Do Obsessions and Compulsions Exist Among Outpatients with Social Anxiety Disorder?

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Lokaverkefni til cand. psych-gráðu

Sálfræðideild

Heilbrigðisvísindasvið

HÁSKÓLI ÍSLANDS

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Abstract

Recurrent intrusive images exist across mental disorders. However, the specific content of intrusive images varies depending on disorders. Theoretical models of how intrusive images develop into clinical obsessions are primarily cognitive-behavioral therapy (CBT) models on how obsessive-compulsive disorder (OCD) develops. In this study, it was hypothesized that individuals with social anxiety disorder (SAD) were likely to react to intrusive images with compulsive behaviors (including neutralizations). Participants were 32 outpatients (*M* age = 29; *SD* = 11.8; 53.1% female) at an anxiety treatment center in Iceland diagnosed with SAD (according to the Mini International Neuropsychiatric Interview; MINI). Participants were interviewed with a semi-structured interview to assess imagery in SAD, which was adapted to focus specifically on reactions to intrusive images. Sixty-two percent of the participants reported experiencing intrusive images with 90% of those patients reporting at least one compulsive and/or neutralizing strategy in response to the intrusive image. This initial study is a first step toward establishing that obsessions and compulsions may exist in SAD as a maintaining process. There appear to be greater similarities between SAD and obsessive-compulsive spectrum disorders such as OCD and BDD than previously believed. Future directions and treatment implications are discussed.

Keywords: Obsessions, compulsions, neutralization, social anxiety disorder.

The great majority of people experience unwanted intrusive thoughts, often in the form of an image or an impulse (Julien, O'Connor, & Aardema, 2007). It is important to distinguish unwanted intrusive thoughts from other kinds of clinically-significant thoughts, such as worries and ruminations. Intrusive thoughts pop up into awareness and often cause a significant emotional reaction, which usually interferes with ongoing cognitive or behavioral activity. Depending on how individuals react to intrusive thoughts, they can become recurrent, and, over time, develop into clinical obsessions, which are distinguished from the former by being more frequent, evoking a stronger emotional reaction, and, consequently, a greater behavioral reaction from the individual (Clark & Rhyno, 2005).

The most influential model of how unwanted intrusive thoughts develop into clinical obsessions is the cognitive-behavioral therapy (CBT) model of how obsessive-compulsive disorder (OCD) develops (see, e.g., Clark & O´Connor, 2005) and disorders on the so-called OC-spectrum, such as body dysmorphic disorder (BDD; e.g., Phillips et al., 2010). According to the model, a person is likely to react to such unwanted intrusive thoughts (e.g., an image of the individual molesting a child) if he or she appraises the image in a certain way (e.g., that the person may be immoral and even dangerous by virtue of having the thought) due to pre-existing beliefs (e.g., thought-action fusion and over-valued responsibility of harm). The person, consequently, is likely to react to the thought with a thought control or compulsive strategy (Rachman, 1997; Salkovskis, 1999). Compulsions are either overt (e.g., checking the stove) or covert (e.g., counting silently) strategies that the individual often feels compelled to do in response to the unwanted intrusive thought, and in order to reduce anxiety and other distress caused by the thought (Berman, Abramowitz, Pardue, & Wheaton, 2010; Ruscio, Stein, Chiu, & Kessler, 2010). Compulsive strategies are often repetitive (e.g., checking the stove repeatedly), since they often only result in short-term reduction in distress (Van den Hout, & Kindt, 2003). One

type of a compulsive behavior is neutralization, which is meant to reduce the anxiety experienced by a negative thought or action (e.g., replacing a shocking image with another image; Rachmann, 1997). These strategies are likely to reduce distress momentarily, which then serves as negative reinforcement for the strategy. However, no new learning (e.g., discovering that the thought is unrealistic) occurs, and the unwanted intrusive thought can strengthen over time and develop into a clinical obsession (e.g., Rachmann, 1998). The underlying beliefs that are thought to be specific to the development of OCD, such as thought-action fusion and overvalued responsibility, might be based on early attachment insecurities and valued aspects of the self (see e.g., Doron, Sar-El, & Mikulincer, 2012; Rowa, Purdon, Summerfeldt, & Antony, 2005).

In the last four decades empirical investigations have reported the existence of recurrent unwanted intrusive thoughts, images, and impulses in a variety of psychological disorders (e.g., Brewin, Gregory, Lipton, & Burgess, 2010). This raises the question of whether obsessions and compulsions are a maintaining factor in other mental disorders that have not been associated with OCD? (Bjornsson & Phillips, 2014). Although there are limited research studies comparing OCD patients with other clinical samples, there is some evidence supporting that patients with other anxiety disorders employ similar strategies as OCD patients (Ladouceur et al., 2000; for a review, see Berry & Laskey, 2012). Nonetheless, there are differences between these clinical groups as well (e.g., OCD patients are more likely to repeat a strategy; Ladouceur et al., 2000). However, the focus of these studies has been on OCD, and the possibility of the existence of obsessions and compulsions across mental disorders has not, to our knowledge, been explored. It is important to explore this possibility, since obsessions and compulsions may be a maintaining process across mental disorders and diagnostic categories, with important theoretical and clinical implications.

One type of unwanted intrusive thoughts that has been clearly demonstrated to exist across mental disorders is unwanted intrusive images (see e.g., Brewin, et al., 2010; Hackmann, Bennett-Levy, & Holmes, 2011). Intrusive images are usually vivid, unexpected, and cause significant distress (Rachman, 2007). Furthermore they are often brief (i.e., lasting a few seconds), frequent, repetitive (Speckens, Hackmann, Ehlers, & Cuthbert, 2007), they can be triggered by both internal and external cues and evoke various negative emotions (Holmes, & Mathews, 2005). Furthermore, intrusive images seem to have a greater effect on emotions than verbal thoughts such as worrying (see Hackmann et al., 2010), and often a strong relationship with autobiographical memories (Conway & Pleydell-Pearce, 2000). Although intrusive images are often experienced as visual sensations, other sensory modalities such as olfactory, gustatory, auditory, touch, and bodily sensations have also been reported (see e.g., Speckens, et al., 2007).

In a study by Speckens, et al., (2007) intrusive images were reported by 81% of patients with OCD, and most (79%) of these intrusive images where associated with memories of an adverse event. However, another study revealed that the link between images and memories was weaker in an OCD sample compared to an all anxiety disorders control sample (Lipton, Brewin, Linke, & Halperin, 2010). Various intrusive imagery themes have been reported in patients with OCD including fear of insanity, unacceptable sexual images, violent images, blasphemous, social rejection, contamination and somatic complaints (Lipton, et al., 2010; Rachman, 2007). As previously mentioned, intrusive images are frequent in other mental disorders and images have a specific thematic content in each disorder. For example, studies have revealed that recurrent intrusive images are present in posttraumatic stress disorder (PTSD), health anxiety and agoraphobia (Brewin, et al., 2010). In PTSD, patients often experience intrusive sensory images, often referred to as “flashbacks" (Brewin & Holmes, 2003). Flashbacks refer to a moment in the trauma

memory known as “hotspots”, which are only a small part of the traumatic memory but are believed to be the moment in which the individual experiences the most distress (Holmes, Grey, & Young, 2005). Individuals with health anxiety often report that the content of intrusive images pertains to physical catastrophes that are believed to increase negative appraisal of health and diseases (Muse, McManus, Hackmann, Williams, & Williams, 2010). Intrusive images pertaining to physical catastrophes are also reported by individuals with agoraphobia, in addition to themes about separation from other people and beliefs that no one will assist or help them (Day, Holmes, & Hackmann, 2004). Other mental disorders where these specific thematic contents of intrusive imagery exist are for example major depressive disorder, panic disorder, BDD, eating disorders, bipolar disorder, social anxiety disorder (SAD), and specific phobias (Brewin et al., 2010; Hackmann et al., 2011).

