Mental imagery in anxiety disorders

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Abstract

Distressing mental images are common in anxiety disorders and have recently been found to have an important role in the maintenance of anxious problems. For example, in Post Traumatic Stress Disorder the hallmark feature is the presence of recurrent sensory images of a past trauma, known as “flashbacks”. These flashbacks comprise the key information that needs to be addressed in cognitive behavioural therapy to successfully treat this disorder. Another example of imagery having a key role in maintaining clinical problems is social phobia. Clients with social phobia are concerned about how they come across to other people. These clients spontaneously generate distorted negative images of themselves performing poorly in social situations. These idiosyncratic images represent the clients’ key fears. The images are often stereotyped, with the same imagery being generated across a range of anxiety provoking social situations. When the images are generated, the clients feel more anxious and believe that others can see their symptoms of anxiety. Research that has manipulated self-imagery in social phobia has shown that negative imagery has a key role in maintaining the disorder. Anxious imagery often relates to a memory of an earlier aversive or traumatic situation, but the clients experience it as if it is happening in the ‘here and now’ and that the imagery is a true representation of how they appear to others. Clinicians need to assess and target imagery in the psychological treatment of anxiety disorders. Cognitive behavioural therapy has techniques to target imagery and the traumatic memories across anxiety disorders.

Keywords: mental imagery, imagination, anxiety disorders, cognitive behavioural therapy, image restructuring, memory

Introduction

Individuals with anxiety disorders have negative automatic thoughts, and examining them constitutes the starting point of cognitive therapy. Such thoughts are often in the form of mental images as well as verbal cognitions (1). By mental images we mean perceptual information that arises from memory rather than from information being directly registered by the senses. Mental imagery can occur in all sensory modalities such as “seeing with the minds eye”, “hearing with the minds ear”, and so on (2). In the anxiety disorders images typically relate to an individual’s feared predictions about a given situation. In the context of cognitive therapy imagery is thought to have an important role in maintaining anxiety disorders and therefore represents an important target for treatment. While in some anxiety disorders work in imagery has lagged behind that on verbal cognitions, there is an increasing amount of clinical research on this topic (3).

Types of imagery in different disorders

Problematic mental imagery is reported by clients with almost all anxiety disorders, with the specific content of images relating to the clients main fears that are central to the clinical disorder. For example, in social phobia images are often of the self

exhibiting symptoms of anxiety, for example blushing or sweating (4). For all disorders imagery can be activated in anxiety provoking situations, or when thinking about feared events. Whilst a given client's fears will be idiosyncratic (for example in social phobia one client may fear sweating while another may be concerned that their voice wavers and that they sound boring), the meaning of the images are related to their feared predictions and are broadly consistent within a given disorder (5) (6) (7) (8) (9), see Table 1.

[INSERT TABLE 1 HERE]

For a given client the same image will be activated again and again across a range of anxiety provoking situations. These recurrent and stereotyped images are often the abstracted meaning of an earlier experience that often occurred around the time disorder began to develop. Surprisingly, it is unusual for clients to have made this explicit link between the original event and their current image.

The importance of imagery

Why consider mental images as well as verbal thoughts in cognitive therapy? Interestingly, clients do not always mention their mental imagery unless they are asked directly about it during assessment. That is, problematic images may be far more prevalent than sometimes assumed and go unreported. Cognitive psychology research has shown that imagery has a more powerful impact than verbal processing on negative emotion for the same material (10). In the experiments by Holmes and

Mathews, healthy volunteers were given the same descriptions of short negative scenarios. One group of participants was asked to 'think about the words and meanings' and another group to 'imagine' the scenarios. An example of a negative scenario is "You are giving a speech at a friends wedding. As you begin the audience starts to laugh mockingly". The imagery group reported significantly greater increases in emotion over the experiment than the group asked to think about the scenarios verbally, see Figure 1. As imagery appears to have a special impact on emotion, it would appear to be an important cognitive process to target in therapy.

