

**AN EXAMINATION OF INTRUSION-RELATED SHAME IN OBSESSIVE-
COMPULSIVE DISORDER**

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Abstract

Obsessive-compulsive disorder (OCD) is a debilitating mental disorder characterised by obsessions and compulsions. Research has consistently shown that everyone experiences unwanted intrusive thoughts which are similar, if not identical, to clinical obsessions, but only 2% to 3.5% of individuals develop OCD. These findings have prompted enquiry as to why not everyone responds to their intrusive thoughts by performing clinically significant compulsions. Cognitive theorists propose that intrusions become obsessions only if they are interpreted as evidence that a valued aspect of the self is defective. This proposal implies a role for shame in the disorder, as shame arises in response to such appraisals.

The present thesis is that individuals may attempt to avoid, conceal, suppress, or neutralise intrusions not only to regulate aversive emotions such as anxiety and disgust, but to regulate shame. This dissertation addressed three primary questions. First, do individuals with OCD feel more shame than nonclinical populations when intrusions arise? Second, are individuals more likely to respond to frequent intrusions by performing compulsions if they feel shame? Third, is relief from shame associated with reduction in compulsions across the course of treatment?

To facilitate examination of these questions, a measure of intrusion-related shame was developed and validated. Responses from nonclinical participants were analysed in an exploratory factor analysis ($n = 279$) and confirmatory factor analysis ($n = 283$). Following item reduction in the initial confirmatory factor analysis, the factor structure was confirmed in a subsequent confirmatory factor analysis with data from 385 nonclinical participants. The final 17-item IRS assessed three forms of shame associated with experiencing unwanted intrusive thoughts and urges: internal current shame; internal forecasted shame; and external forecasted shame. Results demonstrated excellent internal consistency, and good convergent

validity. Individuals with a diagnosis of OCD ($n = 41$) were found to experience significantly more intense shame than a nonclinical population in response to their intrusions.

The second empirical study tested whether shame moderated the relationship between intrusions and compulsions across four intrusion themes: aggressive, contamination, symmetry, and sexual/religious/immoral intrusions. Undergraduate psychology students ($n = 250$) completed measures of intrusion frequency, intrusion-related shame severity, and compulsion severity. Shame was found to moderate the relationship between intrusion frequency and compulsion severity when unwanted intrusions featured themes of contamination, aggression, and sex/religion/immorality. This finding suggests that individuals are more likely to respond to frequent intrusions by performing compulsions if they feel strong intrusion-related shame.

The third empirical study tested whether a reduction in shame across treatment was associated with a reduction in compulsions. Twenty-seven individuals with OCD recruited from a ten-session outpatient group therapy program were invited to complete measures of intrusion-related shame and compulsion severity on intake and following the fifth and ninth sessions. Overall change scores were calculated by subtracting the participants' final scores on each measure from their scores at baseline. Change scores for the second half of treatment were calculated by subtracting their final scores from their scores at the mid-point of treatment. While no correlation was detected between change scores which spanned the whole of treatment, in the second half of treatment, reduction in shame correlated moderately with reduction in compulsion severity. One interpretation of these results is that, when individuals experience a reduction in intrusion-related shame, they decrease their engagement in compulsions as they are less motivated to regulate shame.

A discussion of the theoretical and clinical implications of these findings is presented in the final chapter, together with directions for future research.

Declaration

I declare that this dissertation does not incorporate without acknowledgment any material previously submitted for a degree in any University, College of Advanced Education, or other educational institution, and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text. I further declare that the ethical principles and procedures specified in the Faculty of Health, Arts and Design Human Research Ethics Committee document have been adhered to in the preparation of this report.

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List of Common or Important Abbreviations

<i>CFA</i>	Confirmatory Factor Analysis
<i>DSM</i>	Diagnostic and Statistical Manual of Mental Disorders
<i>EFA</i>	Exploratory Factor Analysis
<i>ERP</i>	Exposure and Response Prevention
<i>INPIOS</i>	Obsessional Intrusive Thoughts Inventory
<i>IRS</i>	Intrusion-Related Shame Scale
<i>IRSIS</i>	Intrusion Related Self Inference Scale
<i>OBQ</i>	Obsessive Beliefs Questionnaire
<i>o-c</i>	obsessive-compulsive
<i>OCD</i>	Obsessive-Compulsive Disorder
<i>SPSS</i>	Statistical Package for the Social Sciences
<i>TOSCA</i>	Test of Self Conscious Affect
<i>YBOCS</i>	Yale Brown Obsessive Compulsive Scale

Note. This list is not exhaustive and contains only important or commonly used abbreviations mentioned within the text.

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CHAPTER 1: INTRODUCTION

1.1 Chapter Guide

This short introductory chapter contains an outline of the thesis structure and justification for the research presented in this dissertation.

1.2 Thesis outline

The present dissertation describes a research program which examined the relationship between intrusion-related shame and obsessive-compulsive disorder (OCD). It tested whether compulsion severity was associated with the intensity of shame experienced in response to obsessions, and whether such shame moderated the relationship between intrusion frequency and compulsion severity. It also investigated whether changes in such shame were associated with changes in compulsions across treatment.

This dissertation begins with a literature review (Chapter 2) which outlines OCD and its primary symptoms (i.e., obsessions and compulsions). The impact of the disorder on wellbeing and functioning is examined and the prevalence and typical course of OCD is described. The concept of emotion regulation is then defined and theories are presented which conceptualise compulsions as maladaptive strategies for regulating emotion. Next, shame and its associated cognitions, sensations and action tendencies are defined, and shame is distinguished from related constructs such as embarrassment, low self-esteem and guilt. Finally, the empirical evidence of a link between OCD and shame is reviewed.

Following this literature review, this dissertation is organised in terms of four papers, written for publication in academic journals. Due to the need to provide contextual information in each paper, there is some unavoidable repetition across these papers. Despite such repetition, each paper details original research with distinct objectives and design. Each of the empirical studies offers a set of findings that, when considered collectively, function to test the hypotheses and to explore the research questions presented in Chapter 3 (see section 3.3).

The third chapter (Methods and Overview) precedes the four papers, and orients the reader to the overall research program. Chapter 3 provides an overview of the nature of each paper and particulars of how the studies described in each paper inter-relate. As indicated above, each paper was required to comply with limitations as to manuscript length and detail. To assist the reader, Chapter 3 elaborates on the methodology employed in each empirical study, and includes details omitted from each paper regarding the study design.

The first of four papers is then presented (Chapter 4). It features an overview of cognitive theories of OCD and a theoretical framework for conceptualising compulsions as shame regulation strategies. Applied models of OCD are presented which integrate shame into our understanding of the disorder. The second paper (Chapter 5) reports on the development and validation of the Intrusion-Related Shame (IRS) scale, which was designed to measure severity of shame experienced in response to unwanted intrusive thoughts and urges. The paper describes both the development of the scale and analysis of the psychometric properties of the IRS, beginning with an exploratory factor analysis (EFA) to investigate the scale's factor structure, followed by confirmatory factor analyses (CFAs).

The study described in the third paper (Chapter 6) investigated whether the relationship between intrusion frequency and compulsion severity differed depending on the intensity of shame experienced in response to intrusions. In order to determine whether the role of shame differed depending on the nature of intrusions experienced, the moderation model was tested with respect to the four most commonly reported types of intrusions: aggressive; contamination; symmetry; and sexual/religious/immoral. The fourth paper (Chapter 7) describes a study which examined the clinical relevance of the proposition that compulsions serve to regulate intrusion-related shame. Shame and compulsion severity were charted across a ten-week outpatient cognitive-behavioural therapy group treatment program,

and analyses were conducted to determine whether a change in shame was associated with a change in compulsion severity.

A final chapter (Chapter 8) integrates the key research findings and the implications of these findings for theory and clinical practice. Limitations of the current sequence of studies are presented followed by proposed directions for future research.

1.3 Justification for the research

OCD is a highly distressing and disabling disorder, which affects around one in forty people (Ruscio, Stein, Chiu, & Kessler, 2010). The disorder significantly impacts both functionality and quality of life (Huppert, Simpson, Nissenson, Liebowitz, & Foa, 2009a; Ruscio et al., 2010), and greatly increases risk of suicide (Hollander et al., 1996). The delivery of effective treatment to those living with OCD is imperative.

Cognitive behavioural therapy with exposure and response prevention (ERP) is considered the gold standard psychotherapeutic treatment for OCD. ERP involves clients triggering their obsessions and then refraining from engaging in compulsions. However, many clients find ERP intolerable, with some studies suggesting that around 25% to 30% of clients refuse to perform exposure exercises or do not complete treatment (Kozak & Coles, 2005). When rates of refusal and dropout are taken into consideration, treatment effectiveness rates are estimated at 55% to 63%. Furthermore, “successful” treatment with ERP tends to result in reduced severity of symptoms by 48% to 59% on standardised measures of OCD, leaving around 41% to 52% of symptom severity unresolved following treatment (Kozak & Coles, 2005). When “successful” treatment is instead defined by clients being asymptomatic, as indicated by a score of seven or below on the Yale Brown Obsessive Compulsive Scale (YBOCS; Goodman et al., 1989) symptom severity scale (a standardised measure of OCD), ERP has a success rate of around 25% (Fisher & Wells, 2005).

Investigation of the nature of the distress experienced by those with OCD may be useful in conceptualising how the disorder develops and is maintained. Such an investigation may also provide an understanding of why treatments fail for some individuals and how treatments may be enhanced to improve treatment adherence and success rates.

CHAPTER 2: LITERATURE REVIEW

2.1 Chapter Guide

This chapter features a review of the literature pertaining to OCD and shame. It begins with a definition of OCD and a description of its primary symptoms. This is followed by an overview of the prevalence and course of OCD and an outline of the impact of the disorder. The discussion of OCD concludes with particulars of current conceptualisations of compulsions as maladaptive emotion-regulation strategies. The key concept of shame is then defined and its purported association with problematic behaviours and psychopathology is presented. Finally, current evidence of the relationship between shame and OCD is presented.

2.2 Defining OCD

OCD is a distressing mental disorder, the chief characteristics of which are obsessions and compulsions. In order to satisfy the Diagnostic and Statistical Manual of Mental Disorders-5 (DSM-5; American Psychiatric Association, 2013) criteria for a diagnosis of OCD, obsessions and compulsions must be of clinical severity such that they must either consume at least one hour per day, or, cause clinically significant distress, or, impair an important area of functioning.

2.3 Obsessions

Obsessions are unwanted and unrelenting intrusive thoughts, images, or urges which are experienced by most people as highly distressing, and which are strongly resisted (APA, 2013). Thoughts and impulses are identifiable as intrusive if they arise unbidden and interrupt one's train of thought, are not easily controlled, and yet, are appraised as one's own thoughts and urges (Rachman, 1981). In the fourth edition of the Diagnostic and Statistical Manual (American Psychiatric Association, 2000), obsessions were defined as *inappropriate* rather than *unwanted*. The change to *unwanted* in DSM-5 was made to allow for cultural differences in what was considered inappropriate.

While individuals with OCD typically report that they experience their obsessions as at least somewhat irrational or extreme, the DSM-5 provides specifiers of *good or fair insight* for those who consider their obsessive beliefs to be definitely or probably false, *poor insight* for those who consider their beliefs to be probably true, and *absent insight/delusional beliefs* for those who are absolutely certain that their obsessive beliefs are true (APA, 2013).

In contrast with the fourth edition of the DSM, the DSM-5 (APA, 2013) does not specify that individuals must have insight at some point in the disorder or recognise that obsessions are the product of their own mind. Studies of individuals with OCD report rates of poor to absent insight of between 15 and 31 percent (Eisen et al., 2001; Kishore, Samar, Reddy, Chandrasekhar, & Thennarasu, 2004; Marazziti et al., 2002; Türksoy, Tükel, Özdemir, & Karali, 2002). Mixed results have been found regarding whether the level of insight predicts severity of obsessive-compulsive (o-c) symptoms (Kishore et al., 2004; Marazziti et al., 2002) and if it influences treatment response (Eisen et al., 2001; Kishore et al., 2004).

2.4 Compulsions

Compulsions are defined in the DSM-5 (APA, 2013) as repetitive and/or ritualistic behaviours, which are performed in response to obsessions to alleviate the distress and/or anxiety elicited by them, or to prevent a dreaded outcome associated with the obsession. Some compulsions are overt, such as cleaning, checking, arranging, reassurance seeking, and tapping, while others are covert, such as counting, praying, and other mental rituals designed to neutralise obsessions (e.g., replacing a bad thought with a good thought). Notwithstanding that these behaviours are performed in response to obsessions, the DSM-5 specifies that compulsions are characterised by their clearly excessive nature or by their lack of realistic connection with their intended purpose (APA, 2013).

2.5 OCD Subtypes

Researchers have attempted to identify whether certain types of OCD symptoms may be grouped together to represent clinically useful symptom subtypes. Numerous studies have found that the obsessions and compulsions included in the YBOCS (Goodman et al., 1989) symptom checklist reflect four underlying factors: symmetry obsessions and ordering compulsions; contamination obsessions and washing compulsions; aggressive, sexual, and religious obsessions; and hoarding compulsions (Cullen et al., 2007; Feinstein, Fallon, Petkova, & Liebowitz, 2003; Hasler, Kazuba, & Murphy, 2006; Summerfeldt, Richter, Antony, & Swinson, 1999). However, other studies found different factor solutions, with Baer (1994) arriving at three factors by grouping symmetry and hoarding symptoms, and others arriving at five factors by including a factor to reflect doubt / checking symptoms (Denys, de Geus, van Megen, & Westenberg, 2004; Pinto et al., 2008).

The inclusion of hoarding symptoms in these classifications reflects the inclusion of two hoarding items in the YBOCS symptom checklist. However, whereas in the fourth edition of the DSM (APA, 2000) practitioners were advised to consider whether individuals who exhibited extreme hoarding met criteria for a diagnosis of OCD, in the DSM-5 (APA, 2013), hoarding disorder was classified as a disorder distinct from OCD. Accordingly, it is now inconsistent with current psychiatric nomenclature to regard hoarding symptoms as o-c phenomena.

The above attempts to group OCD symptoms into meaningful subtypes were conducted with respect to both obsessions and compulsions. When subtypes of unwanted intrusions/obsessions, as distinct from compulsions, were investigated by reference to items in the Obsessional Intrusive Thoughts Inventory (Garcia-Soriano, Belloch, Morillo, & Clark, 2011), six underlying subgroups of intrusions were identified, including contamination; sexual, religious and immoral; aggressive; symmetry; superstitious; and doubt / checking

intrusions. In sum, while there is disagreement regarding the specific number of factors underlying OCD symptoms, groupings tend to include themes of contamination, sex, religion, immorality, aggression, symmetry, order, and doubt.

2.6 Co-morbidity, disability, and distress

OCD has been found to be highly co-morbid with depression. Overbeek, Schruers, and Griez (2002) conducted a retrospective chart analysis from 120 patients with OCD, and found that one third had co-morbid depression. Similarly, an analysis of data from the British National Psychiatric Morbidity Survey of 2000 revealed that 37% of individuals with OCD also met criteria for a depressive episode, 31% for generalized anxiety disorder, 22% for agoraphobia or panic disorder, and 17% for social phobia (Torres et al., 2006). Furthermore, according to the American National Comorbidity Survey Replication conducted between 2001 and 2003, 90% of those with a lifetime diagnosis of OCD met criteria for another lifetime mental disorder, with the most common comorbid disorders being anxiety disorders (75.8%) and mood disorders (63.3%) (Ruscio et al., 2010).

OCD has also been found to impact important areas of functioning. Ruscio et al.'s (2010) national survey revealed that over 65% of those whose symptoms qualified for a diagnosis of OCD within the previous 12 months experienced severe impairment in important life domains, with an average of 45.7 days spent out of role in the previous year. Comparison studies support these findings. When individuals with OCD were compared with healthy controls, Huppert, Simpson, Nissenson, Liebowitz, and Foa (2009b) found that those with OCD experienced more severe social and occupational impairment. The same pattern emerged when those with OCD were contrasted with individuals who had mood and anxiety disorders (Torres et al., 2006). Similarly, Steketee, Grayson, and Foa (1987) found that, when compared with individuals with anxiety disorders, patients with OCD experienced greater impairment in occupational functioning and they experienced more extreme poverty.

Individuals with OCD ($n = 404$) have also been found to have higher rates of suicide attempts than those with other disorders ($n = 4,020$) (Hollander et al., 1996).

2.7 Prevalence and course of OCD

Epidemiological studies suggest that approximately 2% to 3.5% of the population experience OCD over their lifetime, with recent studies across countries reporting lifetime prevalence rates of 2.3% in the United States (Ruscio et al., 2010), 3% in Singapore (Subramaniam, Abidin, Vaingankar, & Chong, 2012), 3.5% in Zurich (Angst et al., 2004), and 1.8% in Iran (Mohammadi et al., 2004). In a study involving 377 adults with OCD who had been referred to mental health care centres, Anholt et al. (2014) detected an average age of onset of 18.3 years ($SD = 9.4$), and identified two distinct populations, being those with early age of onset (61%, M age = 12.8, $SD = 4.9$) and those with late onset (39%, M age = 24.9, $SD = 9.3$), with a cut-off for early versus late onset of 20 years. In their study, those individuals with an early age of onset of OCD reported more severe o-c symptoms. Without treatment, OCD tends to be a chronic disorder (APA, 2013).

2.8 Obsessive-Compulsive Phenomena in Normal Populations

In 1978, Rachman and de Silva conducted a landmark study in which they found that nonclinical individuals experience unwanted and distressing intrusive thoughts which have similar content and structure to clinical obsessions. Since then, researchers have consistently replicated these results (see J. S. Abramowitz et al., 2014 for a review). It is now established that obsessive-compulsive phenomena are present in nonclinical populations; with clinical and non-clinical symptoms being differentiated only by their frequency and intensity, and by the level of distress and impairment that they cause (Abramowitz et al., 2014). Given that unwanted intrusive thoughts and compulsive behaviours are not unique to those with OCD, and such phenomena tend to lie along a spectrum, researchers have attempted to determine

what factors cause unwanted intrusions and compulsions to be experienced more frequently and intensely, and as more distressing, by only certain individuals.

2.9 Emotion Regulation in OCD

Many factors have been implicated in the pathogenesis of OCD, including genetic (Taylor, 2013), biological (Hennig-Fast et al., 2015), environmental (Cath, Van Grootheest, Willemsen, Van Oppen, & Boomsma, 2008), cognitive (Bhar & Kyrios, 2007; Jacob, Morelen, Suveg, Brown Jacobsen, & Whiteside, 2012; Shafran, Thordarson, & Rachman, 1996), and emotional (Jacob et al., 2012; Mancini & Gangemi, 2004a; Shafran, Watkins, & Charman, 1996) factors. This dissertation focuses on the influence of emotion and emotion-regulation. Researchers have examined the relationship between OCD and a range of emotions including anxiety, guilt (Mancini & Gangemi, 2004b), fear (Rachman, 2004), disgust (Berle & Phillips, 2006), and, more recently, shame (Weingarden & Renshaw, 2015).

Emotions are typically brief phenomena involving changes in thought, action tendencies, bodily sensations and physical expression (Moors & Scherer, 2013). Emotion-driven action tendencies have been identified as demanding “priority over other action tendencies” (Moors & Scherer, 2013, p. 136). Emotions arise in response to subjectively meaningful stimuli (Campbell-Sills & Barlow, 2007), and they are felt as either positive/pleasant or negative/aversive (Moors & Scherer, 2013).

Emotion regulation constitutes the “processes by which individuals influence which emotions they have, when they have them, and how they experience and express [them]” (Gross, 1998, p. 275). Campbell-Sills and Barlow (2007) noted that individuals with OCD specifically attempt to inhibit thoughts that arouse “uncomfortable emotions” and, so, “thought suppression may be construed as a method of emotion regulation” (p. 548). A. Abramowitz and Berenbaum (2007) likewise proposed that both impulsive and compulsive behaviours “may reflect maladaptive emotion regulation strategies” as they “provide some

immediate or short-term emotional benefits along with undesirable longer-term consequences” (p. 1357). Recently, the compulsions observed in OCD have been conceptualised as strategies for regulating the self-conscious emotion of shame (Weingarden & Renshaw, 2015).

2.10 Defining Shame

Shame has been identified as an intensely painful moral emotion which arises when one’s misdeeds or flaws are attributed to character defects (H. B. Lewis, 1971; Tangney & Dearing, 2003). The cognitive component of shame is captured in expressions such as “I am not good”, “I am unlovable”, and “I should not be” (R. T. Potter-Efron, 2011, p. 224), and shame is usually associated with a sense of being diminished, unworthy, powerless, and exposed (Tangney & Dearing, 2003). Behavioural responses to shame include gaze aversion, postural collapse, and avoidance (De Rubeis & Hollenstein, 2009; Keltner & Harker, 1998); and shame motivates a desire to escape, withdraw, or disappear, or to conceal those aspects of the self considered shameful (H. B. Lewis, 1971; Tangney & Dearing, 2003).

Shame emerges with the development of subjective self-awareness when children are as young as two to three years of age (M. Lewis, 1995; Mills, 2005; Muris & Meesters, 2014); with behavioural expressions of shame and verbalised negative self-evaluation observed in the context of failure in children aged three (Alessandri & Lewis, 1993; M. Lewis, Alessandri, & Sullivan, 1992).

Shame has been found to be associated with a range of maladaptive behaviours and with psychopathology. In cross-sectional research, shame was found to be associated with behavioural inhibition (Muris, Meesters, Bouwman, & Notermans, 2015), submissive behaviour, and feelings of inferiority (Gilbert, 2000). This is perhaps not surprising given that shame-proneness, which is the tendency to experience shame across contexts, was found to be associated with the degree of discrepancy between how individuals saw themselves,

and, both their own idea of who they should be and their idea of who others believed they should be (Tangney, Niedenthal, Covert, & Barlow, 1998). Shame also predicts the tendency to engage in self-blame when criticised or put-down by others (Gilbert & Miles, 2000) and the tendency to feel distressed when faced with another's distress (Tangney, 1991). In nonclinical samples, shame was associated with neuroticism (Darvill, Johnson, & Danko, 1992), and it was found to predict severity of symptoms of a range of aspects of psychopathology including psychoticism, anxiety (Muris et al., 2015; Tangney, Wagner, & Gramzow, 1992), and depression (Gilbert, 2000; Tangney et al., 1992).

An important issue when conceptualising shame is determining whether, and how, shame differs from low self-esteem. Tangney and Dearing (2003) defined self-esteem as a “stable trait involving one's general evaluation of the self, largely independent of specific situations” (p. 56). They proposed that the essential difference between shame and low self-esteem is that shame is affective, while self-esteem is purely cognitive. Of course, shame features negative evaluations of the self, but Tangney and Dearing theorised that in shame such evaluations were accompanied by physiological, experiential, and motivational changes such as feeling small, hot, and acutely pained, and wishing to shrink into the ground and disappear. Furthermore, Tangney and Dearing identified that whereas shame is a typically brief experience which rises and falls, low self-esteem tends to be chronic and stable. In support of their theory that self-esteem and shame are distinct constructs, the authors reported results from a range of studies examining the relationship between shame and self-esteem which found correlations between the two constructs of $r = .24$ to $r = .48$. They concluded that the size of these correlations suggests that, while shame and self-esteem are related, they are not identical.

It is also worthwhile considering whether embarrassment is distinguishable from shame, or, if it is merely a less intense form of the same emotion. Tangney, Miller, Flicker,

and Barlow (1996) sought to answer this question by asking undergraduate students to describe their experiences of these emotions. The researchers found that embarrassment was a more fleeting and less painful emotion than shame, and, unlike shame, it was almost exclusively elicited in public. The students also found it more difficult to recount their memories of being ashamed than being embarrassed, and they were more likely to laugh about their memories of embarrassment. The researchers interpreted their findings as indicating that shame and embarrassment were distinct emotions.

2.11 Shame and Guilt

Researchers and practitioners often treat guilt and shame as though they were interchangeable (Ausubel, 1955; Sappenfield, 1954). Yet, theorists highlight the following important distinctions between these emotions (H. B. Lewis, 1971; Tangney & Dearing, 2003). When a person feels guilty, they believe that they have done something wrong, and the resulting negative affect usually motivates reparation and apology. In guilt, one's negative evaluation is focused on the wrongful behaviour, and may be expressed as, "I did a terrible thing and I feel awful about it". In contrast, when a person feels shame, their misdeed is perceived as evidence that their whole self is bad or defective, and shame may be expressed as, "I did a terrible thing and I am an awful person". In shame, one's negative evaluation is focused on the self. Furthermore, when compared with guilt, shame has been found to be a more painful emotion, which is associated with a greater sense of inferiority and isolation (Tangney et al., 1996).

Another important distinction between shame and guilt is the extent to which proneness to experiencing each type of emotion predicts psychopathology. Researchers have found that the propensity to experience shame (without guilt) is associated with a range of psychopathology, but the tendency to feel guilt (without shame) is not linked to psychological maladjustment (Fergus, Valentiner, McGrath, & Jencius, 2010; Tangney et al., 1992).

A common misconception is that shame is a uniquely public emotion, while guilt is a private emotion (Buss & Finn, 1987). This view assumes that public disapproval is a necessary determinant of shame. However, when Tangney et al. (1996) asked 182 undergraduate students to describe personal experiences of self-conscious emotions, they found that 18.2% of shame experiences occurred when the person was alone, and 10.4% of guilt experiences occurred in private. This finding suggests that others need not witness one's defects or wrongdoings for guilt or shame to arise. With respect to shame, in the absence of an audience, individuals can imagine how others would perceive their flaws, and project themselves into the role of an observer, deriding themselves as shameful (H. B. Lewis, 1971; Tangney & Dearing, 2003). Gilbert (2000) identified that such projection can take different forms, with *internal shame* being characterised by contempt for the self, while *external shame* is the perception that others would be ashamed of oneself if they were aware of one's defects.

While theorists have suggested that guilt is more strongly associated with responsibility and moral transgressions than is shame (Bedford & Hwang, 2003), empirical evidence has contradicted this notion. Tangney et al. (1996) found that one's sense of responsibility for wrongdoings did not influence whether individuals experienced either guilt or shame. Similarly, in a qualitative study of situations which elicited self-conscious emotions, both shame and guilt were found to arise in contexts which were associated with morality and in circumstances that were not associated with morality, such as causing others emotional pain, or failing to satisfy the expectations of others (Tangney, 1992).

In sum, shame and guilt may be distinguished by the focus of one's negative appraisals. Whereas, in shame the self is appraised as wrong or bad, in guilt one's behaviour forms the focus of negative attention, leaving the self untainted. Furthermore, shame has been identified as a more acutely painful emotion, and, more closely linked to a range of

psychopathologies. Factors which do not distinguish these emotions include one's sense of responsibility for wrongdoings, the morality of one's misdeeds, and the exposure of one's misdeeds or defects to others.

2.12 Shame and Guilt in OCD

Until recently, the emotion of shame was largely overlooked in the OCD literature. In contrast, guilt has received relatively more research attention. This imbalance in attention may be due, in part, to a lack of differentiation between shame and guilt in the literature. Despite the conceptual differences between the two emotions, measures used in studies to assess the association between guilt and OCD (see Shafran, Watkins, et al., 1996) have tended to confound shame and guilt (Tangney & Dearing, 2003). For instance, the Guilt Inventory (GI; Kugler & Jones, 1992) includes the items, "Frequently I just hate myself for something I have done," and, "Lately, I have felt good about myself and what I have done". These items arguably reflect shame rather than guilt, as they refer to a sense that misdeeds damage the whole self.

When validating their scale, Kugler and Jones (1992) detected strong positive correlations between the GI and measures of shame, and recommended that "authors of guilt and shame scales should continue to refine their instruments" (p. 326). They warned that their findings indicated that "researchers should not automatically assume that [either shame or guilt] is being measured to the exclusion of the other on the basis of the construct named by an instrument" (p. 326). Accordingly, whereas Shafran, Watkins, et al. (1996) found that those with OCD scored more highly than healthy controls on the guilt subscales of the GI, and concluded that those with OCD feel more guilty than others, it may be that this finding resulted from the inclusion of shame items in those subscales. Studies using the Perceived Guilt Inventory (PGI; Otterbacher & Munz, 1973) to investigate the relationship between guilt and OCD (see Shapiro & Stewart, 2011) may have similarly confounded the constructs

of guilt and shame. When completing the PGI, respondents rate themselves on words such as “unforgivable,” “disgraceful,” “degraded,” and “marred”, which describe the experience of shame, rather than guilt. In sum, studies supporting the relationship between guilt and OCD may also, or instead, have inadvertently supported a relationship between shame and OCD.

In 2004, Mancini and Gangemi argued that an excessive sense of responsibility, as defined by Salkovskis and Forrester (2002), was insufficient to induce OCD behaviours. They instead proposed that “obsessive activity is regulated by the fear of behaving irresponsibly”. They state that “the individual with OCD may thus be characterized by an extreme fear of not behaving in a way consistent with their standards of fairness”. The authors labelled this fear - “fear of guilt”.

Mancini and Gangemi argued that Mancini, D’Olimpio and Cieri (2004) and Mancini and Gengemi (2004) found experimental evidence that heightened fear of guilt induced obsessive-like behaviours. In both studies, fear of guilt was reportedly manipulated by increasing the participants’ expectations that they would perform poorly on a task which was linked to responsibility (e.g., responsibility for diagnosing a patient’s medical condition). Those individuals who were made to expect that they would perform poorly exhibited more obsessive-like behaviours than those who were made to feel responsible without also being made to expect to fail.

While these studies indicate that increasing one’s expectation of failure in the context of responsibility results in increased obsessionality, they do not provide evidence that fear of a particular emotion, whether it be regret, guilt, or shame, is causing such an increase in obsessionality.

It is possible that, compared to guilt, shame may be more important as a predictor of compulsions. This proposition is supported by findings from an analogue study in which

researchers differentiated between guilt and shame and found that, after controlling for the severity of obsessions and conviction regarding thought-action-fusion, shame-proneness, but not guilt-proneness, predicted engagement in compulsions ($r = 0.16, p < 0.01$; $r = -0.02, p = ns$, respectively) (Valentiner & Smith, 2008). The researchers also found that, in the context of severe obsessions, those who are prone to experience shame, and who believe that thoughts can be immoral, tend to engage in more compulsions. No such effect was detected with respect to guilt-proneness.