In the theoretical and research literature it is often assumed that individuals with anxiety disorders respond to images with avoidance (Shear, Bjelland, Beesdo, Gloster, & Wittchen, 2007, Lang, Davis, & Öhman, 2000), and safety-seeking behaviors (see Hackmann, Clark, & McManus, 2000). Safety behaviors are overt (e.g., preparing extensively for a presentation) or covert (e.g., rehearsing sentences silently in ones mind) strategies that are aimed at preventing feared outcomes (such as being embarrassed; Thwaites & Freeston, 2005). These feared outcomes are perceived to be more harmful than they actually are. These behaviors are thought to be a maintaining process in anxiety disorders (Morgan & Raffle, 1999; Powers, Smits, & Telch, 2004; Thwaites & Freeston, 2005), in part because they may interfere with learning from experience and the absence of the feared outcome may be misattributed to the safety behaviors (Plasencia, Alden, & Taylor, 2011). When patients with SAD are instructed to drop their safety behaviors it appears to result in greater reduction of symptoms (Clark et al., 2006; Morgan & Raffle, 1999; Wells et al., 1995).

It is important to point out that avoidance and safety behaviors also play an important role in maintaining OCD symptoms (Clark, 2004). However, obsessions and compulsions are thought to be the primary process in the development and maintenance of OCD (American Psychiatric Association [APA], 2013). The phenomenological literature offers little clarity in distinguishing between compulsive strategies and safety behaviors. Although there is a great deal of overlap between the two behaviors (e.g., repeatedly checking the stove can be both a safety behavior and a compulsive strategy) there is nevertheless a meaningful distinction between compulsions and safety behaviors. Compulsions are rigid strategies that the individual feels compelled to conduct in response to intrusive thoughts in an attempt to reduce distress in the moment caused by the intrusive thought and, thereby, restoring homeostasis (i.e., present-focused), versus safety behaviors as a more flexible way of preventing something bad from happening (i.e., future-focused; e.g., Helbig-Lang & Peterman, 2010; Veale & Neziroglu, 2010). Another distinguishing feature is that safety behaviors are not necessarily repetitive while compulsions often are (Van den Hout, & Kindt, 2003).

The current research project is built on the assumption that the most parsimonious framework for understanding how unwanted intrusive images become recurrent, and, develop into clinical obsessions across disorders, is the general CBT framework of how OCD develops and is maintained. In other words, presumably there are similar appraisal processes of intrusive images at work across different disorders, which evoke compulsive strategies. However, although some of the underlying beliefs (e.g., some aspect of thought-action fusion) may be similar, presumably the underlying beliefs, which may often be rooted in attachment patterns, are likely different between disorders. In addition, there are likely to be specific appraisal processes for each disorder in addition to the more common ones (such as thought-action fusion).

Social anxiety disorder (SAD), which is characterized by an excessive fear of being embarrassed or humiliated in social situations (APA, 2013), is a very common disorder. According to one study it is the second most prevalent psychiatric disorder in the United States (Kessler, Chiu, Demler, & Walters, 2005). SAD has been associated with decreased quality of life (Stein & Kean, 2000), ability to work and functioning (Ruscio et al., 2007), and increased risk of suicidal ideation and suicide attempts (Cougle, Keough, Riccardi, & Sachs-Ericsson, 2009). Individuals with SAD often experience intrusive images that are thought to be directly linked to memories of past traumatic events (Hackmann, et al., 2000). Past studies have found that individuals with SAD will often see the image from an observer perspective (seeing themselves from the perspective of an audience), and the content of the image often centers around being in a social situation in which they are being criticized by others, or even bullied or humiliated, or in which no one is interested in them (Hackmann, et al., 2000; Wells, Clark, & Ahmad, 1998). Images in SAD can be triggered by external cues, thoughts, or physical sensations. Furthermore, individuals with SAD often report that the image is usually experienced as intrusive and as if what is happening in the image is actually taking place (Hackmann et al., 2000; Wells & Papageorgiou, 1999). However, very little research exists on how individuals with SAD respond to intrusive images and it is usually assumed that these individuals respond with avoidance and safety behaviors (see Clark & Wells, 1995; Hackmann et al., 2000).

Is it possible that some individuals with SAD react to intrusive images with compulsions and neutralizing behaviors? Are obsessions and compulsions a maintaining process in SAD as Bjornsson & Phillips (2014) propose? People with SAD often have high social standards (Hofmann, 2007), high degree of perfectionism in social situations (Frost, Glossner, & Maxner, 2010) and fears of revealing self-attributes that are viewed as faulty or inadequate (Moscovitch, 2009). They often long for rewarding interpersonal

relationships but do not feel they have what it takes to initiate or maintain such relationships (Alden & Regambal, 2010). Individuals with SAD are, therefore, likely to interpret intrusive images that center around rejection and humiliation as carrying a fundamental meaning about them in relation to other people, and their chance of having successful relationships (romantic and other) in the future. In addition, individuals with SAD have often had socially traumatic experiences in which they have actually been humiliated, which is taken as evidence for these fundamental beliefs (Hackmann et al., 2000). As in other mental disorders, intrusive images in SAD have a specific content. According to Hackmann et al. (2000), recurrent images are associated with specific memories that can be classified under broad themes. The themes pertain to the fear of being criticized, experiencing anxiety symptoms and worrying that others will notice these symptoms, and feeling uncomfortable in social situations as a consequence of past criticism.

Current CBT theoretical models of SAD have incorporated images in some form, for example Clark and Wells cognitive model of SAD (1995). Intrusive images can elicit anxiety in individuals in numerous ways. An intrusive image can become activated before an individual enters a dreaded situation. The intrusive image most likely represents what the individual fears (e.g., to be humiliated in the situation), and will, therefore, elicit anxiety and fear. Once in the dreaded situation, the fear response (e.g., sweating and blushing) can reinforce the intrusive image. The individual is likely to turn his or her attention inward (self-focused attention), which can contribute to actual performance deficits (Clark & Wells, 1995). However, much more theoretical work is needed on intrusive images in SAD. Especially how individuals appraise and react to such and other types of intrusive thoughts (and it is likely that much can be learned from CBT models of OCD), and whether obsessions and compulsions are a maintaining process in SAD and other mental disorders?

In this study, reactions to intrusive images in SAD were assessed. We wanted to replicate studies on images in SAD (especially Hackmann et al., 2000), but further explore how individuals react to the intrusive images, and whether individuals perform at least one strategy that would meet minimal criteria for a compulsive and/or neutralizing behavior (i.e., conducted in order to reduce distress in the moment, and feeling compelled to do the behavior at least 50% of the time).

Method

Participants

Participants were 32 outpatients seeking treatment at an outpatient anxiety center (i.e., Icelandic Center for Treatment of Anxiety Disorders) specializing in CBT for anxiety disorders, SAD in particular. Age ranged from 18 to 66 years (M = 29 years; see Table 1). About half (53.0%) of the participants were females.

