The Appraisal of Images in Social Anxiety Disorder and Body Dysmorphic Disorder

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Acknowledgements

Images are mental representations in consciousness with sensory qualities. In recent years research on imagery has increased, and more attention is being paid to imagery in mental disorders. In this conceptual review two disorders will be examined and compared in terms of imagery and how appraisals of images and the reactions to them may contribute to maintaining the disorders. Social anxiety disorder (SAD) and body dysmorphic disorder (BDD) are both characterized by fear of negative evaluation which seems to stem from perceiving the self as flawed. The main similarity seems to be that images in both disorders are appraised in a similar, maladaptive way and prompt behaviors meant to reduce anxiety. Patients set unrealistically high standards for themselves and failing to live up to them is considered disastrous. In addition, patients tend to see themselves from an observer's perspective in their images, causing detachment and feelings of helplessness in dealing with situations. The main differences seem to be that in BDD the images center around particular parts of the body, while in SAD the anxiety is directed at how the person appears to others in social situations. However one might argue that these differences are exaggerated as the core fear of both disorders is that perceived flaws will be noticed. We discuss these similarities and differences with reference to Moscovitch's (2009) model of SAD. More research is needed in order to fully comprehend the concept of imagery and how images help maintain these two disorders.

Mental images have intrigued us for centuries. They have the ability to influence our minds, leaving us seemingly helpless and ridden with anxiety, which makes them a frightening yet fascinating phenomenon that is becoming an increasingly popular object of research. From the ancient Egyptians and Greeks to the 21st century psychologists, the

concept of imagery has continued to surface and catch the attention of scholars throughout history (Hackmann, Bennett-Levy and Holmes, 2011). The power of imagination has been studied and pondered upon particularly in connection with mental disorders and how they are maintained. Sufferers of these disorders often report being haunted by their own imagination. People recount seeing images of themselves in situations they fear and experiencing an immense emotional reaction. The severity of this reaction helps distinguish between people who suffer from mental disorders and people who do not. Images and reactions to them also helps distinguish between different kinds of disorders. A social anxiety patient is likely to have a much stronger emotional reaction to a mental image of himself failing in a social interaction than a person without the disorder (Hackmann et al, 2011). The appraisal of images thus plays a vital role in imagery research, and in this conceptual review we will take a closer look at how appraisals of images in social anxiety disorder (SAD) and body dysmorphic disorder (BDD) lead to certain reactions that contribute to maintaining these disorders. We will focus particularly on how these appraisals evoke emotions and behaviors that further reinforce maladaptive cognitions. Knowledge about differences and similarities between disorders is important as it may tell us something about their nature, which in turn is useful in developing and evaluating treatment options in addition to guiding further research.

Images, appraisals and reactions

Images are defined as mental representations in consciousness with sensory qualities, and are to be distinguished from ones that are purely verbal (Holmes, Arntz & Smucker, 2007). In mental disorders they are usually involuntary and appear automatically but they can in some cases also be brought to consciousness at any chosen time. The images are usually intrusive in character; they enter awareness involuntarily and can cause significant distress (Brewin, Gregory, Lipton & Burgess, 2010). They can appear as dreams or memories, or they can be a person's own perception of events in the past and hypothetical situations in the future. It

seems that images have a more profound effect on emotions than verbal thoughts. For example, a person would have a stronger emotional reaction when holding an image that depicts a car crash than communicating verbally about it because similar brain areas are activated when imagining an event and experiencing it, leading to a more extensive experience of fear (Hackmann et al. 2011; Holmes, Arntz and Smucker, 2007).

Most people experience involuntary and intrusive images at some point in their lives, such as images that portray the person making a fool of himself during an important meeting, but the majority of people do not attribute specific meaning to these images, they simply let them pass without attaching any deeper meaning to them. However, some people see images as having a greater significance than others, for example as being a sign of what is to come in the future. In other words, the way that people appraise their mental images; what they mean and their perceived consequences, is of major importance when trying to understand the disorder (Hackmann et al., 2011). Appraisals are a form of evaluation; they are the meanings that people attribute to, in this case mental images. Appraisals determine a person's emotional reaction to stimuli and how they interpret events in their lives. Their idiosyncratic nature makes them differ greatly between individuals as they are largely influenced by personal beliefs, values and world-view (Dalgleish, 1999). Images are often based on past experience (Hackmann et al., 2011) and consequently so are the appraisals. The images bring this past experience into consciousness and appraisals determine how one is affected by it. Appraisals thus differ among individuals, but the literature on mental imagery also points to certain themes in the images and appraisals of people suffering from the same disorder (Makkar & Grisham, 2011; Hirsch, Clark, Matthews & Williams, 2003). What the appraisals usually have in common is that they are maladaptive and they seem to help maintain the disorder, for instance in that they bring about behavior that seems to provide the patient with temporary relief from his or her distress. Safety behaviors and avoidance are examples of such behavior,

and the experienced relief is likely to further reinforce the behavior, making the patient less likely to develop adaptive coping strategies (Hackmann, 2000).