2.13 Evidence of relationship between shame and OCD

In 2015, Weingarden and Renshaw conducted a systematic review of the empirical and anecdotal literature examining the relationship between shame and obsessive-compulsive and related disorders. They identified research suggesting that shame is broadly implicated in OCD. The first paper in this dissertation will expand on their model of shame in OCD. In order to contextualise the first paper, the following paragraphs highlight findings identified in Weingarden and Renshaw's review, together with details of research in the subject area conducted since the publication of their article.

2.13.1 Shame and OCD

Weingarden and Renshaw (2015) identified research which suggests that those with OCD have stronger defectiveness/shame schemas than do nonclinical individuals (Kim, Lee, & Lee, 2014; Noie, Farid, Fata, & Ashoori, 2010). They also noted findings that defectiveness/shame schema was elevated in those with OCD when compared to those with trichotillomania (Lochner et al., 2005), while no difference was detected between those with OCD and those with obsessive-compulsive personality disorder (Noie et al., 2010). Since the publication of Weingarden and Renshaw's review, a clinical study examining differences in early maladaptive schemas showed that individuals with OCD ($n = 51$) had higher scores on defectiveness/shame schema than did those with panic disorder ($n = 46$) and healthy controls

($n = 70$) (Kwak & Lee, 2015). Similarly, Yoosefi et al. (2016) found that individuals with OCD ($n = 50$) had higher scores on defectiveness/shame schema than individuals with other anxiety disorders ($n = 50$) and nonclinical individuals ($n = 51$).

Other research published since Weingarden and Renshaw's (2015) article has also implicated shame in OCD. In a large clinical OCD sample ($n = 152$), OCD symptom severity was found to correlate with both characterological and behavioural shame (Singh, Wetterneck, Williams, & Knott, 2016). Furthermore, elevation of shame in those with OCD was observed in a neuroimaging study by Hennig-Fast et al. (2015), who asked individuals with and without OCD ($n = 20$ in each group) to imagine shame-inducing and neutral scenarios while being scanned with functional magnetic resonance tomography. When compared to healthy controls, those with OCD found shame-inducing scenarios more unpleasant to imagine. The authors interpreted this finding as indicating that those with OCD may be less able to modulate and monitor shame. Additionally, Hennig-Fast et al. found that, when imagining shame-inducing scenarios, those with OCD had increased activity in limbic, temporal and sub-lobar (hypothalamus) regions, which are implicated in memory and imagination. The researchers proposed that this elevation suggests that shame-based images and memories may be more vivid for those with OCD than for healthy individuals.

With respect to the relationship between OCD and shame-proneness, Weingarden and Renshaw (2015) identified a clinically important treatment outcome study, which suggested that alleviation of shame may contribute to recovery from OCD. Patients in an outpatient treatment program who were diagnosed with either OCD or an anxiety disorder ($n = 124$) completed measures of shame proneness (Test of Self-Conscious Affect-3; Tangney, Dearing, Wagner, & Gramzow, 2000) and OCD symptom severity (Obsessive-Compulsive Inventory-Revised; Foa et al., 2002) before commencing treatment, and when completing treatment two to three weeks later. The researchers detected a moderate relationship ($r = .51$,

$p < .001$) between reduction in OCD symptom severity and reduction in shame-proneness over the course of treatment (Fergus et al., 2010). It is notable that this analysis was purely correlational and so the observed reduction in shame may have been a consequence, rather than cause, of the reduction in OCD symptom severity.

2.13.2 Concealment of OCD symptoms

Weingarden and Renshaw (2015) also cited circumstantial evidence alluding to a relationship between OCD and shame. For example, concealment of those aspects of oneself which are deemed defective is a core behavioural indicator of shame (Tangney & Dearing, 2003). Individuals with OCD tend to delay seeking treatment for longer than those with other anxiety disorders (with estimates of latency in OCD ranging from 7.9 to 13.8 years) (Altamura, Buoli, Albano, & Dell'Oso, 2010; Cullen et al., 2008; Dell'Oso, Camuri, Benatti, Buoli, & Altamura, 2013), and research suggests that shame is a primary reason for this delay (Dell'Oso et al., 2013; Marques et al., 2010). When Marques et al. (2010) asked community members with OCD to select from a list those items which were barriers to them seeking treatment, 53.2% nominated shame.

2.13.3 Shame and OCD subtypes

Weingarden and Renshaw (2005) proposed that violent, sexual and religious obsessions may be considered particularly shameful (Chase, Wetterneck, Bartsch, Leonard, & Riemann, 2015; Glazier, Wetterneck, Singh, & Williams, 2015). Individuals who screened positive for OCD ($n = 164$) completed an online questionnaire regarding their symptoms and their barriers to obtaining treatment. Seventy-five percent of participants indicated that shame was a treatment barrier; and those with high severity obsessions with themes of sex, religion, and violence, were significantly more likely to endorse shame as a treatment barrier than were those who had less severe obsessions of that nature (Glazier et al., 2015). In contrast,

severity of obsessions concerning contamination, symmetry, and harm did not influence the extent to which shame posed a barrier to treatment (Glazier et al., 2015).

In another study, Chase et al. (2015) found that individuals with OCD who experienced violent, sexual, or religious obsessions and compulsions had more severe symptoms of OCD than those with other subtypes. The authors theorised that this difference may have been partly due to the greater shame attached to experiencing unacceptable thoughts, and the greater risk of stigma associated with disclosing such intrusions. In their discussion of treatment for OCD featuring aggressive obsessions, Golden, Haynes, VanDyke, and Pollard (2016) noted that clients with aggressive obsessions tended to hide their intrusions due to intense shame and embarrassment; believing that their thoughts were unacceptable and that “no one else experiences these kinds of thoughts” (p. 65). In order to resolve this shame and to facilitate disclosure, Golden et al. recommended that therapists provide psychoeducation regarding the nature and ubiquity of unwanted intrusions in the general population.

To date, the analysis of whether certain subtypes of OCD elicit shame, has been conducted on the basis that individuals must desire to hide their obsessions in order for such obsessions to be considered shameful. However, it is possible that individuals who disclose obsessions may still anticipate feeling shame should their feared outcomes eventuate. Further, irrespective of the OCD subtype, individuals may yet forecast shame (Schoenleber & Berenbaum, 2012) if they anticipate being devalued as a person should their fears eventuate. For example, an individual with cleaning compulsions may be prepared to report associated obsessions, but fear that if they do not clean, others would consider them dirty. In this case, the obsession regarding contamination and cleanliness may be associated with forecasted shame rather than current shame. That is, while the mere presence of the obsessions may not be shameful, the feared outcomes associated with obsessions may elicit anticipation of

shame. Research is needed to identify whether different OCD subtypes elicit different degrees of forecasted shame, and whether such shame may be present for those who do not feel shame when disclosing their obsessions.

2.13.4 Mental contamination

In their review, Weingarden and Renshaw (2015) identified that mental contamination, which has been the focus of recent research in OCD, may be likened to shame. They referred to a theory posited by Rachman (1994) that compulsions may be performed to neutralise feelings of mental contamination. Mental contamination has been described as a sense of internal dirtiness which arises and persists in the absence of observable dirt, which is not resolved by washing, and which has a moral or emotional quality akin to shame (Fairbrother & Rachman, 2004). The wider literature indicates that this sense of the self as unclean, contaminated, or dirty, suggests the presence of shame. For instance, R. Potter-Efron and Potter-Efron (2009) state that shame is reflected in thoughts such as “I am dirty (soiled, ugly, unclean, impure, filthy, disgusting)” (p. 14). Additionally, in their study of abuse related-shame, Feiring and Taska (2005) assessed shame with four statements, including “What happened to me makes me feel dirty” (p. 340), and, when detailing how emotional content was coded in their qualitative study, Negrao, Bonanno, Noll, Putnam, and Trickett (2005) presented, “I felt dirty, different from my peers,” as a prototypical example of expression of shame. Recent research suggests that those with OCD who have contamination concerns experience more intense mental contamination than do others (Radomsky, Rachman, Shafran, Coughtrey, & Barber, 2014) and those who experience more severe o-c phenomena tend to report higher levels of mental contamination (Coughtrey, Shafran, Knibbs, & Rachman, 2012; Radomsky et al., 2014).

2.13.5 *Intrusion-related shame*

Just as Rachman (1994) proposed that compulsions may be performed to neutralise mental contamination, Weingarden and Renshaw (2015) speculated that in OCD shame may be evoked by obsessions, and compulsions may constitute attempts to neutralise such shame. They referred to anecdotal evidence that individuals with OCD feel shame in response to their obsessions (Abbey, Clopton, & Humphreys, 2007; Berle & Phillips, 2006; Bram & Björgvinsson, 2004; Cogle, Lee, Horowitz, Wolitzky-Taylor, & Telch, 2008; Hyman & Pedrick, 2010; Koblenzer, 1993; Monti, Sambvani, & Sacrini, 1998; Newth & Rachman, 2001; Pallanti, 2008). They also cited a clinical study investigating the specificity of shame to symptom dimensions across disorders, in which researchers used implicit association tests to assess shame, and found that those with OCD experienced more severe shame regarding their intrusive thoughts than did those with body dysmorphic disorder, social anxiety disorder, and healthy controls (Clerkin, Teachman, Smith, & Buhlmann, 2014).

As part of their review, Weingarden and Renshaw (2015) identified questions regarding the interplay between OCD and shame which require further examination. They noted that research in clinical samples is needed to further clarify whether those with OCD experience greater shame than individuals with other disorders, and to determine whether certain types of intrusions are especially likely to elicit shame. They further highlighted an important gap in the literature, noting that research is yet to test whether compulsions serve to neutralise shame associated with unwanted intrusive thoughts.

In sum, Weingarden and Renshaw's (2015) review presented a case for further examining the role that shame plays in OCD. They identified research which suggests that individuals with OCD tend to experience heightened shame, and that reduction in shame is associated with improvement in o-c symptoms. They further proposed that their review

justified empirical examination of the hypothesis that compulsions may serve to neutralise intrusion-related shame.

2.14 Summary

In this chapter, the phenomenology of OCD was described, and an account was given of the epidemiology and course of the disorder and its impact on functionality and well-being. Studies were referred to which indicate that o-c symptoms are found in nonclinical populations and are best conceptualised as dimensional rather than categorical phenomena. The self-conscious emotion of shame was also defined and literature was presented regarding the relationship between shame, psychopathology, and distress. Important distinctions between shame and guilt were identified, with a particular emphasis on the focus of negative evaluation as a distinguishing feature. Studies which show a relationship between guilt and OCD were described and it was suggested that tools used in those studies to measure guilt appeared to confound guilt and shame. Finally, the findings of a recent review of shame in OCD were discussed, and current evidence of the relationship between shame and OCD was described. This overview offers a basis from which to develop an understanding of how unwanted intrusions may elicit shame, and how compulsions may comprise maladaptive strategies for regulating such shame.

CHAPTER 3: METHODS AND OVERVIEW

3.1 Chapter Guide

This chapter features an overview of the four papers which form the centrepiece of this dissertation, together with details of how the papers inter-relate. This chapter also features details of methodological issues which were examined, but which were not detailed in the papers due to constraints set by academic journals.

3.2 Paper 1 (Chapter 4)

The first paper (Chapter 4) elaborates on how shame may be positioned within a cognitive-behavioural framework of OCD and proposes that maladaptive beliefs regarding responsibility, threat, and perfectionism may constitute vulnerabilities to experiencing intrusion-related shame. This is in addition to Weingarden and Renshaw's (2015) proposal that beliefs regarding thought-action-fusion (morality) may be a vulnerability to feeling shame. Forecasted shame is highlighted as a potential trigger for avoidance and for compulsions which are performed to prevent dreaded outcomes.

3.3 Hypotheses and Research Questions

Three testable hypotheses were proposed (Chapter 4). First, it was predicted that those with OCD would experience greater shame than nonclinical populations in response to their intrusions. Second, it was predicted that those who hold more dysfunctional beliefs regarding responsibility, threat, perfectionism, and the importance and control of thoughts would experience greater shame in response to their unwanted intrusive thoughts, images and urges. Third, it was expected that changes in intrusion-related shame would be associated with changes in compulsion severity over the course of treatment of OCD, such that relief from shame would be associated with reduction in compulsion severity.

With respect to the relationship between shame and certain subtypes of OCD, the review presented in paper 1 (Chapter 4) identified gaps in the literature regarding whether all obsession subtypes may be associated with *forecasted* shame (as distinct from *current*

shame), and whether individuals with OCD may experience shame in response to symmetry and contamination obsessions, even if they are not afraid to disclose them. A further unanswered question concerned whether intrusion-related shame moderated the relationship between how often individuals experience intrusions, and the severity of their compulsions, and if the influence of shame differed depending on the type of intrusions experienced.

3.4 Paper 2 (Chapter 5)

In order to test these hypotheses and to explore the research questions posed, it was necessary to assess the intensity of shame experienced by individuals in response to their unwanted intrusive thoughts and urges. A review of the literature revealed the lack of a self-report measure of such shame.

The second paper (Chapter 5) featured in this thesis describes the development of a self-report measure of intensity of shame associated with unwanted intrusive thoughts and urges – the Intrusion-Related Shame scale (IRS). The IRS was developed across three stages. First, the existing literature was reviewed and individual items were derived from that literature and adapted from existing measures of shame and OCD-related constructs. Second, experts in OCD and in shame were invited to critique the initial pool of items. Following the initial critique, the pool of items was revised and a second opportunity to critique the scale was offered to experts in the field. Finally, an EFA and CFA were conducted to test the scale's validity and to effect item reduction; a second CFA was conducted with respect to the final version of the IRS.

The 17-item IRS was conceptualised as measuring three distinct forms of intrusion-related shame. Items in the first factor reflected internal shame felt immediately upon experiencing intrusions. Items in the second factor reflected the anticipation of being shamed by others if intrusions were disclosed. Items in the third factor (being a higher order factor)

reflected the anticipation of feeling internal shame if feared outcomes were to arise or if they were not actively prevented.

The scale's convergent validity was supported by medium to strong correlations with measures of shame. Its divergent validity was evidenced by a lack of association with a measure of moral standards. Individuals with OCD were found to score significantly higher on the IRS than others, and the IRS correlated with measures of obsession and compulsion severity.

3.4.1 Methodological considerations

Due to the constraints of writing for publication, paper 2 (Chapter 5) was briefer than would permit a thorough elaboration of the process involved in developing each item and establishing construct validity, and in testing and verifying the factor structure. This section sets out particulars of the sources (e.g., existing measures of shame) used when developing individual items for the IRS. This is followed by details of expert ratings of items, and elaboration on the methodology employed when determining whether to discard individual items, together with multiple regression analyses, showing the correlations between each of the subscales of the IRS and the YBOCS after controlling for scores on a measure of depression. Finally, details of each empirical analysis of the factor structure are set out in full.

3.4.1.1 Elaboration on item development

The theoretical basis for the development of items for the IRS was described in the second paper. However, the limited scope of paper 2 (Chapter 5) did not allow for inclusion of detailed information regarding source material utilised when formulating the pool of items. The majority of items included in the initial item pool were developed by adapting items from existing validated measures of shame and OCD-related constructs, and from literature regarding shame-laden constructs in OCD. Appendix 1 includes the full initial item pool, with details of the sources from which items were adapted. All items in the initial item pool

which were not directly adapted from source material, were derived from the wider literature regarding the experience and expression of shame.

3.4.1.2 Elaboration on expert critique

The second paper (Chapter 5) refers to tests of content validity undertaken by consultation with experts in the fields of shame and OCD. Experts were contacted via email and invited to critique the initial item pool. While details of the number of experts who were approached and who participated in the study are described in paper 2 (Chapter 5), the wording of the invitations sent to each type of expert was not included in that paper. These invitations are set out in Appendix 2. Experts in shame were asked to indicate the extent to which each item captured shame, as they understood the notion. Experts in OCD were invited to indicate the extent to which each item captured shame as it was experienced by people with OCD. Each item was rated on a scale from 1 (*irrelevant*) to 3 (*highly relevant*).

The extent to which experts in shame considered each item to have captured shame was deemed to be of greater importance than the extent to which experts in OCD considered each item to reflect shame as expressed in OCD. Accordingly, two scores were created for each item. The first score was the combined overall average rating by all experts. The second was the average rating by shame experts alone. For the purpose of item reduction, consideration was given to both scores, thereby giving greater weight to ratings by experts in shame. Mean ratings of the relevance of each item in the initial item pool are shown in Appendix 3A.

Following the initial critique, the item “When I have unwanted intrusive thoughts or urges I feel dirty” was removed on the basis of expert advice that it more closely reflected mental contamination than shame; and the item “When I have unwanted intrusive thoughts or urges I feel bad or evil” was removed because it was double barrelled. To avoid ambiguity, items related to feeling small, were re-worded from “I would feel small,” to read, “I would

feel small, like a rat”; and the wording of the items related to feeling awful or wicked were refined so that they referred to feeling like an awful or wicked *person*. Additionally, the following items were added based on suggestions by experts: “When I have unwanted intrusive thoughts or urges I feel like deep down I am a bad person,” and “When I have unwanted intrusive thoughts or urges I feel totally flawed,” and “If other people knew about my unwanted intrusive thoughts or urges I would want to withdraw.” Finally, the following thirteen items were removed because they were rated below 2.00 on average by both groups.

1. When I have unwanted intrusive thoughts or urges:
 - I feel crazy or weird
 - I feel untrustworthy or dangerous
2. If other people knew about my unwanted intrusive thoughts or urges:
 - they would think I am crazy
 - they would put me down
 - they would think I am mentally unstable
 - they would think I am dangerous
3. If I didn’t do something about my unwanted thoughts to prevent what I fear from coming true:
 - I would be negligent
 - I would be irresponsible
 - I would feel dangerous
 - I would feel weak
4. When I have unwanted thoughts or urges, I worry that if they were true (or they came true):
 - I would feel weak
 - other people would think I am mentally unstable

other people would think I am dangerous

Following the initial critique, experts in shame and in OCD were invited to provide their expert opinion on the revised set of items. Mean ratings of the relevance of each item in the revised pool are shown in Appendix 3B. The following nineteen items were removed because they were rated at 2.00 or below on average by *either* group.

1. When I have unwanted intrusive thoughts or urges:
 - I feel alone and apart from other people
 - I want to avoid eye contact with anyone
 - I feel unforgiveable
2. If other people knew about my unwanted intrusive thoughts or urges:
 - they would look down on me
 - they would not want to be near me
 - they would hate me
 - they would see me as incompetent
 - I would be unable to live with myself
 - I would feel like I was an awful person
3. If I didn't do something about my unwanted thoughts to prevent what I fear from coming true:
 - I would hate myself
 - I would be a bad person
 - I would feel like I shouldn't be trusted
 - I would be unforgiveable
 - I would not be able to live with myself
4. When I have unwanted thoughts or urges, I worry that if they were true (or they came true):

I would not be able to live with myself

I would be unforgiveable

other people would think there is something wrong with me

other people would think I am a wicked person

other people would hate me

Finally, four pairs of items were identified as being so similar as to indicate item redundancy. We therefore removed from each pair the item that had been given the lowest mean rating by both sets of experts, combined. This resulted in the removal of the following items:

2. If other people knew about my unwanted intrusive thoughts or urges:

I would want to withdraw

they would condemn me

they would think I am terrible

4. When I have unwanted thoughts or urges, I worry that if they were true (or they came true):

other people would treat me like an outcast.

The remaining forty-nine items were subjected to factor analyses, which are described in paper 2 (Chapter 5).

3.4.1.3 Multiple Regression Analyses, Controlling for Depression

Paper 2 presents results from correlational analyses of the relationships between the subscales of the IRS and scores on the YBOCS, which is a measure of obsessive-compulsive symptom severity. What follows are findings from hierarchical regression analyses, which were conducted on the first CFA sample to test whether the relationship between intensity of

intrusion-related shame and obsessive-compulsive symptom severity remained significant after controlling for depression.

The YBOCS total symptom severity score was entered as the dependent variable. This score was transformed to improve normality. Separate hierarchical regression analyses were conducted for each type of intrusion-related shame captured in the T-IRS (i.e., internal current shame, internal forecasted shame, and external forecasted shame). The Depression subscale of the Depression, Anxiety and Stress Scale (DASS; Lovibond & Lovibond, 1995) was used to assess severity of depression. The DASS is a 21 item scale designed to measure depression, anxiety and stress experienced over the past week. Seven items feature in each subscale. Items are measured on a three-point scale ranging from 0 = Did not apply to me at all to 3 = Applied to me very much, or most of the time. The DASS depression score was entered as a predictor in the first step of each regression. IRS subscale scores were entered as predictors in the second step.

The results of each regression analysis, including change in R^2 and partial correlation coefficients, are presented in Table A below. On the first step of each analysis, depression predicted o-c symptom severity. The addition of each type of intrusion-related shame at the second step significantly improved the prediction of o-c symptoms. These findings suggest that intrusion-related shame is not simply an artefact of depression and that it has a relationship with o-c symptom severity which is independent of depression.

Table A

Results of multiple regression analyses predicting o-c symptom severity, testing effect of controlling for depression

	ΔR^2	Partial r	
		Step 1	Step 2
Step 1	.224**		
Depression		.473**	.326**
Step 2	.048**		
Internal current shame			.249**
Step 1	.224**		
Depression		.473**	.405**
Step 2	.028**		
Internal forecasted shame			.191**
Step 1	.224**		
Depression		.473**	.381**
Step 2	.018*		
External forecasted shame			.154*

Note: $n = 283$ * = $p < .05$, ** = $p < .01$; o-c symptom severity = YBOCS symptom severity total

score; Depression = Depression subscale of the Depression Anxiety and Stress Scale; Internal current shame = Intrusion-Related Shame Scale internal current shame subscale; Internal forecasted shame = Intrusion-Related Shame Scale internal shame-forecasting subscale; External forecasted shame = Intrusion-Related Shame Scale internal current shame subscale

3.4.1.4 Exploratory Factor Analysis, Confirmatory Factor Analyses, and discriminant validity analyses

Paper 2 (Chapter 5) includes a brief description of an EFA and two CFAs. Further details of the steps undertaken in the EFA to achieve simple structure and to effect item reduction are set out in Appendices 4A and 4B. Details of the steps undertaken in the initial CFA to effect item reduction are elaborated in Appendix 5. Details of the steps taken to achieve item reduction in the second CFA, which was conducted with an independent sample, are described in full in paper 2 (Chapter 5). Appendix 6A contains details of the analysis of factorial discriminant validity conducted after the first CFA, using Fornell and

Larcker's (1981) method. Appendix 6B sets out details of the analysis of factorial discriminant validity which was undertaken after the second CFA.

3.5 Paper 3 (Chapter 6)

The model of shame in OCD presented in paper 1 (Chapter 4) holds that, when individuals experience or forecast shame in response to their unwanted intrusions, they may perform compulsions to regulate or avoid shame. It follows that, in the absence of this aversive emotion, individuals may feel less compelled to neutralise their unwanted thoughts and urges.

The third paper in this dissertation reports on a test of whether the relationship between intrusion frequency and compulsion severity was moderated by shame. A cross-sectional survey study was conducted in a nonclinical sample of undergraduate psychology students. Moderation analyses were performed with respect to four subtypes of intrusions: contamination, symmetry, sexual/religious/immoral, and aggressive intrusions; and three forms of intrusion-related shame: internal current shame, internal forecasted shame, and external forecasted shame. The IRS, which was developed as part of this program of research (see Chapter 5), was used to assess the intensity of intrusion-related shame experienced by participants.

Internal current shame was found to moderate the relationship between intrusions and compulsions when intrusions featured themes of contamination or aggression; and internal forecasted shame moderated the relationship when intrusions concerned aggression or sex/religion/immorality. However, no moderation effect was detected with respect to symmetry intrusions or external forecasted shame.

3.5.1 Methodological considerations

Details of two important factors were omitted from paper 3 (Chapter 6). First, it was not possible to include justification for use of the chosen sample. Second, the paper did not

feature a thorough explanation for why the Obsessional Intrusive Thoughts Inventory (INPIOS; García-Soriano, 2008) was selected to measure intrusion-frequency in the study. These matters are discussed in the following sections.

3.5.1.1 Participants

The study featured in paper 3 (Chapter 6) tested whether shame moderated the relationship between the frequency with which individuals experienced unwanted intrusive thoughts, and the severity of their compulsions. There were two questions under examination. The first concerned whether individuals who feel stronger shame in response to their intrusions, experience more severe compulsions when their intrusions are frequent. The second question was whether those who feel less shame in response to their intrusions may experience frequent intrusions without experiencing more severe compulsions. It was therefore important that the sample featured individuals who experienced both frequent intrusions and mild, or no, compulsions.

According to the DSM-5, in order for individuals to be regarded as experiencing clinically significant o-c phenomena, they must attempt to ignore, suppress, or neutralise their thoughts or urges (APA, 2013). In a large sample of individuals with OCD ($n = 431$), 91% of the sample reported experiencing obsessions and compulsions at similar rates, while only 8.5% predominantly experienced obsession. These findings suggest that it is rare for individuals with OCD to report experiencing frequent intrusions but infrequent compulsions (Foa & Kozak, 1995). Accordingly, use of a clinical OCD population in the study presented in paper 3 (Chapter 6) would likely have resulted in a lack of representation of individuals with frequent intrusions but infrequent, or nil, compulsions. It was therefore considered appropriate to test the moderation effect within a nonclinical population.

3.5.1.2 Assessment of intrusion frequency

The study described in paper 3 (Chapter 6) tested whether intrusion-related shame moderated the relationship between intrusion frequency and compulsion severity. The INPIOS was used to assess the frequency with which participants experienced unwanted intrusions. This measure was used instead of the YBOCS because the INPIOS allowed for the possibility that intrusions may be uncomfortable or unpleasant, but not necessarily distressing. In contrast, the YBOCS measures obsessions, and the definition of obsessions set out in the YBOCS specifies that they are distressing. Furthermore, scores on the INPIOS simply indicate the frequency of intrusions experienced. In contrast, scores on the YBOCS indicate the severity of obsessions experienced, with severity being reflected in the level of distress and interference experienced as well as the extent to which obsessions were resisted and perceived as controllable, and the time occupied by obsessions. Therefore, by using the INPIOS it was possible to determine whether shame moderated the relationship between the frequency of unwanted intrusions and the severity of compulsions, rather than investigating whether shame moderated the relationship between the severity of obsessions and the severity of compulsions, as would have been the case if the YBOCS obsession severity subscale had been utilised.

A further benefit of using the INPIOS was that it allowed for calculation of the frequency of different subtypes of unwanted intrusions. Only the contamination, aggression, sexual/religious/immorality, and symmetry subscales were used in this study because they were the subtypes which featured most often in research regarding shame associated with OCD subtypes (Chase, Wetterneck, Bartsch, Leonard, & Reimann, 2015; Glazier, Wetterneck, Singh, & Williams, 2015; Kim, Lee, & Lee, 2014; Wetterneck, Singh, & Hart, 2014).

3.6 Paper 4 (Chapter 7)

The study reported in paper 2 (Chapter 5) revealed that intrusion-related shame was associated with severity of o-c phenomena in a nonclinical population, and that those with OCD experienced significantly greater shame than nonclinicals. The study reported in paper 3 (Chapter 6) found that intrusion-related shame moderated the relationship between intrusions and compulsions in a nonclinical population. Before drawing conclusions regarding the relevance of intrusion-related shame to OCD, it was necessary to further examine intrusion-related shame in a clinical OCD population.

In the model of shame in OCD presented in this dissertation it is suggested that individuals who feel overly responsible for preventing harm, and who believe that they would be culpable for any harm caused, and those who overestimate threat and who believe that it is necessary and possible to be perfect, may be particularly vulnerable to experiencing shame when unwanted intrusions arise. It is also proposed that beliefs that thoughts hold great importance and are influential, meaningful and controllable, may likewise predispose individuals to feeling heightened shame in response to intrusions. These hypotheses were tested in the study described in paper 4 (Chapter 7) by way of calculation of bivariate correlations between measures of OCD-related beliefs and intrusion-related shame. The findings presented in paper 4 (Chapter 7) supported the predictions posed. These findings suggest that individuals with OCD who hold stronger beliefs of this nature tend to experience and forecast more intense shame in response to their obsessions. Furthermore, our findings that reduction in the strength of beliefs regarding the importance and control of thoughts in the second half of treatment was associated with reduction in shame, suggest that modification of such beliefs may potentially be useful in alleviating intrusion-related shame.

The proposed model of shame in OCD also holds that compulsions may serve to regulate intrusion-related shame. The findings presented in paper 4 (Chapter 7) provide

preliminary support for this proposition, as changes in shame in the second half of treatment were associated with changes in compulsion severity. While causal interpretations of these results must be tentative due to the cross-sectional nature of the research, these findings suggest that when individuals with OCD experience relief from intrusion-related shame, they feel less compelled to neutralise their obsessions by engaging in compulsions. Further research is needed to determine whether such changes are causally related.

3.6.1 Methodological considerations

Due to the constraints imposed by scientific journals it was necessary to exclude from paper 4 (Chapter 7) justification for using the Obsessive Beliefs Questionnaire (Obsessive Compulsive Cognitions Working Group, 2001, 2005) to measure OCD-relevant beliefs, and the implications of using this scale to measure the strength of beliefs regarding perfectionism. This section addresses these matters.

In 1997, the Obsessive Compulsive Cognitions Working Group (OCCWG) identified six beliefs which they proposed were highly relevant to OCD. The OCCWG developed a questionnaire, entitled the Obsessive Beliefs Questionnaire (OBQ; OCCWG, 2001, 2005), to measure conviction in these beliefs. In the course of developing and validating the OBQ, these six beliefs were grouped into three pairs. One factor featured beliefs regarding responsibility for harm and overestimation of threat; another factor featured beliefs regarding overimportance and control of thoughts; and, a third factor comprised beliefs regarding perfectionism and intolerance of uncertainty.