Table 1.
Background variables of the sample. (n = 32).

Characteristic	***M (SD)***
Age	29 (11.8)
Gender	**Frequency (%)**
Female	17 (53.1%)
Nationality	
Icelandic	32 (100%)
Education	
Secondary school	15 (46.9%)
Vocational education	3 (9.4%)
Junior College	10 (31.3%)
Bachelor degree	4 (12.5%)
Student status	
Currently a student	11 (42.3%)
Marital status	
Married or living with a partner	14 (43.8%)

The inclusion criteria consisted of being 18 years of age or older, diagnosed with SAD, and having the ability to understand and tolerate the questions on the clinical interviews and self-report measures. Participants with SAD were offered to be part of CBT group therapy at the center at a lower price for their participation in the study. The National Bioethics committee of Iceland approved the study.

Measures

The Imagery Interview is a non-invasive semi-structured clinical interview, which is based on earlier versions of imagery interviews (Hackmann, et al., 2000; Lipton et al., 2010) but was adapted to focus more specifically on reactions to intrusive images. First, the concept of images was explained to each participant (with examples) as cognitions that have sensory components. The interviewer then asked the participant if he had experienced recurrent intrusive images (i.e., unwanted and uncomfortable images that intrude upon consciousness) in the past six months. If the participant had experienced recurrent intrusive images, he was asked about his most frequent image in more detail. The participant was asked to bring the image to conscious awareness and describe it to the interviewer. Furthermore, the participant was asked about the sensory modality/modalities (i.e., sight, sound, smell, taste, touch, bodily sensations, and/or other) in which he experienced the image, and whether he observed the image from his own perspective versus from an external point of view (or a mixture of both). The interviewer asked the participant what emotions he experienced in response to the image and to what extent (on a scale from 0 – 10). Thereafter, the interviewer asked the participant whether he attached any meaning to the image, and, if so how the participant appraised the image and if the image meant anything about them, other people, and/or the world or future. The participant was also asked whether he believed that meaning to be true, and whether he experienced the image as really taking place, whether it is a premonition of something, and if he was afraid something bad would happen if he allowed it into his mind. Next, the participant was asked with an open-ended question what he does in response to the recurrent intrusive image. Participants were then asked about specific strategies in the following categories (this list was based, in part, on Ladouceur et al., 2000): a) Overt compulsions (e.g., checking behavior), b) reassurance seeking, c) mental compulsive behaviors (e.g., repeating

sentences), d) neutralizing and thought control strategies (e.g., thought stopping, replacing the image with another image), e) safety behaviors (e.g., spending a lot of time preparing), f) behavioral avoidance (e.g., leaving the situation that triggered the image), g), coping behaviors (e.g., trying to relax), and, h) doing nothing.

It is important to note that strategies were not considered *a priori* to belong to any one of those categories. Each participant was asked follow-up questions about 1–3 strategies that seemed likely to be compulsive and/or neutralizing behaviors, in order to assess whether they met the following criteria: Whether the strategies were conducted in order to reduce distress in the moment and whether participants felt compelled to do the behaviors at least 50% of the time (which is a minimal threshold for being considered compulsive and/or neutralizing behaviors). Each participant was asked whether he tended to repeat the strategy (which is common in OCD, but not a necessary condition for a compulsive behavior), how much time the strategy took, why he performed the behavior (i.e., to reduce distress, to prevent something bad from happening, or for some other reason), how successful he believed the strategy to be (both short-term and long-term), if he felt compelled to do the strategy, if he felt like he had control over it, if he attempted to perform the strategy in the same way every time, and what would happen if he would not conduct the strategy.

The Mini International Neuropsychiatric Interview (MINI; Sheehan et al., 1998): The MINI is a brief semi-structured diagnostic interview of Axis I disorders according to the DSM-IV (4th ed.; *DSM-IV*; APA, 2000). The MINI has been shown to have high reliability, with kappas (κs) in the high to very high range, with good sensitivity and specificity for all diagnoses with the exception of generalized anxiety disorder (κs = 0.36), agoraphobia (κs = 0.59), and bulimia (κs = 0.53) (Lecrubier et al., 1997). The MINI has strong reliability and validity in relation to the Structured Clinical Interview for DSM-IV

(SCID-IV), with inter-rater reliabilities ranging from κs =.89–1.0 (Sheehan, et al., 1998). An Icelandic version of the MINI was used in this study.

Body Dysmorphic Disorder Diagnostic Module (BDD-DM; Phillips, 2005). The BDD-DM, is a brief semi-structured interview, designed to diagnose body dysmorphic disorder (BDD) and has good psychometric properties, including high inter-rater reliability (κs= .96; Phillips, 2005). One question, concerning BDD behaviors (such as mirror checking), was added to the current study, in collaboration with the author of BDD-DM, Dr. Katharine Phillips, in order to diagnose BDD according to the fifth edition of DSM (APA, 2013). Two individuals (advanced graduate students in psychology) translated the BDD-DM from English to Icelandic and the primary investigator (Andri Steinþór Björnsson), an expert in BDD, combined the two translations into one final version.

Liebowitz Social Anxiety Scale (LSAS). LSAS is a semi-structured brief interview that measures anxiety and/or fear, and avoidance in 24 social situations. The participant is asked to rate anxiety and/or fear, and avoidance during the last week on a 0–3 point Likert scale. Summing the total anxiety and/or fear, and total avoidance gives an overall score, which is thought to be a measure of symptom severity. LSAS is reliable, has high construct validity and is a treatment sensitive measure of SAD (Heimberg, et al., 1999). Two individuals (advanced graduate students in psychology) translated the LSAS from English to Icelandic and the primary investigator (Andri Steinþór Björnsson) combined the two translations into one final version.

Sheehan Disability Scale is a brief self-report questionnaire that assesses functional impairment in three domains: Work/school, social, and family life. The three domains are measured on an 11-point Likert type scale ranging from 0 (not at all) to 10 (extremely). The questionnaire has high correlation with symptoms of SAD and major depressive disorder. Sheehan Disability Scale has high internal and test-retest reliability, and good construct

validity (Leon, Olfson, Portera, Farber, & Sheehan, 1997). Two individuals (advanced graduate students in psychology) translated the Sheehan Disability Scale from English to Icelandic and the primary investigator (Andri Steinþór Björnsson) combined the two translations into one final version.

Quality of Life Scale (QOLS) is a 16-item self-report questionnaire that measures quality of life on a seven point Likert-scale ranging from 7 (delighted) to 1 (terrible). The five conceptual domains that the questionnaire measures are: Social and community activities, material and physical well-being, relationships with other people, personal development and fulfillment, and recreation. Researches have shown that the QOLS has good reliability and validity (Liedberg, Burckhardt, & Henriksson, 2005). We used an Icelandic translation of the QOLS. This version of the QOLS has been shown to have good internal reliability (Cronbach's alpha = .89) and good test-retest reliability (r = .72; Hrafnsson & Guðmundsson, 2007).

Social Phobia Weekly Summary scale (SPWSS). SPWSS is a six-item weekly summary scale that assesses social anxiety, social avoidance, self-focused versus external attention, anticipatory processing, and post event rumination. SPWSS has good internal reliability (Cronbach's alpha = .81; Clark et al., 2006). Two individuals (advanced graduate students in psychology) translated the SPWSS from English to Icelandic and the primary investigator (Andri Steinþór Björnsson) combined the two translations into one final version.