Social anxiety disorder and body dysmorphic disorder

In anxiety disorders, the images portray the objects or situations the patient is most afraid of, and they are greatly influenced by the misconceptions the patient holds about the object of their fear (Makkar & Grisham, 2011). For instance, BDD patients' self-images are in consensus with their own distorted view of themselves rather than with reality (Veale, 2004). The patient's worst fears become reality in these images and through the maladaptive appraisals the patient experiences emotions like guilt. The occurrence of the images and the subsequent emotions seem to signal to the patient that the danger is real and that the feared outcome is probable (Gangemi, Mancini and Van den Hout, 2007). The core of social anxiety disorder is the persistent and exaggerated fear of being judged negatively by others in social situations. Individuals suffering from social phobia tend to report images of themselves in social situations; they often report seeing themselves from an observer's perspective as they imagine failing to meet the perceived social standard, and feeling like other people are judging them and noticing how anxious they are (Hackmann, 2000). The signs of anxiety seem markedly more visible to the patient than they are in reality, and they feel like everyone can see their fear because of the image of a person who is blushing dark red, shaking like a leaf and sweating through their clothes. The anxiety that these images cause can be overwhelming, and the image itself and actually experiencing what the image portrays can be equally distressing to the patient (Hackmann, 2000).

Another disorder in which mental images frequently occur is body dysmorphic disorder. While previously classified as a somatoform disorder, the DSM-5 classifies the disorder with the Obsessive-Compulsive and Related Disorders (Diagnostic and Statistical

Manual of Mental Disorders, 2013). Although the two disorders are classified in different categories of the DSM-5 they have many similarities in common, for instance that both disorders involve being preoccupied by being scrutinized and judged by other people. According to DSM-5 the main feature of body dysmorphic disorder is "a preoccupation with a defect in appearance" (p. 466). It is important to note that the defect must be either completely imagined or greatly exaggerated. BDD is a body image disorder and that images are a crucial part of the disorder. The distorted image patients have of their bodies coupled with their over-emphasis on the importance of an attractive appearance causes the intrusive images of themselves to be very disturbing to them. Many BDD patients report early memories that are interpreted as critical of the part of their appearance that they are preoccupied with (Osman, Cooper, Hackman & Veale, 2004). A very important similarity with social anxiety disorder is that patients with BDD see themselves from an observer's perspective, they see themselves the way they think other people see them. This illustrates how patients with both disorders place a great deal of importance on the way they appear to others. Observer perspective may be a way for patients to distance themselves from the emotions associated with experiences of negative evaluation. This makes observer perspective a maintaining factor as it is reinforced by avoidance of emotions (Veale & Neziroglu, 2010). Observer perspective also contributes to increasing the authority of the image, making the person seem like a passive and helpless spectator to his own perceived inadequacy as they report feeling numb and detached (Brewin et al., 2010). In BDD, the image of the body part the patient is fixated with is not in consensus with reality. For instance, a person with misconceptions about his nose might see this particular body part as being out of proportion with the rest of his face even if his nose is a perfectly normal size and shape.

An important question that research on imagery tries to answer is how the intrusive mental images and their perceived consequences affect the patient and prompts behavioral

