

Phenomenology of Intrusive Imagery in  
Obsessive Compulsive Disorder (OCD)

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# Overview

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## Part 1: Literature Review

### Intrusive Imagery in Anxiety Disorders: A Critical Review

The Literature Review aims to examine our current state of understanding of the phenomenology of intrusive imagery in anxiety. Research across the spectrum of anxiety disorders is compared and contrasted in terms of content, prevalence, frequency, characteristics and function of intrusive imagery.

## Part 2: Empirical Paper

### Phenomenology of Intrusive Imagery in Obsessive Compulsive Disorder (OCD)

The Empirical Paper extends previous research to investigate the phenomenology of intrusive imagery in OCD. By employing an anxious control group, the study adopts a transdiagnostic perspective to explore the specificity of intrusive imagery in OCD with particular focus on the prevalence, frequency, characteristics, content, beliefs and association with memories of past events.

## Part 3: Critical Appraisal

The Critical Appraisal is a reflection on the process of developing and conducting the research study. The choice of topic for the study and methodological and conceptual issues are presented, followed by considerations for further investigation.

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## **Part 1: Literature Review**

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### **Intrusive Imagery in the Anxiety Disorders: A Critical Review**

## Abstract

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The study of intrusive mental imagery in anxiety is a growing area of interest. Whilst there is an appreciation of the variation in thematic content (Hirsch & Holmes, 2007), less is understood about the wider phenomenology and function of intrusive imagery across the anxiety disorders. The aim of the review is to adopt a transdiagnostic perspective, and compare and contrast the literature on intrusive imagery in anxiety in terms of the content, prevalence, frequency and characteristics. In addition, a further aim is to present preliminary findings concerning the function of imagery across the spectrum of disorders. The final section of the review summarises the conclusions and suggests areas for future examination.

## Introduction

Although the systematic study of imagery within psychopathology is relatively new, academics have long since considered its importance in understanding emotional distress (Beck, 1970; Horowitz, 1970; Lang 1977). Images can be defined as “contents of consciousness that possess sensory qualities as opposed to those that are purely verbal or abstract” (Hackmann, 1998) and can occur in many different forms, such as dreams, nightmares and pleasant fantasies (Horowitz, 1967). They become intrusive when they have one of the following characteristics; non-volitional entry into awareness, require suppressive effort, are experienced as negative and something to be avoided and likely to return (Horowitz, 1970). Images can possess various sensory qualities including visual, auditory, olfactory, gustatory, touch and movement (Kosslyn, 1994) and can be described in terms of their content, vividness, clarity, colour, shading, shapes, movement, foreground and background characteristics and other spatial relationships. Moreover, a “person can often convey how the image entered awareness, its duration, associated emotions, the relationship of the emotion to the external world, efforts to change or dispel it and the sequential or simultaneous arrangement of a series of images” (Horowitz, 1970). They can be experienced as the “construction of an entirely hypothetical situation or near veridical reconstruction in the mind of a real event” (Martin & Williams, 1990).

Our understanding of intrusive mental imagery has advanced considerably since Beck, Laude and Bohnert (1974) documented that the majority of patients with ‘anxiety neurosis’ reported spontaneous occurring fantasies or images prior to, or concomitant with their anxiety attacks. Through systematic investigations of



intrusive imagery, advances have been made in the field across the spectrum of psychological disorders such as posttraumatic stress disorder (PTSD; e.g. Hackmann, Ehlers, Speckens & Clark, 2004), depression (e.g. Patel et al., 2007) and bulimia nervosa (Somerville, Cooper & Hackmann, 2007), creating much interest in this area of study. This growing interest is reflected in the presence of two special issues of academic journals dedicated to developments in imagery research (see *Memory*, volume 12, 2004; *Journal of Behavior Therapy and Experimental Psychiatry*, volume 38, 2007). These journals contain a mixture of studies using both cross-sectional and experimental design, employing a mixture of quantitative and qualitative investigation to explore both spontaneously occurring and self-generated imagery in patients and healthy volunteers. In doing so, this work has developed our understanding of the characteristics of images and raises questions regarding the role they might play in both the aetiology and maintenance of the conditions.

Specifically, within the anxiety disorders, despite recurrent images only featuring as part of the DSM-IV-TR diagnostic criteria (American Psychiatric Association; APA, 2000) for obsessive compulsive disorder (OCD) and PTSD, mental imagery is reported by clients with almost all anxiety disorders (Hirsch & Holmes, 2007). Research in the area of social phobia, which dominates much of the imagery literature, has repeatedly described recurrent unwelcome images as part of the disorder and although less well documented, intrusive imagery has been shown to occur in health anxiety (Wells & Hackmann, 1993), specific phobias (Pratt, Cooper & Hackmann, 2004; Hunt et al., 2006) and panic and generalised anxiety disorder (Ottaviani & Beck, 1987). The study of imagery in PTSD as part of intrusive memories has also generated much research, and imagery within OCD is an

emerging area of interest (De Silva, 1986; Rachman, 2007; Speckens, Hackmann, Ehlers & Cuthbert, 2007). However, despite consideration of how intrusive images in anxiety might differ in content (Hirsch & Holmes, 2007) there appears to be little understanding of how such images may compare in terms of the wider phenomenology and function.

The aim of the present review therefore is threefold; firstly to detail the content of intrusive images and to examine their prevalence and frequency across the anxiety disorders. Secondly, the characteristics in the form of properties, triggers and responses to intrusive imagery across the spectrum will be described. Thirdly, the literature pertaining to the function of intrusive images in anxiety will be reviewed and preliminary data on the maintaining factors across the disorders will be presented. In doing so, comparisons will be made and the research will be critically discussed, taking into account theoretical and methodological issues.

### *Literature Search*

As the aim of the review was to examine the current state of understanding of the phenomenology of intrusive imagery in anxiety, literature was chosen on its relevance to this topic rather than by means of a systematic approach. The study of intrusive imagery in anxiety is an emerging area; much of what is known originates from papers describing the phenomenon through exploratory naturalistic research, often of a descriptive nature using semi-structured interviews, together with those based on clinical observations. Therefore, it was considered that a systematic approach with strict criteria may have excluded relevant literature from the review (e.g. papers documenting clinical observations) and subsequently, the rich detail of

the phenomenon would have been overlooked. In line with the definition of intrusive imagery provided by Horowitz (1970) literature was selected if it pertained to empirical studies or clinical observations of mental imagery referred to as 'intrusive', 'negative' and 'spontaneous' and was in the context of DSM-IV-TR Axis I Anxiety Disorders (APA, 2000) e.g. panic disorder, agoraphobia, specific phobias, social anxiety/phobia, obsessive compulsive disorder (OCD), posttraumatic stress disorder (PTSD) and generalised anxiety disorder (GAD). Although falling within the DSM-IV-TR Somatoform Disorders, the condition hypochondriasis/health anxiety was also included in the search, as this is often considered to be more appropriately classified with the other anxiety disorders. Anxiety difficulties present in the context of other disorders were excluded from the search, such as Cluster C Personality Disorder (anxious/fearful category). Principally, studies or clinical observations of clinical populations were included, however due to the paucity of literature in this area those employing non-clinical samples were also included. Relevant literature was obtained by means of search engines including PsycINFO, ISI Web of Knowledge and PubMed using the above mentioned terms, and through the examination of references listed in key papers.

### Content of Intrusive Images

Intrusive images in anxiety disorders typically reflect an individual's fear of a given situation and tend to be similar in content to verbal cognitions for that disorder (Hirsch & Holmes, 2007). In studies, 'content' refers to the thematic representation depicted by the intrusive image which can often be directly linked to, or associated with, an event in one's autobiographical memory. In some cases these events may

have marked the start of the anxiety symptoms; however, patients are frequently unaware of the connection between their images and memories (Conway & Pleydell-Pearce, 2000). The content of intrusive images can reveal information about individuals' core beliefs and can be appraised in an idiosyncratic manner. In this section, focus will be placed on describing the thematic representation of intrusive images in anxiety presented in the literature, although some reference will be made to the attached meaning where studied. The manner in which the intrusive images are appraised are presented later in the review in the context of cognitive responses.

Wells and Hackmann (1993) found that from interviews with a small sample of patients (n=10) with health anxiety, their intrusive images depicted the theme of physical catastrophe of death and illness, reflecting negative beliefs about the self and the nature of health and illness. Moreover, most were able to relate their images to particular aversive experiences such as physical or psychological abuse or neglect. Similarly, negative images within panic disorder and GAD have been found to include ideas of physical catastrophe and illness (Ottaviani & Beck, 1987; Breitholtz, Westling, & Ost, 1998). Specifically in panic, the intrusive images appear to contain scenarios in which the individual is having a heart attack, fainting, choking and experiencing a 'loss of physical activity' in line with the cognitive model presented by Clark (1986). Breitholtz et al. (1998) reported that images within both panic and GAD also appear to contain themes of mental catastrophe with the representation of losing control and going crazy, being common features.

Problematic imagery in phobias appears to consist of improbable mental representations of the properties or the sensations the individual imagines

experiencing when in contact with the feared stimulus. In common phobias such as a fear of animals and insects, the images have been found to most typically include pictures of spiders, snakes or rats crawling over peoples' bodies and faces (Pratt et al., 2004; Hunt et al., 2006). Beliefs connected to these relate to ideas of loss of control, negative self-evaluation, disgust and feelings of vulnerability. Pratt et al. (2004) also identified that in more than half of a non-clinical population with spider phobia, early memories were associated with the content and emotional meaning of the images. In social phobia, the images tend to encapsulate social evaluative concerns. Socially phobic individuals have reported visualisations of how they might appear in a social situation such as appearing stupid, inarticulate and boring (Hackmann, Surawy & Clark, 1998; Hackmann, Clark & McManus, 2000). Moreover, these images were shown to bear a striking correspondence to a memory of an earlier social event at the onset of the disorder, during which the individual held a negative impression of the observable self. Hackmann et al. (2000) found that 96% of their sample of social phobics reported having a particular memory which they felt was closely linked to their recurrent image. In agoraphobia, an example of a negative image as cited by Day, Holmes and Hackmann (2004) was imagining being 'stranded in a supermarket, couldn't move, people around...see faces not moving like stuck monsters', representing a core belief of being physically weak and unprotected. As with social phobia, agoraphobic images have been found to be strongly connected to memories of unpleasant experiences, with 75% of participants recalling that they were not anxious in agoraphobic-type situations before the event that occurred in the memory (Day et al., 2004).

Interestingly, intrusive imagery in specific phobias, panic disorder and GAD also feature social evaluative concerns. Ottaviani and Beck (1987) documented that in their sample of 30 patients, images in panic were found to be coupled with social adversity, containing themes of humiliation, failure (e.g. unable to perform adequately at work) and helplessness (e.g. unable to get help because of a heart attack) as a consequence of the physical or mental disaster. Similarly, patients with GAD have described images of social embarrassment while experiencing anxiety or panic attacks (Breitholtz et al., 1998). In specific phobias, beliefs connected to the images have also been found to include negative social evaluation such as being perceived as stupid for fearing spiders (Pratt et al., 2004).

As with obsessive cognitions, negative imagery within obsessive compulsive disorder has been documented to involve themes of death, contamination, illness, injury, violence, disaster, sex and blasphemy, together with idiosyncratic and impersonal and senseless content (e.g. symmetry, senseless words) (De Silva, 1986; Speckens et al., 2007; Rachman, 2007). As well as imagery within the obsession, an interesting feature in obsessive compulsive disorder is the presence of imagery within the compulsion (De Silva, 1986). Based on clinical observations, De Silva (1986) proposes that in response to an obsession, images can be conjured up and be 'corrective' to alter or neutralize the original image, or be 'independent', to function like a compulsive behaviour but without the remediation of a previous obsessional image. He also argues that imagery may be identified during a compulsive behaviour, which distracts and invalidates the compulsion, thus requiring the whole behavioural sequence to be re-started. As with other anxiety disorders, many obsessional-compulsive images incorporate past events and memories and it has been

found that in around 20% of cases, these events have marked the start of obsessive compulsive symptoms (Speckens et al., 2007). However, other images can be more anticipatory or frightening warnings and the presence of impersonal and senseless images makes it difficult to consider traumatic or stress experiences as a general explanation (De Silva, 1986).

Images in posttraumatic stress disorder have been shown to be sensory fragments of intrusive memories of a traumatic event (Ehlers & Steil, 1995; Van der Kolk & Fisler, 1995). The images relate to personal illness, injury or assault (Reynolds & Brewin, 1999) and contain the most traumatic aspects of the event, i.e. the “hotspots”, (Holmes, Grey & Young, 2005) or stimuli present shortly before the greatest emotional impact, akin to “warning signals” (Ehlers et al., 2002). Therefore, perhaps more than with the other anxiety disorders, there is a strong relationship between images and earlier adverse events. However, from interviews with 22 PTSD patients, Hackmann et al. (2004) identified that the intrusive images may also be of an anticipatory nature, encapsulating the fear of what might have happened or when the meaning of the event became more traumatic. In addition, a small minority of intrusive images in PTSD, also contained elements of memories from previous traumas (Hackmann et al., 2004) or included those related to preoccupations with other people involved in the trauma (Ehlers et al., 2002). The themes in images within PTSD related to the “hotspots”, have been found to be connected to a sense of threat to one’s physical integrity and one’s sense of self (e.g. abandonment and low self-esteem) (Holmes et al., 2005).

### *Summary: Content of Intrusive Images*

Only a handful of studies have assessed intrusive imagery in anxiety. It is clear, however, that the content of images appears to correspond to the specific content of verbal thoughts associated with each disorder. Therefore in OCD, intrusive images are based around themes of contamination, sex and blasphemy, and in agoraphobia, reflect ideas of being weak and unprotected. Interestingly, many disorders share similar themes encapsulated within the images, for example health anxiety, panic and GAD feature physical catastrophe and illness, and together with imagery in the phobic disorders (e.g. social phobia, agoraphobia and specific phobia) they also depict social evaluative concerns. Across the spectrum of the anxiety disorders, intrusive images are frequently associated with specific adverse events which may have marked the start of the disorder, most notably in PTSD where images contain sensory fragments of memories of a traumatic event. As shown in the context of health anxiety, spider phobia, agoraphobia and PTSD, the content of the intrusive images can also reflect an array of negative core beliefs.

### Prevalence and Frequency of Intrusive Images

Prevalence statistics reported in studies would suggest that intrusive images are common occurrences particularly in the phobic disorders. In regard to social phobia, Hackmann et al. (2000) found that in their study, all of their clinical sample (n=22, 100%) reported having experienced spontaneously recurrent images when feeling anxious in a social situation within the past six months. Day et al. (2004) reported a similar finding in patients with agoraphobia; all 20 (100%) participants experienced



recurrent and distressing imagery in agoraphobic situations such as being on public transport, compared to no images in the control group. In spider phobia, Pratt et al. (2004) found that 69% of spider anxious individuals selected from a student population had recurrent intrusive images when feeling anxious about spiders, again compared to no images in the control group. Similarly, Hunt et al. (2006) documented a high proportion of imagery in their undergraduate sample (78%) in relation to a wide range of common phobic stimuli, such as animals and fear of heights. However, despite these high prevalence rates, it is not clear from these studies how frequently individuals experience intrusive images on exposure to the feared object or situation. Findings by Hackmann et al. (1998) suggest that in social phobics, negative images may not always be experienced in socially anxious situations, as only half of their sample reported a negative image in a recent episode of social anxiety, with the majority (77%) “sometimes” having had images in social situations.

Intrusive imagery in PTSD has been found to be a frequently reported symptom (vanOyen Witvliet, 1997). Estimates of the prevalence of such images in survivors following a sea disaster have been found to range from 71 to 89% (Joseph, Williams, Yule & Walker, 1992), and in survivors of childhood sexual abuse, road traffic accidents and experiences from ambulance service staff, 70-97% endorsed re-experiencing visual intrusive images within the traumatic memory (Ehlers et al., 2002). However, in both these studies, not all participants in the sample met criteria for PTSD, which questions the validity of their findings. Using a definition of intrusive memories consisting of a visual image of a specific scene that had actually taken place (Reynolds & Brewin, 1999), the authors reported that almost 100% of

their sample of patients with PTSD reported experiencing intrusive memories within the week prior to the interview and reported a mean of 1.47 memories. In a recent study by Birrer, Michael and Munsch (2007), all of the sample of PTSD patients reported intrusive images related to trauma and in patients with chronic PTSD (duration longer than six months), 98% reported a predominance of sensory experiences as part of their intrusions (Hackmann et al., 2004). However, Michael, Ehlers, Halligan and Clark (2005) found that in individuals who had experienced a trauma within a three month to five year period, only 50% (n=12) of those meeting criteria for PTSD and 46% (n=11) with sub-threshold levels of PTSD, endorsed sensory experiences within the intrusive memory. Whilst there is information regarding the number and frequency of intrusive memories, less is known about these characteristics when looking specifically at intrusive images. Of the data available, Birrer et al. (2007) reported that participants' "intrusions" were in the main, experienced as either daily or weekly occurrences and Holmes et al. (2005) found that participants with PTSD reported a mean number of 4.1 different intrusive images.

The prevalence and frequency of recurrent and distressing imagery in the other anxiety disorders has been less systematically assessed. Within obsessive compulsive disorder (OCD), early studies have reported prevalence rates based on incidental reports of images as part of the wider study on the phenomenology of obsessions and compulsions. For example, Akhtar, Wig, Varma, Pershad and Verma (1975), recognized imagery in only 6 (7%) of 82 OCD patients and Rachman and De Silva (1978) identified clear obsessional imagery components in 3 out of a total of 23 intrusive (13%) experiences elicited from eight patients. However, when focusing on

images as a specific phenomenon, higher rates have been reported. Based on clinical data, De Silva (1986) identified 36 images out of 76 obsessional-compulsive experiences from a sample of 48 cases and out of these, 15 were obsessional images, with the remaining ones being compulsive (n=9), disaster (n=7) and disruptive images (n=5). Systematic assessment in a recent study by Speckens et al. (2007) found higher prevalence rates still, with a total of 81% OCD patients reporting obsessional images. In this study, the median frequency of the intrusive image was 10 times per week (range 0–500 seconds).

In the case of both panic disorder and generalized anxiety disorder, studies have reported equivocal findings in terms of the prevalence of intrusive imagery. Hibbert (1984) found that in a combined group of patients with these disorders, only 8 (32%) convincingly described experiencing mental imagery when anxious. In a replication study, Breitholtz et al. (1998) reported similar findings, such that 32% and 37% of patients respectively “convincingly described mental imagery when anxious”.

However, using comparable methodology to assess intrusive imagery within panic disorder, Ottaviani and Beck, (1987) found that in 30 patients with a clinical diagnosis of panic on commencing treatment, 25 (83%) described spontaneous images, although interestingly all patients referred to having images connected to their attacks during the course of treatment. Within generalised anxiety disorder, despite the presence of intrusive imagery, it appears that patients report a predominance of thoughts. Borkovec and Inz (1990) found that only 21% of individuals with GAD reported fearful imagery during periods of worry compared to

39% reporting thoughts, and Behar, Zullin and Borkovec (2005) reported a similar relationship in a non-clinical sample selected for their GAD status (mean difference of 43% between thoughts and images). In the only known study on health anxiety, Wells and Hackmann (1993) reported that 10 patients out of initial sample of 14 (71%) reported images.

*Summary: Prevalence and Frequency of Intrusive Images*

Overall, whilst the data on prevalence rates is limited, figures obtained from the above studies indicate that intrusive imagery is a common phenomenon within all of the anxiety disorders, with the highest rates seen in phobias and PTSD and the lowest in GAD. However, what is less clear is how many different kinds of images individuals experience within the disorders, how often they might intrude into one's mind and how stable these images are over time. Connected to this, the studies in the area of both social and specific phobias only appear to assess the prevalence of imagery that individuals experience when encountering the feared situation or stimulus. Particularly in the area of social phobia, it is understood that individuals engage in both anticipatory and post-event processing (Clark & Wells, 1995) and that during anticipatory anxiety, negative and unhelpful self-images reflecting an observer perspective have been reported (Brown & Stopa, 2006). However, imagery in which social phobics foresee or reflect on their interaction in social events does not appear to have been systematically assessed. Therefore, the frequency in which negative images are experienced in social phobia could be higher than estimated in these studies.