The model of shame in OCD presented in this dissertation proposes that elevations in five of these beliefs, namely beliefs regarding responsibility for harm and overestimation of threat, overimportance and control of thoughts, and perfectionism, may make individuals vulnerable to experiencing shame in response to unwanted intrusions. However, the model

does not feature beliefs regarding intolerance of uncertainty (see Chapter 4 for further details).

The OBQ was employed when investigating the relationship between shame and OCD-relevant beliefs in paper 4 (Chapter 7) because the theoretical work underpinning the creation of the OBQ informed the model of shame in OCD presented in this dissertation and because the OBQ is a well-validated tool.

The OBQ subscale which assesses beliefs regarding perfectionism and intolerance of uncertainty was utilised for the purpose of testing associations between intrusion-related shame and perfectionism and for testing the relationship between changes in these constructs across treatment. The outcome of those analyses are reported as reflecting the relationship between intrusion-related shame and perfectionism, with moderate to strong correlations found between perfectionism and both current and forecasted internal shame at baseline. No correlation was detected between change scores for perfectionism and any form of intrusion-related shame across treatment. When interpreting these findings, it is important to note that the correlations may have been influenced by the inclusion of items reflecting intolerance of uncertainty in the measure of perfectionism. In future, researchers should consider using a tool which measures perfectionistic beliefs alone, to determine whether a stronger relationship between change in intrusion-related shame and change in perfectionism emerges.

3.7 Ethics Clearances and Authorship

The Swinburne University Human Research Ethics Committee issued clearances for the research reported in this dissertation. Copies of each clearance are included in Appendix 7. Details of the extent of the contributions made by each author of each paper are set out in Appendix 8.

CHAPTER 4: A PROPOSED MODEL OF SHAME IN OCD

4.1 PAPER 1: Conceptualising Obsessive-Compulsive Disorder Compulsions as Shame Regulation Strategies

This paper has been submitted to Psychology and Psychotherapy: Theory, Research and Practice.

**Conceptualising Obsessive-Compulsive Disorder Compulsions
as Shame Regulation Strategies**

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Abstract

Beliefs about the self feature prominently in cognitive theories of OCD. Particular emphasis has been placed on beliefs which influence the impact that intrusive thoughts have on self-views. More recently, the self-conscious emotion of shame has been identified as potentially important to the disorder, with compulsions being conceptualised as shame-regulation strategies. An elaborated model of shame in OCD is presented in this paper. The model includes a consideration of OCD-related beliefs as potential vulnerabilities to intrusion-related shame. It is also proposed that compulsions may constitute strategies for regulating both current and anticipated shame. Applications of the proposed model are presented, and recommendations for future research are given.

Keywords: intrusion-related shame, obsessive-compulsive disorder, self

Cognitive behavioural therapy with exposure and response prevention is considered the gold standard psychotherapeutic treatment for obsessive-compulsive disorder (OCD) (Koran & Simpson, 2013). However, approximately a quarter of clients find this treatment intolerable (Kozak & Coles, 2005), and when rates of refusal and dropout are taken into consideration, treatment effectiveness rates are estimated at 55% to 63%. Furthermore, successful treatment of OCD tends to result in symptom reduction in the range of only 48% to 59% (Kozak & Coles, 2005). Investigation of the nature of the distress experienced by those with OCD may be useful in understanding how treatment may be enhanced to improve its tolerability and effectiveness.

OCD is a debilitating mental disorder characterised by persistent and distressing unwanted intrusive thoughts, images, or urges (obsessions), and/or repetitive or ritualised behaviours aimed at neutralising obsessions and/or alleviating distress (compulsions; American Psychiatric Association, 2013). Obsessions typically involve themes of violence, danger, sexual deviance, fear of becoming insane, immorality, symmetry, or contamination (American Psychiatric Association, 2013). Research suggests that all individuals experience unwanted intrusions which are often indistinguishable from obsessions with respect to their content and form (J. S. Abramowitz et al., 2014; Garcia-Soriano, Belloch, Morillo, & Clark, 2011). The features which differentiate intrusions experienced by non-clinical individuals from clinical obsessions experienced by those with OCD, are the frequency and intensity of such symptoms, and the degree of distress and impairment associated with them (Abramowitz et al., 2014).

Cognitive theories have been developed to explain why unwanted intrusions escalate into obsessions for only 2% to 3.5% of the population (Angst et al., 2004; Ruscio, Stein, Chiu, & Kessler, 2010; Subramaniam, Abidin, Vaingankar, & Chong, 2012). According to some theorists, intrusions increase in frequency and intensity, causing clinically significant

distress or impairment, if catastrophic significance is attached to the intrusions (Rachman, 1997, 1998; Salkovskis, 1985, 1999). For instance, Salkovskis (1985, 1999) proposed that intrusions become obsessions when they provoke concerns regarding being responsible for harm, being found at fault, or incurring blame. He proposed that these appraisals result in painful “self-condemnation” (Salkovskis, 1985, p. 574). Rachman (1997, 1998) expanded on the personal significance of the catastrophic appraisals made by those with OCD, theorising that intrusions become obsessions when they are interpreted as evidence that a prized aspect of the self is defective. He suggested that those with OCD interpret their thoughts “as revealing important but usually hidden elements in their character, such as: these obsessions mean that deep down I am an evil person, I am dangerous, I am unreliable, I may become totally uncontrollable ... I am fundamentally immoral” (Rachman, 1997, p. 794). This theory was supported by findings that those with OCD make more condemning inferences about themselves based on their intrusive thoughts than do others (Ferrier & Brewin, 2005), and they are most upset by thoughts which strongly contradict valued aspects of the self (Rowa, Purdon, Summerfeldt, & Antony, 2005).

Shame is elicited when individuals appraise themselves as defective, or as possessing qualities which conflict with their ideal of who they should be (Ferguson, Eyre, & Ashbaker, 2000; Tangney & Dearing, 2003). So, if intrusions become more frequent and intense, and cause clinically significant distress and/or impairment when the self is perceived as defective (Rachman, 1997, 1998), and such perceptions tend to elicit shame, it follows that shame may be implicated in OCD (Weingarden & Renshaw, 2015). Shame is an intensely painful emotion (H. B. Lewis, 1971; Tangney & Dearing, 2003) which is associated with a sense of being diminished, unworthy, powerless, and exposed (Tangney & Dearing, 2003), and is captured in expressions such as “I am not good”, “I am unlovable”, and “I should not be” (Potter-Efron, 2011, p. 224).

Weingarden and Renshaw (2015) conducted a review of the empirical and anecdotal literature regarding the relationship between obsessive-compulsive and related disorders and shame, and identified research suggesting that shame is implicated in OCD. Several recent cross-sectional and neuro-imaging studies have reiterated these findings, revealing links between OCD and shame (Chase, Wetterneck, Bartsch, Leonard, & Riemann, 2015; Glazier, Wetterneck, Singh, & Williams, 2015; Hennig-Fast et al., 2015; Kwak & Lee, 2015).

Weingarden and Renshaw (2015) speculated that in OCD, shame may be evoked by intrusions – a construct which can be called intrusion-related shame. They identified two factors which may render individuals vulnerable to experiencing heightened shame in response to their intrusions. The first factor was thought-action fusion (morality) (Shafran, Thordarson, & Rachman, 1996), which is the belief that having a bad thought makes one a bad person. The second factor was the type of unwanted intrusions experienced. They proposed that violent, sexual, and religious obsessions may be especially shameful. Recent studies have supported these predictions (Chase et al., 2015; Glazier et al., 2015). Finally, Weingarden and Renshaw theorised that when shame is elicited by intrusions, compulsions may constitute attempts to neutralise shame.

While Weingarden and Renshaw (2015) suggested that thought-action fusion may “enhance” (p. 77) intrusion-related shame, they did not consider the role of other beliefs which are considered central to cognitive behavioural models of OCD, and which may likewise lead to the emergence and maintenance of such shame. Without the inclusion of such beliefs, the understanding of shame in OCD remains incomplete. The Obsessive Compulsive Cognitions Working Group (1997) (the OCCWG) implicated a range of beliefs in OCD, including: importance and control of thoughts; perfectionism and intolerance of uncertainty; and threat estimation and personal responsibility. As indicated above, Weingarden and Renshaw have already identified thought-action-fusion, which is an aspect

of the OCCWG's concept of importance and control of thoughts, as a factor which may influence the experience of intrusion-related shame. Beliefs regarding perfectionism, responsibility and threat are proposed as additional potential vulnerabilities to intrusion-related shame.

Integration of these factors into a model of shame in OCD may present potential avenues for ameliorating shame in the treatment of OCD so as to improve treatment engagement, efficacy, and completion. What follows is an account of how beliefs regarding perfectionism, responsibility, and threat may influence intrusion-related shame, and a conceptualisation of the role that anticipation of shame may play in OCD.

Shame and OCD beliefs

Personal responsibility and threat estimation

An inflated sense of personal responsibility for preventing harm has emerged as an important predictor of obsessive-compulsive phenomena (Barrera & Norton, 2011; Wilson & Chambless, 1999). In an experimental study, Lopatka and Rachman (1995) manipulated the degree of responsibility felt by participants with OCD, and found that, as their sense of responsibility decreased, so did their urge to perform checking compulsions.

With respect to the role that responsibility plays in shame, studies have suggested that responsibility appraisals may contribute to the experience of shame. For example, in a phenomenological study in which 182 undergraduate students were asked to describe their experiences of shame, participants reported feeling shame in situations characterised by strong feelings of responsibility (Tangney, Miller, Flicker, & Barlow, 1996). M. Lewis (1998) stated that, "Holding oneself responsible is a critical feature in stigma and in the generation of shame because violation of standards, rules, and goals is insufficient to elicit shame unless responsibility can be placed on the self" (p. 128).

It is proposed that an increase in one's perception of responsibility for preventing harm is likely to increase both shame and anticipation of feeling shame (which has been termed shame-forecasting by Schoenleber and Berenbaum (2012)) due to the resulting increase in potential for failures in personal responsibility. This proposition is supported by Ferrier and Brewin's (2005) findings that, when compared with others, those with OCD made more negative inferences about themselves in response to their unwanted intrusions, and such inferences were associated with the strength of their sense of responsibility.

Overestimation of threat would likely further compound shame and shame-forecasting due to exacerbation of the perceived likelihood and severity of personal failures in responsibility. Empirical studies are needed to test these predictions.

Perfectionism

Perfectionism and intolerance of feelings of uncertainty have been found to be associated with severity of obsessive-compulsive phenomena (Calamari et al., 2006; Julien, O'Connor, Aardema, & Todorov, 2006; Viar, Bilsky, Armstrong, & Olatunji, 2011). Perfectionism has also been found to be related to shame ($r = .68$ for females and $r = .46$ for males) (Ashby, Rice, & Martin, 2006). Klibert, Langhinrichsen-Rohling, and Saito (2005) likewise detected a positive correlation between shame and the belief that others hold oneself to perfectionistic standards ($r = .26$). In her discussion of how perfectionism and shame may be related, Tangney (2002) proposed that, "from the perspective of a perfectionist, a failure on one task, at one particular point in time, is indicative of a more general and pervasive pattern of failures. The taint of failure spreads and extends across time and domain-and, eventually, from situation or behavior to the person. It is not just the specific job or performance that is a failure; it is the wretched perfectionist him- or herself that is a failure." (p. 204)

Obsessional content often features threats of failure, such as that one will fail to be responsible, appropriate, careful or kind. It is proposed that the belief that one must be perfect in order to be acceptable, and that anything less than perfection is equivalent to absolute failure, may predispose individuals to experience or anticipate feeling shame when unwanted intrusions arise. This may be particularly relevant when intrusions conflict with one's rules regarding what it means to be perfect, such as by being perfectly responsible, moral, law-abiding, clean, or controlled.

While the OCCWG (2005) grouped together perfectionism and intolerance of uncertainty in their measure of OCD-relevant beliefs, intolerance of uncertainty is not proposed here as a vulnerability to feeling shame in response to unwanted intrusions. This is because we do not expect that the presence of intolerance of uncertainty would increase the likelihood of appraising the self as defective when intrusions arise.

Compulsions as strategies for regulating forecasted shame

Weingarden and Renshaw (2015) proposed that compulsions may serve to regulate shame. This accords with A. Abramowitz and Berenbaum's (2007) theory that compulsive behaviours "may reflect maladaptive emotion regulation strategies" as they "provide some immediate or short-term emotional benefits along with undesirable longer-term consequences" (p. 1357). Compulsions may serve to regulate shame by reducing the intensity of current shame, or by preventing the onset of anticipated shame.

When people predict that they will feel shame in the future they are engaging in *affective forecasting* (D. T. Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 1998). An example of shame forecasting in OCD is illustrated by Freeston, Rhéaume, and Ladouceur (1996) in the description of a client's thought process, which begins with their intrusive thought, "What if I cry out 'You bastard!'" and proceeds through an expectation that "everyone will look at me", to the final prediction that the client "would die of shame" (p.

443). Given that obsessions and associated appraisals are often phrased as conjectures (i.e., what ifs?) (Rachman, 1997, 1998) regarding potential failures in responsibility (e.g., “What if I fail to protect my loved ones?”), loss of control (e.g., “What if I act on an immoral impulse?”), or manifestation of dangerousness (e.g., “What if I act on a violent impulse?”), compulsions may constitute attempts to avoid shame by preventing a tainted (e.g., irresponsible, immoral, violent) self from manifesting.

There appears to be agreement in the clinical literature about the potential role of compulsions in avoiding shame. For instance, when discussing the treatment of OCD featuring scrupulosity, Siev and Huppert (2016) cited clinical experience with a client who not only feared being sinful and being punished by God, but who also feared the “intolerable and unceasing negative emotions that would result from his obsessions, were he not to ritualize, such as guilt and shame” (p. 42). This fear of feeling acutely painful guilt and shame motivated him to engage in compulsions (Siev & Huppert, 2016). Similarly, when detailing treatment of OCD featuring perfectionism, Hood and Antony (2016) referred to a client who was not able to identify any negative consequence of his obsessions regarding failure to achieve perfection, other than an overwhelming sense of dissatisfaction, disappointment and shame. Hood and Antony reported that the client engaged in compulsions to avoid the onset of these emotions. These commentaries suggest that some individuals with OCD perform compulsions with the conscious intention of avoiding the onset of shame and other painful emotions. Each of these examples highlights the role of compulsions as shame-prevention strategies.

Elaborated model of shame in OCD

What follows is a proposed model of shame in OCD, which extends on Weingarden and Renshaw’s (2015) propositions regarding shame in OCD, by incorporating the concept of forecasted shame, and introducing additional beliefs which may predispose individuals to

experience intrusion-related shame. The model is presented as a conceptual framework for investigating factors that lead to the emergence and maintenance of shame regarding intrusive thoughts, and for examining the significance of shame to OCD and its treatment. The model is summarised and then applications of the model are presented.

A premise of the model, which is illustrated in figure 1, is that all individuals experience intrusive thoughts, but some people are more vulnerable to feeling and forecasting shame when unwanted intrusions arise because they hold certain beliefs about responsibility and threat, perfectionism, and the importance and control of thoughts. In such circumstances, unwanted intrusions which would otherwise be dismissed or disregarded are instead appraised as evidence that the self is bad, or is potentially bad. Further, when intrusions are interpreted in this way, individuals purportedly experience or forecast shame. Finally, it is proposed that compulsions, thought suppression, and avoidance techniques may be performed to avoid or reduce shame and the contingent distress and anxiety.

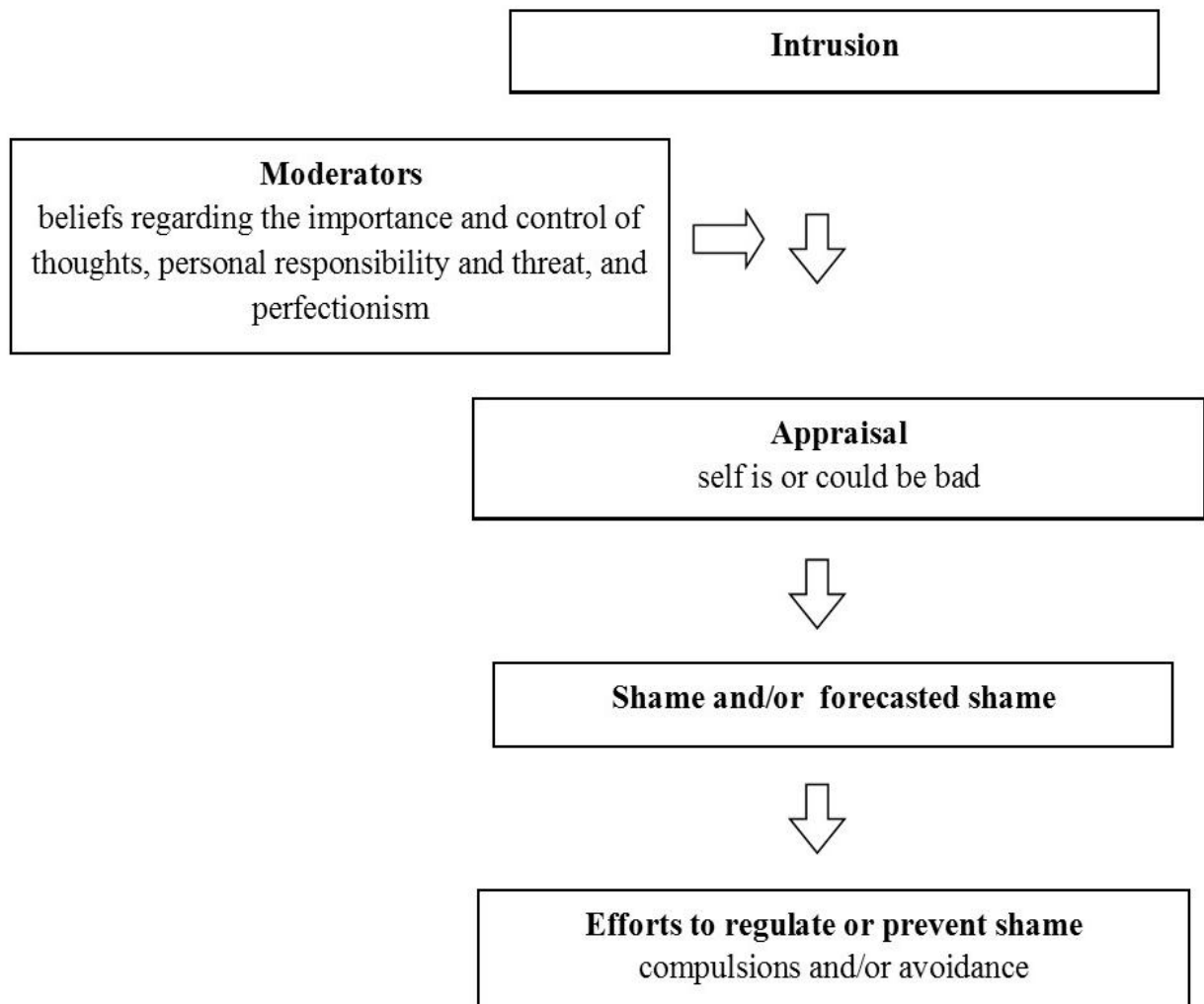


Figure 1. Cognitive-behavioural model of shame in OCD featuring beliefs regarding personal responsibility and threat and perfectionism, and featuring forecasted shame.

To illustrate how this model might be applied, consider the common intrusion, “Is that really clean?” When such an intrusion arises, those who believe that their home must be perfectly clean for them to be acceptable, may be more likely to make an appraisal such as, “If it’s not clean I’ll be found out. Others will know how useless I am.” These appraisals may elicit shame or the anticipation of shame, and compulsive cleaning or avoidance may then be undertaken in an attempt to reduce or avoid shame.

Consider then another common intrusion “Did I turn off the stove?” When such an intrusion arises, those who believe that thinking about a harmful outcome makes it more likely to occur or who overestimate threat while believing that they are wholly responsible for keeping others safe, may be more inclined to make an appraisal such as, ‘If I ignore this thought and the house burns down it will be my fault. It will mean I’m irresponsible. My neighbours will be hurt and I’ll be blamed.’ Such an appraisal is likely to result in anticipation of shame, - “If I don’t make sure that the stove is off, others will condemn me, and I’ll have to hang my head in shame.” Checking rituals may then be performed to avoid the onset of shame.

Recommendations for future research

This model presents a number of avenues for further research. First, there is presently no validated self-report measure of intrusion-related shame. Such a measure may be used to empirically test the proposed model with both analogue and clinical populations. Second, cross-sectional research would provide evidence of the relationships between shame and beliefs regarding responsibility for harm and overestimation of threat, perfectionism, and overimportance and control of thoughts. Regression analyses may be useful for determining if shame moderates the relationship between intrusions and compulsions. Such analyses may indicate if those who feel strong shame engage in compulsions in response to frequent intrusions.

Third, as suggested by Weingarden and Renshaw (2015), research is required to establish whether exposure and response prevention (ERP) alleviates intrusion-related shame, and if so, whether any such reduction is associated with a decrease in compulsion severity. If shame-relief is found to facilitate reduction in compulsion severity, it may be worthwhile examining whether ERP is more effective if augmented by treatments which are specifically designed to alleviate shame, such as compassion focused therapy (P. Gilbert, 2011) or

therapy incorporating controlled disclosures of obsessions to trusted (and informed) others (Newth & Rachman, 2001).

In sum, the model presented expands on Weingarden and Renshaw's (2015) cognitive behavioural model of shame in OCD, to include beliefs regarding perfectionism, and responsibility and threat, as vulnerabilities to intrusion-related shame. The expanded model also features intrusion-related forecasted shame, which is presented as a potential motivator for engagement in compulsions. Research into the role that shame plays in OCD is still in its infancy and further investigation is needed to determine how, and to what extent, shame is implicated in the development and maintenance of the disorder.

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CHAPTER 5: DEVELOPMENT OF INTRUSION-RELATED SHAME SCALE

5.1 PAPER 2: Shame in obsessive-compulsive disorder: Development and validation of the Intrusion-Related Shame scale

This paper has been submitted to Personality and Individual Differences.

Abstract

The present study reports on the development and validation of the Intrusion-Related Shame scale (IRS), which was designed to measure severity of shame in response to unwanted intrusions. Content validity of the initial item pool was examined by consultation with experts in shame and obsessive-compulsive disorder (OCD). An exploratory factor analysis ($n = 279$ nonclinicals) was conducted to investigate the scale's factor structure. Confirmatory factor analyses were then conducted using two other nonclinical cohorts ($ns = 283$ and 385). The final 17-item IRS assessed three forms of shame associated with experiencing unwanted intrusions: internal current shame, internal forecasted shame, and external forecasted shame. Results demonstrated excellent internal consistency and good convergent and divergent validity. Criterion validity was demonstrated by significant correlations with measures of obsessive-compulsive phenomena. Individuals with OCD ($n = 41$) scored significantly higher on the IRS than nonclinicals ($n = 283$). The IRS appears useful for examining the construct of intrusion-related shame in OCD.

Keywords: intrusive thoughts, shame, self, obsessive-compulsive disorder

1 Introduction

A growing literature implicates self-related processes such as fear of self (Aardema et al., 2013), mental contamination (Rachman, 2004), and self-ambivalence (Bhar & Kyrios, 2007), in the development and maintenance of obsessive-compulsive disorder (OCD) (see Rachman, 2007 for a review). Whereas the cognitive aspects of self-focused theories for OCD have been explored at length (see Ahern & Kyrios, 2016), there is a sparse literature concerning the role that the primary self-conscious emotion of shame plays in the disorder (Weingarden & Renshaw, 2015). This may be due, in part, to the absence of a measure of shame associated with obsessions.

OCD is characterised by unrelenting unwanted intrusive thoughts or impulses (obsessions) which cause clinically significant distress and are strongly resisted (American Psychiatric Association, 2013). Individuals with OCD respond to these intrusions by performing repetitive or ritualistic behaviours (compulsions) to alleviate or avoid the distress that the obsessions elicit, or to prevent a dreaded outcome (American Psychiatric Association, 2013). Obsessions typically concern themes of violence, danger, sexual deviance, immorality, symmetry, or contamination, while common compulsions include checking, repeating, counting, arranging, and seeking reassurance (American Psychiatric Association, 2013).

Cognitive theories have been developed to explain why almost all individuals experience unwanted intrusive thoughts (Abramowitz et al., 2014) which are similar in content to clinical obsessions (Garcia-Soriano, Belloch, Morillo, & Clark, 2011), but only 2% to 3.5% develop OCD (Angst et al., 2004; Ruscio, Stein, Chiu, & Kessler, 2010). Prominent theorists suggest that intrusions develop into obsessions only when given catastrophic significance (Rachman, 1997, 1998; Salkovskis, 1985, 1999). Salkovskis (1985, 1999) theorised that this significance primarily concerns fear of being responsible for harm, being found at fault, or incurring blame, which results in “self-condemnation” (Salkovskis, 1985, p.

574). Rachman (1997, 1998) theorised that intrusions become obsessions when they are appraised as evidence that a valued aspect of the self is defective. Compulsions, which are typically performed in response to obsessions (Foa & Kozak, 1995), have been conceptualised as attempts to protect or restore one's positive sense of self (Ahern & Kyrios, 2016; Bhar & Kyrios, 2007; Guidano & Liotti, 1983; Rachman, 1998).

Implicit in these theories is that shame regarding intrusions may be relevant to OCD (Weingarden & Renshaw, 2015), as shame is elicited when individuals perceive that they are defective or that they have failed to meet their self-ideal (Ferguson, Eyre, & Ashbaker, 2000). Shame is a painful moral emotion which is usually associated with a sense of being diminished, unworthy, powerless, and exposed (Lewis, 1971; Tangney & Dearing, 2003). The quality of shame may be best highlighted by contrasting shame with guilt. Whereas in shame the focus of one's negative evaluation is on the self ('*I did a bad thing, and I am a bad person*'), in guilt the evaluation is limited to one's behaviour ('*I did a bad thing, and I feel bad about it*'), leaving the self untainted (Lewis, 1971). While guilt motivates repentance, shame motivates a desire to escape, withdraw, or disappear (Lewis, 1971). Given that it is not possible to observe another's intrusions, it is notable that others need not witness one's failings for shame to arise; instead individuals may imagine how others would perceive their flaws, and condemn themselves as shameful (Tangney & Dearing, 2003). Gilbert (2000) identified that individuals can experience both *internal shame* which is characterised by one's contempt for the self, and *external shame* which is the perception that others are ashamed of oneself.

While the clinical and theoretical literature suggests that intrusion-related shame may play a role in the development and maintenance of OCD (Weingarden & Renshaw, 2015), empirical examination of this relationship is limited. As indicated above, this may be due, in

part, to the absence of a valid self-report measure for assessing shame associated with intrusions.

With respect to measures used to investigate the relationship between OCD and shame more broadly, in studies with clinical samples, the Young Schema Questionnaire (Young & Brown, 2001) has been utilised to assess defectiveness/shame schema in those with OCD (Kim, Lee, & Lee, 2014; Lochner et al., 2005); and the Test of Self Conscious Affect (TOSCA; Tangney, Dearing, Wagner, & Gramzow, 2000) has been used to assess relationships between shame proneness and symptom severity and change (Fergus, Valentiner, McGrath, & Jencius, 2010; Valentiner & Smith, 2008). Tangney (1996) suggests that the TOSCA measures shame proneness because it asks respondents to indicate how likely they are to respond with certain feelings, thoughts and behaviours associated with shame when they are faced with a range of situations. She notes, however, that due to the specificity of the situations included in the test, it may not capture shame in areas which are relevant to the respondent, but which are not included in the measure. The experience of unwanted intrusions is one such area.

Ideally, a measure of intrusion-related shame would assess all aspects of shame, including its cognitive, experiential, and motivational dimensions, and it would assess both internal and external shame (Gilbert, 2000). Given that the content of obsessions is often focussed on events which have not yet occurred (e.g., ‘impulse to say something rude or insulting to a stranger’), compulsions are often reported as attempts to prevent dreaded outcomes. It is therefore important to measure both the shame that individuals experience when intrusions arise as well as the shame that they anticipate experiencing should their feared outcomes be realised. This anticipation of shame may be characterised as “shame-forecasting” (Schoenleber & Berenbaum, 2012). Finally, such a measure would ideally assess shame as distinct from other self-conscious emotions such as guilt.

A number of measures have been used to assess intrusion-related shame or shame-laden constructs in OCD, but each has its limitations. A recent study assessed shame associated with intrusive thoughts, but it utilised an implicit association test requiring detection of reaction times during a word-sort task (Clerkin, Teachman, Smith, & Buhlmann, 2014), making it difficult to integrate into questionnaire-based studies. The Intrusion Related Self-Inference Scale (IRSIS; Ferrier & Brewin, 2005) measures negative inferences made about the self in response to intrusions. However, the scale captures only the cognitive aspects of shame (e.g., “Some of my intrusive thoughts make me think that deep down I am a bad person”), and not the experiential (e.g., feeling exposed or diminished) or motivational (e.g., wanting to hide or disappear) components. Additionally, the scale was not intended to be a measure of shame, and so it includes items assessing guilt (i.e., “Some of my intrusive thoughts make me feel guilty”). The Metacognitive Beliefs Questionnaire (Clark, Purdon, & Wang, 2003) includes items which are intended to simultaneously measure both shame and embarrassment associated with intrusions. However, embarrassment has been identified as having distinctly different physiological, cognitive, and motivational attributes to those of shame (Tangney, Mashek, & Stuewig, 2005); and so these items cannot be used as a pure measure of shame in response to intrusions. Given the absence of a self-report measure that is specifically focused on the experience of shame that may arise with intrusive thoughts, the present studies were conducted to develop and validate such a measure.

2. Study 1

The aim of the initial study was to generate a pool of items for measuring intrusion-related shame and to assess content and face validity through consultation with experts in the fields of shame and OCD. Items were devised based on literature on shame and the experiences of individuals with OCD (Gilbert, 2000; Lewis, 1971; Rachman, 2007; Tangney & Dearing, 2003). Items were also adapted from existing validated measures of shame,

including the Event-Related Shame and Guilt Measure (Orth, Berking, & Burkhardt, 2006); the Experience of Shame Scale (Andrews, Qian, & Valentine, 2002); the Abuse Related Shame scale (Feiring & Taska, 2005); the Other As Shamer Scale (Goss, Gilbert, & Allan, 1994); the Test of Self Conscious Affect–3 (Tangney et al., 2000); and the State Shame and Guilt Scale (Marschall, Sanftner, & Tangney, 1994). To optimise the scale’s relevance to those with OCD, items which reflected the construct of shame were also adapted from scales developed for use in the treatment of obsessions. For instance, we included the item: “If other people knew about my unwanted intrusive thoughts or urges they would condemn me”, which was adapted from the item, “Would other people condemn or criticize you if they knew about your thoughts?” from Rachman’s (2003) Semi-Structured Interview on Obsessions.