The Patient Health Questionnaire-9 (PHQ-9) is a 9-item self-report questionnaire that assesses depressive symptoms and the severity of those symptoms. Each item can be scored from 0 (i.e., not at all) to 3 (i.e., nearly every day). Research has shown that PHQ-9 has excellent internal reliability (Cronbach alpha from .86 to .89) and test-retest reliability has been shown to be good (r = .84; Kroenke, Spitzer, & Williams, 2001). Two individuals

(advanced graduate students in psychology) translated the PHQ from English to Icelandic and the primary investigator (Andri Steinþór Björnsson) combined the two translations into one final version.

Procedure

Participants were recruited with advertisements on the Icelandic Center for Treatment of Anxiety Disorders homepage and other online social media such as Facebook. Participants in the SAD group were asked to sign an informed consent form. As part of the consent form, participants were asked for permission to have the assessment sessions audiotaped for supervision and reliability purposes. All participants were informed of their right not to consent to the taping of these sessions. All assessments were documented on laptop computers using the RedCap database, an encrypted, electronic database that is HIPAA compliant, and stored on secure servers.

Trained assessors conducted the Imagery interview M.I.N.I., BDD-DM, and LSAS, and administered self-report questionnaires (see above). The assessors were experienced psychologists or advanced graduate students in clinical psychology. The graduate students and one psychologist received thorough training from Dr. Andri Bjornsson in conducting the clinical interviews, including reviewing administration manuals, sitting in on assessment sessions (conducted by Dr. Bjornsson), and completing mock interviews. Assessors received weekly supervision on administering the clinical interview. Weekly consensus meetings were held throughout the study in which each interview was discussed until consensus agreement (including differential diagnoses considerations) was reached.

Statistical Analyses

Data analyses were conducted using R studio statistical software (www.project-redcap.org). All variables of interest were screened for deviations from normality and univariate outliers. Generalized SAD was defined as having moderate or high anxiety

and/or fear in at least 12 situations, in addition to a total score of 60 or higher on the LSAS. Descriptive statistics were examined by computing frequencies and percentages, means and standard deviations for demographic and clinical variables. Two sided T-tests with an alpha level of .05 were used to compare those experiencing intrusive images and who responded to the image with at least one compulsive behavior (according to the previously discussed criteria) against those that did not experience images on several self-report questionnaires and LSAS.

Results

Twenty-nine of the 32 (90.6%) participants were diagnosed with generalized SAD. Twenty-eight out of 32 (87.5%) patients had a primary diagnosis (i.e., the disorder that caused the patient the most impairment in functioning) of SAD. A total of 12 patients (36.4%) were diagnosed with current major depressive disorder (see Table 1). Major depressive disorder was the primary diagnosis for 3 out of the 32 (9.4%) patients and bipolar II was the main diagnosis for 1 out of 32 patients (3.1%).

Table 2.

Co-morbid DSM IV mental disorders on Axis I (n = 32).

Diagnosis	**Frequency (%)**
Major depressive disorder	12 (37.5%)
Bipolar II disorder	2 (6.3%))
Panic disorder with agoraphobia	4 (12.5%)
Agoraphobia without panic	3 (9.4%)
Obsessive compulsive disorder	2 (6.3%)
Posttraumatic stress disorder	3 (9.4%)
Alcohol dependence	4 (12.5%)
Body dysmorphic disorder	5 (15.6%)
Generalized anxiety disorder	2 (6.3%)

Note: Mental disorders are not mutually exclusive.

Twenty out of 32 patients (62.5%) reported having recurrent intrusive images in the past six months. On average, patients reported experiencing the image 5.7 times (*SD* = 12.0) per week with a range of 0.250 to 56 per week in the past 6 months. Participants reported experiencing the image in the week prior to the assessment 10.8 times on average (*SD* = 27.0) with the frequencies ranging from 1 to 105. One case was excluded due to a high frequency of occurrences in the last week (i.e., 105), which lowered the average to 5.8 (*SD* = 15.7). The image lasted on average for 32.3 (*SD* = 30.5) seconds with the time ranging from 1 to 90 seconds. Due to abnormally high responses (i.e., 3600, 600, 240 and 210 seconds), four values were excluded. Most patients (75%) reported that bringing the image to mind required little or no effort, and 50% of patients reported the image to be very or extremely intense.

The most common sensory modality was sight with 19 out of 20 patients (95%) experiencing visual sensations when asked to bring the image to mind. 17 out of 20 patients (85%) reported bodily sensations, and 8 out of 20 patients (40%) hearing sensations (see Table 3). The majority (13 out of 20; 65.0%) of patients reported that the primary sensory modality was sight, and one fifth (4 out of 20; 20%) of patients that the primary sensory modality was bodily sensations. Most (80%) participants reported that the image was experienced like a video clip, but some participants experienced the image as unconnected pictures (10%), an audio clip (5%), or in other ways (5%).

Table 3.

Frequencies of experienced sensory modality/modalities (n = 20).

Sensory modality	**Frequency (%)**
Sight	19 (95.0%)
Sound	8 (40.0%)
Smell	2 (10.0%)
Taste	0 (0%)
Touch	1 (5.0%)
Bodily sensations	17 (85.0%)

Note. Experienced sensory modalities are not mutually exclusive.

With regard to perspective, about half of the patients reported observing the image from a field perspective (45%), and the other half from both field and an observer

perspective (55%). No patient reported observing the image from an observer perspective alone. For those that reported observing the image from an observer and a field perspective, on average, 41.4% of the image was seen from an observer perspective and 58.6% from a field perspective.

Patients reported various emotions when experiencing the image with most patients reporting anxiety (95%, *M* = 7.3), shame (90%, *M* = 6.7), fear (85%, *M* = 5.9), and disgust towards self (65%, *M* = 4.5; see Table 4). Eight participants (40%) reported anxiety as the primary emotion (i.e., the strongest emotion). Other primary emotions were shame (10.0%), disgust towards others (10.0%), anger (10.0%), fear (10.0%), and disgust towards self (5.0%).

Table 4

Means and standard deviations of experienced emotions, and frequencies of primary emotions in response to the intrusive image (n = 20).

Emotion	**Frequency (%)**	***M* (*SD*)**	**Primary emotion**
			Frequency (%)
Sadness	15 (75%)	3.8 (2.9)	0 (0.0%)
Guilt	8 (40%)	2.8 (3.6)	0 (0.0%)
Shame	18 (90%)	6.7 (2.7)	2 (10.0%)
Disgust towards self	13 (65%)	4.2 (3.4)	1 (5.0%)
Disgust towards others	11 (55%)	2.9 (3.5)	2 (10.0%)
Anger	11 (55%)	3.5 (3.7)	2 (10.0%)
Anxiety	19 (95%)	7.3 (2.9)	8 (40.0%)
Fear	17 (85%)	5.9 (3.1)	2 (10.0%)

Note. Emotions are not mutually exclusive.

When patients were asked about the kinds of strategies they do in response to the image nineteen out of 20 (95%) patients responded to the image in some way, and on average, patients reported 7.7 strategies (*SD* = 3.9). The most common strategy used in response to the image was some form of thought control, such as neutralization, thought suppression, and distraction strategies (*M* = 1.09) with 17 out of 20 patients (85%) using such strategies. Other frequently used strategies were safety behaviors (*M* = 1.6), relaxation (*M* = 1.2), avoidance (*M* = 1.1.), and overt compulsions (*M* = 0.9; see Table 5).