responses. As previously noted, images elicit emotions in the patient that are comparable to the emotions experienced in real life situations (Hackmann, 2000). Seeing an image of oneself blushing while speaking to a stranger can provoke an equal amount of embarrassment as actually blushing in front of the stranger. The image is in consensus with the patient's beliefs about himself, and the occurrence of the image thus reinforces the patient's pre-existing negative self-image. The patient may therefore see the image as evidence of his own self-perception being accurate (Clark & Wells, 1995). To lessen the anxiety and distress that the images cause the patient is likely to turn to certain behaviors that they feel protect them from or prevent the perceived danger from occurring. Safety behaviors are a common phenomenon in many disorders, and social anxiety disorder and body dysmorphic disorder are no exceptions. Safety behaviors are meant to prevent negative outcomes from occurring (e.g., that others will notice the defect in BDD or that the patient is anxious in SAD), and lead to feeling safe in the situation (Helbig-Lang and Peterman, 2010). However, the safety behaviors do not provide long-term relief, and may in fact contribute to maintaining the disorder (Wells, Clark, Salkovskis, Ludgate, Hackmann & Gelder, 1995). SAD patients use safety behaviors either to avoid the anxiety-provoking situation altogether or to reduce anxiety when in the situations. Examples of safety behaviors in SAD are avoidance of social situations, and certain behaviors when in social situations such as speaking to other people or making eye contact, and behaviors that the patient thinks hides or eliminates the physical signs of anxiety. For example the patient might use an excessive amount of make-up to cover up their possible blushing or hold on to something to prevent their hands from shaking. In BDD the safety behaviors are mainly directed at masking or altering the body part the patient is preoccupied with. For instance a patient who has issues about her nose might hold her hand over her nose to hide it from view or use her hair to cover it.Thus it is clear that certain fears lead to certain safety behaviors and that the exact nature of the fear differs among individuals. This

discussion may benefit from Moscovitch's (2009) model of the core fear in SAD. He suggests that there are four domains of fear that include 1) perceived flaws in social skills and behavior 2) perceived inability to conceal visible signs of anxiety 3) perceived flaws in physical appearance and 4) perceived flaws related to personality. Moscovitch suggests that the safety behaviors the patient uses is selected based on which domain or domains of fear are most prominent in that patient. For instance a patient whose main concern is showing visible signs of anxiety is likely to use safety behaviors aimed at concealing these signs, such as excessive make-up to cover up blushing. Likewise a patient whose main concern is that she is a boring person is likely to use safety behaviors that prevent people from noticing her perceived flaw in personality, such as avoiding situations in which she is required to have one-on-one conversations with other people. One of Moscovitch's domains of fear is particularly interesting as it seems to be not only a part of SAD but also seems to capture the core of BDD. The second domain, perceived flaws in physical appearance, is the main concern of BDD patients and their safety behaviors are aimed at concealing these perceived appearance-related flaws. This gives rise to the question of whether these two disorders are perhaps more similar in nature than has been previously assumed. It seems that at the core of both disorders lies the fear of being negatively evaluated by others, but although the fundamental fear is the same, the specific object of fear seems to differ. Moscovitch's model could thus be a conceptualization that helps us understand the nature of both disorders better in terms of the way that different kinds of fears lead to different kinds of appraisals, which in turn call for different kinds of safety behaviors to reduce the feelings of anxiety.

Safety behaviors and compulsive behaviors

Avoidance is a type of safety behavior found in both SAD and BDD (Wells et al., 1995; Veale, 2004). The avoidance is meant to prevent the perceived danger from becoming

reality. The way that people appraise their mental images is a key reason for why the images prompt avoidance behavior. As previously mentioned patients often see the images as premonitions or accurate portrayals of reality. Their persistency and intrusive nature make the patients see their own imagined scenario as a probable outcome. Avoidance thus often seems like the most viable option. SAD patients experience intrusive images both when in social situations and when thinking about social situations. When sitting in class, the patient may want to raise their hand to say something, but an intrusive image of blushing when doing so leads them to avoid raising their hand. When getting ready at home in the morning the patient may think about a meeting he has to attend later that day and the image causes such distressing emotions that he calls in sick. In BDD patients tend to avoid situations in which they consider scrutiny of the perceived defect as likely to occur. They may, as in SAD, avoid speaking in public or otherwise attracting attention to themselves when others are around, but in BDD this behavior serves to prevent other people from looking at the body part they are preoccupied with.

Although the safety behavior in SAD and BDD is believed by the patient to avert he feared outcome the behavior can sometimes have an adverse effect. When the patient is in a social situation, such as having a conversation with a superior at work, and has an image of himself blushing and stuttering, the fear of being negatively evaluated by his superior causes his attention to be directed at his physical and emotional response rather than the conversation itself . He may try to use safety behaviors such as memorizing what the superior is saying, trying to anticipate what the correct response might be and thinking about every sentence thoroughly before uttering it. This is likely to make him seem distracted and uninterested in what the superior is saying and miss out on important points in the conversation(Hirsch, Clark, Matthews & Williams, 2003). Consequently it becomes difficult to keep up with the conversation partner and it may lead to actual negative evaluation. The safety behavior used

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by BDD patients is also in some cases likely to have the contrary effect. A patient who frequently uses her hand to cover her face is likely to attract more attention to her face rather than less (Veale, 2004) . People with BDD who are engaging in safety behavior to guard themselves from scrutiny can greatly compromise their professional and social lives. Bjornsson, Didie and Phillips (2010) describe a woman in her early thirties working part-time at a clothing store because of difficulties holding a regular job where she feels her appearance could be called into question. Her compulsory mirror checking has often delayed her departure from home on work days which has resulted in clashes with her boss. She is so preoccupied by her perceived skin defect that she spends an inordinate amount of time checking for any irregularities. Her fears also have an impact on her social life, avoiding friends as best she can and only sees family members on rare occasions. She finds it difficult to be romantically involved as she greatly fears being the center of someone's attention.