An initial pool of 86 items was developed to reflect cognitive aspects of shame (e.g., When I have unwanted thoughts or urges, I worry that if they were true (or they came true) - I would be a terrible person), motivational/behavioural aspects (e.g., When I have unwanted thoughts or urges - I want to sink into the floor and disappear), and experiential aspects (e.g., If I didn’t do something about my unwanted thoughts to prevent what I fear from coming true - I would feel small, like a rat). As suggested by Tangney and Dearing (2003), based on the work of Lewis (1971), the word ‘shame’ was not contained in any item, to avoid eliciting a defensive response whereby the experience of shame is denied. Tangney and Dearing (2003) also highlight the importance of ensuring that shame is not confounded with moral standards (i.e., one’s subscription to moral principles) in shame scales. When shame is distinguished from moral standards, correlations between their measures are weak (Tangney & Dearing, 2003). A further aim was to ensure that guilt was not confounded with shame. Therefore, items were focused on self rather than on behaviour (Tangney & Dearing, 2003). Finally, items were designed to capture current and forecasted shame, as well as internal shame (e.g.,

When I have unwanted intrusive thoughts or urges - I feel totally flawed), and external shame (e.g., If other people knew about my unwanted intrusive thoughts or urges – they would condemn me).

An introduction to the scale (see Appendix A) was formulated for the purpose of defining unwanted intrusions, as distinct from worries, and to prompt respondents to recall their most unpleasant intrusions to facilitate access to associated feelings. The introduction was modelled on existing scales of Thordarson et al. (2004), Garcia-Soriano et al. (2011), Goodman et al. (1989), the Research Consortium on Intrusive Fear (2007), and the Obsessive Compulsive Cognitions Working Group (2001), as well as the critique by Clark and Purdon (1995). In devising the introduction, an effort was made to avoid prompting socially desirable responses by stating that intrusions are common and normal, and by asking respondents to identify the theme, rather than details, of their most unpleasant intrusion. The following instructions were then provided: “Indicate your level of agreement with the following statements by selecting the relevant number”, with response options ranging from 1 (strongly disagree) to 6 (strongly agree).

2.1 Method

2.1.1 Participants

Content and face validity of the initial pool of 86 items were assessed across two stages. In the initial stage, 15 researchers in shame and 15 researchers in OCD were identified as experts according to their authorship of relevant peer-reviewed papers. They were electronically invited to participate in the initial review process. Two shame researchers declined the invitation to participate on the basis that they had ceased publishing in the area of shame and did not consider themselves as having advanced and current knowledge in the field. Five shame researchers and seven OCD researchers agreed to take part in the study.

In the second stage, 14 researchers in the field of shame (13 of whom had been invited to participate in the first stage) and 15 researchers into OCD (all of whom had been invited to participate in the first stage) were invited to participate; three shame researchers and 11 OCD researchers accepted.

2.1.2 Procedure

Respondents completed questionnaires online using Opinio software. The study was approved by the university's human ethics committee and all respondents provided informed consent before commencing the online survey. Researchers in the field of shame were asked to rate the extent to which each of the 86 items captured shame, as they understood this notion, by indicating the relevance of each item on a three point scale (1 = *irrelevant*, 2 = *moderately relevant*, 3 = *highly relevant*). Researchers in OCD were invited to use the same scale to rate the extent to which each item captured shame as experienced by people with OCD. Both cohorts were also invited to critique the scale, to suggest additional items and to comment on the structure of the scale, and the clarity, conciseness and expression of items (questions posed to reviewers were adapted from DeVellis (2003)). Revisions were made to items based on this feedback. An amended version of the scale was re-distributed, and further revisions were made in response to additional input.

2.2 Results

Following the initial review, average scores on each item were calculated for combined experts, and for shame experts alone. Shame experts were included in both groups in order to give their opinions greater weight. Thirteen items were removed which were rated < 2.00 on average by both groups. Three items were added based on suggestions by experts, and a further item ("When I have unwanted intrusive thoughts or urges I feel dirty") was removed on the basis of advice that it more closely reflected mental contamination than shame. All double-barrelled items were removed and items identified as potentially

ambiguous were re-worded. A more strict criterion for removal of items was used following the second review by experts, with 19 items being removed as they were rated ≤ 2.00 on average by *either* group. Finally, we identified four item pairs which were so similarly worded as to suggest item redundancy, and we removed from each pair the item that had the lowest average rating by the combined experts.

Forty-nine items were retained, with items following the four stems: 1) “When I have unwanted intrusive thoughts or urges” (e.g., “When I have unwanted intrusive thoughts or urges I feel like deep down I am a bad person”), 2) “If other people knew about my unwanted intrusive thoughts or urges” (e.g., “If other people knew about my unwanted thoughts or urges, they would look down on me”), 3) “If I didn’t do something about my unwanted thoughts to prevent what I fear from coming true” (e.g., “I didn’t do something about my unwanted thoughts to prevent what I fear from coming true I would be disgusted with myself”), and 4) “When I have unwanted thoughts or urges, I worry that if they were true (or they came true)” (e.g., “When I have unwanted thoughts or urges, I worry that if they were true (or they came true) I would want to sink into the floor and disappear”).

3. Study 2

In the second study, the psychometric properties of the new scale, containing 49 items, were examined over four stages. First, an exploratory factor analysis (EFA) was performed to investigate the factor structure of the item pool and to facilitate item reduction. On the basis of the work of Gilbert (2000) and Schoenleber and Berenbaum (2012), it was anticipated that, in our factor analyses, items representing forecasted shame and current shame would separate into different factors, as would items reflecting internal and external shame. Second, a confirmatory factor analysis (CFA) was conducted on the reduced scale containing 31 items with a second sample to confirm the scale’s structure and internal consistency and to effect further item reduction. Third, a second CFA was conducted on the

final 17 item scale with an independent sample to test whether the factor structure was replicable. Fourth, associations with other criteria were examined to test the scale's convergent, divergent, and concurrent validity. We expected the scale to correlate positively with measures of shame (evidencing convergent validity) and obsessive-compulsive phenomena (evidencing concurrent validity), and we predicted that we would not detect a relationship between the new scale and a measure of moral standards (evidencing divergent validity). Finally, t-tests were conducted to compare mean scores on the IRS between those with and without OCD, and we predicted that those with OCD would report experiencing greater intrusion-related shame.

Nonclinical samples were used for the initial exploration and validation of the scale's properties. Abramowitz et al. (2014) reviewed the literature pertaining to the prevalence of obsessive-compulsive symptoms in general populations, and the dimensional quality of such symptoms. They concluded that research with analogue samples is appropriate for examining obsessive-compulsive symptoms, and noted that "measures of OC symptoms developed using non clinical samples have similar psychometric properties when used with clinical OCD samples" (p. 214).

3.1 Method

3.1.1 Participants

Three nonclinical samples and one clinical sample were used in the study. The first nonclinical sample was employed for the initial EFA, and the second nonclinical sample was employed for the first CFA. The third nonclinical sample was employed for a second CFA to replicate the observed factor structure. For the purposes of the EFA and CFAs, adults aged 18 to 64 were eligible to participate in the study. In addition, a clinical sample of adults with OCD was added to test for differences in intrusion-related shame between OCD and nonclinical individuals.

The first two nonclinical samples together initially contained 644 adults in total but responses from 80 participants were excluded as they had not responded to any items in the Intrusion-Related Shame scale or the fourth subscale of the Intrusion-Related Shame scale. The remaining group of 564 adults was divided into two samples – 281 to the first nonclinical sample, and 283 to the second nonclinical sample.

Following the removal of two cases from the first nonclinical sample for exceeding the age limit of 64 years, the sample comprised 279 participants ($M = 32.39$ years, $SD = 11.42$), including 213 undergraduate psychology students who participated for course credit, with the balance being sourced through personal and professional networks. The majority of respondents were female (79%), born in Australia or New Zealand (82%), and spoke only English at home (92%). Most respondents were employed (75.3%), with 34.1% employed full time, 20.4% employed part time, and 20.8% casually employed.

The second nonclinical sample comprised 283 adults ($M = 30.47$ years, $SD = 10.80$), including 231 undergraduate psychology students participating for course credit. Again, the majority of respondents were female (78%), born in Australia or New Zealand (86%), and spoke only English at home (89%). The majority of respondents were employed (75.6%), with 23.7% employed full time, 29.7% employed part time, and 22.3% casually employed.

The third nonclinical sample comprised undergraduate psychology students who participated in the study for course credit. This sample was recruited for the purpose of testing whether the observed factor structure would replicate. The sample initially comprised 408 adults, but responses from 18 participants were removed from the analysis as they had not completed any of the Intrusion-Related Shame scale, and a further five cases were removed as they had not responded to any items in the fourth subscale of the Intrusion-Related Shame scale. The majority of the remaining 385 respondents were female (85%), born in Australia or New Zealand (86%), and spoke only English at home (90%). The

majority were employed (70%), with 31% employed full time, 22% employed part time, and 17% casually employed. This student sample had a relatively high mean age (31.93 years, $SD = 10.37$) compared to other studies with undergraduate psychology samples, perhaps because of the university conducting evening classes which attract mature aged students.

A clinical sample of 44 individuals with OCD was recruited from an outpatient OCD treatment program. Diagnosis of OCD was determined by administration of the MINI International Neuropsychiatric Interview (MINI; Sheehan et al., 1998) by Masters and PhD level psychology students trained in diagnosing psychiatric disorders, and each diagnosis was confirmed through consultation with an experienced doctoral-level clinical psychologist. Three participants did not complete all measures, and so their data were removed from the analysis, leaving a final sample of 41 (M age = 33.83) clinical participants. The majority of the clinical sample were male (56%), and born in Australia or New Zealand (80%), and spoke only English at home (78%). The majority of respondents were employed (65.8%), with 26.8% employed full time, 31.7% employed part time, and 7.3% casually employed.

3.1.2 Measures

The following three measures were administered to all participants:

Intrusion-Related Shame Scale. The 49 item version of the Intrusion-Related Shame scale was described in study 1.

The Self Report Yale-Brown Obsessive-Compulsive Scale (YBOCS; Baer, Brown-Beasley, Sorce, & Henriques, 1993) is a self-report version of the clinician-administered YBOCS (Goodman et al., 1989) measuring OCD symptom severity. Respondents were asked to identify their OCD symptoms from a list of 37 obsessions and 20 compulsions. The list of compulsions usually contains 21 items, however only 20 items were included in this study, as the item measuring the compulsion to hoard was excluded. Respondents were also asked five questions regarding the severity of their obsessions and five questions regarding the severity

of their compulsions (e.g., time spent, degree of interference, distress, resistance, perceived control over symptoms). Each of these 10 items was rated on a scale ranging from 0 to 4, yielding separate subscale scores for obsessions (YBOCS-O) and compulsions (YBOCS-C) of 0 (no symptoms) to 20 (extreme symptoms) and a total YBOCS score of 0 (no symptoms) to 40 (extreme symptoms). The YBOCS has been shown to have good reliability and validity (Taylor, 1995).

In addition, the nonclinical samples also completed the following measures:

Intrusion-Related Self Inference Scale (Ferrier & Brewin, 2005) is a 12-item self-report scale measuring negative inferences about the self in response to unwanted intrusions. Respondents were invited to indicate the extent to which they make certain inferences about themselves when they have intrusive thoughts. Items include: “Some of my intrusive thoughts make me fear I will become someone other people will think is unacceptable” and “Some of my intrusive thoughts make me worry about the type of person I really am”. Responses were made on a scale ranging from 0 (*not at all*) to 4 (*very much*). The scale has been shown to have good internal consistency (Ferrier & Brewin, 2005).

The Guilt Inventory (Kugler & Jones, 1992) is a 45-item self-report inventory assessing trait guilt, state guilt, and moral standards. Only the moral standards subscale (GI-M; 15 items) was used in the present study. Each item (e.g., “I believe in a strict interpretation of right and wrong”) is rated on a Likert-scale ranging from 1 (*strongly agree*) to 5 (*strongly disagree*). This subscale has been shown to have satisfactory internal consistency and construct validity (Kugler & Jones, 1992).

The Experience of Shame Scale (ESS; Andrews et al., 2002) is a 25-item self-report scale based on an earlier clinician-administered measure (Andrews & Hunter, 1997), assessing eight domains of shame, including seven domains of behavioural shame (e.g., personal habits), as well as bodily shame. For each domain covered, respondents were asked

to indicate whether, in the past year, they had felt ashamed of that aspect of themselves; if they had worried about what other people think of it; and whether they had tried to cover it up or conceal it. They were also asked if they avoided mirrors. Respondents rated each item on a scale ranging from 1 (*not at all*) to 4 (*very much*), yielding a total score between 25 and 100. The scale has been shown to have good internal consistency and test–retest reliability (Andrews et al., 2002).

The Test of Self-Conscious Affect-3 (TOSCA-3; Tangney et al., 2000) comprises 11 negative and 5 positive scenarios, measuring shame-proneness, guilt-proneness, externalisation, detachment/unconcern, alpha pride and beta pride. Only the negative scenarios were administered in the present study, thereby excluding the pride scales. Each scenario (e.g., “You are driving down the road, and you hit a small animal”) was presented with at least four possible responses (e.g., ‘You would think: “I’m terrible.”’) and participants were asked to indicate how likely they were to respond in the given fashion, on a scale from 1 (not likely) to 5 (very likely). Each response represented a different self-conscious affect. Only scores for responses representing shame-proneness (i.e., the shame subscale) were utilised in this study, with possible scores ranging from 11 to 55. The shame subscale of the TOSCA-3 has been shown to have adequate reliability (Rizvi, 2010).

3.1.3 Procedure

The nonclinical samples completed questionnaires online using Opinio software. The clinical sample completed pen and paper questionnaires during the routine assessment phase prior to commencing an outpatient OCD treatment program. The study was approved by the Swinburne University Human Research Ethics Board and all participants provided informed consent prior to participating in the study.

3.2 Results

3.2.1 Exploratory Factor Analysis

An EFA was performed with a nonclinical cohort 1 ($n = 279$) to investigate the factor structure of the pool of 49 items relating to intrusion-related shame. Data were analysed using SPSS 24.0. A Principal Axis Factoring method of extraction was applied due to the non-normal distribution of scores, with an oblique (Direct Oblimin) rotation to allow for correlation between factors. On the basis of findings from a parallel analysis (O'Connor, 2000), five factors were extracted. This solution accounted for 73.91% of the variance. However, one of the factors was not coherent in theoretical terms, as items variously reflected both internal and external shame and both forecasted and current shame. Examination of the scree plot, and consideration of the interpretability of the factor loadings indicated that a four factor solution was preferable. That solution accounted for 71.93% of the variance. Two items were removed on the basis of their low communality of .46 and .48. A further two items were removed because they cross-loaded on multiple factors, and two items were removed to simplify interpretability because they were the sole items to reflect either internal current shame or internal forecasted shame in a factor containing items which otherwise reflected external forecasted shame. An additional five items with loadings below the cut off of .45 (.40 to .42) were removed. Further item reduction was conducted to eliminate item redundancy. Seven items were removed because they correlated highly (i.e., at $r \geq .87$) with similar items which were rated more highly by experts in shame and OCD as part of study 1.

The four factors containing the remaining 31 items together explained 74.8% of the variance. When correlations were reproduced on the basis of these four factors, there was 4% non-redundant residuals with absolute values greater than 0.05. Reliability analysis of the four factors revealed Cronbach's alphas ranging from .94 to .97, indicating strong internal

consistency. Descriptive statistics, communalities, and factor loadings for each item retained in the four factors are set out in Table 1 below.

Table 1

Study 2: Exploratory Factor Analysis of the new scale using Principal Axis Factoring with Oblique Rotation with 31-item IRS (n = 279)

Item	Communalities		Factor Solution			
	Initial	Extract	F1	F2	F3	F4
When I have unwanted intrusive thoughts or urges:						
I feel inadequate	.60	.56	.72	-.04	-.13	.10
I want to hide	.78	.78	.88	.12	.01	.11
I want to sink into the floor and disappear	.82	.78	.88	.10	-.00	.10
I feel worthless	.75	.76	.84	.00	-.02	.07
I want to avoid other people	.60	.58	.75	.02	.02	.02
I wish I was invisible	.69	.65	.75	-.14	.06	-
						.09
I feel exposed	.64	.55	.65	-.13	.13	-
						.08
I feel defective	.72	.63	.60	-.26	-.04	.06
I want to crawl into a hole	.80	.78	.83	-.07	.16	-
						.10
I feel totally flawed	.70	.67	.59	-.26	.07	.04
If other people knew about my unwanted intrusive thoughts or urges:						
They would see me as not good enough	.79	.76	.22	-.65	.02	.10
They would see me as defective	.83	.81	.16	-.77	.01	.06
They would think there's something wrong with me	.76	.72	.12	-.71	-.07	.14
They would think I am a bad person	.82	.83	-.05	-.79	.07	.15
They would condemn me	.79	.77	-.00	-.76	.14	.06
They would shun me	.77	.71	.08	-.66	.13	.08
If I didn't do something about my unwanted thoughts to prevent what I fear from coming true:						
I would be disgusted with myself	.78	.70	-.08	-.04	.74	.14
I would be tainted	.86	.88	.02	-.03	.94	-
						.04
I would feel irredeemable	.83	.86	-.08	-.00	.88	.02
I would feel defective	.84	.79	.11	.03	.71	.19
When I have unwanted thoughts or urges, I worry that if they were true (or they came true):						

I would be an awful person	.84	.77	-.09	-.13	.05	.80
I would want to run away and hide	.80	.77	.12	.04	-.02	.85
I would be disgusted with myself	.85	.81	-.00	-.01	.05	.86
I would feel like I was 'less than' other people	.85	.84	.15	.09	.00	.89
I would be tainted	.86	.77	-.00	-.05	.19	.70
I would feel defective	.85	.80	.10	-.04	.03	.79
Other people would look down on me	.83	.83	-.02	-.15	-.02	.82
I would be unloveable	.78	.72	.01	-.19	.09	.63
Other people would think I am a bad person	.85	.78	-.16	-.18	.06	.79
Other people would shun me	.82	.77	-.08	-.12	.04	.80
I would want to sink into the floor and disappear	.83	.78	.17	.15	.08	.82

Note. The strongest factor loading for each item is presented in bold font.

3.2.2 *Confirmatory Factor Analysis (and item reduction)*

A CFA was performed on the reduced item pool of 31 items with the nonclinical cohort 2 ($n = 283$) to confirm the scale's structure. SPSS Amos 22.0 was used to conduct the CFA across two stages, beginning with testing a one-factor congeneric model for each of the four identified factors, followed by analysis of the four-factor measurement model. Multiple fit indices (χ^2/df ; RMSEA; CFI; TLI; SRMR) are reported, as the χ^2 is overly sensitive to issues of sample size and violation of χ^2 test assumptions (Tabachnick & Fidell, 2013). Hu and Bentler (1999) suggest that data can be deemed to fit a specified model adequately when the TLI and CFI are above .95, the SRMR is below .08, and the RMSEA is close to or below .06. The AVE approach of Fornell and Larcker (1981) to testing discriminant validity was used to examine whether the constructs represented by each factor were distinct.

When the items from each subscale were separately entered into one-factor congeneric models, large modification indices for proposed co-variances between error terms justified the removal of 12 items. When all four factors, containing the remaining 19 items, were entered in a model, the fit statistics indicated the data were a reasonable fit to the model ($\chi^2(146) = 340.618, p = .000$, RMSEA = .069(90%CI .059, .078), CFI = .963, TLI = .957 SRMR = .0431). Two items were removed on the basis of large modification indices for proposed co-variances between error terms. When the final 17 items were entered in a four factor model, the fit indices indicated the data were a good fit to the model ($\chi^2(113) = 249.100, p = .000$, RMSEA = .065 (90%CI.057, .078), CFI = .968, TLI = .962, SRMR = .0393).

Fornell and Larcker (1981)'s AVE method was used to examine factorial discriminant validity, and the average variance extracted for each factor was found to exceed the square of the correlation between each pair of factors, except for the correlation between the two factors measuring different aspects of internal forecasted shame. This suggested that there

was good discriminant validity between all factors, except for the factors measuring 1) anticipation of feeling internal shame if dreaded outcomes were to arise; and 2) anticipation of feeling internal shame if steps were not taken to prevent a dreaded outcome. These findings suggested that the addition of a higher order factor, conceptualised as reflecting internal forecasted shame, was warranted. Upon inserting a higher order factor, the fit indices indicated the data remained a good fit to the model ($\chi^2(130) = 289.845, p = .000$, RMSEA = .066 (90%CI.056, .076), CFI = .968, TLI = .962, SRMR = .0415). Factor loadings and inter-correlations for the final 17 items retained in the Intrusion-Related Shame scale (IRS) are displayed in Figure 1.

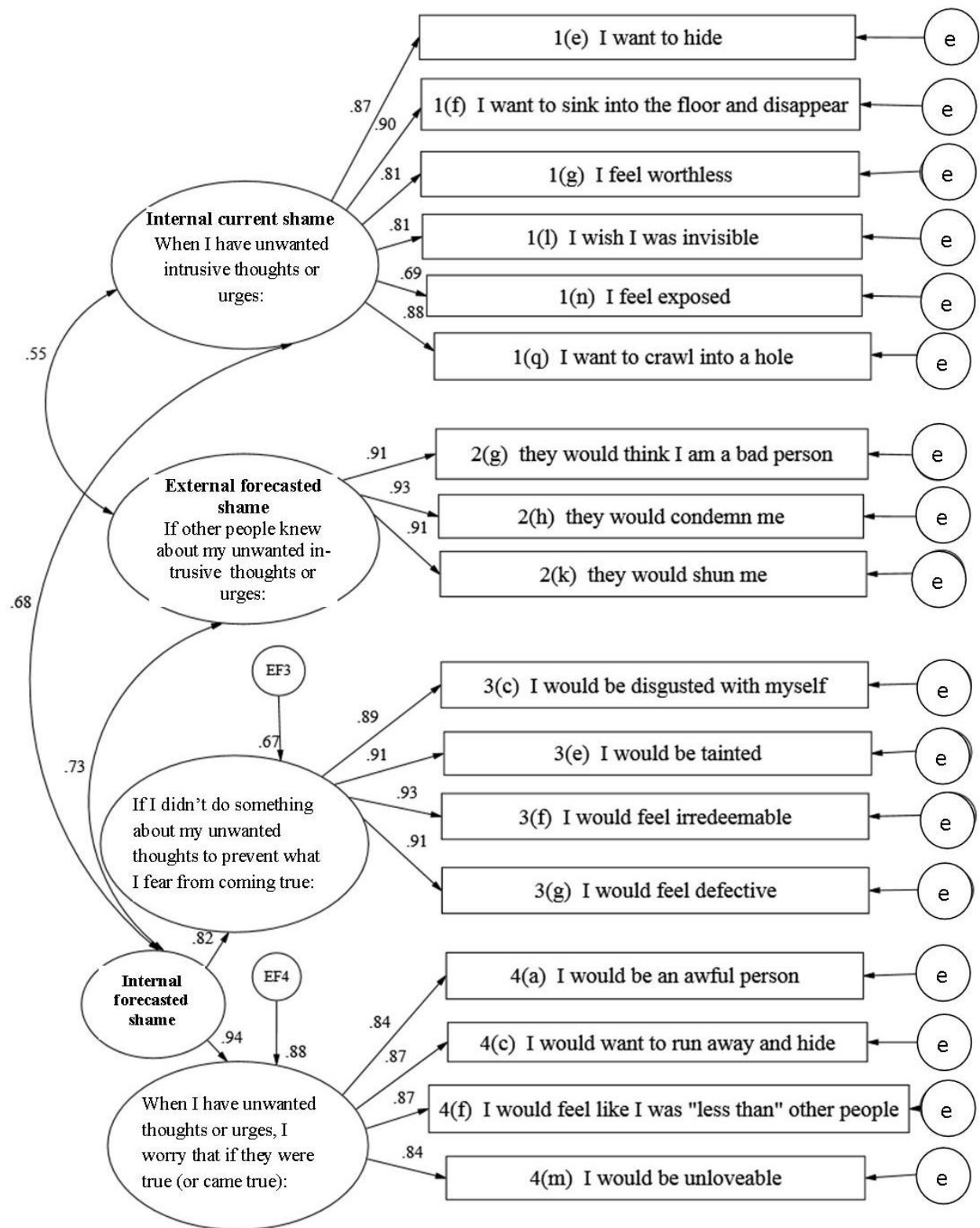


Figure 1. Study 2: Confirmatory factor analysis of the final 17-item IRS ($n = 283$).

Standardised regression weights, and correlations between factors are presented.

Additionally, as can be seen in Table 2, each factor of the IRS was found to have excellent internal consistency, with Cronbach's alphas ranging from .93 to .95.

Table 2

Study 2: Descriptive Statistics, and Correlations Testing Construct Validity with the final 17-item IRS (n = 283)

	<i>M</i>	<i>SD</i>	<i>α</i>	Internal current shame	External forecasted shame	Internal forecasted shame
Intrusion-related shame						
Internal current shame	15.59	7.97	.93	-	.53**	.63**
External forecasted shame	8.42	4.54	.94		-	.65**
Internal forecasted shame	23.74	11.26	.95			-
Shame						
TOSCA-3-Sh	34.04	8.27	.82	.44**	.31**	.46**
ESS	56.44	16.34	.96	.51**	.44**	.48**
Moral Standards						
GI-M	44.25	7.53	.69	-.04	-.02	-.13*
OCD symptoms						
YBOCS-O	4.36	3.91	.91	.44**	.36**	.38**
YBOCS-C	3.60	3.97	.90	.33**	.21**	.23**
YBOCS	7.95	7.03	.92	.43**	.33**	.34**

Note. ** = $p < 0.01$; * = $p < 0.05$; Internal current shame = Intrusion Related Shame scale factor 1;

External forecasted shame = Intrusion Related Shame scale factor 2; Internal forecasted shame =

Intrusion Related Shame higher order factor; TOSCA-3-Sh = Test of Self Conscious Affect (shame subscale); ESS = Experience of Shame Scale; GI-M = Guilt Inventory (moral standards subscale);

YBOCS-O = Yale-Brown Obsessive-Compulsive Scale (obsession severity scale); YBOCS-C = Yale-Brown Obsessive-Compulsive Scale (compulsion severity scale).

3.2.3 Confirmatory Factor Analysis – Replication of factor structure

Given the number of items removed in the initial CFA (14), in accordance with Hinkin, Tracey, and Enz (1997)'s replication recommendations, it was deemed appropriate to perform a second CFA with an independent nonclinical sample ($n = 385$) to ensure that the

observed goodness of fit did not capitalise on sampling variability. SPSS Amos 22.0 was again used to conduct the CFA by analysis of the four-factor measurement model containing one higher-order factor.

The data from one participant, identified as an outlier on the basis of observations farthest from centroid, were removed from the study. When all four factors (including a higher order factor), containing the remaining 17 items, were entered in a model, the fit statistics indicated the data were an adequate fit to the model ($\chi^2(114) = 365.286, p = .000$, RMSEA = .076(90%CI .067, .085), CFI = .963, TLI = .956, SRMR = .0368). Fornell & Larcker's (1981) AVE method was again used to examine factorial discriminant validity, and the average variance extracted for each factor was again found to exceed the square of the correlation between each pair of factors, except between those factors measuring aspects of internal forecasted shame, thereby confirming that inclusion of a higher order factor was warranted. Factor loadings and inter-correlations are displayed in Figure 2.

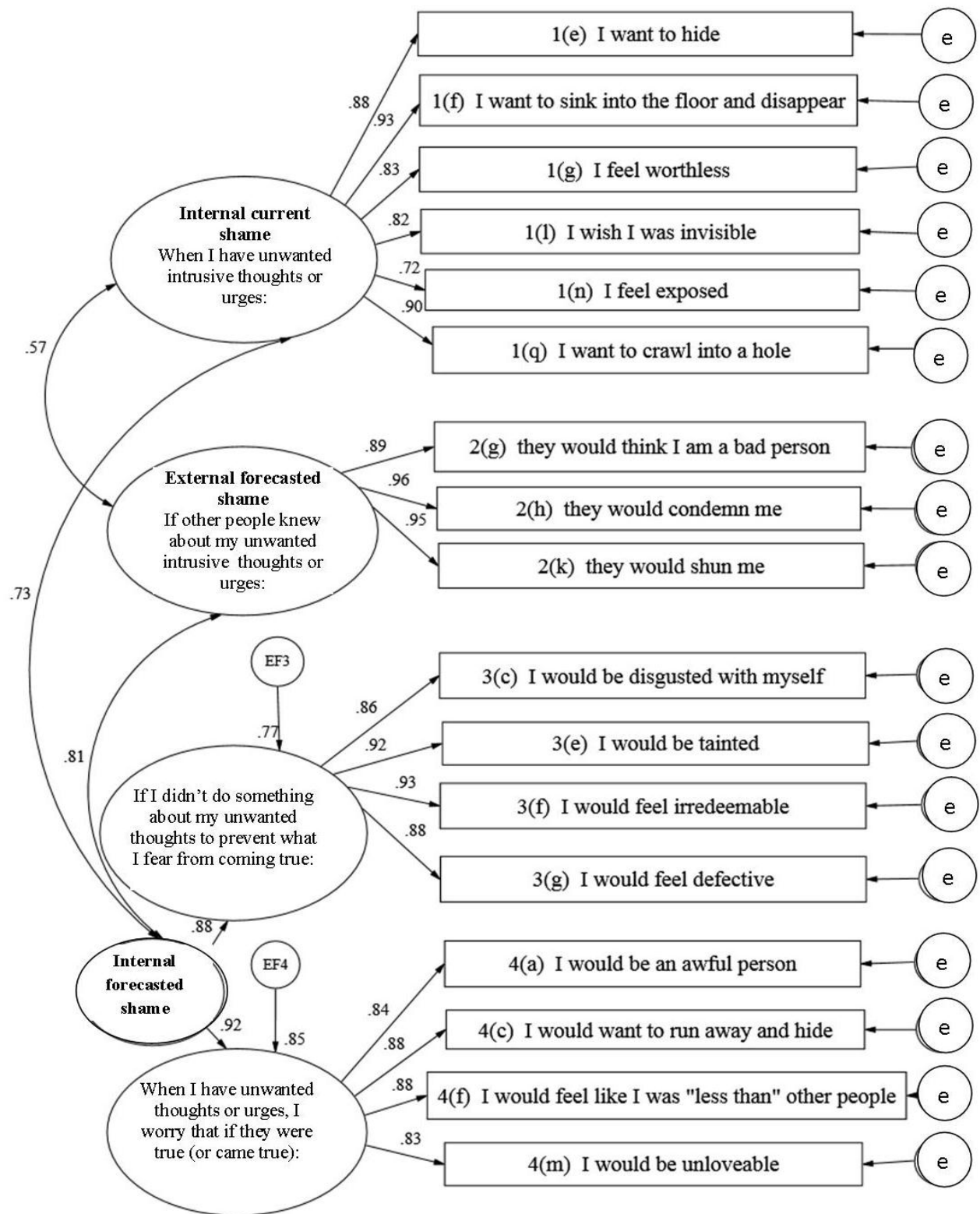


Figure 2. Study 2: Confirmatory factor analysis replication of the factor structure for the final 17 item IRS ($n = 384$). Standardised regression weights and correlations between factors are presented.