Table 5.

Means and standard deviations of strategies used in reaction to the intrusive images and frequency of patients using the strategy, independent of the context and function of the behaviors (n = 20).

Type of strategy	***M* (SD)**	**No. patients (%) using strategy**
Overt compulsive strategies	0.9 (1.1)	10 (50.0%)
Reassurance seeking	0.7 (0.7)	11 (55.0%)
Covert compulsive strategies	0.6 (0.5)	11 (55.0%)
Thought control strategies (neutralization, thought suppression, and distraction strategies)	1.8 (1.3)	17 (85.0%)
Safety behaviors	1.6 (1.5)	13 (65.0%)
Avoidance	1.1 (1.0)	13 (65.0%)
Relaxation	1.2 (0.9)	13 (65.0%)
Do nothing[a]		15 (75.0%)

Note. Strategies are not mutually exclusive.

[a] The mean and standard deviations were not calculated since variable only took two values (i.e. no and yes).

18 out of the 20 (90%) patients that had an intrusive image reported one or more strategies meeting a minimal threshold (i.e., reducing momentary distress in addition to being compelled to conduct the strategy at least 50% of the time) for being considered a compulsive and/or neutralizing strategy. There were five (25%) patients that reported overt compulsive strategies in response to the intrusive image, and met the minimal threshold for being considered compulsive and/or neutralizing strategy. These overt compulsions were often repeated (4 out of 5 patients; 80%) and performed in the same way every time (3 out of 5 patients; 60%). These overt compulsions included cleaning, counting, and knocking on ones chest.

Three (15%) patients reported mental compulsive strategies that met the minimal threshold for being considered a compulsive and/or neutralizing strategy. One of these three patients (33.3%) reported repeating and performing the behavior in the same way every time (e.g., repeating sentences in his or her mind). Fourteen (70%) patients reported some form of a thought control strategy such as neutralization, thought suppression, and distraction in response to the intrusive image that met the minimal threshold for being considered compulsive strategy. Neutralization, thought suppression, and distraction strategies were often (8 out of 14 patients; 57%) repeated and performed the same way every time (8 out of 14 patients; 57%). Seven out of these 14 patients (50.0%) reported both repeating and performing the strategy the same way every time. The most frequent (5 out of 14 patients; 36%) operation reported was trying to think about something else and suppressing the image (4 out of 14 patients; 29%), although saying stop to self (2 out of 14 patients; 14%) was also reported.

Reassurance seeking strategies that met the minimal threshold were reported by four (20%) patients and were either in the form of reassuring oneself or asking others for reassurance. Two out of these four (50.0%) patients reported repeating and doing the operation in the same way every time.

Avoidance and safety seeking behaviors that met the minimal threshold were reported by three patients (15%), and two of those three patients (66.6%) repeating and doing the operation the same way every time (i.e., avoiding eye contact and keeping a low profile). Three (15%) patients reported relaxation strategies (e.g., try to relax or breath to reduce distress associated with the image) that met the minimal threshold for being compulsive and/or neutralizing strategy in response to the intrusive image.

Six out of 20 patients (30.0%) that reported one or more compulsive and/or neutralizing strategies according to our criteria reported having little or no sense of control over whether they would perform the strategies. Compulsive and/or neutralizing strategies (according to our criteria) were repeated by 11 out of 20 (55%) patients and were repeated on average about seven times (*SD*=9.4) Three other patients (15%) reported sometimes repeating a strategy utilized in response to the intrusive image. Compulsive and/or neutralizing strategies were performed in the same way by 11 out of 20 patients (55.0%). According to these results compulsive and/or neutralizing strategies were often repetitive, and performed in the same way, with little or no sense of control over whether the strategy was perform not. When even stricter criteria were used, 9 out of 20 patients (45%) met the minimal threshold for being compulsive and/or neutralizing strategy and reported repeating these strategies and attempting to perform them in the same way every time.

Participants reported that the image was mildly (35%), moderately (35%) or severely distressing (15%). When participants were asked how much negative impact the image and the strategies used in response to the image had on their functioning, more than

half (60.0%) reported that the image had caused moderate, severe or extreme interference (five values were missing). To assess whether having an intrusive image was associated with greater severity of symptoms, we compared scores on various questionnaires between those patients that reported experiencing an intrusive image in addition to having at least one compulsive behavior (according to our criteria) compared to those that did not experience an intrusive image. These questionnaires measure patient severity of symptoms, quality of life and functional impairment. No statistically significant differences were found between those two groups (see Table 6).

Table 6.

T-test comparisons of questionnaires between patients without an intrusive image and patients with an intrusive image and compulsive strategies.

		***M* (*SD*)**			
Instrument	***N***	**Without image**	**With image and compulsive strategies**	**T-value**	**P-value**
PHQ-9	28	10.8 (5.9)	11.3 (6.9)	-0.18	0.9
LSAS	32	85.9 (21.6)	83.2 (19.9)	-0.4	0.7
QOLF	28	66.6 (11.6)	65.9 (12.6)	0.2	0.9
SPWSS	27	26.8 (9.9)	27.4 (6.2)	-0.2	0.9
SDS	28	160.3 (65.4)	163.4 (56.1)	-0.13	0.9

Discussion

The present investigation was conducted to explore intrusive images in SAD and how outpatients with SAD react to such images. More specifically, we explored whether patients with SAD responded to intrusive images with overt or covert compulsions, reassurance seeking, thought control strategies such as neutralization, avoidance, safety behavior, relaxation, or by doing nothing. In the present study, the emphasis was on exploring the possibility of compulsive and neutralizing strategies in response to intrusive images that have not, to our knowledge, been examined in SAD to date.

In the current study, 20 out of 32 (62.5%) patients reported a recurrent intrusive image in the past six months. Intrusive images have, however, been reported to be more frequent in other studies (see e.g., Hackmann, et al., 2000; Lipton, et al., 2010; Speckens, et al., 2007). Part of the reason may be that, in the current study, only those images were assessed that were in fact intrusive, and the images had to be, in addition, recurrent in the past 6 months and clinically significant. This may, in part, explain, the lower prevalence of intrusive images in the current study.

The images were experienced in various sensory modalities such as sight (95%), bodily sensations (85%), sounds (40%), smell (10%), and touch (5%). This is in line with previous research as the frequency for each sensory modality has been shown to be similar across studies with sight and bodily sensations most frequently reported (see e.g.,Day et al., 2004; Hackmann et al., 2000; Speckens et al., 2007). The image was experienced on average 5.7 times per week in the past six months and lasted on average for 32.3 seconds. Earlier studies have rarely reported the frequency and duration of intrusive images. However, in a study by Speckens et al. (2007) the median frequency of intrusive images was 10 times per week with the median duration of 20–30 seconds. In a research study conducted by Lipton et al. (2010), intrusive images were, on average, experienced 3.7 times

within the last month. The recurrence of images in our study was in the middle of the range of these two studies of OCD patients.

