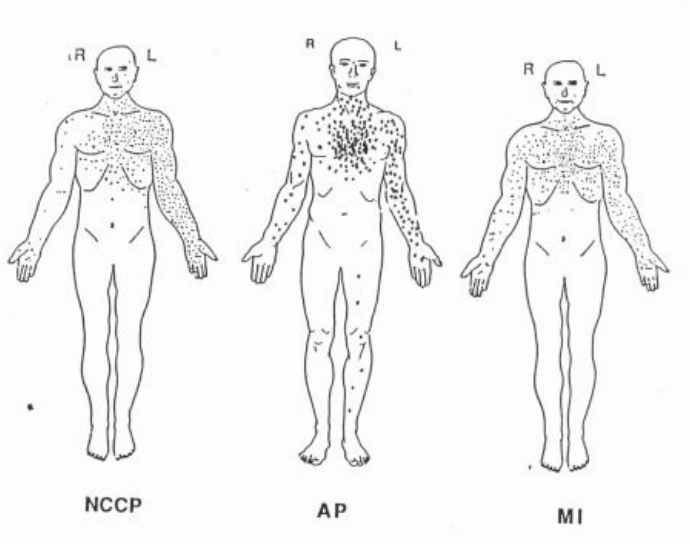
Name .....
Week commencing.....

PANIC ATTACKS

DAY	DESCRIPTION OF SITUATION WHERE PANIC OCCURED	Breathlessness	Palpitations/heart racing	Choking	Chest tight/uncomfortable	Sweating	Dizziness/unsteady/faint	Unreal/detached feeling	Nausea	Hot or cold flushes	Trembling/shaking	Numbness or tingling	Fear of dying/going mad/loss of control	RATING OF SEVERITY (0–100)	PANIC FREQUENCY per day	MAIN BODY SENSATIONS	NEGATIVE INTERPRETATION (RATE BELIEF 0–100)	RATIONAL RESPONSE (RE-RATE BELIEF IN NEG. INTERPRETATION 0–100)
Monday	At home, 11 a.m.	✓	✓		✓	✓				✓			✓	70	1	Palpitations breathlessness and chest tight	I am having a heart attack 80%	It's just anxiety and overbreathing. I've had this feeling many times before and not died. Furthermore it goes away when I distract myself and distraction would stop a heart attack. Maybe I had too much coffee 20%
Tuesday	No attacks														0			
Wednesday	In the bathroom	✓			✓		✓	✓		✓		✓			2	Faintness, unreal, breathlessness	I'm going to collapse 70%	No I'm not going to collapse. My pulse is racing and my blood pressure is up. You need a blood pressure drop to faint. I feel faint because more blood is going to my muscles which is normal response when people feel they are in danger even if we know the thought is wrong. 5%
	Shopping	✓	✓			✓	✓	✓				✓				Dizzy, breathless	" " " " 80%	

Fig. 3.3 Example of a panic-attack diary


Triggers
Stress
Anger
Excitement
Tiredness
Mind wandering
Mild sensations
"Maybe there is something seriously physically wrong with me."
Anxious
Safety behaviors
Catastrophic thoughts ("I'll die," etc.)
More, and more intense, sensations


R
L
NCCP
R
L
AP
R
L
MI

SITUATION	**PREDICTION** **What exactly did you think would happen?** **How would you know?** **(Rate belief 0-100%)**	**EXPERIMENT** **What did you do to test the prediction?** **(Remember to drop safety behaviours)**	**OUTCOME** **What actually happened?** **Was the prediction correct?**	**WHAT I HAVE LEARNED** **Balanced view?** **How likely is what you predicted to happen in the future? (rate 0-100%)** **What can I do to further test my original prediction?**
Shopping in the supermarket	If I start to panic and feel dizzy, I'll faint and collapse. (95%)	Go into the supermarket. Beforehand remind myself that you don't faint in a panic (because blood pressure is up). When I feel dizzy, don't do anything to control the feeling. Let it happen. Also don't hold onto the trolley. Instead move away from it. Maybe briefly stand on one leg!	I felt very dizzy in aisle 9 and got anxious. However, I didn't try to escape and I walked away from the trolley. I didn't collapse.	Maybe the discussions in the therapy sessions are right. The dizziness is just a feeling and doesn't mean I'm going to collapse. Original prediction is now 20% I could test it further by going to the supermarket again and maybe trying to make myself feel a bit more dizzy with a few quick, deep breaths as we did in the clinic.

Appendix

Two questionnaires that we have found useful in assessing panic disorder and which are not readily available elsewhere are reproduced in this appendix. Readers are welcome to use them in their clinical work.

Panic Disorder Weekly Summary Scale

Name: ..... Date: .....

A **panic attack** means a **sudden** increase in anxiety during which **four or more** of the following sensations are experienced:

1. Feeling short of breath
2. Palpitations or heart racing
3. Choking
4. Chest feeling uncomfortable or painful
5. Sweating
6. Dizziness, unsteady feelings or faintness
7. Feeling unreal or detached from yourself
8. Nausea or discomfort in the stomach
9. Hot or cold flushes
10. Trembling or shaking
11. Numbness or tingling feelings (pins and needles)
12. Fear of dying
13. Fear of doing something uncontrolled or going crazy during an attack

Please circle a number on each of the scales below to indicate your answer:

1. What was the **frequency of your panic attacks** during the last two weeks?

0	1	2	3	4
No panic attacks	One panic attack per fortnight	One or two panic attacks per week	At least three panic attacks per week but averaging less than one per day	One or more panic attacks per day

2. How **severe** a **problem** are **panic attacks** for you at present?

0	1	2	3	4	5	6	7	8
Not at all disturbing and/or disabling		Slightly disturbing and/or disabling		Definitely disturbing and/or disabling		Markedly disturbing and/or disabling		Very disturbing and/or disabling

3. In the past two weeks, how much have you **avoided situations** (or needed someone to accompany you) due to fear that you may panic/ have symptoms? Examples are: being outside home alone, travelling, being in a crowd, supermarket or department store?

0	1	2	3	4	5	6	7	8
Never avoid		Occasionally avoid		Moderate avoidance		Severe avoidance		Always Avoid

Safety Seeking Behaviours Questionnaire

When you are at your most anxious or panicky, how often do you do the following things:

Try to think about other things	Never	Sometimes	Often	Always
Hold on to or lean on to something	Always	Often	Sometimes	Never
Hold on to or lean on someone	Never	Sometimes	Often	Always
Sit down	Always	Often	Sometimes	Never
Keep still	Always	Often	Sometimes	Never
Move very slowly	Never	Sometimes	Often	Always
Look for an escape route	Never	Sometimes	Often	Always
Make yourself do more physical exercise	Always	Often	Sometimes	Never
Focus attention on your body	Always	Often	Sometimes	Never
Try to keep control of your mind	Never	Sometimes	Often	Always
Try to keep tight control over behaviour	Always	Often	Sometimes	Never
Talk more	Never	Sometimes	Often	Always
Take medication	Never	Sometimes	Often	Always
Ask people around for help	Never	Sometimes	Often	Always
Change your breathing	Always	Often	Sometimes	Never