A further limitation with the prevalence data is that particularly in the studies mentioned in the area of OCD, the statistics vary according to how they have been assessed i.e. as the main focus of the study or incidental reports. Moreover, in the study by Ottaviani and Beck (1987), not all panic patients were able to identify images until they entered into treatment, suggesting that the prevalence of imagery may vary according to how the information is elicited. Similarly, the prevalence figures may also be affected by the way in which imagery is defined. Particularly in the area of PTSD, studies by Birrer et al. (2007) and Holmes et al. (2005) appear to measure intrusive images directly, where others have assessed the sensory components of intrusive memories and this distinction may affect the data collected. In some of the aforementioned studies, notably in the area of PTSD and phobias, sub-clinical samples were employed and these findings may therefore not accurately reflect the extent to which imagery is experienced in clinical populations.

### Characteristics of Intrusive Images

Numerous studies have demonstrated that intrusive and negative images have different characteristics to those of neutral or pleasant ones. Preliminary research suggests that these characteristics are important to consider as they may help understand how intrusive imagery functions in the development and maintenance of anxiety. The different characteristics which have been explored in some detail include (a) perspective of the self (b) modality (c) temporal aspects (d) vividness and clarity (e) movement (f) accuracy (g) triggers and (h) responses to mental images. Research describing these characteristics in intrusive images is presented below and where possible, compared and contrasted across the anxiety disorders. Other

characteristics mentioned in the literature such as stability, uncontrollability and ease by which images come to mind are only briefly presented due to the paucity of data.

*(a) Perspective of the Self*

Perspective of the self within intrusive images can either be in the form of the first person 'observer perspective' where one sees himself in the image or in the first person 'field perspective', where the action is seen through the individuals' eyes. Although, there does not appear to be any literature relating to the perspective taken in images in either panic disorder or generalised anxiety disorder, there is some data for the other anxiety problems. Where excessive self-focused attention is a central feature of the anxiety, the observer perspective is commonly reported. This is most readily a feature of imagery within social phobia; researchers have reported that compared to control participants, socially phobic individuals predominately employ an observer perspective in spontaneous images of difficult social situations (Hackmann et al., 1998; Wells, Clark & Ahmad, 1998; Hackmann et al., 2000). The predominant use of an observer perspective has also been documented in a sample of agoraphobic patients (Wells & Papageorgiou, 1999), although other research suggests that these individuals tend to report mostly alternating perspectives in regard to agoraphobic images (Day et al., 2004). In contrast, patients with blood/injury phobia, have been shown to report a field perspective in images experienced in both a social and non-social situation (Wells & Papageorgiou, 1999).

In both OCD and PTSD it appears that there is a more varied use of the observer and field perspective in images. Based on clinical observations, Rachman (2007) states that in obsessive compulsive disorder, "in some images the affected person feels like

an external observer but in others like a participant, and some patients report that their feelings alternate between observer and participant". When measuring the frequency of the perspective used, Speckens et al. (2007) found that the majority of patients with OCD experienced their images as through their own eyes (68%), but 29% experienced them as an observer. Within PTSD, Reynolds and Brewin (1999) observed that less than half of their sample of PTSD patients (42%) reported an observer experience associated with one of their memories. The authors argue that an observer's perspective in traumatic memories, relates to the dissociative or "out of body" experience commonly experienced in the disorder and is distinct from a third-person field perspective. Hackmann et al. (2004) give an example of this: a patient who had an intrusive memory of looking down at her body after a road traffic accident and being relieved to see no signs of injury had another intrusive memory of a paramedic touching her shoulder, shortly after which she experienced great pain and realized that she was badly hurt after all.

Hackmann (1998) argues that the significance of the variation in the perspective taken in images is not well understood, however, one explanation for the use of an observer perspective, is that individuals shift to adopt this perspective when faced with negative social evaluation or when individuals are highly self conscious (Clark & Wells, 1995). This hypothesis may therefore account for the predominant use of this perspective in social phobia and agoraphobia and perhaps less so for OCD and PTSD. However, this may be too simplistic an explanation as Wells and Papageorgiou (1999) report that agoraphobic patients show an observer perspective in both social and neutral conditions. Furthermore, with the exception of the study by Day et al. (2004) who assessed for an 'alternating perspective', most studies

categorise perspective into either field or observer which may not accurately capture the way in which the image is experienced. Rather than being a feature that varies according to the different disorder, other authors have argued that a focus on feelings or the content of core beliefs may determine the perspective adopted (Nigro & Neisser, 1983; Pratt et al., 2004).

*(b) Modality*

It is not unusual for images to be comprised of a number of different modalities (Hackmann, 1998). However, the majority of studies looking at spontaneous imagery report that images or sensory experiences are most commonly experienced in the visual modality, possibly due to the predominance of the visual system in humans (Horowitz, 1970; Ehlers et al., 2002). In PTSD, studies have cumulatively found that between 65-100% of participants report visual aspects within the intrusive memory, generally followed by auditory images, with the least predominant as smell or taste (Ehlers et al., 2002; Hackmann et al., 2004; Michael et al., 2005, Birrer et al., 2007; Speckens et al., 2007). However, Ehlers et al. (2002) comment that the predominance of visual intrusive memories across all types of trauma is unexpected, and that there does not always appear to be a correspondence between the most traumatic aspects of the event and the modality in which this is experienced. Many PTSD patients also report a high proportion of bodily sensations which can be the most prominent part of the intrusive memory (Speckens et al., 2007) including autonomic arousal and other proprioceptive material such as experiencing pain or feeling trapped (Hackmann et al., 2004). Although limited in its investigation, there appears to be a similar pattern in OCD, with the majority of images being visual in



nature accompanied by bodily sensations and sounds with smells and tastes occasionally a feature in the images (De Silva, 1986; Speckens et al., 2007). In their study, Speckens et al. (2007) found that all but one patient reported bodily sensations (such as palpitations or sweating) as part of the mental image. In one case, the authors stated that for one patient, the image was more like a sensation (i.e. a feeling of semen sticking to himself).

Similar findings have been found in social phobia (Hackman et al., 2000), agoraphobia (Day et al., 2004) and spider phobia (Pratt et al., 2004) with visual and somatic imagery being reported as the most prevalent modality. Additionally, in both social and spider phobia, whilst less common than visual imagery, patients have also reported to experience “skin” imagery. Again in social phobia, individuals have also been shown to have “impressions” as well as an image (Hackman et al., 2000) which were almost as common as visual images. Although auditory imagery has been reported in under half the cases of social phobia (Hackmann et al., 2000), Lundh et al. (2002) and Hirsch and Clark (2007) propose that in the context of public speaking, negative auditory imagery may be an important feature in the disorder associated with negative and underestimated auditory performance and higher levels of anxiety.

These findings therefore suggest that visual imagery is most common across the disorders. However, it is not clear as to the understanding of the terms used to describe different modalities such as “image” or “impression” or “skin” imagery and how they may compare to a bodily sensation or a bodily “feeling”. In some studies, participants are asked about any sensory impressions they experience which seem to

encapsulate any images (Birrer et al., 2007), however in others a distinction is made between these phenomena, although these are not clearly defined (Hackmann, 1998). Similarly, in some studies it seems that “bodily sensations” appear to include both the anxiety response and other sensations such as pain, actions, movement or posture (Speckens et al., 2007), whereas others, although not explicit, appear to just solely use this term to describe imaginary body experiences, such as pain (Michael et al., 2005).

### *(c) Temporal Aspects*

In terms of temporal aspects, studies have discussed the characteristics of images in terms of their duration, and the time perspective in which they are experienced. From the available data, the length of time that the image is experienced appears to be very short; in PTSD this has been found to be around less than one minute to a few minutes (Speckens et al., 2007; Birrer et al., 2007), although Reynolds and Brewin (1999) reported that in their sample, intrusive memories lasted between several minutes to one hour. Similarly, images in OCD tend to be brief, often less than a minute in duration, unlike obsessional thoughts which can persist for hours (Rachman, 2007). This is supported by findings by Speckens et al. (2007) who found that the median duration of obsessional images was 20–30 seconds. Certainly, it is possible that the duration of images may be influenced by the degree of controllability individuals have over them, although there is no known data to support this. Additionally, how long the images last for might be related to several factors including the personal significance of the content of the image (Conway,

Meares & Standart, 2004), however, again there does not appear to be any research which has addressed this.

The time perspective in which intrusive images are experienced has been assessed mostly in relation to PTSD, with little documented for the other anxiety disorders. Intrusive images in PTSD have repeatedly been found to be sensed with a “here-and-now” quality such that the individual relives the experience without the impression that the sensory features are aspects of memories from the past (Brewin, Dalgleish, & Joseph, 1996; Ehlers, Hackmann, & Michael, 2004; Hackmann et al., 2004, Birrer et al., 2007). In terms of OCD, Speckens et al. (2007) found in their study, that there was a divide between those participants who experienced the image as happening in the moment rather than being something in the mind.

*(d) Vividness and Clarity*

In the imagery literature, intrusive images in anxiety have been described as having the qualities of vividness, clarity and pictorial detail, which lend support to Kosslyn’s view of images as quasi-pictorial in that they depict information spatially, representing objects for size, position and orientation (Kosslyn, 1981). Images in patients with PTSD have been found to be highly vivid (Birrer et al., 2007; Hackmann et al., 2004) and in students who met criteria for PTSD, trauma memories were more vivid than non-traumatic memories (Berntsen, 2001). However, in contrast, Tromp, Foss, Figueredo and Tharan (1995) found that rape memories compared to other unpleasant memories, were less clear and vivid and involved less visual detail. Images in other disorders have been shown to be highly vivid such as

in OCD with a rating of 65/100 (0=not at all vivid and 100=very vivid; Speckens et al., 2007). In social phobia, Hackmann et al. (1998) showed that 67% of their clinical group compared to 29% in the control group rated their images as clear pictures, with an even higher proportion (82%) in a later study (Hackmann et al., 2000), whose intrusions were considered by the interviewer to be like a clear visual picture. Therefore the data, whilst scarce has shown some equivocalness in terms of vividness and clarity of intrusive images.

*(e) Movement*

There is some data in the literature regarding the movement within images, i.e. whether they are experienced as static imaginal experiences like “snapshots”, or a series of connected or unconnected pictures. In posttraumatic stress disorder, there is a mixed picture; Hackmann et al. (2004) reported that involuntary intrusive memories described were relatively short sensory “snapshots” of the traumatic event in line with previous research by Ehlers and Steil (1995), Mellman and Davis, (1985) and Van der Kolk and Fisler (1995). Similarly, Steil and Ehlers (2000) reported a slightly higher number of static visual images as opposed to film-like scenes within the intrusive experiences in PTSD. However in contrast, Michael et al. (2005) found that the intrusive memories were mostly like a visual film scene, although around one third of the sample experienced them as snapshots. In OCD, data also suggests that intrusive images are mostly experienced as static representations; Speckens et al. (2007) reported that for half the patients, the image was like a snapshot (46%) or a series of unconnected pictures (11%). For 12 (43%) patients, the image was more like a film.

*(f) Accuracy*

Accuracy of the content of intrusive and recurrent images has also been investigated, particularly in the area of social phobia. It has been written that “the content of the images appears to be closely related to the person’s feared outcomes rather than being an accurate portrayal of how they actually come across”, but patients believe that the image is accurate at the time (Hackmann et al., 2000). However, findings from research may not support this hypothesis; both patients and control participants (91%) considered the images and impressions to be at least partially distorted when they reflected on them with no significant difference in the distortion ratings between groups (Hackmann et al., 1998). However, in terms of auditory images in the form of perception of one’s own voice, Lundh et al. (2002) reported that social anxiety was associated with a negatively distorted perception of one’s own voice in undergraduate students. Research also suggests that images in spider phobia and other phobic presentations are highly distorted (Arntz, Lavy, van den Berg & van Rijsoort, 1993) such that spider phobics often imagine that the spider will suddenly become larger, or they visualize themselves being held by a spider larger than they are. Hunt and colleagues (2006) reported that it was the more fearful individuals who tended to report a wealth of frightening and often highly distorted imagery in phobias. In their study, they found that some imagery was realistic (e.g. what it would feel like to fall off a cliff) while much of the imagery reported was both distorted and highly improbable (e.g. a golden retriever at the park sinking its teeth into the subject’s throat and ripping out her oesophagus). In contrast, whilst there appears to be little information regarding accuracy in intrusive images in PTSD, Brewin (1998) proposes that “there is now a consensus that memory for the central

facts of emotional events tends to be accurate and persistent, whereas memory for peripheral details of such events is less consistent and may be impaired”.

*(g) Triggers*

Mental images across the anxiety disorders tend to be easily triggered by both internal and external stimuli of which the individual is often not aware. In phobic presentations, Hunt and colleagues (2006) reported that for most participants, even a simple reminder of the feared object (e.g. hearing it mentioned in conversation, or seeing a picture in a magazine) was enough to provoke frightening images. Clark and Wells (1995) and Hackmann et al. (2000) argue that self-images in social phobia are triggered more by internal feelings, although Hirsch and Holmes (2007) consider that imagery in social phobics can be triggered by thoughts, physical sensations and external reminders which lead to a heightened processing of the public, observable self (Spurr & Stopa, 2002). Triggers in PTSD can be similar, including both ruminative and brief thoughts, localities, feelings, television programmes and sounds (Birrer et al., 2007). Speckens et al. (2007) reported that for 58% of the PTSD patients in their study, dwelling on the event was often a trigger for intrusive memories. These images also come to mind very easily due to the memory of the traumatic event stored in the memory system in a sensory-perceptual manner, rather than as a verbal narrative, which is more likely to be triggered as involuntary intrusions (Brewin et al., 1996; Brewin, 2001). Based on clinical observations, images in OCD can also be triggered by external stimuli (people, places, events, movies) and by internal cues such as aggressive urges, pain and sexual feelings (Rachman, 2007). Stress is also thought to play a role in the generation of intrusive obsessional images (Horowitz & Becker, 1971). The authors found that in a sample

of non-clinical participants, those who watched stress-inducing films reported more intrusions in the form of images than controls who did not watch the films. The triggers of images in panic, GAD and health anxiety have not been assessed and therefore there is no known data included in the literature.

#### *(h) Responses*

The responses to intrusive imagery in the anxiety disorders tend to be very similar to those associated with verbal cognitions for the specific disorders (Beck et al., 1974) and can be categorized into three main areas: emotional, behavioural and cognitive.

In terms of an emotional response, authors have found that in PTSD, visual images have been found to be the most distressing intrusive experience (Steil & Ehlers, 2000) attributed to the sense of “nowness” and serious current threat of the intrusion (Ehlers & Clark, 2000). The emotions accompanying the intrusive images are often the same as those experienced at the time of the event (Ehlers & Clark, 2000) supporting vanOyen Witvliet’s (1996) argument that intrusive images in PTSD represent an emotional memory phenomenon. In terms of specific emotions within the intrusive memory, Speckens et al., (2007) identified that the most common response was anxiety, followed by anger, sadness, guilt, shame, helplessness, numbness and threat. When looking specifically at intrusive images within the “hotspot”, Holmes et al. (2005) found that 54% of emotions linked to these were fear, helplessness and horror. In OCD the most frequent feelings associated with the intrusive images have been shown to be anxiety, helplessness, threat, sadness, anger, guilt and shame (Speckens et al., 2007). Rachman (2007) also considers that people who are subject to recurring repugnant images feel ashamed and fear rejection if

others learn the nature of the images. Images within the phobic disorders also tend to be negative in emotional valence (Hackmann et al., 2000, Day et al., 2004), with shock and fear being the primary emotions associated with imagery in specific phobias (Hunt et al., 2006; Pratt et al., 2004).

Authors have found that behavioural responses to images tend to be in the form of avoidance and the use of idiosyncratic behaviours to manage the images. Avoidance has been shown to be highly correlated with negative images in phobias (Hunt et al., 2006) and whilst not specific to intrusive images, it has also been identified in response to intrusive memories in PTSD where individuals avoid triggers/reminders of the trauma and talking about the event (Ehlers & Steil, 1995). Avoidance behaviour is also observed to be a common response to images in OCD, for example where patients steer clear of violent movies or mental hospitals in an attempt to reduce the possibility of provoking the image (Rachman, 2007). In addition to avoidance, the literature also suggests that overt compulsions are commonly used in response to disturbing obsessional images (Speckens et al., 2007) together with resistance in the form of distraction and neutralisation (Rachman, 2007). It has also been argued that the occurrence of intrusive images in anxiety motivates safety behaviours, which are attempts to prevent or minimise the feared catastrophes encapsulated in the images (Salkovskis, 1991). The use of such behaviours has most commonly been reported in the area of social phobia, where the presence of negative self-imagery has been associated with an increased use of safety behaviours (Hirsch, Meynen & Clark, 2004).



Reactions in the form of dysfunctional appraisals of the intrusive images along with cognitive avoidance, suppression of images and rumination are commonly reported cognitive responses. Dysfunctional appraisals appear to relate to the content of the image. In PTSD, the literature suggests that intrusive recollections may be interpreted as a sign of ongoing threat or permanent damage to physical or mental health and/or relationships (Ehlers & Steil, 1995). In social phobia, images are interpreted as evidence of poor performance in a social situation (Hirsch, Clark, Mathews & Williams, 2003). Although it is not clear how individuals with OCD appraise their images specifically, there is evidence to support inflated responsibility appraisals of intrusive thoughts about harm in OCD individuals with images (Speckens et al., 2007). Rachman (2007) has observed that patients with OCD find it difficult to make sense of the images and fear that they reveal nasty hidden characteristics of their personality or are a sign of a mental breakdown.

In terms of cognitions that patients commonly use to avoid or end particular intrusive images or memories, clinical observation shows that in PTSD thought suppression is common (Steil & Ehlers, 2000) as is rumination (Speckens et al., 2007). Similarly, in GAD, cognitive avoidance such as rumination, a predominantly verbal activity, is used to avoid physical and emotional reaction towards unpleasant and anxiety-provoking images (Borkovec & Inz, 1990). In OCD, attempts at neutralizing can also involve cognitive processes, such as forming a corrective image, reshaping the image, super-imposing an acceptable image over the intrusion and re-animating dead people (Rachman, 2007). Blocking or suppressing images and using mental checking are further cognitive strategies (Speckens et al., 2007).

*(i) Other Characteristics*

Although investigation is limited, there is some suggestion that other characteristics including the stability, uncontrollability and ease by which images come to mind are additional significant features. From clinical observation, Rachman (2007) states that intrusive images in OCD change very little from occasion to occasion. He argues that they display remarkable stability and consistency, as if they are preserved images or memories. In addition, Rachman (2007) notes that obsessive compulsive patients with recurring and distressing images complain that these are highly uncontrollable, and it may be this lack of controllability that brings people to conclude that the images are “an early sign of mental illness”. The ease by which intrusive images or memories come to mind has been documented as an important feature in the context of PTSD (Brewin, 1998), and has been found to predict concurrent and subsequent PTSD symptoms and their degree of persistence (Michael et al., 2005).

*Summary: Characteristics of Intrusive Images*

Almost all the aforementioned studies describe intrusive images as being highly vivid and clear, negatively distorted (although accurate at the time they are experienced), triggered by an array of both internal and external stimuli and accompanied by strong negative emotions. Across the anxiety disorders, the visual modality is the most common, but physical sensations, sounds, tastes and smells are also frequently present. Intrusive images are related to other aspects of anxiety, with consistency across the disorders in both behavioural and cognitive responses with physical and cognitive avoidance, dysfunctional appraisals, suppression of images and rumination, frequent occurrences. In contrast, there is less agreement within

and across disorders on characteristics such as the perspective of the self reflected in the image and whether it is experienced as a static snapshot or more like a movie film. Moreover, whilst studies report that images are brief in duration, this has been shown to range from seconds to minutes and even up to an hour. Most of the data on the characteristics of images is in relation to PTSD, OCD, social and specific phobias, with a distinct lack of information on the properties, triggers and responses to intrusive images in health anxiety, panic and generalized anxiety disorder. Preliminary evidence suggests that the characteristics of stability, uncontrollability and ease by which images are triggered, may also be important features.