According to the Clark and Wells (1995) cognitive model, images may be a powerful maintaining factor in SAD. The intrusive image most likely represents what the individual fears and will, therefore, elicit anxiety and fear. The individual is likely to turn his attention inward (self-focused attention), which can contribute to actual performance deficits or the individual being unable to disconfirm negative fears and beliefs about others are likely to react. The intrusive image is in most cases perceived from an observer perspective (from the perspective of another person) conferring additional evidence for how the individual appears to other people, eliciting more anxiety and fear. Number of research studies have supported Clark and Wells´ (1995) hypothesis (see Wells, Clark, & Ahmad, 1998; Wells & Papageorgiou, 1999). In a research study by Coles, Turk, Heimberg, & Fresco (2001), observer perspective was more likely to be reported by people with SAD in highly anxiety provoking situations and field perspective was more frequently reported in less-anxiety provoking situations. Field perspective was however reported by normal controls for both situations. The results of the present study are however not in line with current theoretical models (e.g., Clarks & Wells, 1995; Heimberg & Rapee, 1997) on reported perspectives in SAD. In the present study, no patient reported observing the image from an observer perspective alone. About half of the patients reported the image from a field perspective alone (45.0%) and the other half from both an observer and a field perspective (55.0%). Patients that reported observing the image from both perspectives, on average 58.6% were seen from a field perspective and 41.4% from an observer perspective. These results are more in line with research results on image perspectives in individuals with OCD, where individuals with OCD observe images predominantly from field rather than an observer perspective (see Speckens et al., 2007; Lipton, et al., 2010). Our results

indicate that the perspective might have greater similarities across disorders than previously thought. It is important to replicate the result of the current study, and if replicated, it raises important questions about current theoretical models of SAD.

Nineteen out of 20 (95%) patients reacted to the intrusive image with at least one strategy, with an average of 7.7 strategies. The most common strategy was some form of thought control, such as neutralization, thought suppression, and distraction strategies (85%) with safety behaviors (65%), avoidance (65%), relaxation (65%), reassurance seeking (55%), covert compulsions (55%), and overt compulsions (50%) also frequently reported.

In order to assess whether the reported strategies were likely to be compulsive and/or neutralizing, participants were asked follow up questions about 1-3 strategies. In order to be defined compulsive or neutralizing the following criteria had to be met: Whether the strategies were conducted in order to reduce distress in the moment and whether participants felt compelled to do the behaviors at least 50% of the time. Further assessment was made, for example on whether the strategy was repeated and whether the participant attempted to perform the strategy the same way every time. There were 18 out of the 20 (90%) patients that reported one or more compulsive strategy according to our criteria. The strategies were often repeated (11 out of 20 patients, 55%), performed the same way every time (11 out of 20 patients 55%), with patients (6 out of 20 patients 30%) also reporting having little or no sense of control over whether they performed the strategies. These results indicate that patients suffering from SAD perform compulsive strategies that have historically been thought to belong solely to the so called OC-spectrum disorders (e.g., OCD and BDD). Therefore, we argue, that SAD has more similarities to OC spectrum disorders than previously thought and that behaviors that have often been defined as safety behaviors might in many cases be compulsions. It is, of

course, important to replicate the current study, but if replicated, this line of research is an important step toward exploring whether obsessions and compulsions exist as a maintaining process in SAD, and, perhaps, across mental disorders.

If these are, indeed, obsessions and compulsions, are they likely to be clinically significant? Many of the patients reported that the images caused them moderate to severe distress (50%) and that the strategies along with the image caused them moderate, severe or extreme interference (60%). Furthermore when patients experienced the image, various strong emotions were reported such as anxiety, shame and disgust toward self. However, we found no statistically significant differences on self-report questionnaires and the LSAS comparing those without an image and those who had in intrusive image and at least one compulsive behavior in response. More research is needed on how clinically significant such images, and compulsive behaviors in response to them are in SAD.

In theoretical models of SAD, maintaining processes have not included compulsive or neutralizing strategies (see Clark & Wells, 1995; Heimberg, Brozovich & Rapee, 2010). Studies have shown that avoidance and safety behaviors contribute to the maintenance of SAD (see e.g., Powers et al, 2004; Wells & Papageorgiou, 1999). According to the CBT model of OCD, unwanted intrusive images can have important implications for the person which in turn will force the person to react to the image, often with a compulsive or neutralizing strategy (see Salkovskis, 1999). Compulsive and neutralizing strategies are often repeated and performed the same way (APA, 2013), while that is usually not the case for avoidance or safety behaviors. The results of the present study are in some ways in line with the CBT model of how OCD develops, indicating that more theoretical work is needed (with reference to CBT models of OCD) on appraisal processes of intrusive images (and possibly other intrusive thoughts), and, consequently, reactions to such thought in SAD. The present study also indicates that maintaining factors in SAD might have more

similarities with OCD (and possibly other OC-spectrum disorders) than previously thought. If replicated, it is important that current theoretical models incorporate obsessions and compulsions as a maintaining process in SAD. This could further increase our understanding of SAD.

Study limitations

There are several limitations to this study. First, the sample size was relatively small, which impacted statistical power and general conclusions that can be drawn from the present study. Second, it will be important to include an OCD comparison group in order to assess whether there are similarities of reported strategies in those groups. Furthermore, assessing image and strategy and meta-cognitive beliefs between these groups might further increase our understanding of these disorders. Third, biases in memory apply whenever participants are asked retrospectively about strategies they use. However, participants in the current study were asked to evoke and describe their most intrusive image, which might increase the likelihood of people remembering how they usually respond to these images. Fourth, the social context of the interview may possibly have interfered with patients' responses as all the patients suffered from SAD. The nature of the disorder (e.g., fear of being embarrassed or humiliated) might increase patients' agreeability and therefore impact their responses.

Treatment implications

The current study, if replicated, may have important implications for future treatment. One treatment of choice for SAD is CBT with a focus on cognitive restructuring and exposure therapy without response prevention (see Barlow, 2002). According to our preliminary findings, many of strategies used are compulsive in nature. Previous research has suggested that it can increase treatment effectiveness to instruct participants to drop

safety behaviors (Clark et al., 2006; Wells et al., 1995). However, such informal strategies might not work with compulsive strategies in SAD and implementing treatment approaches that have been successful in the treatment of OCD might increase treatment efficacy in SAD. One possibility would be to add exposure and response prevention (ERP) to CBT for SAD to systematically target compulsive and/or neutralizing behaviors (Bjornsson & Phillips, 2014). This is a more formal way of targeting intrusive images and strategies in response to them than has been done in CBT for SAD to date and could possibly increase treatment effectiveness.

References

Alden, L.E., & Regambal, M.J. (2010). Social anxiety, social anxiety disorder and the self. In S.G. Hofmann & P.M. Dibartolog (Eds.), *Social Anxiety: Clinical, Developmental, and Social Perspectives* (pp. 423-445). Amsterdam: Elsevier.

American Psychiatric Association. (2000). *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.). Washington, DC: Author. http://dx.doi.org/10.1037/0021-843X.114.4.494

American Psychiatric Association (2013). *Diagnostic and Statistical Manual of Mental Disorders, Text-Revision* (5th ed., text rev.) Arlington, VA: American Psychiatric Association.

Berman, N. C., Abramowitz, J. S., Pardue, C. M., & Wheaton, M. G. (2010). The relationship between religion and thought–action fusion: Use of an in vivo paradigm. *Behaviour Research and Therapy*, *48*, 670–674. doi:10.1016/j.brat.2010.03.021

Berry, L-M., & Laskey, B. (2012). A review of obsessive intrusive thoughts in the general population. *Journal of Obsessive-Compulsive and Related Disorders*, *1*, 124–132. doi:10.1016/j.jocrd.2012.03.003

Bjornsson, A.S., & Phillips, K.A. (2014). Do obsessions and compulsions play a role in social anxiety disorder? *Harvard Review of Psychiatry*, *22*, 55–58. doi:10.1097/HRP.0000000000000009

Brewin, C. R., & Holmes, E. A. (2003). Psychological theories of posttraumatic stress disorder. *Clinical psychology review*, *23*, 339-376. doi:10.1016/S0272-7358(03)00033-3

Brewin, C. R., Gregory, J. D., Lipton, M., & Burgess, N. (2010). Intrusive images in psychological disorders: characteristics, neural mechanisms, and treatment

implications. *Psychological review*, *117*, 210–232. http://dx.doi.org/10.1037/a0018113

Clark, D. A. (2004). *Cognitive-behavioral therapy for OCD*. Guilford Press.