3.2.4 *Construct Validity.*

Prior to calculating bivariate correlations, the normality of total scores on measures was examined, and logarithmic transformations were applied to the first factor of the IRS, and to the YBOCS-O, YBOCS-C and YBOCS. Descriptive statistics and inter-correlations with validation measures are displayed in Table 2 below. Medium correlations were observed between IRS factors and shame-proneness (TOSCA-S) and medium to strong correlations with experience of shame (ESS), while no relationship was detected between the IRS and moral standards (GI-M). Weak to medium correlations were found between IRS factors and severity of obsessive-compulsive phenomena (YBOCS-O, YBOCS-C, YBOCS).

3.2.5 *Incremental validity*

Three multiple regression analyses were conducted to test the incremental validity of the scale for explaining variance in obsessive-compulsive symptom severity, after controlling for existing measures of shame and intrusion-related self-inferences. The results of each analysis, including change in R^2 and partial correlation coefficients, are presented in Table 3. On the first step of each analysis, the severity of shame as measured by the TOSCA-3 shame subscale or the Experience of Shame Scale, or the intensity of intrusion-related self inferences as measured by the Intrusion-Related Self Inference Scale, predicted obsessive-compulsive symptom severity. In each analysis, the addition of the IRS subscales at the second step significantly improved the prediction of obsessive-compulsive symptoms.

Table 3

Results of multiple regression analyses predicting obsessive-compulsive symptom severity, testing incremental validity

	<i>n</i>	ΔR^2	Partial <i>r</i>	
			Step 1	Step 2
Step 1	283	.078**		
TOSCA-3 Shame subscale			.280**	.097
Step 2		.126**		
Internal current shame				.247**
Internal forecasted shame				.018
External forecasted shame				.096
Step 1	283	.296**		
Intrusion Related Self Inference Scale			.544**	.388**
Step 2		.022**		
Internal current shame				.163**
Internal forecasted shame				-.004
External forecasted shame				-.020
Step 1	283	.246**		
Experience of Shame Scale			.496**	.337**
Step 2		.042**		
Internal current shame				.183**
Internal forecasted shame				-.008
External forecasted shame				.049

Note: ** = $p < .01$; Obsessive-compulsive symptom severity = Yale Brown Obsessive Compulsive

Scale (total severity scale); Internal current shame = Intrusion-Related Shame Scale internal current shame subscale; Internal forecasted shame = Intrusion-Related Shame Scale internal shame-forecasting subscale; External forecasted shame = Intrusion-Related Shame Scale internal current shame subscale.

3.2.6 Differences between Individuals with OCD and Nonclinical Sample.

T-tests were conducted to determine whether those with OCD ($n = 41$) experienced greater intrusion-related shame than nonclinicals ($n = 283$). As can be seen in Table 4, those with OCD scored significantly higher on each of the IRS subscales than the nonclinical sample.

Table 4

Summary of t-tests including means, standard deviations, and t-statistics for differences between individuals with OCD and nonclinicals (NC) with respect to scores on IRS factors

	NC (n = 283)	OCD (n = 41)	t(df)
Intrusion Related Shame			
Internal current shame	15.59(7.97)	21.22(9.74)	3.533(48.06)**
External forecasted shame	8.42(4.54)	10.81(4.80)	3.122(322)*
Internal forecasted shame	23.74(11.26)	30.91(11.65)	3.795(322)**
OCD symptoms			
YBOCS-O	4.36(3.91)	12.87(2.93)	16.631(62.83)**
YBOCS-C	3.60(3.97)	12.40(3.81)	13.324(322)**
YBOCS	7.03(7.95)	25.28(6.39)	14.92(322)**

Note. * = $p < .01$, ** = $p < .001$; Internal current shame = Intrusion Related Shame scale factor 1;

External forecasted shame = Intrusion Related Shame scale factor 2; Internal forecasted shame =

Intrusion Related Shame scale higher order factor; YBOCS-O = Yale-Brown Obsessive-Compulsive

Scale (obsession severity scale); YBOCS-C = Yale-Brown Obsessive-Compulsive Scale (compulsion

severity scale); YBOCS = Yale-Brown Obsessive-Compulsive Scale (total severity scale).

4. Discussion

According to the cognitive model of OCD, negative self-appraisals in response to experiencing intrusions are crucial mechanisms that maintain the disorder (Rachman, 1997, 1998; Salkovskis, 1985, 1999). Shame, the emotional outcome of such appraisals, may therefore be central to the disorder (Weingarden & Renshaw, 2015). However, no valid self-report measure of intrusion-related shame exists to facilitate empirical examination of the role that such shame plays in OCD. We addressed this gap by creating a scale for assessing severity of shame associated with unwanted intrusive thoughts.

The IRS is a 17-item scale developed in consultation with experts in shame and in OCD. The IRS was conceptualised as a three factor scale, with one of the factors explaining the relationship between two lower-order factors. Items reflecting current and forecasted

shame separated into different factors, as did items reflecting internal and external shame. Items in the first factor appeared to reflect the severity of shame experienced at the time that intrusions arise (i.e., internal current shame). Items in the second factor reflected the intensity of shame-forecasting experienced when contemplating disclosure of intrusions, with a specific focus on how others would perceive and behave towards oneself (i.e., external forecasted shame). Items in the third factor reflected the severity of shame-forecasting experienced when intrusions arise, with a focus on how one would feel about oneself (i.e., internal forecasted shame).

The medium to strong correlations observed between the IRS and measures of shame support the scale's convergent validity. Additionally, we found that those with OCD scored significantly higher on the IRS than did our nonclinical sample, suggesting that intrusion-related shame is relevant to OCD. Consistent with prior research into shame, intrusion-related shame as measured by the IRS was found to have little to no relationship with moral standards, demonstrating the scale's divergent validity.

Whereas our results reveal adequate concurrent validity of the IRS with respect to obsessive-compulsive phenomena, the observed correlations with the YBOCS-C (being a measure of compulsion severity) were relatively weak. This may be due to a disparity in time frames presented across the measures. In the introduction to the IRS, respondents were asked to complete the scale while considering their most unpleasant intrusion, and no time constraints were provided with respect to when that intrusion may have arisen. It is therefore possible that participants were responding to the scale by indicating how they felt about intrusions experienced in the distant past. In contrast, the YBOCS-C required respondents to indicate the severity of compulsions experienced over the previous seven days. This misalignment in timeframes may have weakened the observed correlations, and is a potential area for refinement of the scale in future research.

With respect to the scale's incremental validity, we found that the IRS explained additional variance in obsessive-compulsive severity after controlling for measures of shame and intrusion-related self inferences. The additional variance was derived from the internal current shame factor. Further research is necessary to determine whether the external forecasted shame factor has clinical utility in helping clinicians to determine the extent to which client expectations of being shamed interferes with disclosure of obsessions in treatment, and whether resolution of such shame improves treatment outcomes.

This study has limitations. In particular, the results are primarily based on a nonclinical sample, restricted in age and nationality, in which women were over-represented. Additionally, whereas comparison of mean scores indicated that intrusion-related shame is relevant to OCD, further research is required to establish whether intrusion-related shame is specific to OCD, or, if it is equally relevant to other disorders (e.g., anxiety disorders and psychotic disorders). Further validation of the scale's psychometrics in clinical populations is required. Despite these limitations, the scale evidenced good psychometric properties, and may be useful for investigating the role of intrusion-related shame in OCD.

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Appendix A

Intrusion-Related Shame Scale

INTRUSIONS AND EMOTIONS

Almost everyone has unwanted intrusive thoughts, mental images, or urges at some time. We do not experience these intrusions on purpose. Instead, they are involuntary and difficult to control, and they seem to pop into our minds and interrupt our thoughts. These intrusions differ from everyday worries about real-life concerns, and they often don't make sense or they seem inconsistent with who we are. They may be unpleasant, scary, disgusting, or even bizarre. Here are some examples:

- an urge to hurt a defenceless person (e.g., a child), despite not wanting to hurt them
- a mental image of performing a sexual act which you consider offensive
- an urge to do something embarrassing like yell out disgusting swear words in a public place
- a distressing mental image (e.g., animals being mutilated)
- an urge to hurt yourself (e.g., by crashing your car into a tree), despite having no desire to do so
- the thought that you may have left your door unlocked, or your oven turned on
- the thought that you have been contaminated
- a blasphemous or sacrilegious mental image

Please circle the theme(s) below which most closely relate to intrusions which you have experienced. It may be that more than one theme relates to a single intrusion. If so, please select all relevant themes.

Being contaminated	Contaminating others
Dirt	Disease
Germ	Harm to self
Harm to others	Injury to self
Injury to others	Offending others
Aggression toward others	Being a victim of violence
Damage to property	Being in danger
Repugnant	Immorality (without sexual content)
Sexual immorality	Sinfulness
Sacrilege	Blasphemy
Losing control	Losing something
Nonsense	Doubt
Something being not right	Bizarre
Asymmetry	Other (theme not listed)
I have never experienced an intrusion	

When completing this inventory, please keep in mind the intrusion(s) which you find most unpleasant.

Please indicate your level of agreement with the following statements by circling the relevant number.

- 1** = strongly disagree
2 = disagree
3 = somewhat disagree
4 = somewhat agree
5 = agree
6 = strongly agree

When I have unwanted intrusive thoughts or urges:

1(e) I want to hide	1	2	3	4	5	6
1(f) I want to sink into the floor and disappear	1	2	3	4	5	6
1(g) I feel worthless	1	2	3	4	5	6
1(l) I wish I was invisible	1	2	3	4	5	6
1(n) I feel exposed	1	2	3	4	5	6
1(q) I want to crawl into a hole	1	2	3	4	5	6

If other people knew about my unwanted intrusive thoughts or urges:

2(g) they would think I am a bad person	1	2	3	4	5	6
2(h) they would condemn me	1	2	3	4	5	6
2(k) they would shun me	1	2	3	4	5	6

If I didn't do something about my unwanted thoughts to prevent what I fear from coming true:

3(c) I would be disgusted with myself	1	2	3	4	5	6
3(e) I would be tainted	1	2	3	4	5	6
3(f) I would feel irredeemable	1	2	3	4	5	6
3(g) I would feel defective	1	2	3	4	5	6

When I have unwanted thoughts or urges, I worry that if they were true (or they came true):

4(a) I would be an awful person	1	2	3	4	5	6
4(c) I would want to run away and hide	1	2	3	4	5	6
4(f) I would feel like I was "less than" other people	1	2	3	4	5	6
4(m) I would be unloveable	1	2	3	4	5	6

CHAPTER 6: INVESTIGATION OF SHAME AS A MODERATOR

**6.1 PAPER 3: Influence of intrusion-related shame on compulsion severity:
Investigation of a moderator effect**

This paper has been submitted to Self and Identity

Influence of intrusion-related shame on compulsion severity:**Investigation of a moderator effect**

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Abstract

An extensive body of literature implicates self-themes in obsessive-compulsive disorder (OCD), but research is yet to examine the role of symptom-related shame. This study tested whether the relationship between intrusion frequency and compulsion severity differed depending on the intensity of shame experienced in response to intrusions. This effect was examined across four intrusion themes: aggressive, contamination, symmetry, and sexual/ religious/ immoral intrusions. Nonclinical participants ($n = 250$) completed self-report measures of intrusion frequency, intrusion-related shame severity, and compulsion severity. Shame was found to moderate the relationship between intrusion frequency and compulsion severity when unwanted intrusions featured themes of contamination, aggression, and sex/religion/immorality, but not with respect to symmetry intrusions. Implications for cognitive-behavioural conceptualisation of OCD are discussed.

Keywords: obsessive-compulsive disorder; shame; moderation; emotion regulation

Obsessive-compulsive disorder (OCD) is a debilitating mental disorder characterised by persistent distressing intrusive thoughts or impulses (obsessions), and repetitive or ritualistic behaviours (compulsions) performed in response to obsessions to alleviate or avoid the distress that obsessions elicit, or to prevent a dreaded outcome. Obsessions feature themes such as violence, danger, sexual deviance, immorality, symmetry, and contamination, while common compulsions include checking, repeating, counting, arranging, and reassurance seeking. (American Psychiatric Association, 2013)

Epidemiological studies show that whereas all individuals experience unwanted intrusive thoughts (Abramowitz et al., 2014), only 2% to 3.5% find that these thoughts escalate into the obsessions and compulsions observed in OCD (Angst et al., 2004; Ruscio, Stein, Chiu, & Kessler, 2010). These findings suggest that, whereas the presence of intrusive thoughts is necessary for OCD to develop, their mere presence is not sufficient to trigger the disorder. Cognitive theorists have attempted to identify the mechanism(s) which predict the development of OCD and have suggested that intrusions become obsessions when they are appraised as evidence that the self is, or could be, defective (Rachman, 1997, 1998). It is proposed that compulsions are then performed to reduce the distress associated with obsessions or to prevent catastrophic outcomes (such as unwittingly hurting a child or transmitting a disease to a loved one) (Campbell-Sills & Barlow, 2007; Rachman, 1997; Salkovskis, 1985, 1999).

The nature of the distress that those with OCD attempt to regulate by performing compulsions is typically labelled anxiety but this is not the only emotion that has been implicated in OCD. Guilt and disgust have also been conceptualised as motivating engagement in compulsions (Berle & Phillips, 2006; Mancini & Gangemi, 2004; Shafran, Watkins, & Charman, 1996); and, more recently, researchers have identified a relationship between OCD and shame (Weingarden & Renshaw, 2015). Examination of this relationship

appears warranted given that shame is the emotion which is elicited when the self is regarded as defective (Lewis, 1971; Tangney & Dearing, 2003). Indeed, the self-focus of the negative appraisals observed in OCD is a defining feature of shame, which is an acutely painful self-conscious emotion characterised by a sense of being diminished, unlovable and unworthy, and by the desire to hide or withdraw (Lewis, 1971; Tangney & Dearing, 2003). Given that shame is a distressing emotion which arises when the self is perceived as bad or defective, and appraisals underlying shame may explain why intrusions escalate into obsessions (Rachman, 1997, 1998), it follows that individuals with OCD may engage in compulsions to regulate shame, among other difficult emotions.

Furthermore, since obsessions are often phrased in the future tense as conjectures regarding one's potential to act irresponsibly (e.g., what if I give my partner HIV?), to lose control (e.g., what if I scream obscenities in church?), or to cause harm (e.g., what if I throw my baby?) (Rachman, 1997, 1998), compulsions may constitute attempts to avoid shame by preventing a defective (e.g., irresponsible, immoral, violent) self from manifesting. This proposition accords with theories that individuals perform compulsions in order to protect against threats to positive internal representations of the self (Bhar & Kyrios, 2007; Guidano & Liotti, 1983) which carry with them the threat of shame. This anticipation of shame may be characterised as shame-forecasting (Schoenleber & Berenbaum, 2012). Gilbert (2000) identified that shame can be either *external* (the perception that others are, or would be, ashamed of oneself) or *internal* (relating to one's own perception of oneself as shameful). Compulsions may be performed in response to anticipation of both internal and external shame; as they may constitute attempts to protect against threats to one's positive sense of self, or against social disapproval (Ehnholt, Salkovskis, & Rimes, 1999).

Empirical research of a role for shame in motivating compulsions is limited. Some studies have examined shame-related constructs such as shame-proneness and

defectiveness/shame schema. At a broad level, shame-proneness (the tendency to experience shame across multiple contexts) was identified as a predictor of obsessive-compulsive symptom severity in an analogue sample (Valentiner & Smith, 2008) and, in a clinical sample of individuals with anxiety disorders, reduction in shame-proneness was found to correlate moderately with reduction in obsessive-compulsive symptom severity over the course of treatment (Fergus, Valentiner, McGrath, & Jencius, 2010). In other research, individuals with OCD were found to score significantly higher on a measure of defectiveness/shame schema than did healthy controls (Kim, Lee, & Lee, 2014).

Weingarden and Renshaw (2015) theorised that only certain types of obsessions are associated with shame. Recent studies support this notion and suggest that violent, sexual and religious obsessions may be particularly shame-laden (Chase, Wetterneck, Bartsch, Leonard, & Riemann, 2015; Glazier, Wetterneck, Singh, & Williams, 2015), while obsessions concerning contamination, symmetry, and harm do not elicit shame (Glazier et al., 2015). In contrast, Wetterneck, Singh, and Hart (2014) found that shame-proneness was associated with symmetry obsessions, but it was not associated with contamination intrusions or unacceptable thoughts (Wetterneck, Singh, & Hart, 2014). The researchers noted that they may have failed to detect a relationship between unacceptable thoughts and shame because their measure of shame-proneness (the Test of Self Conscious Affect (TOSCA); Tangney, Dearing, Wagner, & Gramzow, 2000) did not specifically assess shame associated with unwanted intrusive thoughts. This issue was broadly anticipated by the creators of the TOSCA, who identified that, due to the specificity of shame, the TOSCA may not capture shame in unique domains. Such analysis suggests that a measure which specifically assesses intrusion-related shame should be utilised in future research. In a recent study, which employed the use of a measure of intrusion-related shame, such shame was found to be associated with OCD symptom severity in a nonclinical population (Wallace, Bhar, Meyer, &

Nedeljkovic, 2015). Furthermore, individuals with OCD were found to experience significantly greater intrusion-related shame than nonclinical participants.

The purpose of the present study was to examine the relationship between intrusion-related shame, compulsion severity, and the four most commonly reported types of intrusions (i.e., sexual/religious/immoral, aggressive, symmetry, and contamination), and to explore the extent to which intrusion-related shame moderated the relationship between intrusion frequency and compulsion severity. More specifically, this study aimed to investigate whether the relationship between intrusion frequency and compulsion severity differed depending on the intensity of shame experienced in response to intrusions. The frequency of unwanted intrusions was examined, rather than the distress associated with obsessions, in order to capture the phenomenon of intrusions which are unwanted but which do not necessarily cause clinically significant distress or impairment. These analyses were conducted with respect to both current and forecasted shame. In order to determine whether the role of shame differed depending on the nature of intrusions experienced, this study examined the proposed moderation model with respect to each of the four types of intrusions described above.

Method

Participants

The sample comprised 250 ($M = 31.87$ years, $SD = 10.12$) undergraduate psychology students at an Australian university, who participated for course credit. This sample excluded 31 participants who did not fully complete the questionnaire, and 104 respondents who indicated that they had not experienced any unwanted intrusions in the past month. The majority of the sample were female (84%) and were born in Australia or New Zealand (86%), and spoke only English at home (90%). Most were employed (66.4%), with 28.8 % employed full time, 20.8% employed part time, and 16.8% employed casually.

Measures

Participants completed the following measures:

The Self Report Yale-Brown Obsessive-Compulsive Scale (YBOCS; Baer, Brown-Beasley, Sorce, & Henriques, 1993) is a self-report version of the clinician-administered YBOCS (Goodman et al., 1989) measuring OCD symptom severity. Respondents were asked to identify their OCD symptoms from a list of 37 obsessions and 20 compulsions. The list of compulsions usually contains 21 items, however only 20 items were included in this study. The item measuring the compulsion to hoard was excluded following the DSM-5 realignment of hoarding as a disorder distinct from OCD (American Psychiatric Association, 2013). Respondents were also asked five questions regarding the severity of their obsessions and five questions regarding the severity of their compulsions (e.g., time spent, degree of interference, distress, resistance, perceived control over symptoms). Each of these 10 items was rated on a scale ranging from 0 to 4, yielding separate subscale scores for obsessions and compulsions of 0 (no symptoms) to 20 (extreme symptoms). While the entire YBOCS was administered, only the compulsions severity subscale (YBOCS-C) is reported in this study. The YBOCS has been shown to have good reliability and validity (Taylor, 1995).

The Intrusion-Related Shame Scale (IRS; Wallace et al., 2015) is a 17-item self-report scale assessing three aspects of shame associated with experiencing unwanted intrusive thoughts and urges: internal current shame; internal forecasted shame, and external forecasted shame. The IRS features an introduction in which intrusive thoughts are defined, and respondents are asked to circle themes of their intrusions. They are then asked to reflect on their “most unpleasant intrusion(s)” when completing the scale. The IRS was originally created without time constraints, so that respondents could complete the IRS with respect to an intrusion experienced at any time of their life.

In this study, the introduction and item stems were amended by asking respondents to indicate whether they had experienced any unwanted intrusions in the past month, and if so, they were asked to complete the scale in relation to the most unpleasant intrusion experienced “in the past month.” This amendment allowed for closer alignment with the seven day time limit in the YBOCS-C, while providing a sufficient timespan to ensure enough participants responded in the affirmative to generate enough data to power our analyses. Internal current shame was assessed by six items prefaced by the stem “When I have unwanted intrusive thoughts or urges -” (e.g., I wish I was invisible) which were rated on a scale from 1 (strongly disagree) to 6 (strongly agree), yielding a total score between 6 and 36. Internal forecasted shame was assessed by four items prefaced by “In the past month, if I didn’t do something about my unwanted thoughts to prevent what I fear from coming true - (e.g., I would be disgusted with myself)” and four items prefaced by “When I had unwanted thoughts or urges in the past month, I worried that if they were true (or they came true) – (e.g., I would feel like I was less than other people)” yielding a total score between 8 and 48. Finally, external forecasted shame was assessed by four items prefaced by “If other people knew about the unwanted intrusive thoughts or urges that I had in the past month - (e.g., they would condemn me)” yielding a total score between 4 and 24.

The IRS has been shown to have good reliability and validity (Wallace et al., 2015). To establish the validity of the time-limited version of the IRS (T-IRS), the original version of the IRS was also administered, and zero-order Pearson’s correlation coefficients were calculated between scores on each of the original subscales and their time-limited counterparts, revealing strong correlations of $r = .82$ for internal current shame, $r = .79$ for internal forecasted shame, and $r = .79$ for external forecasted shame. The strong correlations suggest that inclusion of a time-limit did not change the construct measured. Given that the

correlations were non-singular, there was some variance in how questions were answered depending on the time-limit under consideration.

The Obsessional Intrusive Thoughts Inventory (INPIOS; García-Soriano, 2008) Part 1 is a 48-item (excluding 2 open-ended items) self-report questionnaire assessing the frequency of unwanted intrusions. Items are organised by reference to scenarios most likely to trigger the intrusions (e.g., When with people, and without anyone provoking me, I have had mental intrusions of: “Saying something inappropriate, bothering or insulting to a stranger”, “That the fly of my pants is unzipped or that my blouse is unbuttoned”). The scale comprises six subscales, with each subscale featuring an obsessional theme, including contamination, aggression, sexual/religious/immoral, superstition, symmetry, doubts/mistakes, and superstition. Only the contamination, aggression, sexual/religious/immoral, and symmetry subscales were used in this study (contamination = items 29, 37 and 41 to 44; aggression = items 1 to 10; sexual/religious/immoral = items 11 to 24; symmetry = items 25 to 28). Each statement was rated on a scale from 0 (I have never had this intrusion) to 6 (I have this intrusion frequently during the day). Subscale Total scores were calculated as the average frequency of those intrusions experienced by the respondent. That is, subscale scores were divided by the number of items in the subscale with a frequency equal to or greater than 1. The INPIOS has been shown to have good internal consistency and test-retest reliability (Garcia-Soriano & Belloch, 2013).

Procedure

Respondents completed the questionnaire online via Opinio 6.8.2 survey software. The study was approved by a Human Research Ethics Committee, and respondents provided informed consent before commencing the questionnaire.

Results

Before calculating bivariate correlations and conducting multiple regression analyses, subscale scores were examined for breaches of normality, and log transformations were applied to the contamination and symmetry intrusions subscales of the INPIOS, and to the compulsion severity subscale of the YBOCS. Table 1 displays means, standard deviations, and Cronbach's alphas for the given measures (indicating good to excellent internal consistency for each measure). Pearson's zero-order correlations are also presented, which reveal small to medium significant correlations between intrusion frequency and intrusion-related shame, and between intrusion frequency and compulsion severity. Those with more frequent intrusions tend to experience greater shame and more severe compulsions. The only exceptions were the non-significant relationship between frequency of both symmetry and contamination intrusions and external forecasted shame.

Table 1

Means (standard deviations), Cronbach's alphas, and zero-order correlations between measures

	<i>M(SD)</i>	α	1	2	3	4	5	6	7	8
1 Internal current shame	16.98(9.12)	.95	-	.47**	.69**	.26**	.25**	.24**	.17**	.36**
2 External forecasted shame	8.63(4.72)	.95		-	.74**	.17**	.10	.29**	.08	.20**
3 Internal forecasted shame	24.17(11.55)	.95			-	.30**	.26**	.27**	.19**	.31**
4 Aggressive	1.91(1.05)	.88				-	.21**	.42**	.24**	.25**
5 Contamination	1.44(1.30)	.93					-	.24**	.41**	.35**
6 Sex/Relig/Immoral	2.03(1.06)	.91						-	.17**	.14*
7 Symmetry	1.80(1.49)	.91							-	.40**
8 Compulsion Severity	3.00(.79)	.89								-

Note: $N = 250$; * = $p < .05$, ** = $p < .01$; Internal current shame = Intrusion-Related Shame Scale

internal current shame subscale; Internal forecasted shame = Intrusion-Related Shame Scale internal

shame-forecasting subscale; External forecasted shame = Intrusion-Related Shame Scale internal

current shame subscale; Aggressive intrusions = The Obsessional Intrusive Thoughts Inventory

aggressive intrusions subscale; Contamination intrusions = The Obsessional Intrusive Thoughts

Inventory contamination intrusions subscale; Sexual/Religious/Immoral intrusions = The Obsessional

Intrusive Thoughts Inventory sexual/religious/immoral intrusions subscale; Compulsion Severity =

The Yale Brown Obsessive Compulsive Scale compulsion severity subscale.

There were no correlations above .90, indicating that there was no instance of multicollinearity in the subsequent regression analysis. With respect to each multiple regression conducted, multivariate outliers were detected on the basis that their Mahalanobis Distance exceeded the critical value of 16.27 (Tabachnick & Fidell, 2013), and were excluded from the analysis. The number of participants remaining in each analysis is displayed in Tables 2 to 5 below.

Hierarchical regressions with interaction terms (Aiken & West, 1991) were conducted to test whether the relationship between intrusion frequency and compulsion severity differed depending on the intensity of shame experienced. The YBOCS compulsion severity subscale was entered as the dependent variable. Separate hierarchical regression analyses were conducted for each type of intrusion examined (i.e., contamination, aggression, sexual/religious immoral, and symmetry), and for each type of intrusion-related shame captured in the T-IRS (i.e., internal current shame, internal forecasted shame, and external forecasted shame). INPIOS subscale scores (which were centred by subtracting from each score the mean sample score) were entered as predictors in the first step of each regression. Centred T-IRS subscale scores were entered as predictors in the second step. Interaction terms were entered as predictors in the third step of each analysis, and were calculated as the product of the centred scores on the relevant subscale of the T-IRS and the INPIOS. The significance tests associated with inclusion of these interaction terms in each model tested the significance of the moderation effects.

The results of each regression analysis, including change in R^2 and partial correlation coefficients, are presented below. Tables 2 to 5 set out the results associated with contamination, sexual/religious/immoral, aggressive and symmetry intrusions respectively. On the first step of each analysis, the frequency of intrusions significantly predicted compulsion severity, and the addition of each type of intrusion-related shame at the second step significantly improved the prediction of compulsions. When current internal shame was included in an interaction term with intrusion frequency, addition of that term at the third step made a significant contribution to the prediction of compulsion severity when intrusions featured concerns regarding aggression and contamination. When internal forecasted shame was in the interaction term with intrusion frequency, it significantly moderated the relationship between frequency of intrusions and compulsion severity when intrusions

concerned aggression and sex/religion/immorality, but no moderation effect was detected for intrusions related to symmetry and contamination. Furthermore, when external forecasted shame was in the interaction term, it did not significantly contribute to the prediction of compulsions with respect to any type of intrusion.