[INSERT FIGURE 1 HERE]

The role of imagery in worry

Interestingly worry, which is often evident in anxiety disorders involves more verbal processing than imagery (11). Worry is a cardinal feature of Generalised Anxiety Disorder (GAD). Borkovec and colleagues (12) have proposed that people with GAD will have brief images of their fears. When a distressing image is generated the person then reverts to thinking about their worries in verbal form. In the short term this helps them avoid very high levels of emotion and physiological arousal associated with anxiety. However, in the long term it results in prolonged bouts of distress. Cognitive behavioural treatment (CBT) of GAD includes techniques to get the client to generate images of what they are worrying about, rather than thinking in verbal form. While this makes them feel more anxious initially, the process of generating an image often helps clients gain a better perspective on the likelihood that

the worry will come true. Once they realise it is not likely, they may then find it easier to stop worrying.

Imagery in PTSD

The hallmark feature of post traumatic stress disorder (PTSD) is recurrent sensory images of a past trauma, known as “flashbacks” (13) (14). Flashbacks can come back with intense emotion and a sense of ‘nowness’, as if the traumatic event is happening in the ‘here and now’, against an individual’s will. Flashbacks typically are not of the whole trauma from beginning to end, but arise from the individual’s worst moments in the trauma memory known as “hotspots” (5). Hotspots can relate to physical threat to the individual, as well as psychological threat to an individual’s sense of self.

Examples of PTSD images

An example of physical threat might be the moment during a mugging when someone was threatened with a knife, in which there may be a visual image of the mugger’s face accompanied with a tactile image of the feeling of the knife, associated with the meaning for the individual that “I am going to die” and the emotion of intense fear. An example of psychological threat might be a moment during a rape when the rapist was particularly humiliating to the victim, accompanied with a visual image of the room in which the attack took place, an olfactory image of the smell of the rapist and the sound of the rapists’ laughter, associated with the meaning “I am worthless, this will never end”, and the emotions of intense humiliation, fear and dissociation.

Triggers for imagery and avoidance of triggers

Images in PTSD can be triggered by reminders encountered in the external and psychological environment, though the individual may not be consciously aware of these triggers. For example, a touch to the neck might bring back the mugging flashback described above, or the sound of any laughter (such as a comedy on TV) may trigger flashbacks to the rape. Individuals with PTSD typically avoid triggers for their aversive imagery, which in some cases may have severe impact on daily functioning e.g. avoiding all situations where laughter might be heard. Thus traumatic imagery and an individual's response to it, is key to the maintenance of PTSD symptoms.

How to intervene with PTSD imagery using cognitive therapy

The National Institute for Clinical Excellence (NICE) guidelines for PTSD recommend the use of trauma-focused psychological interventions, such as trauma-focused CBT (15). Trauma focused CBT typically involves bringing the traumatic memory imagery to mind using a technique called "imaginal reliving", focusing on the hotspot moments (13). Within a CBT framework several further techniques can be employed. For example, 'cognitive restructuring' involves focusing on the meaning of the worst moments, and updating these in light of current knowledge. For example, the meaning with a flashback "I am going to die" may be updated to "I know now I did not die". This information can then be introduced during imaginal reliving of the trauma (13) (16). The aim is to more fully process the trauma memory so that it is less easily triggered as distressing flashbacks. Similarly, in 'imagery

rescripting', the client manipulates their problematic imagery directly in their imagination to change the meaning, as if it were a video film clip. For example, in their image of the point they thought they might die, they could imagine running on the trauma image to a point where they were safe again as they now know they did not die.

Intrusive imagery reduces during therapy. Once reliving sessions in trauma-focused PTSD have started, both the frequency and quality of flashbacks change. For example, distress, image vividness and nowness may decrease by half over the first four sessions of successful reliving (17) (18).

Imagery in Social Phobia

People with social phobia fear social situations such as interviews, public speaking, meeting people they do not know or talking to people in authority. Images reported by clients with social phobia are usually based on memories of an earlier event (4). While such social events may not be objectively as threatening or traumatic as those associated with PTSD index traumas, clients with social phobia find the original event personally traumatic (e.g. a teacher commenting on their work in front of the class in a way that the client found very embarrassing). There are a number of similarities between social phobia imagery and flashbacks in PTSD (19); both can be triggered by thoughts, physical sensations and external reminders, are experienced as if they are occurring at the current time (nowness) and they intrude without the client deliberately recalling them.