The images that people with BDD experience are mainly intrusive and often elicit certain compulsive behaviors similar to the way obsessions elicit compulsions in obsessive compulsive disorder (OCD). The compulsive behaviors occur because of the way the images are appraised, much like safety behaviors. However, although there are many similarities between compulsions and safety behaviors, the main difference is that compulsions are repetitive behaviors aimed at establishing homeostasis by reducing distress in the moment (Veale & Neziroglu, 2010). Safety behaviors on the other hand are especially focused on preventing feared outcomes in the future, and they are not necessarily repetitive.

According to Veale and Riley (2001) 80% of BDD patients spend a significant amount of time looking in the mirror, while the remaining 20% tend to avoid mirrors altogether. Patients with BDD tend to have an image in their mind of their ideal appearance, and when they look in the mirror they compare this image to what they are seeing (Veale & Riley, 2001). Compulsive mirror-checking is common in BDD and studies have shown that it may

be a contributor in maintaining the disorder (Mulkens & Jansen, 2009). When BDD patients experience intrusive images of what they think they look like it is often followed by an urge to check in the mirror whether or not the image is accurate. In addition, some types of safety behavior actually increase the compulsive mirror checking because the patient frequently needs reassurance that it is working. For instance a patient who uses an excessive amount of make-up to cover up imagined skin defects may often have an urge to check whether the make-up is in fact covering the skin successfully. Patients will often use different kinds of surfaces as mirrors, such as the back of a CD or the window of a car. They are constantly comparing the conflicting images of their perceived self and their ideal self. Again we see parallels with the third domain of Moscovitch's model of core fear in SAD, and how relevant this domain is in BDD. The patient perceives a flawed self in relation to appearance and compares this flawed self to the self he would like to have. As the patient's appraisals lead them to view a flawed appearance as detrimental, images of these two selves being in conflict with each other lead to a great deal of anxiety. The patient reacts to this with behaviors meant to reduce the anxiety, in this case compulsive behaviors. In addition to compulsive mirror checking, Veale and Riley (2001) also discovered that BDD patients engage in different kinds of behavior when in front of a mirror, for instance washing rituals and pulling at parts of the body and face to see what it would look like if they had plastic surgery. SAD patients can also be said to be obsessed with the way they appear to others, although the obsession is not directed at one body part in particular but rather more generally at being negatively evaluated in social situations. The idea of obsessive thoughts and compulsive behaviors as maintaining factors in SAD has not been the object of much research, but Björnsson and Phillips (2013) suggest that the OC spectrum disorders and SAD overlap to a greater extent than previously thought. They propose that many of the behaviors categorized as safety behaviors in SAD may in fact rather be compulsive in nature and that they are brought about by intrusive

thoughts. Behaviors such as rehearsing sentences before saying them out loud may in fact concur better with the definition of compulsive behaviors than the definition of safety behaviors as they can be seen as repetitive and the goal is to reduce anxiety in the moment.

It is common to both disorders that the images are often linked to an earlier negative memory (Osman, Cooper, Hackmann & Veale, 2004). This earlier memory leads to an attention bias that causes patients to view current and future events in light of their past. In other words, they seem to be biased towards rather noticing negative and threatening stimuli than positive stimuli because of a memory of a previous negative event (Huppert, Pasupuleti, Foa & Matthews, 2007; Veale & Riley, 2001). For instance, if a girl with BDD or SAD who has an early memory of being rejected by a friend receives a compliment at a party she will most likely quickly dismiss the praise if she notices another person looking at her with what she perceives as disgust. The look of disgust is more in line with her own image of herself and thus it seems more credible to her. In a world where inferring meaning from social cues is crucial, it is clear that interpreting these cues with a negative bias can be damaging to people's perception of themselves. The bias toward negativity becomes even more detrimental because the patients also have unrealistic standards for themselves and find it crucial to be perceived in a certain way (Hackmann, 2000).