Table 2

Results of multiple regression analyses predicting compulsion severity, testing moderation effect with respect to contamination intrusions

	<i>n</i>	ΔR^2	Partial <i>r</i>		
			Step 1	Step 2	Step 3
Step 1	249	.127**			
Contamination			.357**	.294**	.290**
Step 2		.071**			
Internal current shame				.285**	.283**
Step 3		.028**			
Contamination x internal current shame					.188**
Step 1	248	.115**			
Contamination			.339**	.284**	.285**
Step 2		.047**			
Internal forecasted shame				.231**	.228**
Step 3		.010			
Contamination x internal forecasted shame					.111
Step 1	250	.119**			
Contamination			.345**	.334**	.334**
Step 2		.029**			
External forecasted shame				.182**	.183**
Step 3 Interaction effect		.001			
Contamination x external forecasted shame					.041

Note: * = $p < .05$, ** = $p < .01$; Significant moderation effect is shown in bold; Contamination = The

Obsessional Intrusive Thoughts Inventory contamination intrusions subscale; Internal current shame = Intrusion-Related Shame Scale internal current shame subscale; Internal forecasted shame = Intrusion-Related Shame Scale internal shame-forecasting subscale; External forecasted shame = Intrusion-Related Shame Scale internal current shame subscale

Table 3

Results of multiple regression analyses predicting compulsion severity, testing moderation effect with respect to sexual, religious, and immoral intrusions

	<i>n</i>	ΔR^2	Partial <i>r</i>		
			Step 1	Step 2	Step 3
Step 1	242	.024*			
S/R/I			.155*	.076	.102
Step 2		.103**			
Internal current shame				.325**	.325**
Step 3		.014			
S/R/I x internal current shame					.127
Step 1	239	.030**			
S/R/I			.173**	.108	.139*
Step 2		.064**			
Internal forecasted shame				.257**	.277**
Step 3		.016*			
S/R/I x internal forecasted shame					.133*
Step 1	241	.037**			
S/R/I			.192*	.159*	.157*
Step 2		.012			
External forecasted shame				.113	.101
Step 3 Interaction effect		.001			
S/R/I x external forecasted shame					-.038

Note: * = $p < .05$, ** = $p < .01$; Significant moderation effect is shown in bold; S/R/I = The

Obsessional Intrusive Thoughts Inventory sexual/religious/immoral intrusions subscale; Internal current shame = Intrusion-Related Shame Scale internal current shame subscale; External forecasted shame = Intrusion-Related Shame Scale internal current shame subscale; Internal forecasted shame = Intrusion-Related Shame Scale internal shame-forecasting subscale.

Table 4

Results of multiple regression analyses predicting compulsion severity, testing moderation effect with respect to aggressive intrusions

	<i>n</i>	ΔR^2	Partial <i>r</i>		
			Step 1	Step 2	Step 3
Step 1	244	.068**			
Aggressive			.262**	.187**	.210**
Step 2		.075**			
Internal current shame				.284**	.262**
Step 3		.015*			
Aggressive x internal current shame					.134*
Step 1	242	.072**			
Aggressive			.269**	.196**	.211**
Step 2		.048**			
Internal forecasted shame				.229**	.241**
Step 3		.015*			
Aggressive x internal forecasted shame					.131*
Step 1	237	.077**			
Aggressive			.278**	.255**	.253**
Step 2		.032**			
External forecasted shame				.185**	.192**
Step 3		.003			
Aggressive x external forecasted shame					.055

Note: * = $p < .05$, ** = $p < .01$; Significant moderation effects are emboldened; Aggressive = The

Obsessional Intrusive Thoughts Inventory aggressive intrusions subscale; Internal current shame =

Intrusion-Related Shame Scale internal current shame subscale; External forecasted shame =

Intrusion-Related Shame Scale internal current shame subscale; Internal forecasted shame = Intrusion-

Related Shame Scale internal shame-forecasting subscale.

Table 5

Results of multiple regression analyses predicting compulsion severity, testing moderation effect with respect to symmetry intrusions

	<i>n</i>	ΔR^2	Partial <i>r</i>		
			Step 1	Step 2	Step 3
Step 1	244	.185**	.430**	.376**	.386**
Symmetry					
Step 2		.064**		.279**	.252**
Internal current shame					
Step 3		.007			.100
Symmetry x internal current shame					
Step 1	246	.162**	.402**	.363**	.367**
Symmetry					
Step 2		.048**		.239**	.232**
Internal forecasted shame					
Step 3		.004			.074
Symmetry x internal forecasted shame					
Step 1	244	.155**	.394**	.382**	.383**
Symmetry					
Step 2		.024**		.169**	.165**
External forecasted shame					
Step 3		.001			.034
Symmetry x external forecasted shame					

Note: * = $p < .05$, ** = $p < .01$; Symmetry = The Obsessional Intrusive Thoughts Inventory symmetry intrusions subscale; Internal current shame = Intrusion-Related Shame Scale internal current shame subscale; External forecasted shame = Intrusion-Related Shame Scale internal current shame subscale; Internal forecasted shame = Intrusion-Related Shame Scale internal shame-forecasting subscale.

Figure 1 illustrates the relationship between intrusion frequency and compulsion severity at one standard deviation above and one standard deviation below the mean on intrusion-related shame, with respect to each significant interaction effect.

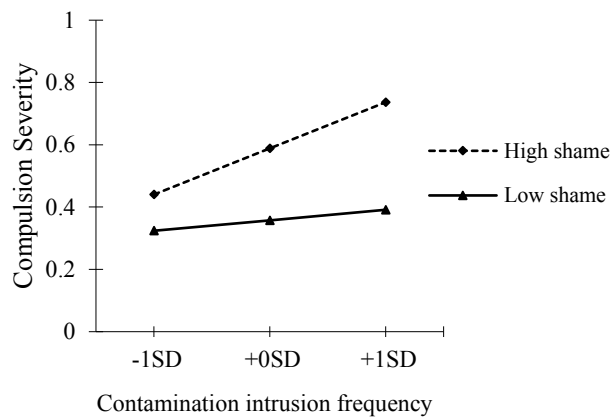
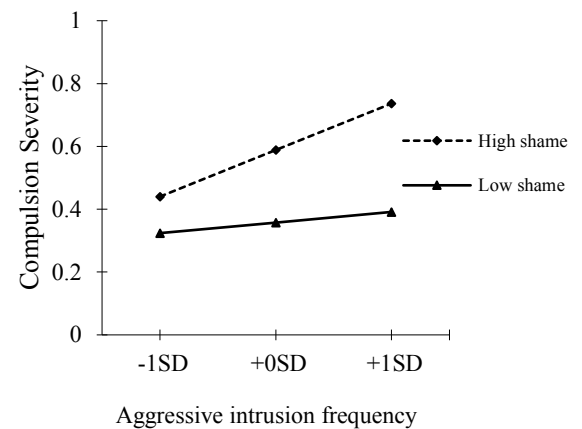
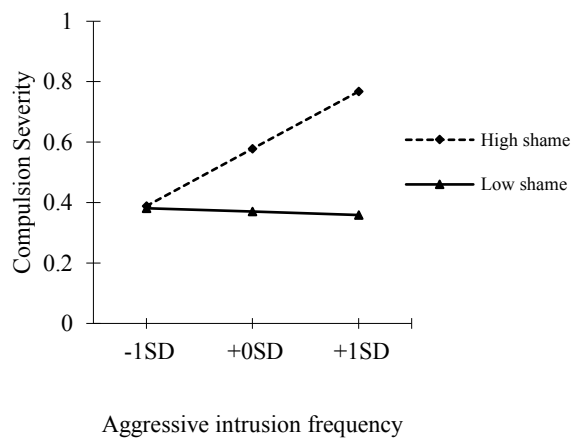
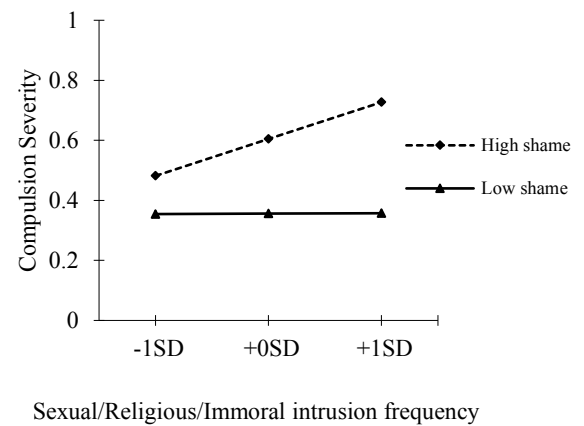
(a) Contamination intrusions x internal current shame**(b) Aggressive intrusions x internal current shame****(c) Aggressive intrusions x internal forecasted shame****(d) Sexual/religious/immoral intrusions x internal forecasted shame**

Figure 1. Compulsion severity and intrusion frequency split by high and low intrusion-related shame (one standard deviation above and below mean intrusion-related shame scores, respectively), displaying: (a) interaction effect of contamination intrusions x internal current shame; (b) interaction effect of aggressive intrusions x internal current shame; and (c) interaction effect of aggressive intrusions x internal forecasted shame; and (d) interaction effect of sexual/religious/immoral intrusions x internal forecasted shame.

Post Hoc Analyses

With respect to each moderation effect detected, separate independent t-tests were conducted for those who scored high on shame and for those who scored low on shame, to determine whether there was a significant difference in compulsion severity between those

who scored high or low on intrusion frequency. As shown in Table 6, for those who scored at or above the median on current shame, those who scored high (i.e., at or above the median) on intrusion frequency reported significantly more severe compulsions than those who scored below the median, and this was true with respect to contamination intrusions and aggressive intrusions. In contrast, for those who scored below the median on current shame, we detected no difference in compulsion severity on the basis of intrusion frequency.

Table 6

Comparison of mean compulsion severity scores according to scores on internal current shame and frequency of intrusions

Intrusion type	Low in internal current shame			High in internal current shame		
	Infrequent	Frequent		Infrequent	Frequent	
	M(SD)	M(SD)		M(SD)	M(SD)	
Contamination	.52(.65)	.59(.72)	$t(115) = .54, p = .590.$	.65(.73)	1.30(.82)	$t(130) = 4.77, p = .000$
Aggressive	.50(.65)	.63(.70)	$t(113) = 1.00, p = .321.$	.62(.71)	1.30(.84)	$t(127) = 4.72, p = .000.$

Note: Low/High in internal current shame = individuals scoring below and at or above the median (respectively) on the internal current shame subscale of the Intrusion Related Shame scale; Infrequent/Frequent = individuals scoring below and at or above the median (respectively) on intrusion frequency with respect to the given intrusion type; Contamination = The Obsessional Intrusive Thoughts Inventory contamination intrusions subscale; Aggressive = The Obsessional Intrusive Thoughts Inventory aggressive intrusions subscale.

Additionally, with respect to individuals who scored at or above the median on internal forecasted shame, those who scored high (i.e., at or above the median) on frequency of sexual/religious/immoral intrusions and aggressive intrusions reported significantly more severe compulsions than those who scored below the median, while no significant difference was detected for those who scored below the median on internal forecasted shame (see Table 7).

Table 7

Comparison of mean compulsion severity scores according to scores on internal forecasted shame and frequency of intrusions

Intrusion type	Low in internal forecasted shame			High in internal forecasted shame		
	Infrequent	Frequent		Infreque nt	Frequent	
	M(SD)	M(SD)		M(SD)	M(SD)	
S/R/I	.56(.75)	.58(.74)	$t(118) = .088, p = .930$	.83(.75)	1.17(.80)	$t(117) = 2.38, p = .019$
Aggressive	.50(.69)	.67(.82)	$t(75.14) = 1.17, p = .244.$	.64(.66)	1.26(.80)	$t(120) = 4.55, p = .000.$

Note: Low/High in internal forecasted shame = individuals scoring below and at or above the median (respectively) on the internal shame forecasting subscale of the Intrusion Related Shame scale; Infrequent/Frequent = individuals scoring below and at or above the median (respectively) on intrusion frequency with respect to the given intrusion type; S/R/I = The Obsessional Intrusive Thoughts Inventory sexual/religious/immoral intrusions subscale; Aggressive = The Obsessional Intrusive Thoughts Inventory aggressive intrusions subscale.

Discussion

This study examined the relationships between intrusion-related shame, compulsion severity, and intrusions featuring themes of aggression, contamination, symmetry, and sex/religion/immorality. It further tested the extent to which intrusion-related shame moderated the relationship between intrusion frequency and compulsion severity for each type of intrusion. Each analysis was conducted across three aspects of intrusion-related shame: internal current shame, internal forecasted shame, and external forecasted shame.

We found that internal current and forecasted shame were associated with all four intrusion subtypes. However, external forecasted shame was not associated with symmetry or contamination intrusions. With respect to our analyses of the moderation model, internal current shame was found to moderate the relationship between intrusion frequency and compulsion severity when unwanted intrusions featured themes of contamination or

aggression. Internal forecasted shame significantly moderated the relationship when intrusions featured aggression or sex/religion/immorality. However, no moderation effect was detected with respect to external forecasted shame. Each of these findings is discussed in turn below.

Our findings that contamination and symmetry intrusions were associated with internal shame, but not external shame, suggest that, even though individuals may not expect to feel shame when disclosing contamination or symmetry intrusions, such intrusions may nevertheless elicit shame. Practitioners may benefit from being alert to this possibility, so that the apparent ease with which obsessions are disclosed, is not interpreted as evidence that shame is absent.

Our findings that contamination intrusions correlated with internal intrusion-related shame are inconsistent with prior research which failed to detect a correlation between shame-proneness and contamination symptoms (Wetterneck et al., 2014). This may be due to our use of a measure which specifically assessed intrusion-related shame. Our results are consistent with anecdotal evidence from clinical experience with OCD patients who report complex appraisals of contamination intrusions, wherein they do not only fear becoming sick, but also infecting loved ones, or being shunned due to the nature of the illness contracted, or becoming a burden on others due to sickness. Such feared outcomes seem likely to arouse shame due to their association with perceived transgressions of moral conduct.

The moderation effect that we detected with respect to internal current shame indicates that those who feel minimal shame when intrusions arise can have frequent aggressive and contamination intrusions without engaging in more severe compulsions. In contrast, those who feel strong shame tend to have more severe compulsions when such intrusions are frequent. These results imply that a lack of intrusion-related shame may be protective. That is, when individuals feel only slight shame in response to their intrusions,

they may be able to experience frequent intrusions without feeling compelled to neutralise them.

Our findings that internal forecasted shame moderated the relationship between intrusion frequency and compulsion severity when intrusions featured themes of aggression or sex/religion/immorality are consistent with the proposal that compulsions may constitute preventive shame-regulation strategies. That is,, individuals who anticipate shame when they experience such unwanted intrusions may engage in compulsions to prevent the onset of shame. This extends on cognitive theories which posit that compulsions are performed to protect against threats to positive self-views (Bhar & Kyrios, 2007; Guidano & Liotti, 1983), by positioning the affective consequences of such threats (i.e., shame) as influential in the disorder.

With respect to external forecasted shame, it is possible that we failed to detect a moderation effect because we used a scale which focused on anticipation of external shame in the context of others becoming aware of one's intrusions. It is possible that a moderation effect would have emerged if we had instead measured anticipation of experiencing external shame if dreaded outcomes were to manifest. Future investigation is needed to determine whether compulsions are performed to avoid such external forecasted shame, and if this is true in the absence of internal forecasted shame.

With respect to symmetry intrusions, we did not detect a moderation effect with respect to any aspect of intrusion-related shame. This suggests that other mechanisms may operate when intrusions chiefly feature the desire for symmetry and alignment. This outcome is consistent with prior findings that, in contrast with other obsessive-compulsive symptoms, symmetry symptoms tend to be more often motivated by a desire to achieve a 'just right' feeling, rather than to avoid a dreaded outcome or to decrease distress or anxiety; and are associated more strongly with perfectionism and intolerance of uncertainty than an

overdeveloped sense of responsibility or overestimation of threat, or beliefs regarding the importance and control of thoughts (Brakoulias et al., 2014; Starcevic et al., 2011; Wheaton, Abramowitz, Berman, Riemann, & Hale, 2010).

When considering the clinical implications of this study, it is important to note that we utilised a non-clinical sample. Caution must therefore be exercised when generalising these findings to individuals with OCD. Additionally, the cross-sectional nature of the study precludes conclusions as to causality. Future research with clinical populations is necessary to explore the relevance of these findings to those with OCD; and longitudinal or experimental research is necessary to chart causal pathways. Longitudinal studies involving measurement of intrusion-related shame and obsessive-compulsive phenomena at multiple time points throughout adolescence (Ruscio et al., 2010) may be particularly helpful in investigating whether those who do not experience shame in response to their intrusions in early adolescence are less vulnerable to developing compulsions over time. Studies involving manipulation of intrusion-related shame and measurement of any subsequent change in motivation to use neutralisation strategies may render helpful insights with respect to causality. It should also be noted that this study did not seek to identify the relative contribution to compulsion severity of different emotion states which arise in response to unwanted intrusions (such as anxiety, shame, guilt, and disgust) and so the relative influence of each emotion remains to be investigated.

In sum, our findings indicate that, in the context of certain types of intrusions, the experience and anticipation of shame moderates the relationship between the frequency of such intrusions and compulsions. This study thereby identifies intrusion-related shame as an important mechanism in the relationship between intrusive and compulsive phenomena.

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CHAPTER 7: SHAME ACROSS THE COURSE OF TREATMENT OF OCD

7.1 PAPER 4: Examining the relationship between change in shame and OCD symptoms across treatment

This paper has been submitted to the International Journal of Cognitive Therapy.

**Examining the relationship between change in shame and in
OCD symptoms across treatment**

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Abstract

This study presents an examination of the relationship between change in obsessive-compulsive symptom severity and beliefs, and change in intrusion-related shame over the course of treatment. Twenty-seven individuals with obsessive-compulsive disorder were recruited from a ten-session outpatient group therapy treatment program, and were invited to complete measures of compulsion severity, OCD-related beliefs, and intrusion-related shame intensity at baseline, and again after the fifth and ninth sessions of treatment. The expectation of feeling shame associated with intrusions increased significantly between baseline and mid treatment, and then reduced between the middle and end of treatment. Reduction in intrusion-related shame in the latter phase of treatment was associated with reduction in obsessive-compulsive symptoms and with reduction in conviction in beliefs regarding the importance and control of thoughts, responsibility and threat. The clinical implications presented highlight the importance of assisting patients to regulate shame in the process of recovery from OCD.

OCD is a debilitating mental disorder which features unrelenting and distressing intrusive thoughts or urges (obsessions), and repetitive or ritualistic behaviours (compulsions) which are performed in response to obsessions to alleviate or avoid the distress that obsessions elicit or to prevent a dreaded outcome (American Psychiatric Association, 2013). Obsessions typically feature themes of violence, danger, sexual deviance, immorality, symmetry, or contamination; and common compulsions include checking, repeating, counting, arranging, and seeking reassurance (American Psychiatric Association, 2013).

Even though all individuals experience unwanted intrusive thoughts and urges (see Abramowitz et al., 2014), only around 2 to 3.5% experience their intrusions as so distressing and unrelenting that they are considered to be clinical obsessions (Angst et al., 2004; Ruscio, Stein, Chiu, & Kessler, 2010; Subramaniam, Abidin, Vaingankar, & Chong, 2012). Intrusions purportedly become obsessions only when they are given catastrophic significance (Rachman, 1997, 1998; Salkovskis, 1985, 1999). Salkovskis theorised that such significance primarily concerns fear of being responsible for harm, being found at fault, or incurring blame, resulting in “self-condemnation” (Salkovskis, 1985, p. 574). Rachman further proposed that intrusions escalate into obsessions when they are appraised as proof that a valued aspect of the self is defective.

Shame and OCD

These theories imply that shame which is experienced in response to unwanted intrusions (i.e., intrusion-related shame) may be an important factor in OCD, as shame is the affect which is elicited when individuals appraise the self as defective (Tangney & Dearing, 2003). Shame is an intensely painful emotion (Lewis, 1971; Tangney & Dearing, 2003), which is expressed in statements such as, “I am not good,” and, “I should not be” (Potter-Efron, 2011, p. 224), and is often displayed in gaze aversion, postural collapse, and avoidance (De Rubeis & Hollenstein, 2009; Keltner & Harker, 1998). Gilbert (2000) has identified two

types of shame, with *external shame* being the sense that others would find oneself shameful, while *internal shame* is the sense of being shameful in one's own eyes.

Research suggests that individuals with OCD tend to experience heightened shame in response to their unwanted intrusions. For example, in a study featuring an implicit measure of shame, those with OCD experienced more severe shame regarding their intrusive thoughts than did those with body dysmorphic disorder, social anxiety disorder, and nonclinical individuals (Clerkin, Teachman, Smith, & Buhlmann, 2014). Similarly, individuals with OCD were found to experience more intense shame than others in response to their unwanted intrusive thoughts, and they anticipated feeling greater shame if others were made aware of their intrusions, or if their intrusions were true, or if they failed to act to prevent a dreaded outcome (Wallace, Bhar, Meyer, & Nedeljkovic, 2015). This anticipation of feeling shame in the future has been characterised as forecasted shame (Schoenleber & Berenbaum, 2012).

Compulsions as shame-regulation strategies

Given the threat that obsessions are believed to pose to one's sense of self, compulsions have been conceptualised as attempts to protect or restore one's positive self-regard (Ahern & Kyrios, 2016; Bhar & Kyrios, 2007; Guidano & Liotti, 1983; Rachman, 1998). By engaging in compulsions, individuals may also attempt to regulate shame, which is the emotional consequence of such negative self-appraisals (Weingarden & Renshaw, 2015). Recent research provides preliminary support for this proposition. Research with nonclinical participants demonstrated that compulsion severity correlated with the tendency to experience shame across multiple contexts (Valentiner & Smith, 2008). In another study, intrusion-related shame was found to moderate the relationship between intrusion frequency and compulsion severity. This finding implied that individuals with mild shame could experience frequent intrusive thoughts without engaging in more compulsions, while those with strong shame tended to experience more severe compulsions when intrusions were

frequent (Wallace, Bhar, & Nedeljkovic, 2016). This suggests that compulsions may be performed in response to shame.

The question then is whether a reduction in shame leads to a decrease in compulsions. In a treatment outcome study, individuals diagnosed with OCD or an anxiety disorder completed measures of shame-proneness (which is the tendency to experience shame across contexts) and obsessive-compulsive (o-c) symptom severity before commencing treatment in an intensive outpatient clinic, and again two to three weeks later. Whereas no relationship was detected between o-c symptom severity and shame-proneness at baseline, the researchers found a moderate positive relationship between change in shame-proneness and change in o-c symptom severity over the course of treatment (Fergus, Valentiner, McGrath, & Jencius, 2010). The researchers did not test the relationship between changes in shame and in compulsions alone, and so this relationship remains unexamined.

OCD-related beliefs and shame

The theories of Salkovskis (1985, 1999) and Rachman (1997, 1998) provide a framework for identifying beliefs which could trigger shame, or the anticipation of shame, when unwanted intrusions arise. Beliefs regarding responsibility for harm, overestimation of threat, perfectionism, and the importance and control of thoughts, have been identified as potential vulnerabilities to experiencing intrusion-related shame (Wallace, Bhar, & Nedeljkovic, 2017).

As indicated above, responsibility beliefs feature prominently in Salkovskis' (1985, 1999) cognitive-behavioural theory of OCD. The findings of an empirical study by Ferrier and Brewin (2005) may be interpreted as implying a relationship between shame and responsibility in OCD. The researchers found that the extent to which individuals with OCD made negative inferences about themselves in response to their unwanted intrusions was associated with the strength of their sense of responsibility. As stated above, self-focused

negative inferences tend to be associated with a sense of shame. It therefore follows that an overdeveloped sense of personal responsibility for preventing harm may place individuals at risk of feeling shame in response to their intrusions. This may be especially true when individuals also have the tendency to overestimate threat (Obsessive Compulsive Cognitions Working Group, 1997, 2001), as the dreaded outcomes for which they envisage being responsible become that much more threatening.

Maladaptive beliefs regarding the nature and influence of thoughts are also proposed as vulnerabilities to experiencing intrusion-related shame. Drawing on the theory of Rachman (1993), Weingarden and Renshaw (2015) proposed that individuals may experience greater intrusion-related shame if they believe that having immoral thoughts is equivalent to being an immoral person (thought-action fusion (morality)). Thought-action fusion is one aspect of the dysfunctional beliefs regarding thoughts, which the Obsessive Compulsive Cognitions Working Group (OCCWG; 1997) identified as being important in OCD. Other aspects of these maladaptive beliefs include the belief that thoughts are important and personally revealing, and that they are controllable and should be controlled. It has been proposed that individuals who hold these beliefs may be more likely to experience shame when unwanted intrusions arise (Wallace, Bhar, & Nedeljkovic, 2017).

Beliefs that it is both possible and necessary to be perfect, and that anything less than perfection equates to failure, have also been found to be associated with OCD (OCCWG, 1997, 2001). Such perfectionistic beliefs may predispose individuals to feeling defective, and therefore shameful, when intrusions arise which are appraised as threatening or evidencing personal failure. During the development of a measure of OCD-relevant beliefs, the OCCWG (2001) paired perfectionistic beliefs with the belief that uncertainty is intolerable. However, we do not expect such intolerance to make individuals vulnerable to experiencing intrusion-

related shame. This is because we do not expect greater intolerance of uncertainty to increase the likelihood of appraising the self as defective in response to intrusions.

Prior research has shown that treatment with cognitive-behavioural therapy featuring ERP typically results in reduction in OCD symptom severity (Kozak & Coles, 2005), and treatment with cognitive therapy tends to result in reduction in conviction with respect to OCD-related beliefs (Wilhelm et al., 2005). If, as proposed above, OCD-related beliefs do indeed make individuals vulnerable to experiencing intrusion-related shame, then it would follow that reduction in conviction in those beliefs would result in reduction in shame. Furthermore, if compulsions are performed to regulate intrusion-related shame (among other aversive emotions), then a reduction in such shame should result in a reduction in compulsions.

The present study aimed to test whether OCD symptoms and related beliefs were associated with intrusion-related shame. It further examined the relationship between changes in shame, and changes in OCD symptoms and related beliefs, across treatment. Participants were drawn from a ten-session CBT group treatment program for OCD. The treatment program comprised three phases, over nine weekly sessions, plus a final session of revision and planning for the future. The initial three sessions (phase 1) focussed on psychoeducation and emotional regulation. In this phase, information was provided to participants about the function of anxiety and techniques for relaxation, explanation of a cognitive behavioural model of OCD, and development of personalised formulations. Participants were also given the opportunity to share particulars of their obsessions and compulsions. The next three sessions (phase 2) focussed on exposure and response prevention. In this phase, participants developed exposure hierarchies and implemented a routine of exposure and response prevention (ERP) practice. Sessions seven to nine (phase 3) addressed cognitive therapy, which involved providing participants techniques to challenge OCD-related beliefs. ERP

practice continued throughout the third phase of treatment. In the final session, the focus was on relapse prevention. Participants created a conceptual toolbox for ongoing recovery, and they were presented with options for future treatment and support.

Three hypotheses were made. First, it was hypothesised that at baseline intrusion-related shame would correlate positively with obsessions and compulsions, and with OCD-related beliefs. Second, it was hypothesised that intrusion-related shame and OCD symptoms would decrease, and conviction in OCD-related beliefs would weaken, over the course of treatment. Third, it was predicted that reduction in shame would be associated with reductions in OCD symptom severity and associated beliefs.

Method

Participants

Twenty-eight participants consented to take part in this study. However, one participant declined to complete the Intrusion-Related Shame Scale for fear of triggering shame, and so their data were removed from the analysis. The final sample therefore comprised 27 participants (M age = 35.0, SD = 9.5) with a diagnosis of OCD who were undergoing an outpatient OCD group treatment program. Diagnosis of OCD was determined by administration of the MINI International Neuropsychiatric Interview (Sheehan et al., 1998) by Masters and PhD level psychology students trained in diagnosing psychiatric disorders, and each diagnosis was confirmed through consultation with an experienced doctoral-level clinical psychologist.

The majority of the participants were male (55.6%), born in Australia or New Zealand (85.2%), and spoke only English at home (85.2%). Most were employed (55.6%), with 18.5% employed full time, and 37% employed part time or casually employed. With respect to their relationship status, 44.4% of the participants were single, while 33.3% were married, and 14.8% were in a committed (but unmarried) relationship. Eight had a co-morbid mood

disorder, 11 had an anxiety disorder, and none of the participants had a current substance use disorder.

Measures

Participants were asked to complete the following measures at three stages (at baseline, after the fifth session of treatment, and following the ninth session of treatment):

The Self Report Yale-Brown Obsessive-Compulsive Scale (YBOCS; Baer, Brown-Beasley, Sorce, & Henriques, 1993) is a self-report version of the clinician-administered YBOCS (Goodman et al., 1989) measuring OCD symptom severity. Respondents were asked to identify their obsessive-compulsive symptoms from a list of 37 obsessions and 20 compulsions. The list of compulsions usually contains 21 items, however only 20 items were included in this study, as the item measuring the compulsion to hoard was excluded in accordance with the DSM-5 classification of hoarding as a disorder distinct from OCD (American Psychiatric Association, 2013). Respondents were also asked five questions regarding the severity of their obsessions and five questions regarding the severity of their compulsions (i.e., time spent, degree of interference, distress, resistance, perceived control). Each of these 10 items was rated on a scale ranging from 0 to 4, yielding separate subscale scores for obsessions (YBOCS-O) and compulsions (YBOCS-C) of 0 (no symptoms) to 20 (extreme symptoms). The YBOCS severity scales have previously been shown to have good reliability and validity (Taylor, 1995).

The Intrusion-Related Shame Scale (IRS; Wallace et al., 2015) is a 17-item self-report scale assessing three aspects of shame associated with experiencing unwanted intrusions: internal current shame; internal forecasted shame, and external forecasted shame. The IRS featured an introduction in which intrusions were defined, and respondents were asked to circle themes relevant to their intrusions. They were then asked to reflect on their “most unpleasant intrusion(s)” when completing the scale. Internal current shame was assessed by

six items prefaced by the stem, “When I have unwanted intrusive thoughts or urges -” (e.g., I wish I was invisible) which were rated on a scale from 1 (*strongly disagree*) to 6 (*strongly agree*), yielding a total score between 6 and 36. Internal forecasted shame was assessed by four items prefaced by, “In the past month, if I didn’t do something about my unwanted thoughts to prevent what I fear from coming true - (e.g., I would be disgusted with myself)” and four items prefaced by, “When I had unwanted thoughts or urges in the past month, I worried that if they were true (or they came true) – (e.g., I would feel like I was less than other people)” yielding a total score between 8 and 48. Finally, external forecasted shame was assessed by three items prefaced by “If other people knew about the unwanted intrusive thoughts or urges that I had in the past month - (e.g., they would condemn me)” yielding a total score between 3 and 21, with higher scores indicating greater intensity of shame. The IRS has been shown to have good reliability and validity (Wallace et al., 2015).