Clark, D.M., Ehlers, A., Hackmann, A., McManus, F., Fennell, M., Grey, N., Waddington, L., Wild, J. (2006). Cognitive therapy versus exposure and applied relaxation in social phobia: A randomized controlled trial. *Journal of Consulting and Clinical Psychology, 74*, 568–578. http://dx.doi.org/10.1037/0022-006X.74.3.568

Clark, D.A., & O´Connor, K. (2005). Thinking is believing: Ego-dystonic intrusive thoughts in obsessive-compulsive disorder. In D.A. Clark (Ed.), *Intrusive thoughts in clinical disorders: Theory, research, and treatment* (pp. 145–176). New York: Guilford.

Clark, D.A., & Rhyno, S. (2005). Unwanted intrusive thoughts in nonclinical individuals. In D.A. Clark (Ed.), *Intrusive thoughts in clinical disorders: Theory, Research, and Treatment* (pp. 1–29). New York: Guilford.

Clark D.M., & Wells A. (1995). A cognitive model of social phobia. In: Heimberg RG, Liebowitz M, Hope D, Schneier F, editors. Social phobia: *Diagnosis, assessment and treatment.* (pp. 69-93) New York: Guilford Press.

Coles, M. E., Turk, C. L., Heimberg, R. G., & Fresco, D. M. (2001). Effects of varying levels of anxiety within social situations: Relationship to memory perspective and attributions in social phobia. *Behaviour Research and Therapy*, *39*, 651–665. http://dx.doi.org/10.1016/S0005-7967(00)00035-8

Conway, M. A., & Pleydell-Pearce, C. W. (2000). The construction of autobiographical memories in the self-memory system. *Psychological review*, *107*, 261–288. doi:10.1037/0033-295X.107.2.261

Cougle, J.R., Keough, M.E., Riccardi, C.J., & Sachs-Ericsson, N. (2009). Anxiety disorders and suicidality in the National Comorbidity Survey-Replication. *Journal of Psychiatric Research, 43,* 825–829. http://dx.doi.org/10.1016/j.jpsychires.2008.12.004

Day, S., Holmes, E., & Hackmann, A. (2004). Occurrence of imagery and its link with early memories in agoraphobia. *Memory, 12,* 416–427. doi:10.1080/09658210444000034

Doron, G., Sar-El, D., & Mikulincer, M. (2012). Threats to moral self-perceptions trigger obsessive compulsive contamination-related behavioral tendencies. *Journal of Behavior Therapy and Experimental Psychiatry, 43,* 884–890. doi:10.1016/j.jbtep.2012.01.002

Frost, R.O., Glossner, K., & Maxner, S. (2010). Social anxiety disorder and its relationship to perfectionism. In S.G. Hofmann & P.M. Dibartolog (Eds.), *Social Anxiety: Clinical, Developmental, and Social Perspectives* (pp. 121-146). Amsterdam: Elsevier.

Hackmann, A., Bennett-Levy, J., & Holmes, E. A. (Eds.). (2011). I*magery in cognitive therapy*. Oxford: Oxford University Press.

Hackmann, A., Clark, D.M., & McManus, F. (2000). Recurrent images and early memories in social phobia. *Behaviour Research and Therapy, 38,* 601–610. doi:10.1016/S0005-7967(99)00161-8

Heimberg, R.G., Brozovich, F.A., & Rapee, R.M. (2010). A cognitive behavioral model of social anxiety disorder: Update and extension. In S.G. Hofmann & P.M. Dibartolog (Eds.), *Social Anxiety: Clinical, Developmental, and Social Perspectives* (pp. 396-422). Amsterdam: Elsevier.

Heimberg, R. G., Horner, K. J., Juster, H. R., Safren, S. A., Brown, E. J., Schneier, F. R., Liebowitz, M. R. (1999). Psychometric properties of the Liebowitz social anxiety scale. *Psychological medicine, 29*, 199–212.

Helbig-Lang, S., & Petermann, F. (2010). Tolerate or eliminate? A systematic review on the effects of safety behavior across anxiety disorders. *Clinical Psychology: Science and Practice, 17*, 218-233.

Hofmann, S.G. (2007). Cognitive factors that maintain social anxiety disorder: A comprehensive model and its treatment implications. *Cognitive Behaviour Therapy*, *36*, 193-209. doi: 10.1080/16506070701421313

Holmes, E. A., Grey, N., & Young, K. A. (2005). Intrusive images and "hotspots" of trauma memories in posttraumatic stress disorder: An exploratory investigation of emotions and cognitive themes. *Journal of Behavior Therapy and Experimental Psychiatry*, *36*, 3–17. doi: 10.1016/j.jbtep.2004.11.002

Holmes, E. A., & Mathews, A. (2005). Mental imagery and emotion: A special relationship? *Emotion*, *5*, 489–497. doi:10.1037/1528-3542.5.4.489

Hrafnsson, Ó. & Guðmundsson, M. (2007). *Próffræðilegir eiginleikar lífsgæðakvarðans (QOLF)*. University of Iceland, Department of Psychology: Unpublished B.A thesis.

Julien, D., O'Connor, K. P., & Aardema, F. (2007). Intrusive thoughts, obsessions, and appraisals in obsessive–compulsive disorder: A critical review. *Clinical Psychology Review*, *27*, 366–383. doi:10.1016/j.cpr.2006.12.004

Kessler, R.C., Chiu, W.T., Demler, O., & Walters, E.E. (2005). Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, *62*, 617–627. doi:10.1001/archpsyc.62.6.617

Kroenke, K., Spitzer, R. L., Williams, J. B., (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine, 16*, 606–613. doi:10.1046/j.1525-1497.2001.016009606.x

Ladouceur, R., Freeston, M.H., Rhéaume, J., Dugas, M.J., Gagnon, F., Thibodeau, N., Fournier, S. (2000). Strategies used with intrusive thoughts: A comparison of OCD patients with anxious and community controls. *Journal of Abnormal Psychology, 109*, 179–187. doi: 10.1037/0021-843X.109.2.179

Lang, P. J., Davis, M., & Öhman, A. (2000). Fear and anxiety: animal models and human cognitive psychophysiology. *Journal of Affective Disorders, 61*, 137–159. doi:10.1016/S0165-0327(00)00343-8

Lecrubier, Y., Sheehan, D. V., Weiller, E., Amorim, P., Bonora, I., Sheehan, K. H., Janavs, J., & Dunbar, G. C. (1997). The Mini International Neuropsychiatric Interview (MINI). A short diagnostic structured interview: reliability and validity according to the CIDI. *European psychiatry*, *12*, 224–231. http://dx.doi.org/10.1016/S0924-9338(97)83296-8