Clinical models of imagery in social phobia

The main clinical models of social phobia posit a key role for imagery in the maintenance of social phobia (20) (21). Clients with social phobia will often think in detail about impending social situations before they go to the social event. During this anticipatory phase, clients' negative self-image becomes activated and since the negative image represents what they fear, this elicits anxiety (for an example see Table 1). Once the person has entered the feared social situation, negative imagery is reinforced by their physiological symptoms of anxiety (e.g. a warm face is interpreted as severe blush). Clients with social phobia then tend to focus their attention on themselves during anxiety provoking social events. Unfortunately, clients then make judgments about how they are performing on the basis of the negative image. This fuels more anxiety. Later after they have left the social situation clients ruminate about their social performance during which time the image is again activated. Again judgments of performance are based on this negative image rather than objective evidence from other people's behaviour towards them during the social situation. As a result the person believes that they have again failed socially and provides more evidence that they will perform poorly next time as well. This information will in turn will be activated during anticipatory processing prior to the next social encounter.

Imagery has a causal role in the maintenance of social phobia

Whilst imagery may be evident in a given disorder it does not necessarily follow that the imagery fuels anxiety and maintains the clinical problem. It may be the case that

imagery is an epiphenomena. In order to determine whether imagery is causal in the maintenance of social phobia, research was conducted which manipulated the content of mental imagery and then assessed the impact on anxiety. In this research, participants with social phobia were asked to have two conversations with someone they did not know; once whilst holding their normal negative self image in mind and once whilst holding a more benign image of themselves not looking anxious (22) (23). When they held their negative image in mind they felt more anxious and believed that they looked more anxious than when they held a benign self image in mind, as can be seen in Figure 2.

[INSERT FIGURE 2 HERE]

Interestingly, although an independent assessor did rate the client's anxiety symptoms as significantly more evident when the client held a negative image in mind (than a benign image), the assessor noticed much fewer symptoms than the client thought would be visible to other people (see Figure 2). It seemed that the person with social phobia believed they looked and sounded much more anxious than they actually did, as is represented in Figure 3. This research shows that imagery does fuel anxiety and help maintain social phobia. It seems that people with social phobia are basing the assessment of how they come across on their image and not on information which is actually observable to other people. Put another way, people with social phobia think that other people can see more symptoms of their anxiety than the others actually do.

[INSERT FIGURE 3 HERE]

How to intervene with social phobia using cognitive behavioural therapy

Techniques to reduce imagery

Cognitive behavioural therapy for social phobia is designed to target negative imagery (24). It is very helpful for clients to get the opportunity to see how they do actually come across in social situations. This can be achieved by video recording the client during a social task (e.g. a speech) and then getting them to look at the videotape objectively as if they are watching a stranger. This enables them to observe that their anxiety is much less event than they had believed (25). This video feedback enables the client to access new information that can form the basis of a more realistic and benign self-image of them not looking anxious in social situations. Then this more benign self-image can be consciously brought to mind during social situations. It can be useful to practice generating the more benign video based image in less anxiety provoking situations, before trying to generate the benign image in more anxiety provoking situations. Since the negative image is based on a memory of an earlier aversive social situation, clinical work where an explicit link is made between the person's negative image and the memory of the earlier situation is useful. Then subsequently, if the negative image occurs again, they can realise that it is a memory from the past, rather than how they appear now. Many techniques used to address flashbacks in PTSD such as cognitive restructuring and imagery rescripting

(see PTSD section above) can be tailored to address the specific memory that forms the basis of the negative self-imagery in social phobia.

Techniques to demonstrate that showing symptoms of anxiety to other people is not catastrophic

Other clinical techniques used in CBT for social phobia are designed to show that if a person exhibits symptoms of anxiety evident in the negative self-image, it is not interpreted negatively by other people. This can be demonstrated by the therapist modeling the feared symptoms (e.g. putting lots of bright red blusher on the face to simulate at blush) and then going out to town and getting the client to assess whether other people react differently or negatively to the therapist. Interesting people do not typically notice the symptoms at all, and certainly do not react negatively if they do notice them. Another useful technique to address the clients' catastrophic thoughts about showing symptoms of anxiety evident in self-imagery is to generate a survey of questions about what people think if they see someone exhibiting a given set of symptoms and whether they would view the person exhibiting the symptoms more negatively as a result. The data from these surveys show that people do not tend to think much about the symptoms if they have observed them. Furthermore, people do not change opinion of someone in a negative way if the other person has exhibited symptoms of anxiety.