The Obsessive Beliefs Questionnaire-44 (OBQ; Obsessive Compulsive Cognitions Working Group, 2005) is a 44-item self-report measure of beliefs related to OCD, comprising three subscales: inflated responsibility and overestimation of threat (16 items including “Harmful events will happen unless I’m careful”), importance and control of thoughts (12 items including “Having an unwanted sexual thought or image means I really want to do it”), and perfectionism and intolerance of uncertainty (16 items including “If I don’t do a job perfectly, people won’t respect me”). Respondents were asked to rate the extent to which they agreed with each item, on a scale from 1 (disagree very much) to 7 (agree very much). Each subscale of the OBQ-44 has been shown to have good internal consistency (Obsessive Compulsive Cognitions Working Group, 2005).

Procedure

Respondents completed pen and paper questionnaires during the routine assessment phase prior to commencing an outpatient OCD group treatment program (baseline). They

were also given questionnaires to complete following the fifth session of the treatment program (mid), and again following the ninth session (end). Participants returned completed questionnaires in person at the following (or subsequent) session, or by mail. The study was approved by an ethics board, and all participants provided informed consent prior to participating in the study.

Results

Descriptive statistics and bivariate correlations for the 25 participants who completed all baseline measures are set out in Table 1. The data from two participants who did not complete the measure of shame at baseline were excluded from these baseline analyses. Strong positive associations were found between beliefs regarding the importance of thoughts and each form of shame. Perfectionism also correlated strongly and positively with internal forecasted shame, and moderately with internal current shame. Strong positive correlations were also detected between measures of responsibility beliefs and internal current and forecasted shame, and a moderate positive correlation was found between responsibility beliefs and external forecasted shame. In contrast, compulsion and obsession severity at baseline did not correlate significantly with any other measures.

The YBOCS symptom checklist was used to identify the types of obsessions experienced by participants. Twenty-one participants reported at least one aggressive and one contamination obsession. Six participants reported at least one sexual obsession. Twelve participants reported at least one religious obsession, and fifteen participants reported a symmetry obsession.

Table 1

Mean severity scores and Cronbach's alphas with respect to baseline intrusion-related shame, obsessions and compulsions, and beliefs pertaining to responsibility, importance of thoughts and perfectionism, and bivariate correlations for participants who completed all baseline measures

		Baseline <i>M(SE)</i>	α	1	2	3	4	5	6	7	8
1	Internal current shame	19.56(1.92)	.96	-	.70**	.68**	.51**	.62**	.44**	.17	.28
2	Internal forecasted shame	28.37(2.45)	.95		-	.66**	.53**	.67**	.63**	-.07	.05
3	External forecasted shame	9.68(0.90)	.93			-	.47*	.52*	.23	.02	.18
4	Personal responsibility	76.11(3.58)	.91				-	.45*	.49*	.11	.10
5	Importance of thoughts	44.27(2.91)	.88					-	.52*	-.01	.07
6	Perfectionism	77.13(4.42)	.95						-	.10	-.03
7	Obsessions	12.92(0.54)	.66							-	.89**
8	Compulsions	13.56(0.54)	.74								-

Note: $N = 25$, ** = $p < .01$, * = $p < .05$; Internal current shame, Internal forecasted shame, and

External forecasted shame measured by the relevant subscales of the IRS; Personal responsibility = the responsibility and threat subscale of the OBQ; Importance of thoughts = the importance and control of thoughts subscale of the OBQ; Perfectionism = the perfectionism and intolerance of uncertainty subscale of the OBQ; Obsessions = the obsessions symptom severity subscale of the YBOCS; and Compulsions = the compulsion severity subscale of the YBOCS.

Mixed model analyses of variance were conducted to investigate whether shame and compulsion severity differed significantly at different stages across treatment. Mixed model analyses of variance were used in lieu of repeated measures analyses of variance because they model “for group means as fixed effects while simultaneously modeling for individual subject variables as random effects,” (Krueger & Tian, 2004, p. 152) so that cases with missing data points are not excluded from the analyses. Mixed model analyses are superior to techniques for imputing missing data by carrying forward last observations, as such methods result in biased estimates. Results are displayed in Table 3. Residuals were tested for normality, and this assumption was met. Auto correlations between times, and sample sizes at each stage for each measure are shown in Table 2.

Table 2

Auto correlations between times and sample sizes, at each stage for each measure

	<i>ARI(SE)</i>	Baseline	Mid	End
		<i>n</i>	<i>N</i>	<i>n</i>
Internal current shame	.813(.056)	26	22	22
Internal forecasted shame	.814(.057)	26	22	22
External forecasted shame	.733(.079)	26	22	22
Personal responsibility	.840(.049)	26	22	22
Importance of thoughts	.791(.061)	26	22	22
Perfectionism	.848(.047)	26	22	22
Obsessions	.695(.083)	27	22	23
Compulsions	.743(.073)	27	22	23

Note: Internal current shame, Internal forecasted shame, and External forecasted shame measured by the relevant subscales of the IRS; Personal responsibility = the responsibility and threat subscale of the OBQ; Importance of thoughts = the importance and control of thoughts subscale of the OBQ; Perfectionism = the perfectionism and intolerance of uncertainty subscale of the OBQ; Obsessions = the obsessions symptom severity subscale of the YBOCS; and Compulsions = the compulsion severity subscale of the YBOCS.

Table 3

Estimated marginal means with respect to intrusion-related shame, obsessions and compulsions, and beliefs pertaining to responsibility, importance of thoughts and perfectionism, at each stage, and results of mixed model analyses

	Baseline <i>M(SE)</i>	Mid <i>M(SE)</i>	End <i>M(SE)</i>	<i>F(df1,df2)</i>	<i>p</i>
Internal current shame	19.44(1.73)	21.36(1.77)	21.48(1.80)	1.47(2,42.07)	.241
Internal forecasted shame	27.69(2.34)	31.39(2.39)	27.87(2.43)	4.85(2,41.39)	.013
External forecasted shame	9.38(0.86)	10.40(0.89)	10.39(0.91)	1.15(2,40.81)	.326
Personal responsibility	76.51(3.99)	75.44(4.08)	67.20(4.13)	5.78(2,42.85)	.006
Importance of thoughts	44.66(3.25)	40.62(3.34)	39.33(3.39)	1.99(2,42.99)	.150
Perfectionism	77.02(4.77)	73.89(4.86)	66.73(4.93)	4.05(2,42.96)	.025
Obsessions	13.07(0.56)	11.01(0.58)	9.46(0.59)	18.37(2,43.37)	.000
Compulsions	13.63(0.58)	11.31(0.60)	9.79(0.61)	23.22(2,43.10)	.000

Note: Internal current shame, Internal forecasted shame, and External forecasted shame measured by the relevant subscales of the IRS; Personal responsibility = the responsibility and threat subscale of the OBQ; Importance of thoughts = the importance and control of thoughts subscale of the OBQ; Perfectionism = the perfectionism and intolerance of uncertainty subscale of the OBQ; Obsessions = the obsessions symptom severity subscale of the YBOCS; and Compulsions = the compulsion severity subscale of the YBOCS.

There was a significant main effect of stage of treatment on severity of compulsions, obsessions, and internal forecasted shame, and on the strength of beliefs regarding personal responsibility and perfectionism (Table 3). However, neither internal current shame nor external forecasted shame changed significantly across the three stages of treatment, and nor did the strength of beliefs regarding importance of thoughts.

Pairwise comparisons revealed that both compulsion and obsession severity decreased significantly by the mid point of treatment ($M_{diff} = 2.32$, $p < .000$, 95%CI = 1.42 – 3.22, and $M_{diff} = 2.07$, $p < .000$, 95%CI = 1.11 – 3.02, respectively) and again between the middle and end of treatment ($M_{diff} = -1.52$, $p = .002$, 95%CI = -2.46 – -0.59, $M_{diff} = -1.55$, $p = .003$, 95%CI = -2.54 – -0.55, respectively). Furthermore, internal forecasted shame increased significantly by the mid point of treatment ($M_{diff} = -3.83$, $p = .018$, 95%CI = -6.96 – -.70), and decreased significantly between the middle and end point of treatment ($M_{diff} = -3.66$, $p = .029$, 95%CI = -6.92 – -.39). With respect to the pattern of change in strength of beliefs regarding personal responsibility and threat, and perfectionism and intolerance of uncertainty, pairwise comparisons failed to detect a significant change in the strength of such beliefs by the mid point of treatment, but a significant decrease was found between the middle and end of treatment for both personal responsibility and threat ($M_{diff} = -8.24$, $p = .002$, 95%CI = -13.30 – -.39) and perfectionism and intolerance of uncertainty ($M_{diff} = -7.16$, $p = .018$, 95%CI = -13.04 – -1.28). No change was detected with respect to beliefs regarding the importance of thoughts.

In order to examine the relationship between change in shame and in OCD symptoms across treatment, scores representing change in OCD symptoms, shame, and OCD-related beliefs across the whole of treatment were calculated by subtracting scores on measures following session nine from scores at baseline. Bivariate correlations were then conducted on these change scores. No significant correlations were detected with respect to OCD symptom

severity and any form of intrusion-related shame. Due to the different trajectories in change displayed in Table 3, whereby OCD symptoms tended to decrease from the commencement of treatment, while internal forecasted shame increased initially and then decreased from the mid-point of treatment, the relationships between change in shame and change in OCD symptoms were examined over each half of treatment. Change scores for the first half of treatment were calculated by subtracting scores on measures after session five from scores at baseline. No significant correlations were detected with respect to change in OCD symptom severity and change in any form of intrusion-related shame. Change scores for the second half of treatment were calculated by subtracting scores on measures after session nine, from scores following session five. The normality of each change score was assessed, and a log transformation was applied to the change score over the second half of treatment for the internal forecasted shame subscale of the IRS. Bivariate correlations were calculated for change scores over the second half of treatment, and the results are displayed in Table 4.

Table 4

Correlations between change scores from mid-treatment to the end of treatment, with respect to all forms of intrusion-related shame, OCD symptom severity, and OCD-related beliefs

	1	2	3	4	5	6	7	8
	<i>n</i> = 19	<i>n</i> = 19	<i>n</i> = 19	<i>n</i> = 20	<i>n</i> = 20	<i>n</i> = 20	<i>n</i> = 20	<i>n</i> = 20
1 Internal current shame								
2 External forecasted shame	.63**							
3 Internal forecasted shame	.46*	.66**						
4 Compulsions	.43*	.15	.32					
5 Obsessions	.41*	.33	.38	.80**				
6 Perfectionism	.25	-.11	-.02	.28	.08			
7 Overimportance of thoughts	.70**	.37	.32	.32	.17	.37		
8 Responsibility	.37	.23	.44*	.49*	.35	.63**	.55**	

Note: * = $p < .05$, ** = $p < .01$; Internal current shame, Internal forecasted shame, and External

forecasted shame measured by the relevant subscales of the IRS; Personal responsibility = the

responsibility and threat subscale of the OBQ; Importance of thoughts = the importance and control of

thoughts subscale of the OBQ; Perfectionism = the perfectionism and intolerance of uncertainty

subscale of the OBQ; Obsessions = the obsessions symptom severity subscale of the YBOCS; and

Compulsions = the compulsion severity subscale of the YBOCS.

As can be seen in Table 4, reduction in internal current shame over the second half of treatment correlated moderately with reduction in severity of obsessions and compulsions over the same timeframe, and it correlated strongly with reduction in conviction regarding the importance and control of thoughts. Furthermore, the moderate correlation between reduction in internal forecasted shame and reduction in conviction regarding responsibility and threat was significant. Additionally, the moderate correlation observed between reduction in internal current shame and reduction in beliefs regarding responsibility and threat was trending towards significance ($p = .061$). While no significant correlations were detected with respect to external forecasted shame, the moderate correlations between reduction in such shame, and reduction in conviction regarding the importance of thoughts was trending towards significance ($p = .062$).

Discussion

This study examined the relationship between OCD symptoms and related beliefs, and intrusion-related shame. It also examined the relationship between changes in intrusion-related shame and in OCD symptoms and related beliefs, over the course of treatment. We found support for our prediction that individuals with OCD tend to experience more intense intrusion-related shame if they hold stronger beliefs that they are responsible for preventing harm and that threat is imminent and severe, that thoughts are overly important and controllable, and that perfection is paramount. In contrast, our findings did not support our prediction that intrusion-related shame would correlate with obsessive-compulsive symptom severity.

With respect to our predictions regarding reduction in symptoms, beliefs, and shame across treatment, we found support for the hypothesis that both compulsion and obsession severity would decrease, with significant reductions in symptom severity detected between baseline and mid-treatment, and again in the second half of treatment. The results were mixed

with respect to changes in shame. We found no support for our prediction that intensity of internal current shame and external forecasted shame would reduce over treatment. With respect to internal forecasted shame, contrary to our predictions, such shame increased between baseline and the mid point of treatment, before it decreased between the middle and end point of treatment. With respect to the pattern of change in strength of beliefs regarding personal responsibility and threat, and perfectionism and intolerance of uncertainty, no reduction was observed by the mid point of treatment, but a significant decrease was found between the middle and end of treatment. Contrary to our predictions, we detected no change in beliefs regarding the importance and control of thoughts.

The prediction that changes in shame would correlate with changes in symptoms and beliefs across treatment was not supported. Given that we observed an initial spike in one form of shame in the first half of treatment, following which the trajectory of change in shame altered, we investigated whether reduction in shame up to and following the mid point of treatment was associated with a reduction in OCD symptoms and related beliefs over the same periods. We found that reduction in internal current shame in the second half of treatment was associated with reduction in compulsions, obsessions, and in conviction regarding the importance of thoughts. We also detected a significant positive correlation between reduction in internal forecasted shame and reduction in beliefs regarding responsibility and threat across the second half of treatment.

Our findings that internal current shame did not correlate with OCD symptom severity at baseline, but reduction in such shame in the second half of treatment was associated with reduction in symptom severity, are largely consistent with the findings of Fergus, Valentiner, McGrath, and Jencius (2010). Fergus et al. similarly found that, in a clinical sample, shame was not associated with OCD symptom severity at baseline, but reduction in such symptoms across treatment nevertheless correlated with reduction in shame. One explanation for this

pattern of findings is that compulsions may be performed in response to elevated shame, but they may also serve to neutralise shame, resulting in a complex relationship between these constructs at baseline, which is not captured by a simple correlation. The relationship between the observed changes in these constructs over the second half of treatment may be more direct, as those who experience a greater reduction in shame may feel less compelled to neutralise their intrusions, and so they may experience a greater reduction in compulsions. Caution must be exercised when making such causal interpretations of our results, as the observed relationship is purely correlational, and so relief from shame may equally be a consequence, rather than a cause, of reduction in compulsions.

The positive correlations observed between shame and OCD-relevant beliefs indicate that individuals with OCD who believe that thoughts are overly important and controllable (OCCWG, 1997) tend to experience more intense intrusion-related shame. This finding is consistent with Valentinier and Smith's (2008) results, and with Weingarden and Renshaw's (2015) theory that thought-action-fusion (morality) may make individuals vulnerable to feeling heightened shame when they experience unwanted intrusions. Our findings further suggest that those who have greater conviction that they are personally responsible for taking action to prevent harm and who overestimate the likelihood and severity of harm (OCCWG, 1997), experience greater shame in response to their intrusions. This is also true for those who believe that perfectionism is both paramount and attainable (OCCWG, 1997). These results support the notion that strong conviction in such beliefs makes individuals vulnerable to experiencing shame when unwanted intrusions arise.

There are two reasons why alleviation of shame may be a useful focus in treatment. First, relief from shame may alleviate the distress associated with experiencing obsessions. Second, reduction in shame may result in reduction in compulsion severity. While the moderate correlations between reduction in internal current shame and reduction in obsession

and compulsion severity provide preliminary evidence that reduction in shame has these effects, experimental evidence is needed to determine causal relationships between such changes.

A range of clinical implications may be drawn from our findings. For instance, the associations observed between reduction in shame and reduction in beliefs regarding the importance of thoughts and in beliefs regarding responsibility and threat, have potential clinical utility. They suggest that, by altering such beliefs, individuals with OCD may experience relief from shame. On this point, it should be noted that, although changes in internal current shame in the second half of treatment correlated strongly with changes in beliefs regarding the importance of thoughts, we nevertheless failed to detect changes in average scores for these constructs across treatment. Additionally, although we observed a reduction in o-c symptoms, participants remained symptomatic on average at the end of treatment. Further research is needed to determine whether greater emphasis on addressing shame and beliefs regarding the importance of thoughts, responsibility and threat, may improve treatment outcomes.

Clinical implications may also be drawn from our finding that internal forecasted shame tended to increase early in treatment, which suggests that practitioners need be alert to the prospect that their OCD clients may experience exacerbation of anticipated shame at the commencement of therapy. Clients may benefit from receiving advance notice that increased shame is to be expected, so that their experience is normalised. It may also be beneficial to assist clients to develop adaptive strategies for coping with shame, including development of self-soothing strategies and self-compassion (Gilbert & Procter, 2006), and expansion of self-complexity to increase resilience to perceived injury to valued aspects of the self (Ahern & Kyrios, 2016). The therapeutic relationship itself also presents opportunities for resolution of shame through receiving disclosure of content of obsessions with an attitude of acceptance

and unconditional positive regard (Newth & Rachman, 2001). Further research is needed to determine whether effective processing of intrusion-related shame may improve the tolerability of treatment. Both practitioners and their clients may also benefit from the knowledge that such shame tends to decrease later in treatment.

In considering the implications of these findings, important limitations must be acknowledged, including our small sample size, and the restriction in representation of age to adults alone. Other issues for consideration in future research concern the frequency of data collection, and the explicit nature of our shame measure. In this study, data were collected at baseline and at the middle and end of treatment. Collection of data following every session would allow for more detailed interpretation of the influence of treatment content and processes on relevant beliefs, emotions, and behaviours. For instance, it may be that interventions used in the seventh session to modify responsibility beliefs accounted for both the reduction in conviction in such beliefs and in the intensity of internal forecasted-shame. In conducting future studies, researchers should consider collecting data after every session so that such hypotheses may be tested.

With respect to our shame measure, while attempts were made to disguise the fact that the IRS was intended to measure shame, by labelling it *Intrusions and Emotions* and by not using the word *shame*, one participant who had previously felt particularly strong shame in response to their intrusions declined to complete the scale for fear of triggering shame. Therefore, it was not possible to detect changes in their experience and anticipation of shame across the course of treatment. This was unfortunate given that resolution of shame became an important focus of treatment for that participant. A more discrete measure of intrusion-related shame, such as the implicit measure used by Clerkin et al. (2014) may be useful in such circumstances.

In summary, this study examined relationships between changes in compulsion severity, intrusion-related shame intensity, and conviction in OCD-relevant beliefs, across the course of group therapy treatment of OCD. We found that shame was associated with beliefs regarding responsibility and threat, overimportance of thoughts, and perfectionism. Furthermore, reduction in shame in the second half of treatment was associated with reduction in compulsions and in beliefs regarding the importance of thoughts. This study provides preliminary support for addressing shame in the treatment of OCD.

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CHAPTER 8: DISCUSSION

8.1 Chapter Guide

This chapter summarises the model of shame in OCD presented in this dissertation. The predictions and research questions that stemmed from this model are then recounted, before the key findings of this program of research are presented. Theoretical and clinical implications of the current findings are then discussed. Finally, the limitations of these findings are extrapolated and recommendations for further research are presented.

8.2 Model of Shame in OCD

All individuals experience unwanted intrusive thoughts and urges (J. S. Abramowitz et al., 2014). While most people dismiss these intrusions as meaningless, we propose that individuals who hold certain beliefs may be predisposed to feel and forecast shame (Schoenleber & Berenbaum, 2012) in response to their intrusions. The kinds of beliefs which may present this vulnerability include: a heightened sense of personal responsibility for preventing harm, overestimation of threat, perfectionism, and overimportance and control of thoughts. It is proposed that, when such beliefs are present, unwanted intrusions may be interpreted as evidence that the self is, or could be, defective (Rachman, 1997, 1998), and, consequently, individuals may experience or anticipate feeling shame. In accordance with Weingarden and Renshaw's (2015) proposition, it is proposed that individuals attempt to avoid, conceal, suppress, or neutralise intrusions not only to regulate distressing emotions such as anxiety and disgust, but to regulate shame.

8.3 Hypotheses and research questions

A number of hypotheses were based on this model of shame in OCD. First, it was predicted that individuals with OCD would experience and forecast more shame than nonclinicals in response to their unwanted intrusions. Second, it was expected that those who held stronger beliefs with respect to being responsible for harm, overestimating threat, considering thoughts overly important and controllable, and being perfectionistic, would feel

and forecast greater shame in response to their unwanted intrusions. Third, for those with OCD, it was predicted that reduction in shame over the course of treatment would be associated with reduction in compulsion severity.

The conceptual review presented in the introduction to this dissertation also identified three unanswered questions regarding shame in OCD. First, it was noted that researchers were yet to examine whether all subtypes of obsessions, including contamination and symmetry obsessions, were associated with forecasted shame (as distinct from current shame). Second, researchers were yet to determine whether shame moderated the relationship between intrusion frequency and compulsion severity. Third, it was not known whether such a moderation effect was present in the context of all types of intrusions.

8.4 Summary of key research findings

In this section, the key findings of this dissertation are presented.

Paper 2 (Chapter 5) reported on the development and validation of a measure of shame associated with experiencing unwanted intrusive thoughts or urges - the Intrusion-Related Shame scale. The 17-item IRS assessed three forms of shame associated with experiencing unwanted intrusive thoughts and urges: internal current shame; internal forecasted shame; and, external forecasted shame. The scale showed excellent internal consistency and good convergent and divergent validity. With respect to the relationship between intrusion-related shame and OCD, each subscale was found to correlate significantly with measures of OCD symptom severity. Furthermore, individuals with a diagnosis of OCD ($n = 41$) were recruited from an outpatient clinic, and were found to experience and anticipate significantly greater shame in response to their unwanted intrusions than nonclinicals ($n = 283$).

The study reported in paper 3 (Chapter 6) examined the relationship between intrusion-related shame and four common intrusion subtypes. In an undergraduate student

sample ($n = 250$), the frequency of each intrusion subtype, including aggressive, sexual/religious/immoral, contamination, and symmetry intrusions, was associated with the intensity of shame felt immediately upon experiencing intrusions. The frequency of such intrusions was also associated with the intensity of shame that individuals feared would arise if a dreaded outcome occurred, or, if it was not prevented. In contrast, only aggressive and sexual/religious/immoral intrusions correlated with the expectation of being shamed by others if one's intrusions were disclosed.

The study reported in paper 3 (Chapter 6) also tested whether shame moderated the relationship between the frequency of unwanted intrusions and severity of compulsions. Internal current shame experienced in response to intrusions was found to moderate the relationship between intrusions and compulsions when intrusions featured themes of contamination or aggression. Internal forecasted intrusion-related shame also significantly moderated the relationship when intrusions featured aggression and when they concerned sex/religion/immorality. No moderation effect was detected with respect to symmetry intrusions. In each instance of a significant moderator effect, those with strong shame experienced greater compulsion severity if they experienced more frequent intrusions, while those who experienced low shame did not engage in high levels of compulsions, regardless of the frequency of their intrusions.

Paper 4 (Chapter 7) examined the relationship between changes in shame and changes in OCD symptoms and associated beliefs across the course of treatment. Individuals with OCD ($n = 27$) participated in a ten-session CBT outpatient group treatment program and completed self-report measures of intrusion-related shame, compulsion severity, and OCD-related beliefs. With respect to those who completed all measures at intake ($n = 25$), the strength of their beliefs regarding perfectionism, responsibility and threat, and the importance of thoughts, was associated with intrusion-related shame. However, no relationship was

detected between shame and o-c symptoms at baseline. Clients of the program were invited to complete all measures again after the fifth and ninth sessions of the program. We found that, in the second half of treatment, reduction in intrusion-related shame was associated with reductions in compulsion severity and in beliefs regarding responsibility and threat, and the importance and control of thoughts.

8.5 Theoretical implications

The four papers comprising this dissertation include particulars of the theoretical implications of our findings. This section highlights implications which are pertinent to the hypotheses and research questions posed, and, where appropriate, implications are drawn with respect to the pattern of findings observed across the research program.

8.5.1 Shame and OCD-relevant beliefs

We found support for our prediction that stronger beliefs regarding perfectionism, being responsible for harm, overestimating threat, and considering thoughts important and controllable, would be associated with feeling and forecasting greater intrusion-related shame. These findings support our proposal that strong conviction in such beliefs may make individuals vulnerable to feeling heightened shame when intrusions arise.

On this point, it should be noted that the measure used to assess OCD-relevant beliefs (the Obsessive Beliefs Questionnaire; the Obsessive Compulsive Cognitions Working Group, 2005), groups beliefs regarding responsibility for harm and overestimation of threat in one subscale, and beliefs regarding perfectionism and intolerance of uncertainty in another subscale. Accordingly, we did not establish whether each of these beliefs is independently associated with intrusion-related shame. Further research is needed to determine whether this is the case.

The results from our treatment study (described in Chapter 7) revealed that reduction in shame in the second half of treatment was associated with reduction in conviction

regarding personal responsibility for harm and overestimation of threat, and the importance and control of thoughts. While causal interpretations of such findings must be tentative due to the cross-sectional nature of our study, it is proposed that a reduction in beliefs regarding the importance and control of thoughts may cause individuals to more easily disregard thoughts which contradict valued aspects of the self, thereby resulting in relief from shame. Likewise, a reduction in responsibility beliefs may cause individuals to regard themselves as less personally liable for dreaded outcomes associated with their intrusions, thereby leaving the self blameless, untainted, and free of shame. Further research is needed to test these mediation models.

8.5.2 Shame and OCD subtypes

With respect to the examination of the relationship between shame and intrusions with themes of aggression, sex/religion/immorality, contamination, or symmetry, we found that, in a student sample, the frequency of all of these intrusion types predicted the intensity of internal shame felt and anticipated. Our finding that contamination and symmetry intrusions were associated with internal shame, was inconsistent with literature which suggested that shame is only elicited by aggressive and sexual/religious/immoral intrusions (Chase et al., 2015; Glazier et al., 2015; Weingarden & Renshaw, 2015).

Our findings were, however, consistent with prior research when we utilised the IRS external shame scale, which operationalised shame as the expectation of being shamed by others if one's intrusions were disclosed. When we operationalised shame in this way, only aggressive and sexual/religious/immoral intrusions were associated with shame. When considered in combination, these findings suggest that, whereas individuals may not expect to feel shame upon disclosing their contamination and symmetry intrusions, they may nevertheless feel and forecast shame when such intrusions arise.

These findings further suggest that, whereas the surface content of contamination and symmetry obsessions may not be shameful, such obsessions may nevertheless evoke shame. Cognitive theories, upon which the present model of shame in OCD rests, provide an explanation for how this may be so (Rachman, 1997, 1998; Salkovskis, 1985, 1999). According to Rachman, the nature of the appraisals made of intrusions determines whether intrusions are interpreted as evidence that the self is or could be defective. Individuals with OCD often present with obsessions that have innocuous surface content such as “Was that dirty?” or “Is that blood?” or “Have they tidied their wardrobe?” or “Was that lid open already?” While individuals may disclose such obsessions without fearing being shamed, their appraisals of such obsessions may make them feel ashamed. For instance, a seemingly innocuous obsession such as, “Is that blood?” may trigger appraisals such as “If I had that thought, then it must be blood and maybe I touched it,” further triggering obsessions such as, “What if I have AIDS?” and appraisals such as, “I will be detestable, untouchable, unlovable” which would elicit forecasted shame. Likewise, an obsession such as, “Is that wardrobe tidy?” might prompt appraisals such as, “If people saw that mess they’d know I’m a mess; that I’m hopeless,” which would also elicit forecasted shame.

8.5.3 *Shame as a moderator*

The implications of our findings regarding the influence of shame on the relationship between intrusions and compulsions were discussed in paper 3 (Chapter 6), and are summarised here. The findings indicate that, when individuals feel minimal shame in response to their contamination and aggressive intrusions, they may be able to experience frequent intrusions without feeling compelled to neutralise them. Furthermore, when individuals respond to sexual/religious/immoral and aggressive intrusions by expecting shame to arise, they may engage in compulsions when they experience frequent intrusions in order to prevent the onset of shame. Our findings also suggest that mechanisms other than

shame-regulation may influence engagement in compulsions when intrusions chiefly feature symmetry concerns (see Chapter 6 for details).

8.5.4 Shame and OCD in a clinical population

Our findings supported the prediction that those with OCD would experience and forecast more intrusion-related shame than nonclinicals. However, while intrusion-related shame was found to be associated with OCD symptom severity in an analogue sample (see Chapter 5), no relationship was detected in a clinical sample (see Chapter 7). There are a number of possible reasons why this pattern may have emerged, three of which are presented below.

First, our failure to detect a significant correlation may have been a consequence of low statistical power in the OCD sample due to its small size. With a sample of 25 we lacked power to detect small to moderate effects (Cohen, 1992). Further research with larger clinical samples, and hence greater statistical power, is necessary to determine whether a significant effect would emerge. Second, it may be that different processes are at play in clinical and nonclinical populations. Compulsions may be more effective at regulating shame in clinical populations. If compulsions were more effective at regulating shame in clinical populations than in nonclinical populations, there would not necessarily be a one-to-one-correspondence between compulsions and shame for individuals who have OCD. This is because an increase in shame would motivate greater engagement in compulsions, but engagement in compulsions would serve to reduce shame.

Third, the failure to detect a correlation between shame and o-c symptom severity in a clinical sample may be due to the complexity of the clinical picture in OCD. It is likely that shame is not the only negative intrusion-related emotion which is experienced more intensely by those with OCD. They may also experience elevations in aversive emotions such as disgust and anxiety. It is possible that these other emotions, or factors unrelated to emotions,

motivate engagement in compulsions for some individuals with OCD. Accordingly, some people with OCD may experience only small to moderate levels of shame in response to their intrusions. They may instead engage in compulsions to regulate other aversive emotions or to prevent dreaded outcomes which are not associated with shame. OCD clients may, therefore, have different emotional profiles (i.e., shame, anxiety, disgust) that need to be taken into account when customising treatment to optimise outcomes.