#### Function of Intrusive Images

As demonstrated, intrusive images in anxiety possess a number of different phenomenological characteristics, are associated with emotions and meanings and may have significant associations with memories of past events. The clear links between intrusive images and affect, behaviour and cognition together with memories which appear to mark the start of the disorder, suggest that imagery has a significant role to play in the development and maintenance of anxiety problems. However, many of the studies in this area have been descriptive in nature. Therefore, they are unable to ascertain whether images contribute to the onset and/or maintenance of anxiety, or if they are simply one of many distorted cognitions which characterise the disorders (Martin & Williams, 1990).

Support for a maintaining role lies in the growing number of studies which have used imagery re-scripting and restructuring to alter a negative image to that of a more benign or positive one in the treatment of anxiety disorders (see Holmes, Arntz &

Smucker, 2007). However, these studies fail to answer why or how images may exert their influence. Drawing on the general imagery literature which proposes that mental images may serve to maintain psychopathology by their effect on preserving a goal system (Conway, Meares & Standart, 2004), intrusive images in anxiety are considered to maintain the disorder by their role in signaling perceived risks (Martin & Williams, 1990). Just as with automatic thoughts, intrusive images in anxiety are considered to act as a warning system with evolutionary advantage (Clark & Beck, 1988) and that the function of images is to intensify this signal by representing a possible reality in the quest to avoid both physical and mental 'danger'. This idea concurs with Ehlers et al. (2002) model of intrusive images in PTSD, acquiring the status of a 'warning signal' to indicate impending danger. A cognitive model proposes that intrusive images maintain the sense of danger or threat through dysfunctional interpretations, rumination, avoidance, safety behaviours and the emotional response (Wells, 1997). For example, Rachman (2007) proposes that in obsessive compulsive disorder, an intrusive image maintains the disorder if it is catastrophically misinterpreted as being of great and negative personal significance such that the image recurs. The distress that results from this interpretation can lead to attempts to block or suppress the image and to avoidance behaviour which, due to their inefficiency, enhance the significance and power of the images and is a contributing cause of persistence. Similarly the recurrent nature of the image is taken to confirm that it is highly significant and a vicious cycle emerges.

Preliminary research lends support to the idea that negative imagery across the disorders may maintain anxiety through their effects on emotions, cognitions and behaviours and that this may occur in very similar ways across the disorders.

Experimental studies in the area of social phobia have found that negative interpretations of social performance (Hirsch et al., 2003), increased levels of anxiety, observable poor performance in the form of contamination of the quality of conversation (Hirsch et al., 2004), increased use of safety behaviours (Hirsch et al., 2004) and a greater distortion of visual imagery (Vassilopoulos, 2005; Hirsch, Mathews, Clark et al., 2006) and of one's voice (Lundh et al., 2002), are causally linked to intrusive and negative imagery. Specifically, Spurr and Stopa (2003) reported that the use of an observer perspective within the images in undergraduates with high/low levels of social anxiety produced more frequent negative thoughts, more safety behaviours, and worse self evaluation of performance in both groups. However, whilst these experimental studies provide a coherent explanation of how mental imagery may maintain anxiety, it is not clear whether the findings would extend to intrusive imagery, which by definition is more spontaneous. It is also debatable whether holding in mind a negative observer-perspective image, has its effects on behaviour due to negative inferences or, as proposed by Hirsch et al. (2003) the demand it places on working memory which impacts on behaviour and its evaluation. Therefore caution must be taken in relating these findings to spontaneous intrusive imagery.

In PTSD and GAD, similar maintaining factors have been identified. Ehlers and Steil (1995) found that the dysfunctional meaning of posttraumatic intrusions (of which the most common forms of intrusive experiences were seeing static visual images of the accident) predicted coping strategies such as avoidance of reminders, thought suppression, rumination, and distraction that have been found to maintain intrusive cognitive phenomena. In a prospective longitudinal study, Michael et al.

(2005) also found that the lack of context, distress and rumination brought about by intrusive memories (including imagery) predicted severity of PTSD symptoms. The “here and now quality” was also found to be a good predictor of chronicity of PTSD symptoms, which may also be of importance in OCD where participants have also reported experiencing images with a sense of “nowness”. Research in GAD by Borkovec and colleagues (Borkovec & Inz, 1990) has also shown that cognitive avoidance in the form of worry, may maintain the intrusive imagery. The authors argue that whilst worry is employed to help manage high levels of emotion and physiological arousal associated with the image, in the long term it results in elevated levels of distress.

*Summary: Function of Intrusive Images*

Intrusive imagery in anxiety can be thought of as a ‘warning system’, reflecting negative past events or future feared situations in an attempt to remind individuals to avoid both physical and mental danger. Preliminary research in the area of social phobia, PTSD and GAD indicates that the images may serve to maintain the disorders through dysfunctional interpretations, rumination, behavioural and cognitive avoidance, safety behaviours and the emotional response. However, only in social phobia has the functional role of imagery been causally tested, by experimental manipulation of the images that participants hold in mind whilst engaging in a task of social performance. Findings demonstrate that negative as opposed to neutral social images are linked to an increase in safety behaviours, levels of anxiety and negative interpretations of social performance. Specifically, holding in mind a negative, *observer-perspective* image may be of key importance in social phobia.

## Discussion

From the review of current literature, there is compelling evidence to suggest that intrusive imagery is a central feature within anxiety disorders and that negative and recurrent images may have an important contribution to play in the development and persistence of anxiety. However, most of the research is in the area of social phobia and PTSD, with much less conducted in OCD, panic, GAD and health anxiety and direct comparisons between the disorders have yet to be made. It would be presumptuous, therefore, to arrive at conclusions regarding the similarities and differences between images within the different disorders in respect of the content, prevalence, frequency, characteristics and functional role.

The literature, however, is suggestive of similarities and differences across the spectrum of disorders. Comparability is evident in terms of the vividness, predominance of visual imagery and common triggers and responses in the form of behavioural and cognitive avoidance. Social evaluative concerns also appear in many images, although the content of the images appears to vary according to the specific fears encapsulated by the different disorders. Moreover, within the majority of anxiety conditions, there appears to be a close connection between images and events in memory, particularly in terms of social phobia, PTSD, health anxiety, specific phobia and agoraphobia. The only apparent exception to this is in OCD, where the link between earlier adverse events and images is less clear. Other differences relate to the prevalence of imagery across the disorders with a notably smaller percentage reported in GAD. There also appears to be variation in the adopted perspective of the self in images and in the accuracy of the content with

possibly more of a distorted image in social phobia and spider phobia than in PTSD intrusions. Research also suggests that the emotional expression may vary according to the different anxiety disorders.

Preliminary research also suggests that intrusive imagery across the range of disorders may operate in similar ways to maintain anxiety. As with verbal cognitions, dysfunctional interpretations of images may give rise to a number of behavioural and cognitive strategies together with accompanying affect to perpetuate anxiety. However, research investigating the maintaining factors is limited and it is not yet clear whether the specific characteristics of intrusive images, such as the variation in the perspective adopted, the level of distortion and the emotional expression in the different disorders, may serve to maintain anxiety in different ways.

Caution must be taken however, when comparing and contrasting the research findings, highlighted by differences in the data within the same disorders, particularly in respect of the prevalence of images. One reason for this may be due to the variability in the way in which imagery within anxiety psychopathology has been defined and subsequently operationalised. This is evident in the use of terms such as “images” and “impressions” and in the area of PTSD, “intrusive memories” and “intrusive images”. As there often lacks definition in studies as to the phenomenon under investigation, it is often unclear whether similar experiences are being elicited and explored in studies both within and between the anxiety disorders. A further issue relates to the conceptual distinction between thoughts and images and whether studies which directly enquire about the presence and experience of images,



as opposed to thoughts, are measuring what they intend to. As many individuals report that their intrusive experiences are a combination of thoughts and images (Speckens et al., 2007), this raises the question as to whether individuals are able to make a distinction between thoughts and images and, if not, then what exactly is being measured?

Methodological shortcomings also need to be considered when reviewing the studies. Some studies have included participants who have failed to meet diagnostic criteria and therefore it is not clear whether these findings are representative of clinical populations. For those studies with clinical populations, they may be unrepresentative of the wider population due to the use of small sample sizes and self-selection of participants. Furthermore, it is not clear whether findings from studies using non-clinical samples accurately reflect imagery in the clinical disorders. There are also issues regarding specificity of the phenomenology of the images across the anxiety disorders. Whilst some studies have reported on the presence of co-morbid disorders, there has been little acknowledgement for its possible effect on the findings. Moreover, the majority of the reviewed studies did not include either a comparison or control group, further questioning the validity of the findings.

Despite these theoretical and methodological issues, the existing research has generated interesting findings and posed questions for further areas of investigation. Many more studies are required, particularly in the area of health anxiety, panic disorder and GAD, to further our understanding of the phenomenological characteristics together with specific maintaining factors. Such studies would benefit from being carried out in a systematic manner with clearly defined terms and

employing a representative population. Also, as many of the studies have been cross-sectional in nature, using more experimental and prospective designs would allow for a better understanding of the function of imagery in anxiety. In order for studies to capture the complex phenomena of intrusive imagery, they might benefit from qualitative approaches and multiple measures of imagery, checked for reliability and validity. In future research, it would also be desirable to make distinctions between images and impressions and to distinguish between bodily sensations that represent sensations within the image and those that represent a stress or anxiety response to a distressing image. As there appears to be both similarities and differences in the imagery across the disorders, future work employing both control and comparison groups will further our understanding of the unique and shared features. This would, in turn, help in the development of specific models of imagery in anxiety and targeted imagery-based treatments. A further avenue of inquiry would be to investigate whether there is something distinctive about intrusive images and whether they have a contribution above and beyond verbal cognitions. Compared to automatic thoughts, some authors have proposed that images add additional levels of meaning (Wells & Hackmann, 1993) and elicit a much greater physiological and emotional response than verbal thoughts (Holmes & Mathews, 2005) supporting a particularly significant and independent role. Evidently, there is a great deal more to learn about intrusive images to further our understanding of their contribution in anxiety.

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## Part 2: Empirical Paper

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### Phenomenology of Intrusive Imagery in Obsessive Compulsive Disorder (OCD)

## Abstract

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Intrusive imagery is considered to be an important feature in obsessive compulsive disorder (OCD). However, to date, only one systematic investigation of its phenomenology appears to have been conducted (Speckens, Hackmann, Ehlers & Cuthbert, 2007). The aim of the present study was to extend findings by Speckens and colleagues and investigate the phenomenology of intrusive imagery specific to OCD. Twenty (95%) individuals with OCD and 16 (89%) anxious controls, meeting DSM-IV-TR criteria, reported intrusive images. Comparisons were made between the groups in terms of the prevalence, frequency, characteristics and content of the images, together with any associated beliefs and memories of earlier adverse events. Intrusive images in OCD were distinguished from those in other anxiety disorders by their frequency, content, inferred representation of the self and degree of association with memories. Specifically intrusive images in OCD appeared as a feature of autogenous obsessions (Lee & Kwon, 2003), characterised by themes of unacceptable ideas of harm. These findings have implications for the use of therapeutic interventions in OCD such as exposure-based treatments and imagery modification where intrusive imagery is a clinical feature.

## Introduction

Intrusive mental imagery is recognised as a core feature in obsessive compulsive disorder (OCD; DSM-IV-TR, American Psychological Association, 2000). Clinical observations (De Silva, 1986; Rachman, 2007) indicate that patients report an array of disturbing, stable and persistent images containing repugnant themes of violent acts, death, illness, blasphemy, disaster, sexual perversion, the fear of insanity or contamination and even senseless content such as random words. These images are experienced as highly significant for the individual and, due to their distressing and repetitive nature, can pose serious psychological problems (Rachman, 2007). Despite its recognised significance in both classificatory systems and clinical practice, there is a dearth of literature on intrusive imagery within OCD. The present study therefore is an examination of this phenomenon.

Early studies examining the phenomenology of obsessions and compulsions have provided brief reports of imagery, however, these have tended to be incidental, based on the wider study of symptomology rather than the specific investigation of images (Ahtar, Wig, Varma, Pershad & Verma, 1975; Rachman & De Silva, 1978). It was not until a seminal paper by De Silva (1986), that a detailed account of obsessive compulsive imagery based on clinical observations was provided, describing the prevalence, content, formal properties, functional significance, typology, and relation to stress. More recently, Rachman (2007) presented a thorough description of the nature and content of images together with considerations on their maintenance in the context of therapeutic approaches. To date, only one systematic investigation of intrusive imagery in OCD appears to have been conducted. In a clinical sample of patients with OCD, Speckens, Hackmann, Ehlers and Cuthbert (2007) documented

preliminary findings on the prevalence and phenomenology of intrusive images and their association with memories of earlier adverse events.

Collectively, the literature demonstrates that negative imagery within OCD is prevalent, identified in 81% of patients, occurring on average ten times a week (Speckens et al., 2007) and forms a proportion of around 50% of all obsessive compulsive experiences (De Silva, 1986). Although most often identified as part of the obsession, imagery can be connected to the compulsion which neutralises the obsessional image either by a corrective process or an independent image. Intrusive images can also appear as a disruptive experience which invalidates a behavioural compulsion, requiring the whole sequence to be re-started (De Silva, 1986). Often triggered by external stimuli (e.g. people and places) or internal cues such as aggressive urges and sexual feelings (Rachman, 2007), obsessional images can give rise to avoidance and compulsive and neutralising behaviour and can cause significant levels of distress and feelings of anxiety, guilt and shame (Speckens et al., 2007). They have been reported as being uncontrollable, interfering, primarily visual and highly vivid (Rachman, 2007). Most commonly, they have been shown to be static and in the main adopt a 'field' perspective, where individuals experience the image from their own vantage point (Speckens et al., 2007). In 77% of OCD cases, images have been found to be associated with or directly reflect past events and memories (Speckens et al., 2007), however, others can be anticipatory or frightening warnings. Patients with OCD find it difficult to make sense of the images and their content and occurrence makes them fear that they may be going mad or a pose a serious threat to others (Rachman, 2007). Individuals who experience images have

also been found to possess inflated interpretations about the responsibility for harm than those without (Speckens et al., 2007).

What is yet to be understood, however, is whether these findings characterise a phenomenon which is distinct and unique to OCD. Intrusive mental imagery is a common feature across all of the anxiety disorders, present in social phobia (Hackmann, Surawy & Clark, 1998; Hackmann, Clark & McManus, 2000), agoraphobia (Day, Hackmann & Holmes, 2004), health anxiety (Wells & Hackmann, 1993), specific phobias (Pratt, Cooper & Hackmann, 2004; Hunt et al., 2006), posttraumatic stress disorder (PTSD; Holmes, Grey & Young, 2005; Birrer, Michael & Munsch, 2007) and panic and generalised anxiety disorder (GAD; Ottaviani & Beck, 1987; Breitholtz, Westling & Ost, 1998). It is possible therefore, that obsessive compulsive imagery may be representative of a more transdiagnostic process, sharing its content, characteristics and functional significance with images amongst the other disorders.

Direct comparison of the features of intrusive imagery across the anxiety disorders is limited. However an amalgamation of research in the field highlights possible commonalities amongst intrusive imagery in OCD and in other forms of anxiety. As in OCD, concerns of illness and death feature within images in health anxiety (Wells & Hackmann, 1993) and along with ideas of mental catastrophe and insanity, these fears are evident in both panic and GAD imagery (Breitholtz et al., 1998). Similarly, imagery in OCD and other anxiety disorders is triggered by internal and external cues, experienced as highly emotive, vivid and most commonly experienced as clear visual pictures (Rachman, 2007; Hackmann et al., 2000; Birrer et al., 2007). OCD

also appears to possess characteristics typical of intrusive imagery in PTSD, most notably that they are both mainly experienced as static pictures rather than containing movement (Speckens et al., 2007; Steil & Ehlers, 2000). Whilst OCD imagery is unique in that it gives rise to behavioural compulsions, as with images in PTSD (Ehlers & Steil, 1995) and phobias (Hunt et al., 2006), avoidance is a commonly reported behaviour.

Differences may however, be apparent. Obsessional imagery encapsulates fears of aggressive violence, sexual perversion and senseless content, which appear absent from imagery in other forms of anxiety. Moreover, although individuals with OCD anticipate rejection from others due to the content of their images (Rachman, 2007), there is no reference in the literature as to the fear of negative social evaluation actually featuring in the image as it does in many of the other disorders (e.g. social phobia, agoraphobia, spider phobia, panic disorder and GAD). Unlike negative imagery in social phobia and agoraphobia which have reported prevalence rates of 100% and very high levels of association with a particular memory (Hackmann et al., 2000; Day et al., 2004), imagery in OCD appears less common than those in the phobic disorders, with a smaller proportion (75%) reporting a past event connected to the image (Speckens et al., 2007). Furthermore, in contrast to the phobic disorders, where seeing the self from an observer perspective is fairly characteristic (Wells & Papageorgiou, 1999), the use of a field perspective in OCD imagery appears to be more widely adopted. Perhaps one of the most distinct features in OCD is that images do not appear to be confined to intrusions; they are present in other aspects of the disorder, such as the compulsion.

There may also be differences between the groups in terms of beliefs and appraisals associated with the intrusive images. Unlike in OCD where individuals fear that the images may reveal that they are going mad or are a threat to others (Rachman, 2007), those in agoraphobia signify the self as being weak and unprotected (Day et al., 2004) and inadequate and vulnerable in both health anxiety (Wells & Hackmann, 1993) and spider phobia (Pratt et al., 2004). Although it is not clear how individuals with OCD interpret their images specifically, there is evidence to support inflated responsibility appraisals of intrusive thoughts about harm in OCD individuals with images (Speckens et al., 2007). In contrast, intrusive imagery in other anxiety disorders is considered to be interpreted as a sign of ongoing threat of danger (PTSD; Ehlers & Steil, 1995) or evidence of poor performance in a social situation (social phobia; Hirsch, Clark, Mathews & Williams, 2003).

The objective of the present study therefore is to extend findings by Speckens et al. (2007) and investigate the phenomenology of intrusive imagery which is specific to OCD. In order to do so, intrusive imagery in individuals with OCD and other anxiety disorders will be compared in terms of prevalence, characteristics, content, beliefs and association with memories of past events. Specifically, by employing an anxious control group, this will be the first known study within the literature to explore obsessional imagery in OCD from a transdiagnostic perspective. It will also be the first to systematically investigate the thematic content of intrusive images and associated self beliefs in OCD, along with other variables of interest relatively absent from the literature, including the number, frequency, proportion of imagery in the intrusive experience (i.e. in relation to thoughts/impulses), uncontrollability,



interference, interpretations of the images and imagery as part of the response or compulsion to the intrusion.

The study is exploratory in nature and there are no specific hypotheses. However as indicated by past literature, similarities may be evident in imagery in OCD and other anxiety disorders in terms of characteristics such as triggers, behavioural and emotional responses and properties (e.g. clarity, movement). However, differences may be apparent in terms of prevalence rates, the perspective of the self, the degree of association with past events and imagery within the response/compulsion. Differences in self beliefs and interpretations associated with the images across groups may also be evident. In relation to content, there may be both overlapping and unique themes in intrusive imagery in OCD and in anxiety disorders.