Summary

Negative mental imagery is evident in all anxiety disorders. It has been shown to have an important role in maintaining the disorders and clinical interventions targeting imagery are an important component of successful cognitive behavioural treatments.

Main take home messages
• Cognitions can take the form of verbal thoughts or mental images, and these cognitions form the target of cognitive behaviour therapy (CBT) interventions • Experimental studies indicate that imagery has a special impact on emotion • Clients with anxiety disorders will often not report on their problematic images unless this is directly asked for. Thus, asking about imagery should be a key part of any assessment in anxiety disorders. • Negative intrusive imagery is a key part of many anxiety disorders including PTSD, social phobia and agoraphobia. Often imagery relates to a memory from the past, but might be experienced as if it has current threatening meaning for the individual in the 'here and now'. • Images can be modified using a variety of CBT techniques including restructuring the image in imagination as if creating a new film with a better outcome.

Further reading

Holmes and Hackmann, 2004 (3)

Hirsch, Clark and Mathews, 2006 (26)

Brewin and Holmes, 2003 (14)

Conway, 2001 (27)

References

1. Beck AT, Laude R, Bohnert M. Ideational components of anxiety neurosis. Arch Gen Psychiatry. 1974;31:319-25.

2. Kosslyn SM. Image and Brain: The Resolution of the Imagery Debate. Cambridge, Massachusetts: MIT Press; 1994.

3. Holmes EA, Hackmann A. Mental Imagery and Memory in Psychopathology [Special Issue]. *Memory, 12:4*. 2004.

4. Hackmann A, Clark DM, McManus F. Recurrent images and early memories in social phobia. Behaviour Research and Therapy. 2000 Jun;38(6):601-10.

5. Holmes EA, Grey N, Young KAD. Intrusive images and "hotspots" of trauma memories in posttraumatic stress disorder: An exploratory investigation of emotions and cognitive themes. J Behav Ther Exp Psychiatry. 2005;36(1):3-17.

6. Day SJ, Holmes EA, Hackmann A. Occurrence of imagery and its link with early memories in agoraphobia. Memory. 2004;12(4):416-27.

7. de Silva P. Obsessional compulsive imagery. Behaviour Research and Therapy. 1986;24:333-50.

8. Wells A, Hackmann A. Imagery and core beliefs in health anxiety: Content and origins. Behavioural & Cognitive Psychotherapy. 1993;21(265-273).

9. Pratt D, Cooper MJ, Hackmann A. Imagery and its characteristics in people who are anxious about spiders. Behavioural & Cognitive Psychotherapy. 2004;32:165-76

10. Holmes EA, Mathews A. Mental imagery and emotion: A special relationship? Emotion. 2005;5(4):489-97.

11. Borkovec TD, Inz J. The nature of worry in generalized anxiety disorder: A predominance of thought activity. Behaviour Research and Therapy. 1990;28(2):153-8.

12. Borkovec TD, Alcaine O, Behar E. Avoidance theory of worry and generalized anxiety disorder. In: Heimberg RG, Turk CL, Mennin DS, editors. Generalized anxiety disorder: Advances in research and practice. New York: Guilford; 2001.

13. Ehlers A, Clark DM. A cognitive model of posttraumatic stress disorder. Behaviour Research and Therapy. 2000 Apr;38(4):319-45.

14. Brewin CR, Holmes EA. Psychological theories of posttraumatic stress disorder. Clin Psychol Rev. 2003 May;23(3):339-76.

15. NICE. Post-traumatic stress disorder (PTSD): the management of PTSD in adults and children in primary and secondary care. London National Institute for Clinical Excellence; 2005. Report No.: CG026.

16. Grey N, Young K, Holmes E. Cognitive restructuring within reliving: A treatment for peritraumatic emotional hotspots in PTSD. Behavioural & Cognitive Psychotherapy. 2002;30:37-56.