Leon, A. C., Olfson, M., Portera, L., Farber, L., & Sheehan, D. V. (1997). Assessing psychiatric impairment in primary care with the Sheehan Disability Scale. *The International Journal of Psychiatry in Medicine*, *27*, 93–105. doi: 10.2190/T8EM-C8YH-373N-1UWD

Liedberg, G. M., Burckhardt, C. S., & Henriksson, C. M. (2005). Validity and reliability testing of the Quality of Life Scale, Swedish version in women with fibromyalgia–statistical analyses. *Scandinavian Journal of Caring Sciences*, *19*, 64–70. doi: 10.1111/j.1471-6712.2004.00311.x

Lipton, M.G., Brewin, C.R., Linke, S., & Halperin, J. (2010). Distinguishing features of intrusive images in obsessive-compulsive disorder. *Journal of Anxiety Disorders*, *24*, 816–822. http://dx.doi.org/10.1016/j.janxdis.2010.06.003

Morgan, H., & Raffle, C. (1999). Does reducing safety behaviors improve treatment response in patients with social phobia? *Australasian Psychiatry*, *33*, 503–510. doi:10.1080/j.1440-1614.1999.00599.x

Moscovitch, D. A. (2009). What is the core fear in social phobia? A new model to facilitate individualized case conceptualization and treatment. *Cognitive and Behavioral Practice*, *16*, 123-134. doi:10.1016/j.cbpra.2008.04.002

Muse, K., McManus, F., Hackmann, A., Williams, M., & Williams, M. (2010). Intrusive imagery in severe health anxiety: Prevalence, nature and links with memories and maintenance cycles. *Behaviour Research and Therapy*, *48*, 792–798. doi:10.1016/j.brat.2010.05.008

Phillips, K.A. (2005). *The broken mirror: Understanding and treating body dysmorphic disorder* (revised and expanded edition). Oxford: Oxford University Press.

Phillips, K.A., Stein, D.J., Rauch, S.L., Hollander, E., Fallon, B.A., Barsky, A., Fineberg, N., Mataix-Cols, D., Ferrao, Y.A., Saxena, S., Wilhelm, S., Kelly, M.M., Clark, L.A., Pinto, A., Bienvenu, O.J., Farrow, J., Leckman, J. (2010). Should an obsessive-compulsive spectrum grouping of disorders be included in DSM-V? *Depression & Anxiety*, *27*, 528–555. doi:10.1002/da.20705

Plasencia, M. L., Alden, L. E., & Taylor, C. T. (2011). Differential effects of safety behavior subtypes in social anxiety disorder. *Behaviour Research and Therapy*, *49*, 665–675. doi:10.1016/j.brat.2011.07.005

Powers, M. B., Smits, J. A., & Telch, M. J. (2004). Disentangling the effects of safety-behavior utilization and safety-behavior availability during exposure-based

treatment: a placebo-controlled trial. *Journal of Consulting and Clinical Psychology, 72,* 448–454. http://dx.doi.org/10.1037/0022-006X.72.3.448

Rachman, S. (1997). A cognitive theory of obsessions. *Behaviour Research and Therapy, 35,* 793–802. http://dx.doi.org/10.1016/S0005-7967(97)00040-5

Rachman, S. (1998). A cognitive theory of obsessions: Elaborations. *Behaviour Research and Therapy, 36,* 385–401. doi:10.1016/S0005-7967(97)10041-9

Rachman, S. (2007). Unwanted intrusive images in obsessive compulsive disorders. *Journal of Behavior Therapy and Experimental Psychiatry, 38,* 402–410. http://dx.doi.org/10.1016/j.jbtep.2007.10.008

Rapee, R. M., & Heimberg, R. G. (1997). A cognitive-behavioral model of anxiety in social phobia. *Behaviour Research and Therapy, 35,* 741-756. doi:10.1016/S0005-7967(97)00022-3

Rowa, K., Purdon, C., Summerfeldt, L. J., & Antony, M. M. (2005). Why are some obsessions more upsetting than others?. *Behaviour Research and Therapy, 43,* 1453–1465. doi:10.1016/j.brat.2004.11.003

Ruscio, A.M., Brown, T.A., Chiu, W.T., Sareen, J., Stein, M.B., & Kessler, R.C. (2007). Social fears and social phobia in the USA: results from the National Comorbidity Survey Replication. *Psychological Medicine, 38,* 15–28. doi:http://dx.doi.org/10.1017/S0033291707001699

Ruscio, A. M., Stein, D. J., Chiu, W. T., & Kessler, R. C. (2010). The epidemiology of obsessive-compulsive disorder in the National Comorbidity Survey Replication. *Molecular Psychiatry, 15,* 53-63. doi:10.1038/mp.2008.94

Salkovskis, P. M. (1999). Understanding and treating obsessive-compulsive disorder. *Behaviour Research and Therapy, 37,* 29-52. doi:10.1016/S0005-7967(99)00049-2

Shear, M. K., Bjelland, I., Beesdo, K., Gloster, A. T., & Wittchen, H. U. (2007). Supplementary dimensional assessment in anxiety disorders. *International Journal of Methods in Psychiatric Research, 16,* 52–64. doi:10.1002/mpr.215

Sheehan, D., Lecrubier, Y., Sheehan, K., Amorim, P. & Janavs, J. (1998). The Mini-International Neuropsychiatric Interview (MINI): the development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. *Journal of Clinical Psychiatry,* 59, 22–33.

Speckens, A. E., Hackmann, A., Ehlers, A., & Cuthbert, B. (2007). Imagery special issue: Intrusive images and memories of earlier adverse events in patients with obsessive compulsive disorder. *Journal of Behavior Therapy and Experimental Psychiatry*, *38,* 411–422. http://dx.doi.org/10.1016/j.jbtep.2007.09.004

Stein, M.B., & Kean, Y.M. (2000). Disability and quality of life in social phobia: Epidemiologic findings. *American Journal of Psychiatry*, *157,* 1606–1613. http://dx.doi.org/10.1176/appi.ajp.157.10.1606

Thwaites, R., & Freeston, M. H. (2005). Safety-seeking behaviours: Fact or function? How can we clinically differentiate between safety behaviours and adaptive coping strategies across anxiety disorders?. *Behavioural and Cognitive Psychotherapy*, *33,* 177–188. http://dx.doi.org/10.1017/S1352465804001985

Van den Hout, M., & Kindt, M. (2003). Repeated checking causes memory distrust. *Behaviour Research and Therapy*, *41,* 301–316. doi: 10.1016/S0005-7967(02)00012-8

Veale, D., & Neziroglu, F. (2010). *Body dysmorphic disorder: A treatment manual*. John Wiley & Sons.

Wells, A., Clark, D. M., & Ahmad, S. (1998). How do I look with my minds eye: Perspective taking in social phobic imagery. *Behaviour Research and Therapy*, *36*, 631–634. http://dx.doi.org/10.1016/S0005-7967(98)00037-0

Wells, A., Clark, D.M., Salkovskis, P., Ludgate, J., Hackmann, A., & Gelder, M. (1995). Social phobia: The role of in-situation safety behaviors in maintaining anxiety and negative beliefs. *Behavior Therapy*, *26*, 153–161. http://dx.doi.org/10.1016/S0005-7894(05)80088-7

Wells, A., & Papageorgiou, C. (1999). The observer perspective: Biased imagery in social phobia, agoraphobia, and blood/injury phobia. *Behaviour Research and Therapy*, *37*, 653–658. http://dx.doi.org/10.1016/S0005-7967(98)00150-8