Consequently, the following questions will be asked:

- (a) What is the prevalence, number, frequency, and relative proportion of intrusive images in individuals with OCD compared to anxious controls?
- (b) What are the characteristics of intrusive images in terms of the properties, triggers, responses and interpretations and how do these compare to those in anxious controls?
- (c) What is the content and the associated beliefs about the self in intrusive imagery in OCD compared to that of anxious controls?
- (d) To what degree are intrusive images in OCD associated with memories of past events and does this relationship differ from that in anxious controls?

## Method

### *Design*

A mixed-method design was employed, using both quantitative and qualitative methodology in the form of standardised measures and a structured interview. Data were collected at one time point only. Two groups were required for the study; one comprised of individuals meeting clinical criteria for obsessive compulsive disorder (OCD) and a control group of individuals meeting clinical criteria for any other form of anxiety disorder.

### *Power Analysis*

In order to determine the sample size, an a priori power calculation using G-power was performed (Erdfelder, Faul & Buchner, 1996). As the study was a novel investigation, it was not possible to base the power calculation on previous findings. Rather, the calculation was performed on the basis that large differences would be required for the findings of the study to be meaningful. Based on carrying out an ANOVA with two groups, this indicated that  $n=20$  in each group would be sufficient to detect a large effect size,  $d=0.8$  at 80% power (assuming one-tailed test at  $p < .05$ ). This was considered to be adequate, as Day et al. (2004) employed two groups of the same size and found significant differences between their samples of agoraphobic participants and non-clinical controls on measures of modality represented within recurrent images and the emotional valence of connected memories.

### *Participants*

Participants were clients recruited from Adult Psychology Services in Camden and Islington NHS Foundation Trust and members of OCD and anxiety support groups (e.g. OCD Action, National Phobics Society). Clients from the NHS were approached by written invitation and contact with their clinician, and the support group members were approached through advertisements on the support group websites (See Appendix 1 for recruitment materials). Individuals were excluded if they had a co-morbid psychotic presentation, were actively suicidal or had learning difficulties that would affect their capacity to consent/take part in a research study. Ethical and Research and Development approval for the study was granted by Camden and Islington Community Research Ethics Committee (See Appendix 2 for Ethics Committee and R&D approval letters).

Overall, 122 individuals were approached/expressed an interest in the study of whom 114 were eligible for inclusion; 45 (response rate = 40%) of these agreed to participate and were entered into the study. Of these, 5 withdrew from the study prior to taking part and another recruit terminated the interview prematurely. Therefore, 21 individuals (male = 7, female = 14) with OCD and 18 individuals (male = 10, female = 8) with another form of anxiety disorder participated in the study. Overall, 13 participants were recruited from the NHS (OCD group = 5; anxiety control group = 8) and 26 participants from the various support groups (OCD group = 16; anxiety control group = 10).

Diagnoses were established with the Structured Clinical Interview for DSM-IV-TR-Anxiety Module (SCID; First, Spitzer, Gibbon & Williams, 2002). The anxiety group consisted of individuals meeting criteria for social anxiety (n=5), panic with/without agoraphobia (n=4), health anxiety (n=1), spider phobia (n=1), claustrophobia (n=1) and anxiety due to a general medical condition (n=1). The remainder (n=5, 28%) of this group met criteria for co-morbid anxiety disorders (including generalised anxiety disorder and vomiting phobia). 8 (38%) of the participants in the OCD group also met criteria for co-morbid anxiety disorders, including PTSD (n=3), panic with agoraphobia (n=4), needle-blood phobia (n=1), and 2 participants had co-morbid obsessive compulsive spectrum disorders (i.e. Trichotillomania and Compulsive Skin Picking).

### *Procedure*

Eligible participants recruited into the study were invited to attend a face-to-face (n=25) or telephone interview (n=14) depending on convenience. Following consent, background details were collected in the form of demographic information, a brief history of the participant's anxiety difficulties and any current or past treatment received for their anxiety (See Appendix 3 for screening questionnaire). All participants were then asked to complete the standardised measures (Yale-Brown Obsessive Compulsive Scale (Y-BOCS) self-report version; Baer, Brown-Beasley, Sorce & Henriques, 1993; Beck Anxiety Inventory, BAI; Beck & Steer, 1990; Beck Depression Inventory, BDI-II; Beck, Steer & Brown, 1996) to assess for current levels of anxiety and depression and symptoms of obsessive compulsive disorder, and were administered the SCID (First et al., 2002) to obtain a DSM-IV-TR Axis I

diagnosis. Participants were then administered the structured interview designed to explore intrusive images (See Appendix 3). Following the interview, participants completed the Interpretation of Intrusions Inventory (III; Obsessive Compulsive Cognitions Working Group, OCCWG, 2001) in line with the images described in the interview. For participants who were not able to identify intrusive images, the interview and III were not administered.

### *Materials*

*Yale-Brown Obsessive Compulsive Scale- Self-report version.* Obsessive compulsive symptoms were measured by a self-report version of the Yale-Brown Obsessive Compulsive Scale (Y-BOCS; Baer et al., 1993). As with the original clinician-rated interview (Goodman et al., 1989), the self-report version of the Y-BOCS asks respondents to note the presence of 58 current obsessions and compulsions and answer five questions for each in terms of time spent, interference, distress, resistance and control. Consistent with the interview format, individuals rate each item on 0 (none) to 4 (extreme). The self-rated instrument has been shown to possess good internal consistency ( $\alpha = 0.78$ ), excellent test-retest reliability ( $r = 0.88$ ) and strong convergent validity with the clinician-rated interview ( $r = 0.79$ ). In addition, it has been found to discriminate well between OCD and non-OCD patients (Steketee, Frost & Bogart, 1996).

*Beck Anxiety Inventory.* (BAI; Beck & Steer, 1990). The BAI is a 21-item measure designed to assess the severity of self-reported anxiety. In a clinical

population, Fydrich, Dowdall and Chambless (1992) found that the BAI yields high internal consistency ( $\alpha = 0.94$ ), acceptable test-retest reliability ( $r = .67$ ) and good concurrent validity, found to correlate 0.58 and 0.47, respectively, with the Trait and State scales of the State-Trait Anxiety Inventory, Form-Y (Spielberger, 1983).

*Beck Depression Inventory-II.* (BDI-II; Beck et al., 1996). The BDI-II is a widely used self-report measure of depression with good psychometric properties. In samples of undergraduate students, it has been found to possess high internal consistency ( $\alpha = 0.91$ ; Dozois, Dobson & Ahnberg, 1998) and good estimates of reliability for both the BDI-II total and scale scores (range = 0.72 to 0.91; Osman, Kopper, Barrios, Gutierrez & Bagge, 2004).

*Interpretation of Intrusions Inventory.* (III, OCCWG, 2001). The Interpretation of Intrusions Inventory (III) is a semi-idiographic questionnaire composed of 31 items designed to reflect appraisals or interpretations of two unwanted intrusive thoughts, images or impulses which are recorded by respondents. Three domains are represented in the measure: importance of thoughts, control of thoughts, and responsibility. Based on the two recorded intrusions, respondents are asked to complete item ratings on recency, frequency, and level of distress together with their level of belief for each statement which relate to the intrusions. Strength of belief in the appraisals is assessed from 0 (“I did not believe this idea at all”) to 100 (“I was completely convinced this idea was true”) and a total score is computed by summing all items, with higher scores indicating stronger beliefs in the interpretations. For the purpose of the present study and with permission from the main author, items on the measure were altered to make the measure specific to

intrusions in the form of images. In a sample of individuals with OCD, the measure has been shown to possess excellent internal consistency ( $\alpha = 0.84 - 0.89$ ), and good test–retest reliability ( $r = 0.69 - 0.77$ ) indicating that the III assesses stable aspects of obsessive compulsive related thinking (OCCWG, 2003).

### *Intrusive Imagery Interview*

The interview schedule was developed from items included in Patel et al. (2007) and was modified to make it applicable to obsessive compulsive disorder drawing on work by De Silva (1986), Rachman (2007) and Speckens et al. (2007). It consisted of a combination of structured questions with a closed response format using visual analogue scales (0 being “not at all” and 10 “completely”) or single choice response, together with open-ended questions. These were asked in a fixed order and the interview lasted approximately 50 minutes (See Appendix 3). Before use, the schedule was piloted and modifications were made in terms of response formats and questions which were not deemed to be conceptually appropriate.

The first part of the interview was concerned with identifying participants’ obsessional or intrusive images i.e. those which were unwanted and repetitive as opposed to mental imagery that might be voluntarily employed in response to negative cognitions. In order to facilitate this process, participants were asked a specific set of questions to help them identify images that were recurrent, came spontaneously to mind and were experienced negatively in line with the definition of intrusive imagery by Horowitz (1970). For further clarification, images were defined as mental representations with visual or non-visual components, sensations (such as seeing, hearing, or smelling) or an impression (defined as an often indistinct or

imprecise notion or remembrance; Merriam-Webster, 2002). Participants were also asked about the presence of thoughts and impulses to help them make a distinction between the different intrusive phenomena.

Once participants had identified intrusive images, they were asked to describe up to three images in detail which they had experienced within the last month. Placing focus on the image that was identified as the most recurrent, they were asked a series of questions on its phenomenology in terms of the number, frequency and proportion of images to thoughts/impulses. They were then asked about the triggers of their most recurrent image together with its vividness, uncontrollability, interference, motion, perspective, modality and clarity. Participants were also asked about their responses to the image in terms of behaviours and associated emotions. Based on De Silva (1986), participants were asked whether they experienced other forms of imagery connected to the response/compulsion. Using open-ended questions, they were also asked for their inferred beliefs about the self from the intrusive images. Participants were then asked questions about the onset of the intrusive images and any memories or adverse events associated with the most recurrent intrusive image, along with the similarity of the memory to the image. Additional comments by participants were collected at the end of the interview.

### *Analysis*

Qualitative data collected from the open-ended questions was analysed using content analysis based on Joffe and Yardley (2004) (See Results section). In regards to the quantitative data, normality checks were first undertaken to determine the use of either t-tests or a non-parametric equivalent to assess for independent group



differences. Chi-square tests were employed for the categorical data. A significance value of  $p < .05$  was used for all analysis. As the study was exploratory in nature and the sample size was small, corrections for multiple statistics were not made during the analysis as this may have resulted in a type II error.

## Results

### *Study Population*

Table 1 presents the demographic and symptom profile of the OCD group and anxiety control group. There were no observed differences between the groups on any of these variables, with the exception that the OCD group scored significantly higher on ratings of obsessions and compulsions on the Y-BOCS and had lived with anxiety significantly longer than the control group.

Table 1. Demographic and symptom profile for the OCD and anxiety control group

	OCD (n=21)	Anxiety (n=18)	Statistic	
	N (%)	N (%)		
Ethnicity – White	19 (90.5)	14 (77.8)	-	
Ethnicity – Other	2 (9.5)	4 (22.2)	-	
Past treatment	20 (95.2)	14 (77.8)	-	
Currently in treatment	16 (76.2)	11 (61.1)	$\chi^2(1) = 1.03, p=.488$	
	Mean (SD)	Mean (SD)	T-score (df)	p-value
Age	34.1 (11.8)	32.9 (8.4)	.364 (37)	.718
Years with anxiety	19.3 (8.8)	12.7 (8.9)	2.35 (37)	.024*
BAI: (Level of anxiety)	21.4 (13.4)	21.3 (14.7)	.019 (34)	.985
BDI-II: (Level of Depression)	24.5 (13.6)	17.9 (10.8)	1.63 (36)	.111
Y-BOCS Total (Obsessive compulsive symptoms)	20.6 (7.5)	12.3 (7.6)	3.29 (35)	.002*
Obsessions:	11.0 (3.7)	8.1 (4.1)	2.24 (36)	.031*
Compulsions:	9.6 (5.2)	4.6 (4.5)	3.13 (35)	.004*
III-Total score:	1607.9 (690.4)	1385.0 (675.8)	.93 (31)	.362
III-Responsibility	585.3 (245.3)	445.0 (263.3)	1.57 (31)	.126
III-Importance of thought	412.6 (246.0)	334.3 (208.6)	.96 (31)	.343
III-Control of thought	610.0 (253.0)	605.7 (249.4)	.05 (31)	.962

BAI = Beck Anxiety Inventory; BDI-II = Beck Depression Inventory-II; Y-BOCS = Yale-Brown Obsessive Compulsive Scale – Self-report version; III = Interpretation of Intrusions Inventory

\*= significant at <.05 level

### *Prevalence, Number, Frequency and Proportion of Intrusive Images*

95.2% (n=20) of the OCD group and 88.8% (n=16) of the anxiety control group reported experiencing recurrent intrusive images. The OCD group reported that their images formed on average, 38.7% (SD = 20.1, range = 0-80) of their intrusive experiences (as opposed to thoughts and impulses) compared to 32.3% (SD = 32.5, range = 0-90) in the anxiety control group, but this difference was not significant ( $t(28) = 0.67, p=.51$ ). 2 (9.5%) people in OCD group and 7 (38.9%) people in the anxiety control group found it difficult to specify the relative proportion of thoughts, images and/or impulses. Both the OCD and anxiety control groups reported that their most recurrent image was predominately visual (OCD = 85.6%; anxiety control group = 72.2%), whilst others reported that this was more like an impression or a sensation such as one individual in the OCD group describing a burning feeling against “contaminated” body parts. In terms of the numbers of intrusive images currently experienced, the OCD group reported a mean number of 3.6 (SD = 1.9, range = 1-10) compared to a mean of 2.9 (SD = 1.6, range = 1-6) in the anxiety control group, which was not found to be significantly different ( $U=130, p=.52$ ). 12 (60.0%) in the OCD group and 11 (68.8%) of the anxiety control group said that their images had remained the same since they first experienced them; a chi-square test revealed that this difference did not reach statistical significance ( $\chi^2(1) = 0.30, p = .73$ ). However, a significantly greater proportion of participants in the OCD group (n=15, 78.9%) reported that they had experienced their most recurrent intrusive image more than 5 times in the past week compared to 37.5% (n= 6) in the anxiety control group ( $\chi^2(1) = 6.2, p = .02$ ).

### *Characteristics of the Intrusive Images*

Table 2 (overleaf) presents the properties of the intrusive images in the OCD and anxiety control group. Due to small numbers within each condition for ‘perspective’, it was not possible to analyse the data according to the three different conditions (i.e. field, observer and alternating). In line with Speckens et al. (2007) who found that images in OCD were predominantly experienced from a field perspective, the data was grouped according to ‘field only’ and ‘other’ (e.g. observer/alternating). As shown by Table 2, there were no differences between the groups on any of the image properties.

Many participants endorsed more than one trigger connected to their most recurrent image. The most common triggers differed according to the groups; out of a total of 53 reported triggers in the OCD group, the most common was mood disturbance, with 9 participants (a proportion of 17.0%) commenting that this was responsible for triggering their intrusive images. In contrast, the most commonly reported trigger (out of a total of 35) in the anxiety control group was interpersonal factors or direct social contact, endorsed by 9 participants (a proportion of 25.7%). Interestingly, 5 participants in the OCD group reported that their images could appear quite randomly in the absence of a trigger, although this was not the case for those in the anxiety group. In terms of responses to the intrusive images, 16 (80.0%) of the OCD group reported that they engaged in overt compulsions including washing, checking and tapping objects and/or other behaviours such as reassurance seeking, physical avoidance and distraction. In half of the OCD cases (n=10), imagery was

employed in response to the obsessional image. Similarly, 12 (75.0%) of those in the anxiety control group reported behavioural responses including physical avoidance,

Table 2. Properties of intrusive images by group

	OCD		Anxiety		Statistic
Characteristic:	Mean (SD/Range)		Mean (SD/Range)		
Vivid	8.2 (1.8/2-10)		8.6 (1.4/5-10)		U=139.5, p=.501
Uncontrollability	7.7 (2.5/2-10)		6.4 (3.0/1-10)		U=121.5, p=.211
Interference	6.3 (2.8/2-10)		5.3 (2.6/2-10)		U=125.5, p=.267
Motion:	N (%)		N (%)		Statistic
Static	8 (40.0)		4 (25.0)		$\chi^2 (1) = 0.90,$ p=.278
Movement	12 (60.0)		12 (75.0)		
Perspective:					
Field only	17 (85.0)		9 (56.0)		$\chi^2 (1) = 3.66,$ p=.062
Other (e.g. observer/alternating)	3 (15.0)		7 (44.0)		
	N (%)	Mean (SD)	N (%)	Mean (SD)	Statistic
Modality: <sup>+</sup>					
Visual (clarity)	18 (85)	7.5 (2.9)	13 (72)	7.7 (2.9)	U=141.5,p=.547
Physical sensations	5 (25)	6.0 (1.7)	1 (6)	10.0 (-)	-
Sounds	5 (25)	8.7 (1.5)	6 (38)	6.0 (2.7)	-
Smells	2 (10)	8.0 (2.8)	2 (13)	6.0 (4.2)	-
Tastes	1 (5)	8.0 (-)	1 (6)	3.0 (-)	-

<sup>+</sup> Participants could endorse more than one modality. (-) Not applicable/not able to report value

distraction and avoiding eye contact, with 10 (62.5%) using imagery in response to the intrusive image.

All participants (100%) reported that they found their intrusive images distressing, and there was no difference between the groups on the extent of distress caused by the image ( $U=158.5$ ,  $p=.96$ ). There were no significant differences in terms of the strength of emotions (i.e. sadness, guilt, shame, disturbed, anger and fear) associated with the images, with both groups reporting highly intense emotional responses (OCD –  $M = 6.4 - 8.8$ ; anxiety –  $M = 7.7 - 8.6$ ). The groups did not differ in their interpretations of their intrusive images as shown by their scores on the Interpretation of Intrusions Inventory (See Table 1).

#### *Content of the Intrusive Images and Inferences about the Self*

Based on Joffe and Yardley (2004), content analysis was performed on the data to identify the main themes within participants' intrusive images and the associated inferences about the self. Firstly, coding categories for the images were defined through a combination of inductive coding from inspection of the data and deductive coding derived from existing theoretical literature on intrusive experiences in both obsessive compulsive disorder (Rachman, 1998; Lee & Kwon, 2003) and other anxiety disorders (e.g. Hackmann et al., 2000; Wells & Hackmann, 1993). Specifically, the deductive coding was based on the principle that cognitive theory of obsessions proposes that two subtypes are present which contain different themes (Lee & Kwon, 2003). 'Autogenous' obsessions are perceived as highly ego-dystonic

and unacceptable and contain common themes of aggressive, sexual and blasphemous or repulsive/aversive cognitions. In contrast, 'reactive' obsession themes are those of contamination, mistakes, disorder, or disarrangement. A coding frame was generated and 4 main themes were derived. Closely related to the construct of autogenous obsessions, an initial theme referred to 'unacceptable ideas of harm' (ideas of aggressive/violent harm, failure to protect others from harm, harm caused by inappropriate sexual acts or insults, mental catastrophe) and in line with reactive obsessions a second theme was 'contamination and somatic complaints' (ideas of contamination, illness, unwanted bodily symptoms). Other themes derived from the data were 'social rejection' (negative social evaluation and humiliation) and 'miscellaneous' (superstitious, senseless imagery) (See Appendix 4 for the coding frame and examples of transcripts). The author and an independent second rater then assigned each image to a category, using the descriptions attached to each code (See Table 3 overleaf). Any disagreements were discussed and final category allocation was jointly made. Inter-rater reliability of the two raters was calculated using Cohen's Kappa (1960) as described in Ballinger, Yardley and Payne (2004). The inter-rater reliability statistic had a Cohen's  $\kappa$  of 0.82, indicating a good to excellent level of agreement.

Although there does not appear to be direct evidence, the literature suggests that autogenous obsessions take the form of thoughts, images and impulses whereas reactive obsessions are more linked to thoughts, doubts and concerns (Lee & Kwon, 2003). Therefore, as intrusive imagery may be more likely to encapsulate autogenous obsessions, emphasis was placed on assessing whether differences were apparent between the groups in terms of the theme of 'unacceptable ideas of harm'.