17. Hackmann A, Ehlers A, Speckens A, Clark DM. Characteristics and Content of Intrusive Memories in PTSD and Their Changes With Treatment. J Trauma Stress. 2004;17(3):231 - 40

18. Ehlers A, Hackmann A, Michael T. Intrusive reexperiencing in posttraumatic stress disorder. Memory. 2004;12(4):403-15.

19. Erwin BA, Heimberg RG, Marx BP, Franklin ME. Traumatic and socially stressful life events among persons with social anxiety disorder. Journal of Anxiety Disorders. (in press).

20. Clark DM, Wells A. A cognitive model of social phobia. In: Heimberg RG, Liebowitz M, Hope D, Schneier F, editors. Social phobia: Diagnosis, asssement and treatment. New York: Guilford Press; 1995. p. 69-93.

21. Rapee RM, Heimberg RG. A cognitive-behavioral model of anxiety in social phobia. Behaviour Research and Therapy. 1997;35:741-56.

22. Hirsch CR, Clark DM, Mathews A, Williams R. Self-images play a causal role in social phobia. Behaviour Research and Therapy. 2003;41(8):909-21.

23. Hirsch CR, Meynen T, Clark DM. Negative self-imagery in social anxiety contaminates social situations. Memory. 2004;12:496-506.

24. Clark DM, Ehlers A, Hackmann A, McManus F, Fennell M, Grey N, et al. Cognitive therapy versus exposure and applied relaxation in social phobia: A randomized controlled trial. J Consult Clin Psychol. 2006;74(3):568-78.

25. Harvey AG, Clark DM, Ehlers A, Rapee RM. Social anxiety and self-impression: cognitive preparation enhances the beneficial effects of video feedback following a stressful social task. Behaviour Research and Therapy. 2000 Dec;38(12):1183-92.

26. Hirsch CR, Clark DM, Mathews A. Imagery and Interpretations in Social Phobia: Support for the Combined Cognitive Biases Hypothesis. Behav Therapy. in press.

27. Conway MA. Sensory-perceptual episodic memory and its context: autobiographical memory. Philos Trans R Soc Lond Ser B-Biol Sci. 2001 Sep 29;356(1413):1375-84.

Table 1. Examples of problematic images across anxiety disorders

Anxiety disorder	*Core concern*	*Type of images*	*Illustrative examples*
Post traumatic stress disorder	Threat to physical or psychological self	Flashback to moment in past trauma e.g. of physical danger or e.g. a moment of extreme humiliation	The sight and sound of an oncoming car about to crash into them. A visual image of a rapist's face and the feeling of pain
Social Phobia	Fear of showing signs of anxiety and embarrassing or humiliating oneself	Self looking or sounding anxious	Seeing one face's from the outside, as red as tomato, with beads of sweat pouring down the face
Agoraphobia	Fear of being in places or situations where escape may be difficult	Self being unable to cope with an impending mental of physical catastrophe such as being trapped, intimidated or abandoned	Seeing self being stuck in a supermarket, feeling frozen, surrounded people seeing their faces staring
Obsessive Compulsive Disorder	Fear of being contaminated or being responsible for harming someone	(a) Obsessional images that are unpleasant and ego-dystonic, or (b) compulsive images used to deliberately replace or "neutralize" a negative image	(a) Image of killing someone horribly (b) Deliberately repeating images of religious icons used to reduce distress
Spider phobia	Fear of spiders	Spiders as extremely dangerous	Seeing a large hairy spider with fearsome teeth

Health Anxiety	Preoccupation with fear of developing or having a serious illness or disease. Anxiety about physical health or symptoms that may be indicative of some more serious physical problem	Negative images about self, illness and death	Image of being dead and sensation of trapped in own body

Figure 1. Imagery has a more powerful impact on emotion: anxiety change was greater in the imagery compared to verbal group across two experiments by Holmes and Mathews, (2005).

Figure 2. Social phobia clients feel more anxious and believe they looked more anxious when they hold in mind their normal negative self-image as compared to a more benign self image. Based on Hirsch et al (2003).

Figure 3. Reality vs. imagery in social phobia

(SEE ATTACHED FILE)