Post-event rumination is listed as one of the four basic maintaining factors in Clarks and Wells' (1995) cognitive model of social anxiety disorder. Post-event rumination in SAD happens when negative thoughts follow a performance-related or social event. The patient's cognitive processes during the social event and the emotions they elicit lay the foundation for the later post-event rumination. Negative images during the event make the patient feel like he is failing and his perceived failure in turn causes recurring and intrusive mental images of how he thinks he looked. For instance, a boy who has to introduce himself to his class, and while doing so thinks that he looks like a fool to the other students, will later think of the

event as a social failure because his post-event rumination will be based on his negative thoughts during the event. The rumination is not only based on the latest event but rather seems to take into account previous perceived social failures and often seems to be based on a memory of having failed before (Rapee & Heimberg, 1997; Abbott & Rapee, 2004). More research seems to be needed when it comes to post-event rumination in BDD. Although models of BDD, such as Veale's cognitive behavioral model (2004) and the models mentioned by Neziroglu, Khemlani-Patel & Veale (2008) do talk of rumination and appearance comparisons there seems to be a lack of research on whether the rumination of past events serves as a maintaining factor in BDD and whether images play a role in this process. Considering the many similarities of these two disorders it would certainly be interesting and important to see if the post-event rumination of patients with BDD and SAD are similar. Since both disorders are characterized by images that are appraised in a maladaptive way during a feared situation, it seems likely that the cognitive processes that occur following the anxiety-provoking situation should be influenced by these images also in BDD.

Conclusions

In summary, there are many similarities in the images, the appraisals of them and the subsequent reactions to them in these two disorders. In both SAD and BDD the images are related to the way the patient appears to others, and a key similarity is that their images are maladaptive and patients' appraisals of them tend to be negatively biased. In particular, patients perceive themselves to be flawed in some way or unable to meet their own expectations and the perceived expectations of others, which leads to a fear of negative evaluation (Moscovitch, 2009). Their perceived short-comings lead to negatively biased appraisals of situations and stimuli, although the exact appraisals vary just like the exact type

of fear does. The appraisals are often out of touch with reality and cause the patient to interpret situations and social cues inaccurately, which in turn contributes to maintaining the negative self-perceptions. Despite the individual differences among patients with SAD and BDD there are many similarities in the way patients appraise their images. Patients with BDD and SAD have high standards when it comes to the way they want to be perceived, and they have very high expectations of themselves. In BDD it is crucial to be beautiful, an appealing appearance is regarded as essential, and failing to meet these high standards of beauty is believed to lead to negative evaluation which is thought to be disastrous. Similarly, patients with SAD also have unrealistically high expectations, and they see social success as a vital attribute. Failing to be perceived as socially successful is considered catastrophic. Thus the patients attribute an enormous amount of significance to their intrusive images of failure as being negatively evaluated is believed to lead to social rejection and ridicule. The fact that the images are usually seen from an observer perspective is also an important similarity as it separates these two disorders from many others, such as obsessive compulsive disorder. It emphasizes the self-awareness that is very prominent in SAD and BDD, and the helplessness and uncontrollability the patients experience. The fundamental fear seems to be the same in these two disorders although some differences can be seen when it comes to what the images and the anxiety they cause is directed at. For instance it seems that while BDD patients are concerned with a particular body part and how it affects their appearance SAD patients are concerned more generally with the way they are perceived in social situations. However, Moscovitch's model (2009) may show some evidence that that the differences are in fact not that obvious. In both disorder the images portray a flawed individual, an individual who does not live up to the social standard. As the consequences of this being an accurate portrayal are thought to be devastating the images lead to safety behaviors that are aimed at concealing the perceived flaws. One implication of the research findings in the field of imagery is that in

order to successfully treat these disorders it is not enough only to be exposed to a feared situation, one must also be prevented from using safety behaviors and compulsive behaviors as reactions to the images to temporarily shield oneself from the anxiety (Wells et al. 1995; Veale, 2004). Images and appraisals of imagery and subsequent reaction are important in understanding what maintains both of these disorders. Thus it seems vital that in order to treat the disorders the mental images must be confronted and dealt with in therapy. The importance of images in disorders such as SAD and BDD suggests that extensive research in this field is vital and that more research is needed. More precisely there is need of more research on whether intrusive imagery can lead to compulsive behaviors in SAD. If compulsive behaviors are a part of the disorder it seems that SAD and BDD have even more in common, and that SAD has similarities with the OC spectrum disorders. This is important in order to understand the true nature of the behavior and thus improve the way it is tackled in treatment. There is also need of research on post-event rumination in BDD and how images might play a role in this. It is vital to understand the cognitive processes of patients in order to gain knowledge on how these cognitive processes can be changed.

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