Examining the frequency of this theme compared to the combined frequency of the other themes, a chi-square test revealed that there was a significant difference between the two groups, with images in the OCD group more likely to contain ideas of unacceptable harm than those in the anxiety control group ( $\chi^2(1) = 11.3, p = .01$ ).

Table 3. Themes of the intrusive image and inferences about the self by group

Theme	OCD	Anxiety
	N (%)	N (%)
Unacceptable ideas of harm	15 (75.0)	3 (18.7)
Contamination and somatic complaints	2 (10.0)	6 (37.5)
Miscellaneous	3 (15.0)	2 (12.5)
Social rejection	0 (0)	5 (31.3)
Inference about the self		
Dangerous	11(55.0)	1 (6.2)
Depressed/anxious	6 (30.0)	6 (37.5)
Rejected	0 (0)	2 (12.5)
Flawed	3 (15.0)	7 (43.8)

Secondly, through a process of deductive coding, participants' comments regarding the inferences made about the self associated with the intrusive image were arranged according the four themes identified in obsessions by Ferrier and Brewin (2005) (See Table 3). These themes were: a 'dangerous self' (the possibility of harm coming to others or of being out-of-control; a 'depressed/anxious self' (symptom-related self-



perceptions e.g., fearful or hopeless traits); a 'rejected self' (self-perceptions of being lonely or unloveable) and a 'flawed self' (traits that are perceived as undesirable but not inherently dangerous to self or others e.g., selfish, proud). Using this classification, the two independent raters allocated the participants' comments to one of the four themes and as before, any disagreements were discussed and category allocation was jointly made. This allocation demonstrated an excellent level of agreement (Cohen's  $\kappa = 0.93$ ). As shown in Table 3, the theme of a dangerous self was inferred from the majority of the participants in the OCD group but absent from the inferences made about the self in the anxiety control group. As Rachman (2007) argues that individuals with OCD fear that the images mean they may go mad or that they pose a serious threat to others, a chi-square test was performed to test for differences between the groups on the inference of a 'dangerous self' compared to the other themes. This test showed that there was a highly significant difference between the groups ( $\chi^2(1) = 9.5, p = .002$ ) indicating that individuals in the OCD group were more likely to infer a 'dangerous self' from the intrusive image than those in the anxiety control group.

#### *Onset of Intrusive Images and Associated Memories*

There was no difference between the groups in terms of the age of onset for their most recurrent image (OCD -  $M = 19.5, SD = 8.9$ ; anxiety -  $M = 19.2, SD = 9.9$ ;  $t(34) = 0.10, p = .92$ ). In terms of events happening around the onset of the images, those in the OCD group most frequently replied 'not known' ( $n = 7, 35.0\%$ ), followed by responses pertaining to difficulties with family or friends ( $n = 5, 25.0\%$ ). For those in the anxiety group, they most frequently reported that the start of the images

coincided with their first or worst episode of anxiety (n= 4, 25.0%). Both groups were asked if they had any memories associated with their most recurrent intrusive image (See Table 4). 3 (15.0%) in the OCD group and 7 (43.8%) participants in the anxiety control group reported that their most recurrent image was directly connected to a memory. In addition, 11(55.0%) participants in the OCD group and 6 (37.5%) in the anxiety control group associated their most recurrent image to an earlier event. Overall, participants in the anxiety control group reported a significantly higher level of association between their recurrent image and events in memory than did those in the OCD group (U= 44.5, p=.02). There was no difference between the groups in terms of the participants' age at the time of the event in memory reflected in the image (OCD - M =15.6, SD = 10.7; anxiety - M = 21.0, SD = 11.1; U=54, p=.20).

Table 4. Types of events reported in memories associated with images by group

Event <sup>†</sup>	OCD (n=14)	Anxiety (n=13)
	(N/%)	(N/%)
Memory of something heard or seen on TV/poster	3 (21.4)	0 (0)
Neglect/abuse/violence at home	2 (14.3)	1 (7.7)
Traumatic episode as a child	4 (28.6)	2 (15.4)
Traumatic episode as an adult	2 (14.3)	1 (7.7)
Interpersonal difficulties	2 (14.3)	2 (15.4)
Illness	0 (0)	3 (23.1)
Experience of anxiety	1 (7.1)	3 (23.1)
Drug-related experience	0 (0)	1 (7.7)

### *Examples of Intrusive Images, Inferences about the Self and Associated Memories*

The following examples illustrate two of the most recurrent intrusive images experienced (verbatim) by an OCD and anxiety control participant which pertain to the theme of 'unacceptable ideas of harm'. Inferences about the self connected to the image are also presented together with the associated memory.

OCD participant: Intrusive Image: *'Whenever I see or hear an aircraft overhead, I look at it initially I think, a nice sight, I see the trailers coming from the engines and then picture the people inside, that they might be getting ready to land, pilot speaking to them and then I think I hope it doesn't blow up or something like that and I get pictures of the engines on fire, surrounded by giant orange flames and black smoke and then I visualise the whole plane blowing up'*. Inferences about the self: *'I am responsible or guilty for looking or thinking about it; if it did blow up it would be my fault- I am evil or bad'*. Associated memory: *'Went to a Catholic school, the building was really frightening and intimidating and I used to get frequently punished by the nuns for things even when I hadn't done anything wrong. Aged 13 years, I saw a picture on the school wall around Guy Fawkes night of an executed gunpowder plot. Thought it was a horrible, frightening image -it clearly sticks in my mind'*.

Anxiety control participant (panic with agoraphobia): Intrusive Image: *'When I think about having to go somewhere in a small enclosed space, like the bank or on a plane, I imagine myself feeling terrible and freaking out and losing control and have to be*

*contained and calmed down. I can clearly see the reaction of others, they look really unsure of what to do, but their expression says that they think I am crazy and mad'. Inferences about the self: 'I am fearful of losing control, but it's not representative of me, I have my two sides, my outgoing one and then my anxious side'. Associated memory: 'Aged 15 years, remember being in a club and it was very hot, had a really bad experience with drugs, it's the same feeling like I was losing control, like my head was going to explode'.*

## Discussion

The results of the present study have demonstrated the phenomenological characteristics of intrusive images which distinguish OCD from other anxiety disorders. This is the first known systematic study of intrusive imagery in OCD to include a clinical control group and by doing so has extended findings by Speckens et al. (2007) to show that the frequency, content, inferred representation of the self and degree of association with memories, reflect distinct features of obsessional images. Findings also revealed that the images in OCD appeared comparable to those in other anxiety disorders in terms of the prevalence, number, relative proportion to thoughts/impulses, properties, responses and interpretations. There also appeared to be a similarity between the groups in respect of the participants' age in terms of the first occurrence of the images and the time of the event in memory reflected in the image.

The OCD sample experienced their intrusive images more frequently than the anxious controls, although the prevalence, number, and proportion to thoughts and/or impulses appeared comparable. To date, there is no known study which has compared these variables between individuals with OCD and other forms of anxiety, making it difficult to relate these findings to previous literature. However, in terms of prevalence, Speckens et al. (2007) reported that 81% of their sample of OCD patients had intrusive images whereas both Hackmann et al. (2000) and Day et al. (2004) found that all of their participants with social phobia and agoraphobia respectively, reported negative and spontaneous imagery. Findings from these previous studies indicate that intrusive imagery may be less prevalent in OCD than in other anxiety disorders, thereby conflicting with the results of the current study.

Speckens et al. (2007) may have estimated the prevalence of intrusive imagery to be lower than that recorded in the present study, based on their technique of identifying images within the broader context of participants' OCD symptoms rather than directly asking about images occurring in the past month. Moreover, their sample composition differed to that of the present study; Speckens et al. (2007) interviewed a larger, consecutive sample of OCD patients (n=37) admitted to a specialist inpatient unit. Differences in methodological techniques could, therefore, account for incompatible findings on prevalence rates across studies. Further research would therefore be required in order to draw conclusions regarding the prevalence of intrusive images in OCD compared to other anxiety disorders, along with their frequency, number and proportion relative to other intrusive experiences.

A small proportion of participants in the OCD group reported that their intrusive images appeared randomly in the absence of a trigger, in contrast to those in the control group, whose images were all associated with a stimulus. The finding that OCD images occurred without warning and were experienced more frequently, could imply that they were experienced as more intrusive. However, no differences were found between the groups on the properties of images indicative of an intrusive quality, i.e. degree of uncontrollability, interference, distress and vividness. Moreover, both groups found their images to be highly emotive. Research has shown that in anxiety disorders such as PTSD, intrusive images are highly vivid (Birrer et al., 2007; Hackmann, Ehlers, Speckens & Clark, 2004), distressing (Steil & Ehlers, 2000) and associated with a range of emotions (Holmes et al., 2005). Therefore, it could be argued that differences would not have been expected between the OCD and anxiety control group on these variables. Systematic investigation of

the characteristics of uncontrollability and interference, however, is virtually absent from the literature. As such, it is difficult to discern whether the observed similarity between the groups in relation to these image properties is in line with expectation, or rather, due to the small sample size, there was insufficient power to detect a difference.

Contrary to expectation, differences were not detected between the groups regarding the perspective of the self in the images, which again may be attributed to insufficient power in the study. There are no known direct comparisons of this image characteristic in those with OCD and other anxiety disorders. However, findings across studies are suggestive of a predominance of a field perspective in OCD (Speckens et al., 2007) compared to the phobic disorders, where seeing the self from an observer perspective is most commonly reported (Wells & Papageorgiou, 1999). Variation in methodology between the current study and Speckens et al. (2007) could again explain the conflicting findings as in the latter study, only 'field' and 'observer' perspectives were assessed and not an alternating perspective. However, some have argued that rather than being specific to the disorder, a focus on feelings or the content of core beliefs may determine the perspective adopted (Nigro & Neisser, 1983; Pratt et al., 2004). In both groups the images were predominately experienced as a visual and/or static picture. This finding concurs with Horowitz (1970) who reported that images or sensory experiences are most commonly experienced in the visual modality and studies in both OCD (Speckens et al., 2007) and PTSD (Steil & Ehlers, 2000; Hackmann et al., 2004), have reported higher numbers of static visual images as opposed to film-like scenes within the intrusive experience.

Responses to the intrusive images in the form of behaviours and interpretations did not differ between the OCD group and anxious controls. Behavioural responses such as avoidance and distraction were frequent occurrences in both groups, as was the use of self-generated imagery to manage the original intrusive image. It was beyond the scope of the study to examine images as a compulsion/response to the original intrusion, and it therefore remains to be seen whether these vary in content and form between individuals with OCD and other forms of anxiety. Interpretations of the images with regards to responsibility and importance and control of thought were not found to differ between the groups. Although there do not appear to be controlled studies into the interpretations of images in anxiety, the literature suggests there may be differences, with notions of responsibility for harm in OCD (Speckens et al., 2007), ongoing threat of danger in PTSD (Ehlers & Steil, 1995) and poor social performance in social phobia (Hirsch et al., 2003). Whilst not exclusive to images, previous research supports the presence of specific interpretations in OCD including responsibility cognitions (Salkovskis et al., 2000), importance of controlling one's thoughts and the worry that the thought will come true (Morillo, Belloch & Garcia-Soriano, 2007). The findings in the present study did not demonstrate interpretations unique to OCD, which could be the result of the sole focus on intrusive images or as previously stated, due to small numbers in the groups.

The content of intrusive imagery in individuals with OCD was predominately characterised by 'unacceptable ideas of harm', in contrast to the control group who showed a trend towards symptom-based themes of illness and anxiety. As this is the first known study to present a content analysis of obsessional imagery, it is difficult to provide evidence to substantiate the finding that imagery in OCD is unique in its



depiction of 'unacceptable ideas of harm'. However, research in the literature looking at sub-types within obsessions may lend some support for the predominance of this theme within OCD imagery. Research has repeatedly documented the presence of two distinct sub-types within obsessions – 'autogenous' and 'reactive' (Lee & Kwon, 2003). Autogenous obsessions are characterised by unacceptable sexual, aggressive, blasphemous or repulsive themes, compared to reactive obsessions which relate to fears of contamination, symmetry and disarray. Although there does not appear to be any direct evidence in support of their argument, Lee and Kwon (2003) state that autogenous are more likely than reactive obsessions to take the form of images. Therefore, this may explain the finding that the majority of intrusive images in OCD, contained themes relating to 'unacceptable ideas of harm'. This may appear to contrast with findings by Foa et al. (1995) who documented that in 431 individuals with OCD, the majority of cases (38%) reported that their obsessions contained themes of contamination. Findings from this study suggest that when images alone are investigated, themes of 'unacceptable ideas of harm' are more commonly identified.

Individuals in the OCD group inferred a 'dangerous self' (the possibility of harm coming to others or of being out-of-control) from their images compared to a 'flawed self' in the anxiety control group, characterised by a weakness of character unrelated to danger. This finding is consistent with Rachman (2007) who proposed that individuals with OCD fear that their images signify impending mental illness or that they pose a serious threat to others. Although not specific to unwanted images, Ferrier and Brewin (2005) also found that intrusions in their OCD sample were significantly more likely to reflect the self as dangerous, either towards themselves or

others by virtue of being bad, immoral, or insane. Additionally, in the current study beliefs held by those with OCD about a 'dangerous self' appeared to correspond to the theme of 'unacceptable ideas of harm'. However, as this was not formally assessed, this would require further investigation.

As with the anxious controls, a large majority of participants in the OCD group reported that their images were related to memories of adverse events. Previous research has found that a high percentage of participants with OCD (Speckens et al., 2007), social phobia (Hackmann et al., 2000) and agoraphobia (Day et al., 2004) also report images closely linked to negative memories. High prevalence rates of traumatic experiences during both childhood (Fricke, Köhler, Moritz & Schäfer, 2007) and adulthood (De Silva & Marks, 1998) have been identified in OCD patients, and it can be hypothesised that the intrusive images described in this study were a reflection or re-activation of a trauma or stress experience. However, in contrast to those in the anxiety control group, individuals with OCD were significantly less likely to consider the image and memory to be similar. As intrusions in OCD are ego-dystonic, aversive and something to be resisted, participants may have struggled to closely associate their images with past negative events. Alternatively, the intrusive images in the OCD group may have been more akin to 'elaborative cognitions' which have some basis in reality but do not correspond to any actual experience (Reynolds & Brewin, 1998). It is not clear why those with OCD may have experienced their images as more of an abstraction of an autobiographical memory than those in the anxiety control group. It can be hypothesised that, as individuals infer a dangerous self from the images, they fear that they will be responsible for re-enacting the dreaded occurrence in memory, rather than fear of the

reactivation of the event itself, as is more common in anxiety disorders such as social phobia (Hackmann et al., 2000). Just as intrusive images in anxiety are considered to act as a warning system (Clark & Beck, 1988), in OCD, they may serve to alert individuals against the kind of person they want to avoid becoming in line with events in their past. Therefore, as demonstrated, images in OCD are associated with autobiographical memories but may not be as directly linked as they appear in other anxiety disorders.

### *Limitations*

It will be important to replicate these findings on larger samples. Other relevant studies have included similar sample sizes (e.g. Day et al., 2004), however as participants in the study without intrusive images were removed from the main analyses, the numbers were decreased giving less power. Despite some positive findings, a type-II error may have occurred and true effects may not have been detected. OCD is a very heterogenous disorder and the use of a larger sample size would have also allowed for sub-group analyses. For example, it was not possible to conduct analyses according to distinct subtypes of OCD, i.e. those with violent, aggressive obsessions versus those with more 'reactive' symptoms, such as checking and washing obsessions and compulsions. Moreover, reflected by research which supports a relatively high level of lifetime anxiety disorders in OCD subjects (Crino & Andrews, 1996), 38% of the OCD sample met criteria for co-morbid anxiety disorders, which may have affected the specificity of findings. A larger sample would have allowed grouping the data according to those with OCD alone compared to those with co-morbid disorders.

A limitation of the study that should be addressed in future research was the lack of a normal control group. Particularly as research suggests there is some overlap between the content and form of clinical obsessions and non-clinical obsessive intrusions (Rachman & De Silva, 1978; Rassin & Muris, 2007), a control group would have allowed for further examination of the specificity of content and self-representation of the obsessional images. A further shortcoming relates to the design of the interview schedule. Whilst it was adapted from an existing measure of intrusive imagery (Patel et al., 2007) and modified to make it applicable to obsessive compulsive disorder, it is not clear whether additional constructs worthy of investigation were overlooked. For example, some participants indicated it was the “realness” of the images that they found particularly distressing which was not measured in the study. Future work may also benefit from a more explicit definition of the notion of ‘similarity’ between images and memories, as this could have been interpreted by participants as an association in terms of emotional meaning or the content of the image or possibly both.

A final limitation relates to the self-selected nature of the sample and difficulties experienced in terms of conducting the interviews in person. It is unclear whether the inclusion of participants who were (a) predominately white and female, (b) recruited in the main from the anxiety support groups, (c) interviewed in different ways (i.e. face-to-face or over the telephone) and (d) who varied in stage of treatment and subsequent CBT experience, brought different qualities and perspectives to the research. Moreover, there was a relatively high drop-out rate of participants prior to their involvement in the study and individuals with social anxiety were over-represented in the anxiety control group, questioning whether the sample was an

accurate reflection of the wider population. As a result of a self-selected sample, it is possible that people with severe symptoms may have been underrepresented in the study, because they considered participation too distressing, or over-represented if they considered the study to be more important than those with less severe symptoms. A more systematic approach to recruitment and collection of the data may have ensured a more representative sample.

### *Clinical Implications*

Clearly it is important for clinicians to enquire about intrusive images, as they have been shown to be highly significant in OCD. The findings of this study, however, raise questions regarding the management of OCD using conventional exposure-based cognitive-behavioural treatments, when intrusive imagery is a feature. If, as findings suggest, intrusive images are depicted by unacceptable ideas of harm and a dangerous self, techniques such as response prevention may not be well accepted until the potential for harm is managed (Ferrier & Brewin, 2005). If OCD patients hold the belief that they are inherently dangerous, then they are likely to be unwilling to override these beliefs during response prevention for fear they will be responsible for negative outcomes. Patients may therefore benefit from approaches which address core beliefs about the self (Padesky, 1994) prior to targeting appraisals about their images. However, mental compulsions have been found to be most prevalent among patients with autogenous obsessions (Abramowitz, Franklin, Schwartz & Furr, 2003), whereas reactive obsessions are more strongly associated with overt behavioural features (e.g., checking, washing, ordering) (Lee & Telch, 2005). As it has been proposed by the current study that autogenous obsessions are more likely to take the form of images, exposure-based strategies may not be a suitable intervention

for those with a significant imagery component, even if core beliefs are initially targeted.

Alternatively, approaches such as imagery re-scripting which achieve symptom change through direct modification of intrusive images of traumatic events may be an appropriate technique (Smucker et al., 1995). This has been found to be an effective way of modifying dysfunctional beliefs linked to recurrent negative imagery in social phobia (Wild, Hackmann & Clark, 2007) and snake fear (Hunt & Fenton, 2007). As findings have suggested that intrusive images in OCD may be akin to 'elaborative cognitions' or possibly fantasy images without a clear link to autobiographical memories, re-scripting of the images themselves rather than the associated memories may be required (Rusch, Grunert & Mendelsohn, 2000).

In conclusion, this is the first known study to systematically investigate the phenomenology of intrusive images in OCD in relation to those with other anxiety disorders. Results have shown that the frequency, content, inferred representation of the self and degree of association with memories reflect distinct features of obsessional images in OCD. The study has presented novel findings in its demonstration that intrusive images in OCD may be a feature of autogenous obsessions, characterised by unacceptable themes of harm. In terms of clinical intervention, the findings suggest that direct modification of the intrusive images rather than associated memories may be beneficial. The study is exploratory in nature and further research is warranted to replicate and explore the findings.

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## Part 3: Critical Appraisal

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## Introduction

The following appraisal is a critical reflection of the process of developing and conducting the research study. The choice of topic for the study and methodological and conceptual issues are presented, followed by considerations of areas of further investigation.

## Choice of Topic

Interest in the topic of intrusive imagery in obsessive compulsive disorder (OCD) arose from my own clinical observations of an OCD patient who described repugnant images of a sexual nature. I was fascinated by the connection between these images and the feelings of 'mental pollution' that these generated for the patient, resulting in the need for her to engage in compulsive washing and cleaning (Fairbrother & Rachman, 2004). Moreover, the case became more complex as she revealed that she had been a victim of sexual abuse as a child. Based on this case, I was keen to research the links between traumatic events such as sexual abuse in the development of OCD. However, due to the complexities of the study design that would be required to explore such a link, this was not a feasible option. Instead, as intrusive imagery has been found to be significant in other emotional disorders, the focus of the research shifted to understanding the phenomenology of distressing images in OCD. As many of the studies assessing intrusive imagery in anxiety, particularly that by Speckens, Hackmann, Ehlers and Cuthbert (2007) in the area of OCD, had not included an anxiety control group, an objective of the study was to understand the specific characteristics of intrusive imagery in OCD in relation to other anxiety disorders.

## Methodological Issues

Methodological issues and dilemmas arose during the research process, in terms of recruitment, ethical issues, design and the selection of measures.

### *Recruitment*

As anticipated, the recruitment phase was challenging and lengthy. Clinical samples are often harder to access than normal populations and, as participants would be required to describe their intrusive experiences in some detail, this may have prevented many people from taking part in the study. The recruitment of participants from the NHS was particularly slow as, due to ethical reasons, the main point of contact with patients was made through a written letter of invitation. This method has been shown to be a particularly difficult way of recruiting a sample (Patel, Doku & Tennakoon, 2003). Therefore, the sample was predominantly comprised of individuals from the support groups as they proved easier to recruit through web-based adverts and e-mail distribution. It is unclear whether the inclusion of participants from a range of sources brought different qualities and perspectives to the research and what effect this may have had, however, this was unavoidable due to the recruitment challenges. Certainly, it was evident that individuals with social anxiety were over-represented in the anxiety control group, which may have been due to the enthusiasm of the leader of a support group who was very helpful in the recruitment of participants. This over-representation of individuals with social anxiety may have influenced the findings in the anxiety control group in terms of the themes of the images, together with the degree of association with memories. A further recruitment issue relates to the relatively high drop-out rate of participants prior to their involvement in the study, indicating that those who were particularly

fearful or had more severe symptoms may have been under-represented. However, this is unknown as it was not possible to ascertain the profile of those who withdrew. The overall sample mainly comprised of females of white origin which may also have had an effect on the findings.

### *Ethical Issues*

The main ethical concern in the study related to the potential for participants to become distressed during the interview. From clinical experience, intrusive images are often reluctantly spoken about and it was anticipated that this may be a distressing topic for participants to discuss. I therefore needed to be very considered in my approach to collecting the data, ensuring at all times that participants were well informed of the topic of discussion and that they felt in a position to terminate the interview if necessary. Further measures were taken to minimise any potential distress by assessing the mental state of interested individuals prior to inclusion in the study. With permission, I contacted individuals' GP's to ascertain whether there were any concerns regarding their patients involvement in the study (See Appendix 1 for GP letter) and asked potential recruits whether they were experiencing any current suicidal thoughts and whether they felt comfortable talking about their symptoms. In a few instances when participants did experience some distress during the interview, this was managed by giving them the opportunity to discuss their anxiety and/or to terminate the interview. In one instance, risk behaviour was identified and following discussion with my Supervisor, the participant's GP was informed of this disclosure with consent.

A further ethical issue related to the fact that a proportion of individuals from the support groups lived outside London, making it difficult to attend a face-to-face interview. Therefore, it was necessary to conduct a number of interviews over the telephone. As it was anticipated that identifying distress would be more difficult during an interview over the telephone, in addition to the aforementioned procedures, I took extra steps to ascertain the mental state of the participant and ensure throughout the interview that they were happy to proceed. In the eventuality that the participant might have become distressed, they were initially requested to identify a topic of conversation such as reflecting on a nice holiday, which could be discussed at the end of the interview, thus concluding on a positive note.

Whilst the adopted procedures appeared successful in minimising distress, an ethical dilemma was raised when participants had difficulty identifying or articulating the frightening things they were imagining. In such instances the downward arrow technique (Burns, 1980) was used to help participants elicit their images. However, for some, accessing this information appeared to be a new experience and this may have caused them to reveal core beliefs and subsequent distress. This observation was informative as I was able to appreciate the significance of the images and their emotional impact. However, it also made me very aware of the need to strike a balance between eliciting the relevant and accurate information whilst keeping in mind the impact of the discussion on the participant. In relation to this, whilst it was understandable that some participants did not want to share certain information, this non-disclosure would have impacted on the findings, again highlighting the dilemma between collecting accurate data and ensuring the safety of the participants.

## *Design*

A main issue regarding the design of the study related to the use of telephone interviews. It was necessary to conduct interviews over the phone to obtain the required sample size but it was not known whether this modification affected the validity of the results. Conducting an interview over the telephone was piloted to ensure that this was a feasible method of collecting data and that this could be obtained in an ethical manner. However, in contrast to a face-to face interview, participants may have found this to be an impersonal experience thereby limiting the amount of information they felt comfortable to share. In addition, conducting the interview over the phone meant that the questionnaires were sent out and returned by post and it was much harder to ensure that they were fully completed, resulting in missing data. Nonetheless, the telephone interviews were a very effective way of gaining access to participants who were unable to leave their homes or travel to attend a face-to-face interview, for example those with panic disorder or agoraphobia. It is also possible that participants may have preferred this approach, enabling them to discuss sensitive and anxiety-provoking experiences in a less formal manner.

A further consideration in terms of the design was the participants' stage in treatment possibly affecting their ability to describe their images. Unlike the study by Speckens et al. (2007) who interviewed patients a few weeks into an inpatient programme of CBT once a shared formulation had been established, this kind of approach was not possible in the current study. The participants in the study varied in their experience of CBT and as such, some were more able than others to identify



images and associated beliefs. This was evidenced by some participants contacting me after their interview to inform me that they had identified additional images. Therefore, participants' stage in treatment and ability to identify images would have affected the findings and the comparability to other literature particularly in terms of prevalence rates. The influence of medication on the findings is also unknown.

### *Selection of Measures*

The literature on intrusive imagery in anxiety, particularly OCD, is in its infancy and so selecting appropriate measures was a challenge. Most commonly, intrusive images are measured by means of a structured interview (e.g. Hackmann, Clark & McManus, 2000; Patel et al., 2007), however, it is unclear whether these measures contain the most important aspects of intrusive images and elicit them in a meaningful way. For example, some of the interviews require participants to describe a typical image experienced during an anxious situation within the last six months (Hackmann et al., 2000) whereas others have focused on the description of an image within the context of a recent anxiety episode (Speckens et al., 2007). Despite the limitations, a structured interview remained the most appropriate measure and was therefore used in the study. As previously described, modifications were made to the schedule used by Patel et al. (2007) to make it relevant to the research questions and the phenomenology of OCD as understood by Speckens et al. (2007). It was deemed clinically meaningful to enquire about the most recurrent and/or the most distressing images that individuals were currently experiencing (i.e. within the last month). However, as 78% of cases reported that their most recurrent image was also the most distressing, the main analysis focused on participants' most

typical image. Additionally, based on De Silva (1986), who proposed that the assessment of imagery in OCD should not just focus on obsessions and compulsions, but include other elements of the disorder (e.g. trigger, discomfort or anxiety, reassurance seeking, disruptive events that hamper and invalidate a compulsive act and avoidance behaviour), questions pertaining to these features were also included. As only a small number of each group endorsed imagery within these elements, this data were removed from the main analysis. However, it was interesting to observe that individuals with both OCD and other anxiety disorders did experience images as part of these elements, but this remains an area for further investigation. For example, one participant in the OCD group reported that when engaging in a washing ritual, she would have an intrusive image of a close friend who had died thereby invalidating her compulsion, requiring her to recommence the ritual. In the anxiety control group, a few participants reported that they used reassurance-seeking images following an intrusive image. One participant reported having a distressing image whenever her boyfriend went out with his friends, of him being unfaithful with another woman. In order to reassure herself, she would generate an image of him talking to one of his male friends, thus giving her comfort.

The interview schedule was piloted on individuals with OCD, and through this process, alterations were made to the response formats and questions were removed which appeared redundant. One particular item employed by Speckens et al. (2007) which aimed to assess the extent to which the image seemed to be happening in the moment rather than being something in one's mind was removed, as the pilot revealed this to be a difficult question for individuals to answer. This may have been

due to the fact that some reported that their images reflected doubt about previous actions or worry about the anticipation of bad things happening, rather than having a sense of 'nowness' and current threat. Although some items were kept in the schedule, once the data were collected it became apparent that they did not assess relevant constructs (e.g. measures of stability and how easily the images came to mind) and were not included in the main analysis. This also applied to items measuring the duration and beliefs about others and the world inferred from the images. Reasons for the exclusion of these items are discussed in later sections of the appraisal, pertaining to the selection of measures and further investigation.

Selecting an appropriate measure of appraisals of the intrusive images also posed a challenge. There are a number of questionnaires in the OCD literature which assess the interpretations of intrusive cognitions, for example the Responsibility Interpretations Questionnaire (RIQ; Salkovskis et al., 2000) as used by Speckens et al. (2007). These questionnaires measure the strength of the belief in the interpretation of all intrusive experiences (i.e. thoughts, images and impulses) and would not be suitable for the specific measurement of the interpretation of images. However, the Interpretation of Intrusions Inventory (III; Obsessive Compulsive Cognitions Working Group, OCCWG, 2001) has been designed as a semi-idiographic measure which is answered in relation to the specific intrusion listed by the participant, which can solely be an image. Therefore this scale was deemed appropriate for use in the study. Although it is reported to have good psychometric properties, it is unclear whether adapting the III to make it specific to images would have affected its validity and reliability.

It was also unclear how to best measure participants' beliefs about the self, world and others. As in previous studies assessing intrusive imagery, open-ended questions were used to explore participants' core beliefs in relation to their images. As demonstrated in the main findings, individuals in both groups were able to articulate their self-beliefs. However they were often unable to provide any response for their beliefs about others and the world and so these items were removed from the main analysis. In order to obtain a more in-depth understanding of schematic representations, it was originally considered to use a measure such as the Young Schema Questionnaire - short form (YSQ-S; Young, 1998) or the Obsessional Beliefs Questionnaire (OBQ; OCCWG, 2001). However, these measures would have provided more general beliefs about the self, others and the world and may not have been specifically related to the images. In addition, the use of these instruments would have been time-consuming. In retrospect, it would have been necessary to further pursue participants' beliefs using the downward arrow technique to help them identify the meaning about others and the world.

### Conceptual Issues

Throughout the design and the conduct of the research study, a number of conceptual issues were highlighted. These were in connection to the definition of intrusive imagery, the distinction between images, thoughts and impulses, the significance of co-morbidity and the association between images and autobiographical memory.

A strength of the study was the attempt to use a broad definition of intrusive imagery in line with Horowitz (1970) which included images with both visual and non-visual components/sensations together with 'impressions'. There is some ambiguity in the

literature regarding these terms, particularly concerning that of 'impressions'. Therefore, it was sometimes difficult to provide participants with a clear description of the phenomenon under study. In an attempt to make this more explicit, I adopted a dictionary definition of 'impression', but it is not evident whether this conceptualisation corresponded to that employed in other studies (e.g. Hackmann, Surawy & Clark, 1998). Moreover, it was interesting to note that one participant struggled with the concept of 'intrusive' imagery as he considered his sexual imagery to be highly unwanted and distressing at times, but pleasurable on other occasions. These observations question the conceptualisation of intrusive imagery both in this study and previous research and suggest that an area for further work would be to clarify how this is defined and subsequently operationalised.

A further conceptual issue relates to the way that intrusions in the form of mental images, thoughts and/or impulses were operationalised in the study. Whilst the focus of the study was on images, participants were asked about their thoughts (and if in the OCD group, impulses too) to help make them elicit their images and to ascertain the extent to which images featured in their intrusions. However, around 10% in the OCD group and 40% of the anxiety control group found it hard to specify the relative percentage of thoughts, images and/or impulses. This could have been due to the fact that it was the first time some participants described their images and found it hard to disentangle them from their thoughts or impulses. Alternatively, it questions whether these cognitions can be considered to be separate phenomenon or should be conceptualised on more of a continuum. Certainly, some comments from participants suggested that they experienced their images and thoughts in different ways. One participant with OCD reported that 'the thoughts are more distressing as

they happen more of the time, but the image has so much more of an impact'. However, whether there is a meaningful distinction between intrusive images, thoughts and impulses remains a question for further investigation.

Qualitative observations also indicated that the presence of co-morbid disorders might be significant in the understanding of the phenomenology of intrusive imagery in OCD. As it was not possible to systematically address the influence of co-morbidity on the findings due to the small sample size, the observations are unsubstantiated. However, it appeared that for some participants with OCD and co-morbid PTSD or depressive symptoms, images were consistent with both disorders and seemed to be conceptually linked. For example, one participant described a recent image in which she intrusively recalled an event where she assisted a dying victim of a stabbing incident that she had witnessed. In addition, she described a recurrent intrusive image consistent with the content of imagery in OCD, in which she imagined herself harming her children and then being taken off, wearing a straightjacket, in a white van. Another participant in the OCD group, who obtained a score of 20 on the BDI-II (Beck, Steer & Brown, 1996) indicating 'moderate' levels of depression, described a recurrent image in which his ex-girlfriend, whom he was still in love with, having intercourse with another man. In another recurrent image, he had an image of himself saying the wrong things to his girlfriend and causing her upset. Whilst this is simply an observation, this imagery appeared to reflect features of both OCD and depression. Research reports high levels of co-morbidity in OCD with both PTSD (Gershuny et al., 2008) and depression (Fineberg, Fourie, Gale & Sivakumaran, 2005) and whilst this would require further investigation, it is possible that intrusive imagery reflects this overlap between disorders.

A final conceptual issue relates to the association between participants' intrusive images and autobiographical memories. In terms of the degree of similarity, it is noteworthy that one individual in the OCD group reported a score of '10', (0 = not at all, 10 = very much) between the image and memory as did three individuals in the anxiety control group. It could be argued that a score of '10' signified total correspondence between the image and memory and therefore could be regarded as an 'intrusive memory'. However, it is not clear as to how participants understood the term 'similar' and may have made an association between their images and memories in terms of emotional content or the action/story, or possibly both. Some participants reported that their image was in fact an intrusion of a past event, demonstrating that they experienced intrusive memories. As this was not explicitly asked in the study, it is not known how many participants experienced intrusive memories and whether this differed between the OCD and anxiety control groups. In retrospect, it would therefore have been informative to have addressed this directly.

#### Further Investigation

The study has helped to answer some important questions about intrusive imagery in OCD. However, the research process has revealed the complex nature of the phenomenon demonstrating the need for further investigation. In addition to the aforementioned conceptual aspects, other features of intrusive imagery in OCD concerning the properties and interpretations would benefit from further investigation. Comments from participants collected at the end of the interview suggest that further research may benefit from the use of more qualitative open-ended questions.

Learning more about when individuals with OCD experience their intrusive images and whether this differs in individuals with other anxiety disorders, would be informative. An attempt was made to measure this by exploring triggers and the use of a categorical measure to assess how often participants experienced images in anxious situations. From the data it appeared that for some of those in the OCD group, their images could appear quite randomly even when they reported not feeling anxious. In contrast, those in the anxiety control group were generally more able to identify a trigger related to a feared stimulus. However, these results were hard to interpret as participants provided more than one trigger for their images and they were not directly asked whether they experienced images in the absence of anxiety. It might be important to understand more about the occurrence of intrusive images in OCD, as if they appear without warning, their unpredictability might contribute to the interpretation that the self is dangerous and out of control.

As adopted in the imagery interview by Patel et al. (2007), participants were asked about the duration in seconds or minutes of their most recurrent image. However, this item was removed from the main analysis as it did not appear particularly meaningful. Some participants in the OCD group indicated that their images were repetitive and unremitting lasting for hours or days. In addition, they were often accompanied by uncontrollable thoughts which persisted once the image had faded. Therefore, it may have been more informative to enquire about the time taken for the image and/or worrying thoughts to become extinct and to examine whether this differed between those with OCD and other anxiety disorders. Just as images in generalised anxiety disorder give rise to worry in order to manage high levels of emotion associated with the image (Borkovec & Inz, 1990), a similar phenomenon



may take place in OCD which could serve to maintain the intrusive images. Further investigation into the presence of worry or rumination in response to the image would be important, as this might have implications for the clinical management of the images.

It was beyond the scope of the study to explore in detail, images which featured within the compulsion and in other elements of the disorder. However, it would be particularly useful to learn more about compulsive imagery as this might have implications for treatments such as imagery modification (Rusch, Grunert & Mendelsohn, 2000). It would be important to appreciate the characteristics of compulsive images and how individuals generate them, so that modification does not incidentally create a neutralising image which may serve to perpetuate the intrusive image. Moreover, in the study, participants with both OCD and other forms of anxiety reported using imagery in response to their intrusive images, but it was not possible to know whether these were akin to compulsions and whether they differed between the groups. Although the finding was not significant, those in the OCD group reported that it was easier to generate a response image than those in the anxiety control group, which may suggest that individuals with OCD were using this approach in a compulsive manner. It is not, however, possible to interpret this observation and warrants further exploration.

Finally, the evident complex nature of the phenomenon of intrusive imagery in OCD suggests that further work would be required in terms of the thematic content, beliefs and interpretations. Although participants were requested to describe up to three images, the focus was placed only on the most recurrent such that the others were not

explored in any depth. However, from examination of all of participants' images, in some cases they appeared to contain different themes e.g. one participant who had recurrent images of pointless words described another image in which she visualised scenes of catastrophic plane crashes. Therefore, it would be interesting to look at the range of content across people's images. Further investigation of the beliefs and interpretations associated with the images in OCD would be beneficial as would the exploration of a link between the content of unacceptable ideas of harm and the inferred representation of the self as dangerous.

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Cognitive Therapy Center.

## Appendix 1: Recruitment Materials

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## PARTICIPANT INFORMATION SHEET

**Study title:** Images and Thoughts in Anxiety Disorders

**Research Team:** Michelle Lipton (Researcher), Prof Chris Brewin, Mr Stuart Linke  
(Supervisors)

**Address:** Sub-Department of Clinical Health Psychology  
University College London

### Contact:

*We would like to invite you to take part in a research study. Before you decide to take part, you need to understand why the research is being done and what it would involve for you. Please take time to read the following information carefully. You may discuss it with the Researcher Michelle Lipton if you wish. Do not hesitate to ask if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for reading this.*

### What is the purpose of the study?

Anxiety can be experienced in the form of bodily sensations, thoughts and/or mental images. The purpose of this study is to investigate intrusive mental images and thoughts experienced by individuals with anxiety difficulties, and to see how they compare to those experienced by individuals with no identifiable anxiety difficulties. This study is being carried out as Michelle Lipton's doctoral research project for a degree in Clinical Psychology.

### Why have I been invited?

As an individual between the ages of 18-65 years with anxiety difficulties, who experiences intrusive images and/or thoughts and with sufficient English to answer our questions, you have been invited to participate in this study. We would like to include 90 individuals in the study.

### Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time and without giving a reason. If you are an NHS patient, your decision whether or not to take part will not affect the level of care you receive.

### What will happen to me if I take part?

You will be interviewed by the Lead Researcher Michelle Lipton in a private setting. This will happen on one occasion and you will not need to meet with the researcher again. This will take place at the outpatient clinics at either Camden or Islington Psychology Assessment and Treatment Service (PATS) or the Sub-department of Clinical Health Psychology at University College London, depending on convenience. For individuals who live outside of London or those who may not be able to attend the clinic/university setting, it will be possible to conduct an interview over the telephone. The interview will last up to 90 minutes and will be audio taped, depending how you feel about this. It is designed to obtain information about your anxiety difficulties together with any intrusive images or thoughts you may experience and what they might mean to you. In addition, you will be asked to complete some brief questionnaires, which should take about 15 minutes.

**What are the benefits of taking part?**

There are no direct benefits from taking part in the research, but the information we obtain from the study may help in the future management of anxiety disorders. However, for participants, it is anticipated that you will have the opportunity to gain a deeper understanding of symptoms you experience from your interview with a trainee clinical psychologist. Furthermore, should you wish, we are providing participants with some brief information about anxiety to take away with them. You will receive a payment of £3 to go towards covering travel expenses.

**What are the possible disadvantages of taking part?**

You may find it upsetting to talk about your anxiety and any symptoms you experience. However, you do not need to talk about anything that you choose not to. In addition, the researcher is a trainee clinical psychologist and is experienced in discussing sensitive, personal and/or upsetting material.

**What if there is a problem?**

If you have a concern about any aspect of the study, you should ask to speak to the Lead Researcher who will do her best to answer your questions. If you remain unhappy and wish to complain formally, you can do this through the NHS Complaints Procedure. Details can be obtained from Camden and Islington Mental Health and Social Care NHS Trust. The research is covered by the NHS indemnity scheme.

**Will my taking part in this study be kept confidential?**

All information about you collected on audiotapes and questionnaires will be handled in confidence and only the researchers will have access to this. The information will be stored securely on password-protected computers and in locked drawers under the care of Michelle Lipton. All names will be removed and data will be coded and anonymised. All information collected will be destroyed after the research has finished in 5 years time.

**Will my General Practitioner (GP) be notified of my participation?**

With your consent, we will contact your GP to inform them of your involvement in the study.

**What will happen if I don't want to carry on with the study?**

You are free to withdraw from the study at any point and the information collected about you will not be included.

**What will happen to the results of the research study?**

The results will form the basis of a doctoral research thesis and it is the intention to publish the results in a scientific journal. You will be able to obtain the results should you wish to. You will not be identified in any report/publication unless you have given your consent.

**Who is conducting and organised the research?**

This research is part of Michelle Lipton's Doctoral degree in Clinical Psychology at University College London.

**Who has reviewed the study?**

This study has been given a favourable opinion by Camden and Islington Community Local Research Ethics Committee.

**Contact for Further Information**

Please contact Lead Researcher Michelle Lipton for further information, details at the top of the first page.

**You are welcome to keep a copy of this information sheet.**

**Thank you for taking time to read this.**





**CONSENT FORM**

**Study title:** Images and Thoughts in Anxiety Disorders  
**Research Team:** Michelle Lipton (Researcher), Prof Chris Brewin, Mr Stuart Linke (Supervisors)  
**Address:** Sub-Department of Clinical Health Psychology  
University College London

**Contact:**

**Please delete as applicable**

- |   |        |
|---|--------|
| 1. I have read and understood the Information Sheet dated 15/01/08.   | Yes/No |
| 2. I have had the opportunity to consider the information, ask questions and discuss the research study.  | Yes/No |
| 3. I am satisfied with the answers to my questions.   | Yes/No |
| 4. I have received enough information about this study.   | Yes/No |
| 5. I understand that my participation is voluntary and I am free to withdraw from the study at any time without giving a reason, without my medical care (where applicable) or legal rights will not be affected. | Yes/No |
| 6. I consent for my General Practitioner to be informed of my involvement in the study.   | Yes/No |
| 7. I consent for the interview to be audiotaped.  | Yes/No |
| 8. I agree to take part in this research study.   | Yes/No |

_____	_____	_____
Name of Participant	Date	Signature
_____	_____	_____
Researcher	Date	Signature

Letter of Invitation to NHS Patients

Version No 2

Date - 15/01/08



Sub-Department of Clinical Health Psychology  
University College London

DATE

NAME

ADDRESS

Dear.....

As an outpatient at Camden and Islington NHS Psychology and Assessment Treatment service, you have been invited to take part in a research study looking at the degree to which people experience intrusive images and/or thoughts in the context of anxiety disorders. This research is being conducted as part of a Doctoral course in Clinical Psychology at University College London and has been approved by Camden and Islington Community Local Research Ethics Committee.

In brief, the study involves completing a short interview and some questionnaires, which ask about any kinds of intrusive images or thoughts you experience and how you make sense of them. If you would like to be involved, you would be required to attend your Psychology service on one occasion only and this would last up to 90 minutes. This would be in addition to your normal treatment and would not affect the standard care you receive. By taking part in the study you will have the opportunity to contribute to research to help us understand more about intrusive mental experiences, which may assist in the future management of anxiety disorders. You may also develop a deeper understanding about some of the symptoms you experience.

Please find attached an information sheet that provides further details of the study. If you would like more information please feel free to contact me on

**After reading the information sheet if you decide that you would like to take part, please complete the slip overleaf and return it in the envelope provided. Alternatively, you can email me on the above address. I will then be in contact to arrange a time to meet with you.**

Yours sincerely,

Michelle Lipton

Trainee Clinical Psychologist

Website Advert

Version No 2

Date - 15/01/08



Sub-Department of Clinical Health Psychology  
University College London

## **Participants Required**

My name is Michelle Lipton and I am a trainee clinical psychologist doing my doctoral research project on intrusive images and thoughts in the context of anxiety disorders at University College London. In particular, I am interested in the number of individuals with anxiety disorders who experience intrusive mental images and thoughts and the meaning people attach to them.

I am seeking participants with any form of anxiety disorder who experience intrusive images and/or thoughts and who are between the ages of 18-65 and able to complete some brief questionnaires and a short interview. Participation in the study is entirely voluntary and should take up to 90 minutes.

The benefits of taking part in the study will be the opportunity to contribute to research which may help us understand more about intrusive mental experiences which in turn may help in the future management of anxiety disorders. By doing so, you may also develop a deeper understanding about some of the symptoms you experience.

If you are interested or would like more information then please contact me on

Letter To Participants' GP

Version No 1

Date - 09/02/07



Date

Sub-Department of Clinical Health Psychology  
University College London

Dr ....

Dear Dr .....,

**Re: Research Study - Images and Thoughts in Anxiety Disorders**

Your patient ... (DOB) of ... has expressed interest in taking part in the above research study. This research is being conducted as part of a Doctoral course in Clinical Psychology at University College London and has been approved by Camden and Islington Community Local Research Ethics Committee.

In brief, the study involves completing a short interview and questionnaires, which ask about mental images that individuals with obsessive-compulsive disorder and other anxiety difficulties experience. Participants are required to attend their Psychology service/UCL premises or undergo a telephone interview on one occasion only. The assessment lasts up to 90 minutes. This is in addition to their normal treatment and does not affect the standard of care they might be receiving. By taking part in the study, they have the opportunity to contribute to research by helping us to understand more about intrusive images and may also develop a deeper understanding about some of the symptoms they experience.

Please inform me either by writing to the above address or by email by ... (date) if, for any reason, you feel that your patient would not be suitable for inclusion in this research.

Please contact me if you would like some further information.

Yours sincerely,

Michelle Lipton  
Trainee Clinical Psychologist

cc File

## Appendix 2: Ethics Committee and R&D Approval Letters

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**Camden & Islington Community Local Research Ethics Committee**

Telephone:  
Facsimile:

06 March 2007

Miss Michelle Lipton  
Trainee Clinical Psychologist  
University College London  
Sub-Department of Clinical Health Psychology

Dear Miss Lipton

**Full title of study:**                   **Phenomenology of imagery in obsessive-compulsive disorder (OCD) and other anxiety disorders**

**REC reference number:**       **07/Q0511/5**

The Research Ethics Committee reviewed the above application at the meeting held on 26 February 2007. Thank you for attending to discuss the study.

**Ethical opinion**

The Committee concluded that there were no major ethical concerns regarding this study. The following points are included below as suggestions only.

The Committee noted that all questionnaires are to be sent to all participants, i.e. patients and healthy volunteers. The Committee questioned whether it was necessary to send the more detailed OCD questionnaires to the healthy volunteers. The 'Patients' Reply Slip' (version 1, dated 09.02.07) should amend the sentence "I would like to take part in the research study" to "I am interested in taking part in the research study..."

The members of the Committee present gave a favourable ethical opinion of the above research on the basis described in the application form, protocol and supporting documentation.

**Ethical review of research sites**

The Committee agreed that all sites in this study should be exempt from site-specific assessment (SSA). There is no need to submit the Site-Specific Information Form to any Research Ethics Committee. The favourable opinion for the study applies to all sites involved in the research.

### Conditions of approval

The favourable opinion is given provided that you comply with the conditions set out in the attached document. You are advised to study the conditions carefully.

### Approved documents

The documents reviewed and approved at the meeting were:

<i>Document</i>	<i>Version</i>	<i>Date</i>
Application		08 February 2007
Investigator CV	Supervisor's CV - Chris Brewin	
Investigator CV	C.I. - Michelle Lipton	05 February 2007
Protocol	'Approved version'	01 January 2007
Peer Review	Requested amendments; Reviewer -	01 November 2006
Peer Review	Evidence of peer review revisions;	18 January 2007
Interview Schedules/Topic Guides	Intrusive Imagery Interview; version 1	09 February 2007
Questionnaire: Interpretation of Intrusions Inventory (III-31)		
Questionnaire: YSQ-S1		
Questionnaire: Beck Anxiety Inventory		
Questionnaire: BDI-II	The Psychological Corporation	
Advertisement	Website advert	09 February 2007
Advertisement	for clinical population; version 1	09 February 2007
Advertisement	for healthy volunteers; version 1	09 February 2007
Letter of invitation to participant	to NHS Patients; version 1	09 February 2007
GP/Consultant Information Sheets	version 1	09 February 2007
Participant Information Sheet: for control group	version 1	09 February 2007
Participant Information Sheet: for clinical population	version 1	09 February 2007
Participant Consent Form	version 1	09 February 2007
Expression of Interest form	patients reply slip; version 1	09 February 2007
Yale-Brown Obsessive Compulsive Scale		
Yale-Brown Obsessive Compulsive Scale Symptom Checklist		
OCD Criteria		01 November 2002
SCID Screening Module		01 November 2002
Self Help Guide	Stress and Anxiety	
Self Help Guide	Obsessions and Compulsions	

### R&D approval

You should arrange for the R&D office at all relevant NHS care organisations to be notified that the research will be taking place, and provide a copy of the REC application, the protocol and this letter.

All researchers and research collaborators who will be participating in the research at a NHS site must obtain final approval from the R&D office before commencing any research procedures.

### **Membership of the Committee**

The members of the Ethics Committee who were present at the meeting are listed on the attached sheet.

### **Statement of compliance**

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

<b>07/Q0511/5</b>
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<b>Please quote this number on all correspondence</b>
---

With the Committee's best wishes for the success of this project

Yours sincerely

**Chair**

Email:

*Enclosures: List of names and professions of members who were present at the meeting and those who submitted written comments*

*Standard approval conditions*

*Copy to: Sponsor and Research Governance contact:*

*Camden and Islington Mental Health and Social Care NHS Trust*





**North Central London  
Research Consortium**

Research Operations Unit

General Enquiries:  
Office Fax:

13 March, 2007

Miss Michelle Lipton  
Trainee Clinical Psychologist  
University College London  
Sub - Department of Clinical Health Psychology

Dear Miss Lipton,

**REC Ref:** 07/Q0511/5

**Title:** Phenomenology of imagery in obsessive – compulsive disorder (OCD) and other anxiety disorders.

I am pleased to confirm that the above study has now received R&D approval, and you may now start your research in Camden & Islington Mental Health and Social Care Trust. May I take this opportunity to remind you that during the course of your research you will be expected to ensure the following:

- **Patient contact:** only trained or supervised researchers who hold the appropriate Trust/NHS contract (honorary or full) with each Trust are allowed contact with that Trust's patients. If any researcher on the study does not hold a contract please contact the R&D office as soon as possible.
- **Informed consent:** original signed consent forms must be kept on file. A copy of the consent form must also be placed in the patient's notes. Research projects are subject to random audit by a member of the R&D office who will ask to see all original signed consent forms.
- **Data protection:** measures must be taken to ensure that patient data is kept confidential in accordance with the Data Protection Act 1998.
- **Health & safety:** all local health & safety regulations where the research is being conducted must be adhered to.
- **Adverse events:** adverse events or suspected misconduct should be reported to the R&D office and the Ethics Committee.
- **Project update:** you will be sent a project update form at regular intervals. Please complete the form and return it to the R&D office.
- **Publications:** it is essential that you inform the R&D office about any publications which result from your research.
- **Ethics:** R&D approval is based on the conditions set out in the favourable opinion letter from the Ethics Committee. If during the lifetime of your research project, you wish to make a revision or amendment to your original submission, please contact both the Ethics Committee and R&D Office as soon as possible.

Please ensure that all members of the research team are aware of their responsibilities as researchers. For more details on these responsibilities, please check the R&D handbook or NoCLoR website:

<http://www.noclor.nhs.uk>

We would like to wish you every success with your project.

Yours sincerely,

Research Governance Manager

### Appendix 3: Screening Questionnaire and Intrusive Imagery Interview

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## Screening Questionnaire

Name \_\_\_\_\_

DOB \_\_\_\_\_

Gender:                      Male                      Female

Contact Details:

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<p><b>White British or White</b></p> <p>1 British</p> <p>2 Irish</p> <p>3 Scottish</p> <p>4 Welsh</p> <p>5 Other White</p>	<p><b>Asian British or Asian</b></p> <p>6 Indian</p> <p>7 Pakistani</p> <p>8 Bangladeshi</p> <p>9 Chinese</p> <p>10 Other Asian</p>
<p><b>Black British or Black</b></p> <p>11 Caribbean</p> <p>12 African</p> <p>13 Black Other</p>	<p><b>Mixed</b></p> <p>14 White &amp; Black Caribbean</p> <p>15 White &amp; Black African</p> <p>16 White &amp; Asian</p> <p>17 Other mixed background</p> <p>18 Other ethnic background</p>

Your ethnic origin \_\_\_\_\_ *(please state the number from the choice above)*

Are you currently taking any medication?                      Yes    No

If yes, please state reason for this, name and dosage

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How long have you been suffering with anxiety for? \_\_\_\_\_

Are you currently receiving any treatment for your anxiety?                      Yes    No

Have you had any treatment for your anxiety in the past?                      Yes    No

If yes, please state what treatment you are receiving/received

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## Intrusive Imagery Interview

### Section A – Characteristics Of Intrusive Images

Introduction to interview:

*OCD group: “I want you to think about a period in the last few weeks when you have been feeling particularly anxious or when your OCD has been bad - if necessary, close your eyes and recreate the scene. During this time/episode did you have any intrusive/disturbing or troublesome thoughts or images that ran through your mind?”*

*Anxiety group: “I want you to think about a period in the last few weeks when you have been feeling particularly anxious - if necessary, close your eyes and recreate the scene. During this time/episode did you have any intrusive/disturbing or troublesome thoughts or images that ran through your mind?”*

Explain pictures as mental representations with visual or non-visual components or sensations /impressions. Or, if can't recall....

*“Are there any thoughts/images that you try to avoid?”*

If images are identified...

*“Do these images come to mind spontaneously?”*

*“Do you experience them as repetitive events i.e. more than once monthly?”*

*“Do these images usually involve the same kinds of things?”*

If only thoughts and no images are identified – stop the interview here. If images are reported continue with interview.

*“I'd like to just focus on the images that you experience as troublesome ...considering those which happened within the past month...”*

**1. How often do you experience images in anxious situations/when you are anxious?**

- Never
- Sometimes
- Often
- Always

**2. How many different intrusive and repetitive images do you currently experience?**

**3. Have these changed over time?**

**YES/NO**

4. If yes, how are they different?

5. Can you briefly describe what you see in this/these images – I want to focus on main three you currently experience? (*ask about foreground and background and all people seen*)

<b>Image 1.</b>
<b>Image 2.</b>
<b>Image 3.</b>

6. Are there any thoughts and urges that go along with these images?

<b>Image 1.</b>
<b>Image 2.</b>
<b>Image 3.</b>

7. Are your intrusions more like an image, thought, impulse? *Talk more later...*

<b>What percentages make up</b>	<b>Images:</b>
	<b>Thoughts/Impulse:</b>

8. It is possible to answer this question? YES/NO

9. What is the most recurrent/typical image? (Image R)

10. Do you find any of these images distressing – if so, what is the most distressing image? (Image D)

11. In which way do you predominately experience the images?

Recurrent:	Distressing:
<input type="checkbox"/> Visual image	<input type="checkbox"/> Visual image
<input type="checkbox"/> Sensation	<input type="checkbox"/> Sensation
<input type="checkbox"/> Impression	<input type="checkbox"/> Impression

12. Where are you when you see these images (i.e. real life location)?

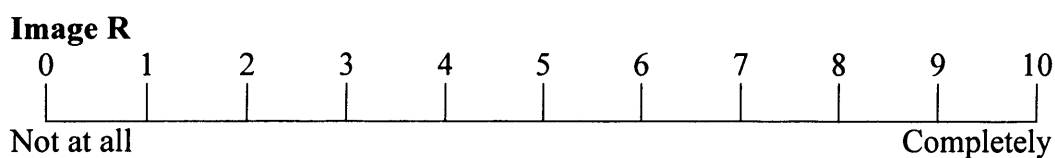
13. What are triggers for image?

<b>Image R.</b>
<b>Image D.</b>

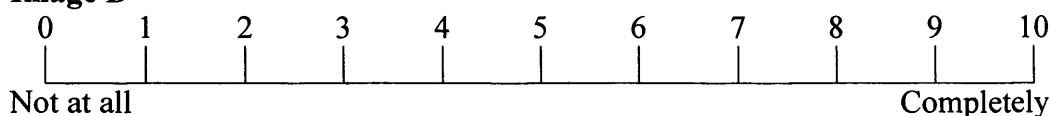
14. Any imagery in the trigger?

15. What do you try to do to avoid the obsessional/intrusive image? Any imagery in avoidance?

16. How distressing is/are the image/s?



**Image D**



**17. Any imagery in distress/anxiety caused?**

**18. What do you try to do to reassure yourself when you experience the obsessional/intrusive image? Any imagery in reassurance seeking?**

**19. Where are you in the image?**

<b>Image R</b>	<input type="checkbox"/> Self seen through your own eyes -field (1 <sup>st</sup> person perspective)	<input type="checkbox"/> Observing yourself as through an external point of view (3rd-person perspective)	<input type="checkbox"/> Alternating
<b>Image D</b>	<input type="checkbox"/> Self seen through your own eyes -field (1 <sup>st</sup> person perspective)	<input type="checkbox"/> Observing yourself as through an external point of view (3rd-person perspective)	<input type="checkbox"/> Alternating

**20. How many times did you experience the:**

**(a) Recurrent image in the last week?**

Never	Once	2-5 times	5-10 times	10-20 times	>20 times

**(b) Distressing image in the last week?**

Never	Once	2-5 times	5-10 times	10-20 times	>20 times

**21. How long did the image last for? (Image itself – not period of rumination)**

Recurrent

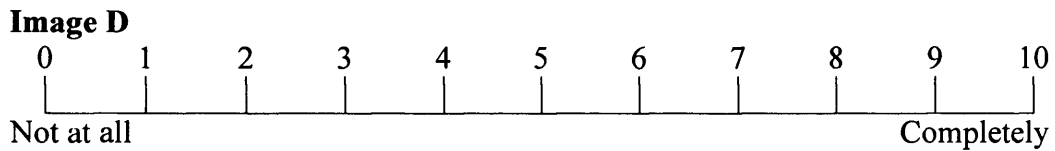
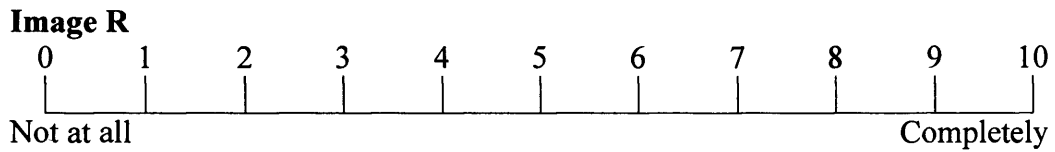
0-5 seconds	5-10 seconds	10-20 seconds	20-30 seconds	30-60 seconds	1-2 minutes	2-5 minutes	5-15 minutes	15-60 minutes	>1-2 hours

Distressing

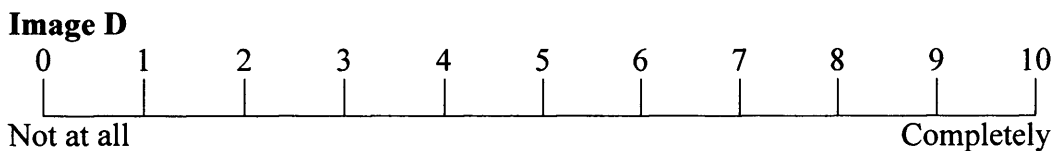
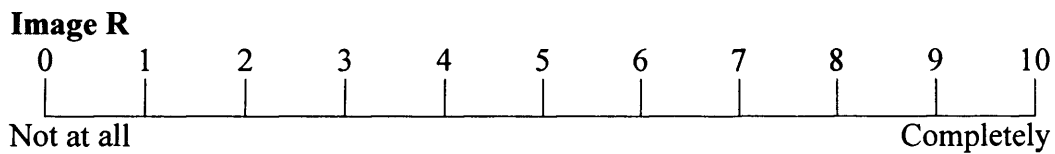
0-5 seconds	5-10 seconds	10-20 seconds	20-30 seconds	30-60 seconds	1-2 minutes	2-5 minutes	5-15 minutes	15-60 minutes	>1-2 hours



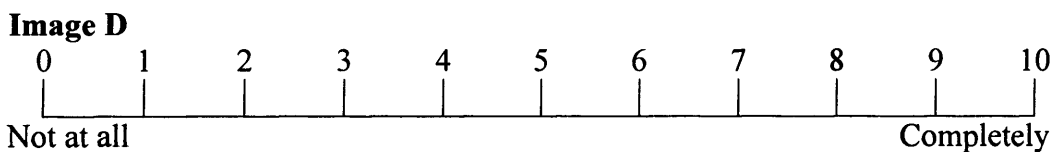
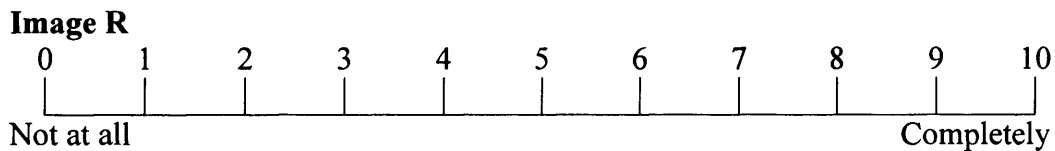
**22. How easily do they come to mind?**



**23. How vivid are they?**



**24. Do they have the characteristic of a clear visual picture?**



**25. Is it static, like a snapshot, is there a story or unconnected pictures?**

- |                |                                 |                                |   |
|----------------|---------------------------------|--------------------------------|---|
| <b>Image R</b> | <input type="checkbox"/> Static | <input type="checkbox"/> Story | <input type="checkbox"/> Unconnected pictures |
| <b>Image D</b> | <input type="checkbox"/> Static | <input type="checkbox"/> Story | <input type="checkbox"/> Unconnected pictures |

**RESPONSE/COMPULSION:**

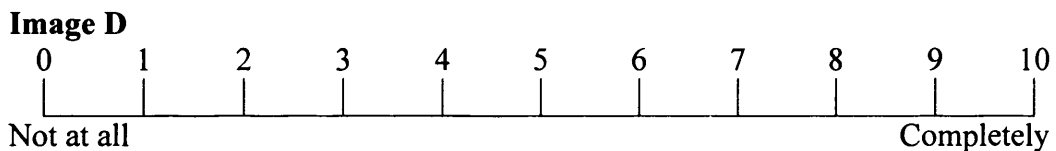
**26. Does the image make you want to do anything? OR What do you do in response to image to try and get it out of your head (any compulsions/other behaviours/mental acts)?**

<b>Image R.</b>
<b>Image D.</b>

**27. Any imagery in the response/compulsion-corrective/independent image?**

**YES/NO**

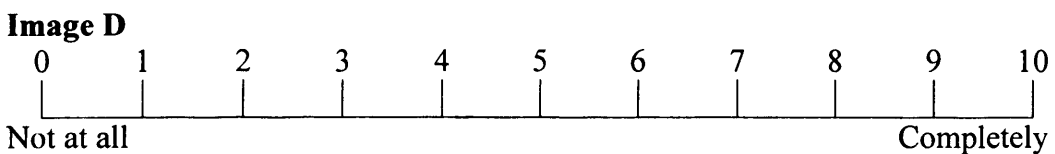
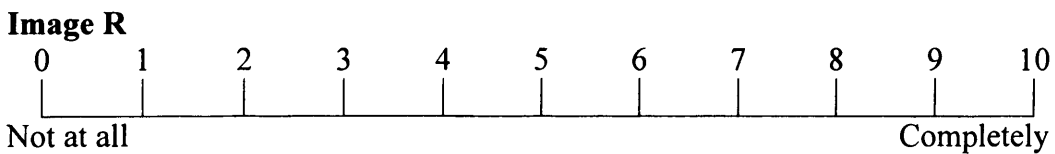
**28. How easy is to manipulate/create an alternative image?**



**29. Any disruptions to compulsion/response? Any imagery in this?**

**30. Failure to carry out compulsion/response – what will happen? Any imagery in this? (i.e. disaster image)**

**31. How uncontrollable was your image/s in the last week?**



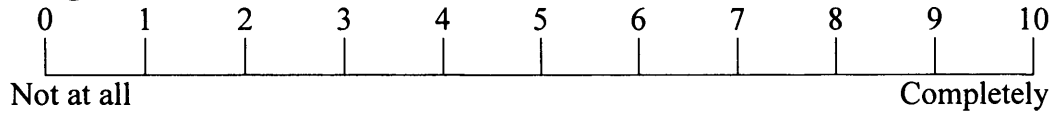
**32. Do you experience physical sensations when you have these images?**

**YES/NO**

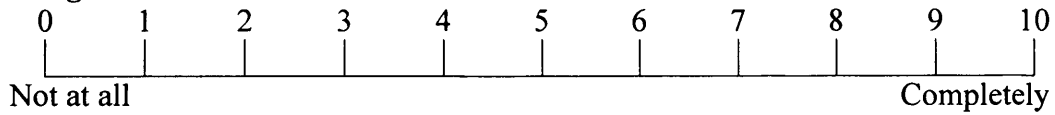
<b>Image R</b>	
<b>Image D</b>	

**33. If yes, how strong are these sensations?**

**Image R**



**Image D**



**34. Can you hear anything when you have this image?**

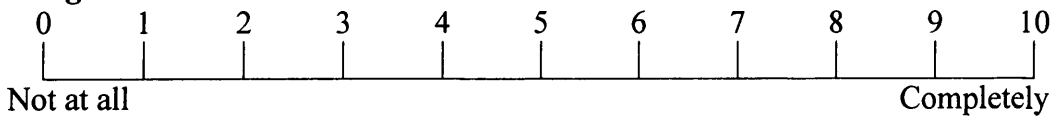
**YES/NO**

**35. What kind of sounds are these?**

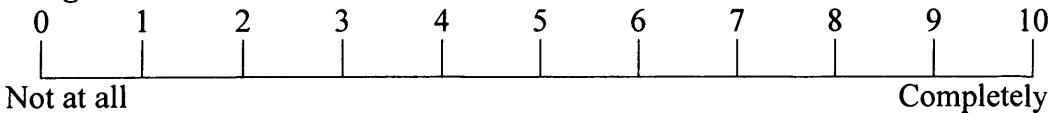
<b>Image R</b>	
<b>Image D</b>	

**36. If yes, how strong are these sounds?**

**Image R**



**Image D**



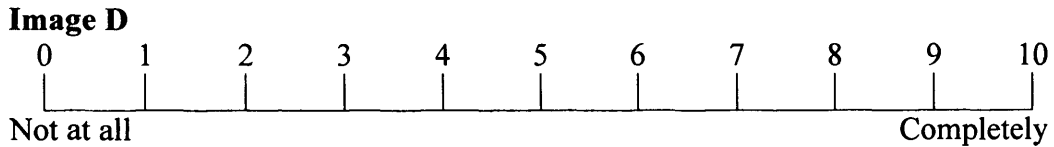
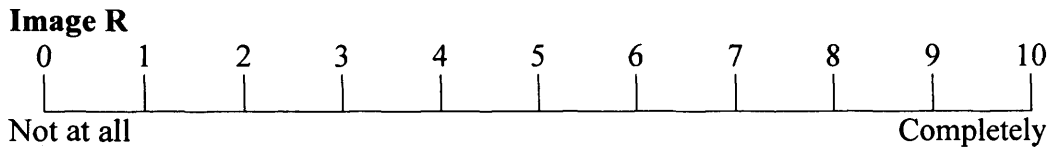
**37. Can you smell anything when you have this image?**

**YES/NO**

**38. What kind of smells?**

<b>Image R</b>	
<b>Image D</b>	

39. If yes, how strong are these smells?

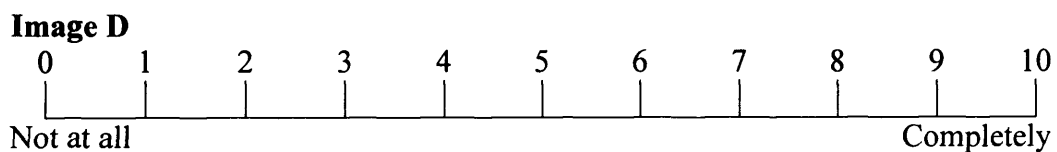
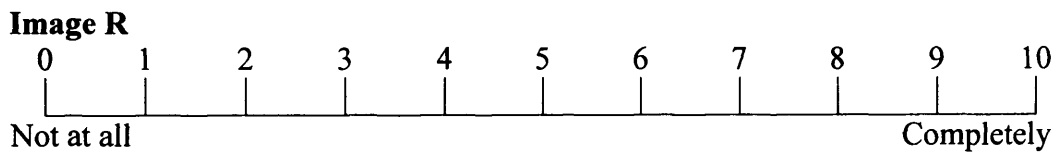


40. Can you taste anything when you have these images? YES/NO

41. What kind of tastes?

<b>Image R</b>	
<b>Image D</b>	

42. If yes, how strong are these tastes?



Section B - Images & Impact/Appraisal:

43. On the same scale (0-10) what emotions do you associate with this image/s and to what extent?

<b>Image R</b>		<b>Image D</b>	
Sad:		Sad:	
Guilty:		Guilty:	
Ashamed:		Ashamed:	
Disturbed:		Disturbed:	
Angry:		Angry:	
Anxious:		Anxious:	
Fearful:		Fearful:	
Other:		Other:	

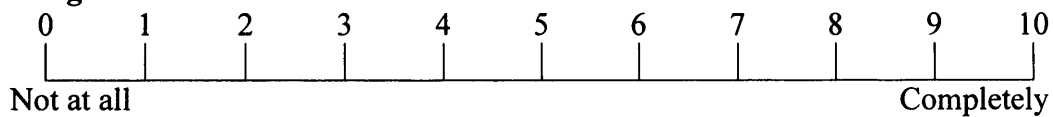
**44. What does the image mean about you?**

**45. What does the image mean about other people?**

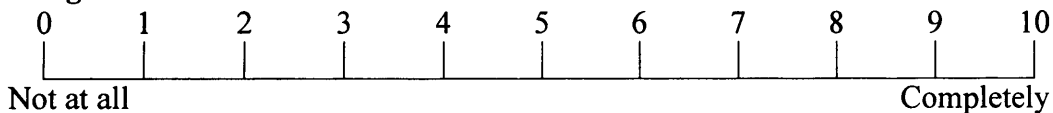
**46. What does the image mean about the world in general?**

**47. How much did these image/s interfere with your daily life OR stop you from doing things over the past week?**

**Image R**



**Image D**



Section C - Images & Memory:

**48. When did you first experience the recurrent/distressing image?**

**49. Where were you? How old were you?**

**50. What was happening in your life at the time?**

**51. Has there been a particular memory that is closely linked to the recurrent/distressing image?**

**YES/NO**

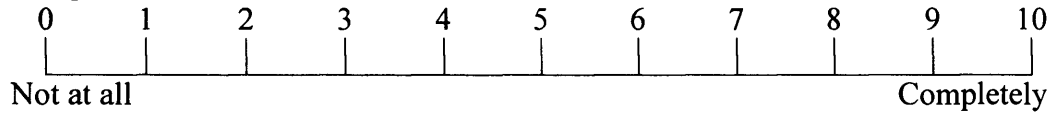
**52. If no, where do you think the image/s have come from?**

**53. If yes, is this directly a memory or associated with adverse events?**

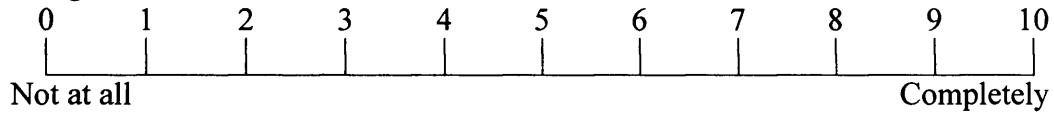
**54. How old were you in this memory?**

**55. How similar are the image & memory?**

**Image R**



**Image D**



**56. Have you thought about the similarity of the image and memory before?**

**57. Any final comments?**

## Appendix 4: Coding Frame and Transcripts

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### Coding Frame for Content of Obsessional/Intrusive Images

THEME	Description	Examples
Unacceptable ideas of harm	Aggressive/violent harm coming to others or oneself	-Images of the aftermaths of stabbings, plane crashes.  -Being involved in an accident/being violently attacked
	Mental insanity/catastrophe	-Going mad/losing control/being sectioned/locked up
	Writing inappropriate material or hurting someone's feelings	-Upsetting someone by saying wrong thing Sending a racist/inappropriate email.
	Death and decay	-Images of death, dead people, mutilated bodies, rotting foetuses
	Forbidden or perverse sexual desires	-Sexual contact with strangers, family or friends/bestiality/ paedophilia/incest
	Being responsible for a disaster happening	-Images of a fire or burglary because of not being careful enough in checking the home
	Failure to protect others from harm	-Incapable of looking after vulnerable others
	Acting on unwanted impulses	-Images of driving a car into another vehicle, stabbing a loved one, shouting obscenities in public situations of religious/sexual nature
	Self harm/suicide	-Violent self-harm and suicide
Contamination and somatic complaints	Contamination from dirt or germs or animals.	-Contamination on objects or body parts as a result of shaking hands, touching objects. by an insect, dog, cat or other animal.
	Self or close others contracting a deadly illness/disease/being sick.	-Images of contracting cancer, heart disease or AIDS, being violently sick.
	Physical sensations of anxiety	-Images of panic, sweating, shortness of breath, heart racing, nausea
	Consequences of being ill	-Catastrophe, no-one around to help/leaving others behind.
Miscellaneous/Other	Lucky and unlucky numbers, superstitious fears. Mental nonsense sounds, music/words and certain colours.	-Superstitious fears connected to particular people. Random pictures of different and benign objects.  -Other imagery
Social rejection	Social humiliation or rejection	-Embarrassment, appearing foolish or weird, disapproval, poor social performance.



## Transcripts

Examples of content, inferences about the self, world and others and associated memories according to the four main themes.

### Theme 1: Unacceptable ideas of harm

#### OCD participant:

*Intrusive Image: When I am on a bus or when I think in my mind's eye about being on a bus, when it starts to fill up or moves away from a safe area, I visualise myself punching or banging kids head together; if there was a little old lady, it would be instant killing with one punch; if there was a women with a baby it would be an act of violence, and then I would see the implications of me making a show of myself trying to get off the bus and getting away from the situation. Beliefs about the self, others and the world: Am I a psychopath? But I know that I am not capable of it as I have high moral standards; other people are vulnerable and fragile; no greater picture about the world. Associated memory: Being attacked by a group of men when on leave from the army; witnessed bombs going off and remember the screaming; grew up in a violent household, I used the get the s\*\*t kicked out of me, I remember feeling the fear and terror.*

## Theme 2: Contamination and somatic complaints

### OCD participant:

*Intrusive Image: For example, if a customer comes to the shop, and I serve them and he/she blows their nose ... and touches a product which I have to touch too, I just think it's dirty and then I have to process the sale and touch the computer keyboard and till, all are then dirty ... I can't see anything but I imagine something sticking to the keyboard or the till or dirty things I, can't physically see anything but I feel it. It's not so much sticky but dirty, if I say a colour its brown or yellow, like air or a bit like a mist ... but no smell just feels dirty. Beliefs about the self, others and the world: It does not make sense to me, it makes me sad – I am very frightened, I have a disorder; I don't want others to be part of my life – I am not sure, people are offensive to sneeze on me; I don't know what is says about the world. Associated memory: When I was 8 or 9 years old, I was in school and there was a kind of doctor or nurses room and in front of this room ... they put one picture ... suggesting for children to wash their hands after they play or something ... and they visualised yellow things in the picture where the child touched inside the room, so the wall or chair or cup or whatever she touched it's made in the picture with the yellow marks ... its dirty, so it was teaching the children you have to wash your hands. For me it was scary. I wish I did not see that picture.*

### Anxiety control participant (health anxiety):

*Intrusive Image: When I get a symptom I picture an ambulance coming and I see millions of people round a hospital table, kind of rushing in and panic and people not knowing what's going on, and I kind of see that quite visually, or I see, like I said*

*I was at this place on holiday down the end of a lane, I'll see the ambulance trying to get down the lane ... the backdrop differs but the core of the image is always the same .... but it's always from my point of view ... I don't know what the people are saying, but it would kind of be the idea that someone is saying, don't worry it will be alright and perhaps the distant sound of a siren. Beliefs about the self, others and the world: I don't think I am crazy, I just do things differently; other people are incompetent, they don't do things as well as I would; nothing about the world. Associated memory: Not known.*

### Theme 3: Miscellaneous/Other

#### OCD participant:

*Intrusive Image: I see pointless words ... I see the object of what it is rather than the word, for example, I see curtains, but not necessarily floating about but next to the window or sand dunes, you know absolutely stupid things, but I would not see them in a crazy sort of way, but in an everyday sort of way, just as they are. I also see colours and pictures of words, so the word red would be in red, and the word yellow would be in yellow... I call it mind chatter, absolute rubbish that goes through my head, like everyday things, and it gets bad when there is a lots of stress around, it's absolutely mundane pictures, I can't put my finger on it, like I said curtain, microwave and washing basket, stupid things that come into your head. Beliefs about the self, others and the world: I am crazy; nothing about others and the world. Associated memory: Not known*

#### Theme 4: Social rejection

##### Anxiety control participant (social phobia):

*Intrusive Image: I imagine being at a party, and others' jeering faces staring at me, a bit like almost grotesque, caricatures, like punch cartoons. There are about 6-12 people, there is no detail, just a blurry amalgam of faces ... I can't see myself, only others staring at me and I am the centre of attention like a rabbit caught in headlights. I can also hear faint sounds of a party, like soft music, chatter and glasses clink. Beliefs about the self, others and the world: I have problematic relationships with the world and I am isolated, I am in the world with my skin on inside out; people can be mean, nasty, judgmental and laugh at you; nothing about the world, says more about me. Associated memory: Nothing specific it's all just an amalgam of times when I felt uncomfortable about things I have done you know really minor faux pas that I may have made, but can't seem to forget about them, but nothing big.*