8.5.5 Regulation of shame in OCD

Finally, our finding that reduction in intrusion-related shame across the second half of treatment correlated with reduction in compulsion severity supports the proposition that compulsions may serve to regulate shame (Weingarden & Renshaw, 2015), and that when shame reduces, individuals feel less compelled to avoid or neutralise shame by engaging in compulsions.

8.6 Clinical implications

This section explores the clinical implications of findings in this program of research. Implications for treatment are drawn from our findings that individuals with OCD experience more intense shame in response to their obsessions than nonclinicals, and that such shame moderates the relationship between intrusion frequency and compulsion severity. Treatment implications are also drawn from our findings that shame increased significantly in the first half of treatment of OCD, and that reduction in intrusion-related shame late in treatment was associated with reduction in compulsions and in beliefs regarding responsibility, threat, and the importance of thoughts.

Together, these findings suggest that individuals with OCD may enter treatment with a heightened sense of shame regarding their intrusions, and they may experience even more shame in the early stages of therapy. Our findings also imply that resolution of such shame in treatment may be associated with reduction in compulsion severity. Clinicians should

therefore be vigilant to signs of shame, so that they may incorporate such experiences into their formulation of factors which maintain the disorder. Behavioural indicators that shame may be present in therapy include withdrawing, averting the gaze, covering the face, freezing, collapsing the posture, squirming, silencing or quietening the self, and suddenly becoming confused or inarticulate (Tangney, Stuewig, & Hafez, 2011). They should also consider using interventions which target shame, to enhance treatment of OCD and associated distress. Such interventions may be helpful for improving the tolerability and effectiveness of treatments which feature exposure therapy.

The following paragraphs describe interventions which are intended to alleviate shame, and which aim to improve the client's capacity to modulate and tolerate shame and to use adaptive coping strategies in response to shame.

In his discussion of the treatment of shame in obsessional disorders, Gilbert (2011) highlighted the importance of "deshaming" (p. 335) unwanted and unacceptable thoughts and urges by characterising them as natural and ordinary. When describing the use of compassion focused therapy to treat shame, Gilbert identified the tone of self-talk as a focus for intervention, with a view to assisting clients to adopt a warm, kind, encouraging, and supportive approach to the self. Gilbert detailed imagery exercises for developing the compassionate self and for improving the client's ability to self-soothe.

In their discussion of treatment of shame in borderline personality disorder, Rizvi et al. prescribed therapist genuineness and self-disclosure as therapeutic tools for resolving shame, and they detailed a range of techniques which could potentially be applied to treatment of shame in OCD. They described an opposite action intervention which involves individuals repeatedly exposing themselves to stimuli which evoke shame (e.g., unacceptable thoughts) and then impeding shame action tendencies, such as self-blame, while eliciting and supporting actions which oppose shame urges, such as nonjudgmental self-disclosure, eye

contact, and self-acceptance. The authors also recommended the use of mindfulness interventions, which involve adopting the perspective of a nonjudgmental observer of negative appraisals which trigger shame (e.g., I'm noticing that I'm having the thought that I'm defective) and observing the rise and fall of shame-related urges.

Another method with potential for resolving shame associated with obsessions was reported by Veale, Page, Woodward, and Salkovskis (2015), who utilised Arntz's (2012) imagery rescripting technique with OCD clients who experienced intrusive imagery which was emotionally linked to memories of aversive events. The authors noted that in almost all cases the linking emotion was shame or self-disgust. In their study, clients were facilitated to restructure their memories by reliving the aversive event as a child, before re-entering the memory as an adult, and then reviewing it again as a child. The aim of this process was to change the meaning of the memory to something less catastrophic. In each case, the re-interpretation of the memory removed responsibility and blame from the client, thereby releasing them from shame. For instance, memories of parental disharmony, and of incestuous acts which were associated with feelings of shame, were given the meaning "I was a child and knew no better – my person is not defined by this" (p. 233). The researchers found that a single session of imagery rescripting resulted in a clinically significant reduction in OCD symptoms for nine out of twelve patients, with seven maintaining improvement at three month follow up.

Having identified that those with OCD tend to conceal their obsessions from others to avoid rejection, embarrassment, and shame, Newth and Rachman (2001) proposed that therapy should feature deliberate, controlled disclosures of obsessions to trusted individuals. This approach assumes that individuals with OCD are tormented by what they perceive to be shameful "dirty little secrets" (Newth & Rachman, 2001, p. 457); which retain their significance because they are concealed. They refer to patient comments that, "It is so hard

to talk about these thoughts as I feel defective and it is so humiliating”. They suggest that, by disclosing their intrusions, individuals expose themselves to alternative interpretations of what their obsessions mean, and their fear of rejection is disconfirmed.

Research suggests that group therapy may present unique opportunities for resolving shame associated with OCD. Spragg and Cahill (2015) interviewed eight individuals with OCD who had completed a CBT group therapy program, to explore the meaning that participants made of their experience, and to identify helpful and unhelpful group processes. Relief from shame was reported as an important benefit of group CBT. Participants referred to their usual tendency to hide their symptoms from others, and their sense of freedom to disclose in the group, as well as their experience of being accepted in the group instead of feeling judged or feeling “completely mad” (Spragg & Cahill, 2015, p. 6). They also noted that disclosures by other group members changed their beliefs that having OCD meant that they were innately bad. Spragg and Cahill concluded that reduction in shame was crucial to the effectiveness of the treatment group and it was a key motivator of change. Given the potential that group therapy has for resolving shame through sharing mutual experiences of shame (Brown, 2006), researchers should investigate whether group therapy is more effective than individual therapy in reducing shame associated with intrusive thoughts.

Clinical implications may be drawn from our results relating to the relationship between shame and beliefs regarding responsibility for harm, overestimation of threat, and overimportance and control of thoughts. Shame was found to be associated with these beliefs. Furthermore, reduction in shame was associated with reduction in beliefs regarding responsibility and threat, and the importance and control of thoughts. These findings support the use of interventions for modifying beliefs regarding the importance of thoughts, responsibility for harm, and overestimation of threat. There are two potential positive outcomes of ameliorating such beliefs. First, individuals with OCD may feel less distressed

due to feeling less shame in response to intrusions, and second, they may engage in less compulsions due to a reduction in such shame. It must be noted, however, that our findings did not establish causality, and so these conjectures remain to be tested.

8.7 Limitations

A number of matters must be noted when considering the theoretical and clinical implications of these findings. The major limitations concern the cross-sectional nature of our studies, and the nonclinical nature of the samples employed in creating the IRS and in testing the moderating effect of shame. Whereas it was appropriate to use an analogue sample to test whether intrusion-related shame was associated with o-c phenomena, and whether shame moderated the relationship between intrusions and compulsions, caution must be exercised when considering clinical applications of these findings.

With respect to the cross-sectional nature of our studies, it is noted that this factor limits the confidence with which conclusions may be drawn as to causality. Whereas our findings may be interpreted as supporting the prediction that individuals engage in greater compulsions in response to elevated experiences or anticipation of shame, it is equally possible that increased compulsions led to greater shame. For instance, it may be that, by consistently responding to intrusions as though they were important, individuals with OCD may miss out on opportunities to disconfirm their beliefs that thoughts are important, meaningful, influential and controllable. As a consequence, they may appraise thoughts which contradict their view of who they are, or should be, as more important and meaningful than they would if they relinquished their compulsions. In this way, engagement in compulsions may lead to greater shame in response to such thoughts.

Our findings consistently indicated that internal shame had a stronger relationship with o-c phenomena than did external shame. However, with respect to external shame, we assessed only anticipation of being shamed by others if they became aware of one's

intrusions. We did not measure other aspects of external shame. For instance, whereas we assessed anticipation of feeling *internal* shame if a dreaded outcome were to occur or if one were to fail to perform compulsions, we did not measure anticipation of feeling *external* shame if such circumstances were to arise. Furthermore, we measured *internal* current shame, but we did not assess *external* current shame, which could be expressed in statements such as, “When I experience intrusions I feel that others are disgusted by me”. Therefore, we were not able to directly compare the relative importance of internal and external shame.

Finally, while the study described in paper 3 (Chapter 6) indicates that intrusion-related shame moderates the relationship between the frequency of certain intrusions and severity of compulsions, it does not provide insight into the relative impact of other emotional states (e.g., anxiety, guilt, disgust, sadness) on this relationship. That is, it does not provide evidence that shame is more influential than other emotions.

8.8 Directions for future research

Each paper in this dissertation featured recommendations for future research. This section expands on those recommendations, and details other directions for future research. A number of methods of investigation are proposed, including qualitative, longitudinal, and experimental research. Recommendations are made for research with clinical OCD populations, other clinical groups, and nonclinical populations.

8.8.1 Testing relative importance of shame in motivating compulsions

Research is required to identify the relative contribution to compulsion severity of different emotion states which may arise in response to obsessions. It is important to note that the model of shame in OCD presented here acknowledges that other aversive emotions, such as anxiety, guilt, and disgust, are also influential in OCD. Research is necessary to determine whether shame remains influential after accounting for the impact of other aversive emotions. In conducting research to answer such a question, it would be necessary to account for the

extent to which reported anxiety is analogous to fear of shame. This is because individuals with OCD may report that they feel anxious, but may not initially disclose that they are anxious about feeling shame. In such circumstances, individuals may be engaging in compulsions to avoid the onset of shame, but may be reporting that they are performing compulsions to alleviate their anxiety.

8.8.2 Examining specificity of intrusion-related shame to OCD

Research in a range of clinical populations is needed to determine whether heightened intrusion-related shame is specific to OCD populations, or, if it is also inflated in populations experiencing other disorders. In particular, it is possible that individuals who experience unwanted intrusive thoughts as a feature of a psychotic disorder, mood disorder, or anxiety disorder also experience elevated shame in response to their intrusions.

8.8.3 Assessing effectiveness of treatments of intrusion-related shame

The study described in paper 4 (Chapter 7) provides preliminary evidence that CBT featuring exposure and response prevention (ERP) may not be effective in ameliorating intrusion-related shame. However, that study did not include fidelity checks with respect to delivery of treatment in accordance with CBT protocols. Research which features such checks is required to formally establish whether CBT featuring ERP alleviates intrusion-related shame, and if any such reduction leads to a decrease in compulsion severity. Subject to the outcome of such research, given the overall lack of change in intrusion-related shame in the treatment study presented in paper 4 (Chapter 7), it may be worthwhile examining whether ERP is more effective and tolerable if augmented by treatments for alleviating shame, such as compassion focused therapy (Gilbert, 2011) and therapy which features rescripting of shame-based memories associated with unwanted intrusions (Veale et al., 2015).

8.8.4 Examining shame as a mechanism in obsessional thought

Further research is needed to determine whether experience of heightened intrusion-related shame is the mechanism by which unwanted intrusive thoughts and impulses become obsessions. While this series of studies examined the influence that intrusion-related shame has on engagement in compulsions, it did not test whether shame moderates the relationship between intrusion frequency and obsession severity. If shame were to moderate this relationship, then it would theoretically be possible for individuals to experience frequent unwanted intrusions without feeling the anxiety or distress associated with obsessions.

8.8.5 Exploring specificity of relationship between shame, beliefs, and intrusions

Having detected positive correlations between OCD-related beliefs and intrusion-related shame, the next step would be to determine whether the nature of one's beliefs influences the types of intrusions that provoke shame. Such research could examine whether individuals who hold strong beliefs regarding responsibility and threat feel heightened shame in response to intrusions which feature harm, danger, and contamination; and if individuals who hold strong beliefs that thoughts are important and must be controlled, experience greater shame in response to intrusions which feature themes of sex, religion, and immorality.

8.8.6 Validating Intrusion-Related Shame scale in clinical populations

Examination of the reliability, validity, and factor structure of the IRS is yet to be conducted in clinical OCD populations. Recruitment of a sufficiently large sample of individuals with OCD (i.e., at least 300 clinical individuals) is needed to undertake full validation of the scale's psychometric properties within a clinical sample (VanVoorhis & Morgan, 2007).

8.8.7 Detecting regulation of shame

Experimental studies may be useful in determining more conclusively whether engagement in compulsions reduces intrusion-related shame. Such investigations could

involve randomly assigning individuals with OCD to two groups, and then triggering intrusions of all participants and measuring the intensity of shame experienced. Performance of compulsions could then be manipulated by having participants in one group engage in compulsions, while those in the other group are asked to not perform compulsions and are given a working memory task to prevent them from engaging in covert rituals. Intrusion-related shame could then be measured to determine whether those who performed compulsions experienced a greater reduction in shame than those who were prevented from engaging in compulsions.

8.8.8 Examining influence of shame on development of OCD

Research is needed to establish whether heightened intrusion-related shame leads to the development of OCD. In this regard, longitudinal studies involving adolescents, and measuring changes in intrusion-related shame and OCD symptom severity across time leading up to the average age of onset of OCD (18.3 years) (Anholt et al., 2014), may be helpful. In particular, such studies may assist in determining whether individuals who do not feel shame in response to their intrusions in early adolescence are less vulnerable to developing compulsions over time.

8.8.9 Gaining insights from individuals with OCD

Qualitative studies with individuals with OCD may be useful in determining whether those with OCD regard shame as an important factor in the development and maintenance of the disorder. Qualitative interviews may also be helpful in determining whether those with OCD find individual or group treatment more effective in reducing shame. They may also produce useful insights regarding the elements of therapy which are particularly beneficial in alleviating intrusion-related shame.

8.9 Conclusion

In summary, this thesis provides initial support for the present model of shame in OCD, which holds that certain OCD-related beliefs may present vulnerabilities to feeling shame in response to intrusions, and that compulsions may constitute strategies for regulating such shame. This theory highlights the importance of considering the emotional impact of appraising intrusions as evidence that the self is, or could be, defective. It presents the painful flush of shame, which carries with it a sense of being small and worthless, as a motivator of engagement in compulsions to avoid the onset of shame, or to rid the self of this feeling.

APPENDIX 1 – IRS initial item pool and source information**Intrusion-Related Shame scale - initial item pool**

1. When I have unwanted intrusive thoughts or urges:
 - 1(a) I feel bad or evil (h)
 - 1(b) I feel crazy or weird (h)
 - 1(c) I feel untrustworthy or dangerous (h)
 - 1(d) I feel inadequate (e)
 - 1(e) I feel alone and apart from other people (e)
 - 1(f) I feel small (e)
 - 1(g) I want to hide (e)
 - 1(h) I want to sink into the floor and disappear (f)
 - 1(i) I feel worthless (f)
 - 1(j) I want to avoid eye contact with anyone (e)
 - 1(k) I want to avoid other people (e)
 - 1(l) I feel disgraceful (e)
 - 1(m) I feel dirty (j)
 - 1(n) I worry about what other people would think of me if they knew about my intrusions (b)
 - 1(o) I wish I was invisible (c)
 - 1(p) I feel disgusted with myself (c)
 - 1(q) feel exposed (c)
 - 1(r) I feel tainted
 - 1(s) I feel defective (d)
 - 1(t) I feel unforgiveable

- 1(u) I want to crawl into a hole
- 2. If other people knew about my unwanted intrusive thoughts or urges:
 - 2(a) they would look down on me (d)
 - 2(b) they would see me as not good enough (d)
 - 2(c) they would see me as defective (d)
 - 2(d) they would think there's something wrong with me
 - 2(e) they would think I am crazy (g)
 - 2(f) they would not want to be near me (d)
 - 2(g) they would put me down (d)
 - 2(h) they would be disgusted with me (c)
 - 2(i) they would hate me
 - 2(j) they would think I am a bad person (f)
 - 2(k) they would condemn me (g)
 - 2(l) they would think I am mentally unstable (g)
 - 2(m) they would think I am dangerous (g)
 - 2(n) they would think I am terrible (e)
 - 2(o) they would treat me like an outcast
 - 2(p) they would shun me
 - 2(q) they would see me as incompetent
 - 2(r) I would want to run away and hide (a)
 - 2(s) I would want to sink into the floor and disappear (f)
 - 2(t) I would feel small (e)
 - 2(u) I would feel exposed (c)
 - 2(v) I would be unable to live with myself
 - 2(w) I would not want to show my face in public

- 2(x) I would be mortified
- 2(y) I would feel like I was awful
- 3. If I didn't do something about my unwanted thoughts to prevent what I fear from coming true:
 - 3(a) I would hate myself
 - 3(b) I would be a bad person (f) (h)
 - 3(c) I would be negligent
 - 3(d) I would be irresponsible (e)
 - 3(e) I would feel like I shouldn't be trusted (h)
 - 3(f) I would feel dangerous (h)
 - 3(g) I would feel small (e)
 - 3(h) I would be disgusted with myself (c)
 - 3(i) I would feel weak (j)
 - 3(j) I would be unforgiveable
 - 3(k) I would be tainted
 - 3(l) I would feel irredeemable
 - 3(m) I would feel defective (d)
 - 3(n) I would not be able to live with myself
- 4. When I have unwanted thoughts or urges, I worry that if they were true (or they came true):
 - 4(a) I would be an awful person
 - 4(b) I would not be able to live with myself
 - 4(c) I would want to run away and hide (a)
 - 4(d) I would be a terrible person (e)
 - 4(e) I would feel irresponsible (e)
 - 4(f) I would be disgusted with myself (c)

- 4(g) I would feel weak (j)
- 4(h) I would feel like I was “less than” other people
- 4(i) I would be unforgiveable
- 4(j) I would be tainted
- 4(k) I would be irredeemable
- 4(l) I would feel defective (d)
- 4(m) other people would look down on me (d)
- 4(n) other people would see me as not good enough (d)
- 4(o) I would be unlovable
- 4(p) other people would see me as defective (d)
- 4(q) other people would think there is something wrong with me
- 4(r) other people would not want to be near me (d)
- 4(s) I would be an outcast
- 4(t) other people would think I am a bad person (f) (h)
- 4(u) other people would think I am mentally unstable (g)
- 4(v) other people would think I am dangerous (g)
- 4(w) other people would think I am wicked (g)
- 4(x) other people would treat me like an outcast
- 4(y) other people would shun me
- 4(z) other people would hate me

Source information

Individual items in the initial item pool adapted from:

- (a) Event-Related Shame and Guilt Measure (Orth, Berking, & Burkhardt, 2006)
- (b) Experience of Shame Scale (Andrews, Qian & Valentine, 2002)
- (c) Abuse Related Shame scale (Feiring & Taska, 2005)

- (d) Other As Shamer Scale (Goss, Gilbert, & Allan, 1994)
- (e) Test of Self Conscious Affect – 3 (Tangney, Dearing, Wagner, & Gramzow, 2000)
- (f) State Shame and Guilt Scale (Marschall, Sanftner, & Tangney, 1994)
- (g) Personal Significance Scale (Rachman, 2003)
- (h) Semi-structured interview on obsessions (Rachman, 2003)
- (i) Cognitive behavioural features of obsessive – compulsive disorder (Rachman and Shafran, 1998)
- (j) Treating religious sexual and aggressive obsessions (Rachman, 2003)

APPENDIX 2 – Letters sent to experts

Correspondence sent to experts in OCD and shame to effect test of content validity of the pool of items for the IRS.

Letter to Experts in OCD

Dear,

We are seeking your expert advice regarding the content validity of a new questionnaire for measuring shame associated with intrusive thoughts and urges.

Our research team comprises Andrea Wallace (PhD candidate), Dr Sunil Bhar, and Dr Maja Nedeljkovic (Supervisors). We are examining the role that shame plays in OCD, and investigating whether compulsions may be shame-regulation strategies.

As a respected researcher in the field of OCD, we seek your advice regarding whether our proposed scale captures the notion of shame as it is experienced by individuals with OCD. Here is a link to the scale which also contains simple questions for your consideration.

<http://opinio.online.swin.edu.au/s?s=14948>

We also attach a consent information statement and consent form.

The questionnaire will take about 10 to 15 minutes to complete. We appreciate that you have heavy demands on your time, and we hope that this project appeals to you due to its alignment with your own research interests.

In anticipation of your kind assistance, we thank you for your generosity. If you have any questions or comments, please contact Andrea Wallace by return email, or you may correspond with Dr Sunil Bhar at sbhar@swin.edu.au.

Kind regards,

Andrea Wallace
PhD Candidate
Swinburne University, Australia

Dr Sunil Bhar and Dr Maja Nedeljkovic
Supervisory Team
Swinburne University, Australia

Letter to Experts in Shame

Dear,

We are seeking your expert advice regarding the content validity of a new questionnaire for measuring shame associated with intrusive thoughts and urges.

Our research team comprises Andrea Wallace (PhD candidate), Dr Sunil Bhar, and Dr Maja Nedeljkovic (Supervisors). We are examining the role that shame plays in obsessive compulsive disorder (OCD). People with OCD experience distressing obsessive thoughts which they attempt to neutralise or suppress by performing rituals. We are investigating whether these rituals (also called compulsions) may be shame-regulation strategies.

As a respected researcher in the field of shame, we seek your advice regarding whether our proposed scale captures the notion of shame as you understand it. Here is a link to the scale which also contains simple questions for your consideration.

<http://opinio.online.swin.edu.au/s?s=14947>

We also attach a consent information statement and consent form.

The questionnaire will take about 10 to 15 minutes to complete. We appreciate that you have heavy demands on your time, and we hope that this project appeals to you due to its alignment with your own research interests.

In anticipation of your kind assistance, we thank you for your generosity. If you have any questions or comments, please contact Andrea Wallace by return email, or you may correspond with Dr Sunil Bhar at sbhar@swin.edu.au.

Kind regards,

Andrea Wallace
PhD Candidate
Swinburne University, Australia

Dr Sunil Bhar and Dr Maja Nedeljkovic
Supervisory Team
Swinburne University, Australia

Letter to Experts in Shame and in OCD (second critique)

Dear,

We recently sought your expert opinion regarding our new scale for measuring intrusion-related shame.

We have revised the scale in accordance with the helpful feedback that we received. In particular, we removed all double barrelled items, as well as those items which were considered to be beyond the scope of shame. We would be grateful for your expert opinion regarding the new and improved scale. Attached is a link to the revised scale, which contains simple questions for your consideration.

<http://opinio.online.swin.edu.au/s?s=15248>

We expect that the questionnaire will take about 10 to 15 minutes to complete.

In anticipation of your kind assistance, we thank you for your generosity. If you have any questions or comments, please contact Andrea Wallace by return email, or you may correspond with Dr Sunil Bhar at sbhar@swin.edu.au.

Kind regards,

Andrea Wallace
PhD Candidate
Swinburne University, Australia

Dr Sunil Bhar and Dr Maja Nedeljkovic
Supervisory Team
Swinburne University, Australia

APPENDIX 3A - First critique by experts

Mean Rating of Relevancy by OCD and Shame Experts

M_{com} = Mean score for both OCD and shame experts combined

M_{sh} = Mean score for shame experts alone

1.	When I have unwanted intrusive thoughts or urges:		
1(a)	I feel bad or evil	$M_{com} = 2.45$	$M_{sh} = 2.20$
1(b)	I feel crazy or weird	$M_{com} = 1.82$	$M_{sh} = 1.60$
1(c)	I feel untrustworthy or dangerous	$M_{com} = 1.91$	$M_{sh} = 1.40$
1(d)	I feel inadequate	$M_{com} = 2.36$	$M_{sh} = 2.80$
1(e)	I feel alone and apart from other people	$M_{com} = 2.18$	$M_{sh} = 2.60$
1(f)	I feel small	$M_{com} = 2.18$	$M_{sh} = 3.00$
1(g)	I want to hide	$M_{com} = 2.36$	$M_{sh} = 3.00$
1(h)	I want to sink into the floor and disappear	$M_{com} = 2.36$	$M_{sh} = 3.00$
1(i)	I feel worthless	$M_{com} = 2.27$	$M_{sh} = 3.00$
1(j)	I want to avoid eye contact with anyone	$M_{com} = 2.27$	$M_{sh} = 2.40$
1(k)	I want to avoid other people	$M_{com} = 2.09$	$M_{sh} = 2.20$
1(l)	I feel disgraceful	$M_{com} = 2.55$	$M_{sh} = 3.00$
1(m)	I feel dirty	$M_{com} = 2.18$	$M_{sh} = 2.20$
1(n)	I worry about what other people would think of me if they knew about my intrusions	$M_{com} = 2.27$	$M_{sh} = 1.80$
1(o)	I wish I was invisible	$M_{com} = 2.27$	$M_{sh} = 2.80$
1(p)	I feel disgusted with myself	$M_{com} = 2.55$	$M_{sh} = 2.60$
1(q)	feel exposed	$M_{com} = 2.55$	$M_{sh} = 3.00$

1(r)	I feel tainted	$M_{com} = 1.91$	$M_{sh} = 2.00$
1(s)	I feel defective	$M_{com} = 2.45$	$M_{sh} = 2.80$
1(t)	I feel unforgiveable	$M_{com} = 2.45$	$M_{sh} = 2.20$
1(u)	I want to crawl into a hole	$M_{com} = 2.45$	$M_{sh} = 3.00$
2.	If other people knew about my unwanted intrusive thoughts or urges:		
2(a)	they would look down on me	$M_{com} = 2.36$	$M_{sh} = 2.00$
2(b)	they would see me as not good enough	$M_{com} = 2.30$	$M_{sh} = 2.40$
2(c)	they would see me as defective	$M_{com} = 2.45$	$M_{sh} = 2.80$
2(d)	they would think there's something wrong with me	$M_{com} = 2.64$	$M_{sh} = 2.60$
2(e)	they would think I am crazy	$M_{com} = 1.91$	$M_{sh} = 1.60$
2(f)	they would not want to be near me	$M_{com} = 2.18$	$M_{sh} = 2.10$
2(g)	they would put me down	$M_{com} = 1.82$	$M_{sh} = 1.80$
2(h)	they would be disgusted with me	$M_{com} = 2.64$	$M_{sh} = 2.80$
2(i)	they would hate me	$M_{com} = 2.00$	$M_{sh} = 2.00$
2(j)	they would think I am a bad person	$M_{com} = 2.64$	$M_{sh} = 2.60$
2(k)	they would condemn me	$M_{com} = 2.73$	$M_{sh} = 2.60$
2(l)	they would think I am mentally unstable	$M_{com} = 1.64$	$M_{sh} = 1.20$
2(m)	they would think I am dangerous	$M_{com} = 1.64$	$M_{sh} = 1.20$
2(n)	they would think I am terrible	$M_{com} = 2.36$	$M_{sh} = 2.60$
2(o)	they would treat me like an outcast	$M_{com} = 2.55$	$M_{sh} = 2.80$
2(p)	they would shun me	$M_{com} = 2.73$	$M_{sh} = 2.80$
2(q)	they would see me as incompetent	$M_{com} = 2.09$	$M_{sh} = 2.20$
2(r)	I would want to run away and hide	$M_{com} = 2.27$	$M_{sh} = 2.40$
2(s)	I would want to sink into the floor and disappear	$M_{com} = 2.45$	$M_{sh} = 2.80$
2(t)	I would feel small	$M_{com} = 2.09$	$M_{sh} = 2.80$

- | | | | |
|------|--|------------------|-----------------|
| 2(u) | I would feel exposed | $M_{com} = 2.36$ | $M_{sh} = 2.80$ |
| 2(v) | I would be unable to live with myself | $M_{com} = 2.18$ | $M_{sh} = 2.20$ |
| 2(w) | I would not want to show my face in public | $M_{com} = 2.73$ | $M_{sh} = 3.00$ |
| 2(x) | I would be mortified | $M_{com} = 2.40$ | $M_{sh} = 2.40$ |
| 2(y) | I would feel like I was awful | $M_{com} = 2.18$ | $M_{sh} = 2.20$ |
3. If I didn't do something about my unwanted thoughts to prevent what I fear from coming true:
- | | | | |
|------|--|------------------|-----------------|
| 3(a) | I would hate myself | $M_{com} = 2.00$ | $M_{sh} = 2.00$ |
| 3(b) | I would be a bad person | $M_{com} = 2.36$ | $M_{sh} = 2.00$ |
| 3(c) | I would be negligent | $M_{com} = 1.64$ | $M_{sh} = 1.20$ |
| 3(d) | I would be irresponsible | $M_{com} = 1.91$ | $M_{sh} = 1.40$ |
| 3(e) | I would feel like I shouldn't be trusted | $M_{com} = 2.00$ | $M_{sh} = 1.40$ |
| 3(f) | I would feel dangerous | $M_{com} = 1.60$ | $M_{sh} = 1.20$ |
| 3(g) | I would feel small | $M_{com} = 2.00$ | $M_{sh} = 2.40$ |
| 3(h) | I would be disgusted with myself | $M_{com} = 2.36$ | $M_{sh} = 2.60$ |
| 3(i) | I would feel weak | $M_{com} = 1.73$ | $M_{sh} = 1.40$ |
| 3(j) | I would be unforgiveable | $M_{com} = 2.55$ | $M_{sh} = 2.20$ |
| 3(k) | I would be tainted | $M_{com} = 2.09$ | $M_{sh} = 1.80$ |
| 3(l) | I would feel irredeemable | $M_{com} = 2.09$ | $M_{sh} = 2.20$ |
| 3(m) | I would feel defective | $M_{com} = 2.27$ | $M_{sh} = 2.40$ |
| 3(n) | I would not be able to live with myself | $M_{com} = 2.36$ | $M_{sh} = 2.20$ |
4. When I have unwanted thoughts or urges, I worry that if they were true (or they came true):
- | | | | |
|------|---|------------------|-----------------|
| 4(a) | I would be an awful person | $M_{com} = 2.82$ | $M_{sh} = 3.00$ |
| 4(b) | I would not be able to live with myself | $M_{com} = 2.55$ | $M_{sh} = 2.40$ |
| 4(c) | I would want to run away and hide | $M_{com} = 2.73$ | $M_{sh} = 3.00$ |

4(d)	I would be a terrible person	$M_{com} = 2.73$	$M_{sh} = 3.00$
4(e)	I would feel irresponsible	$M_{com} = 2.00$	$M_{sh} = 1.60$
4(f)	I would be disgusted with myself	$M_{com} = 2.64$	$M_{sh} = 2.80$
4(g)	I would feel weak	$M_{com} = 1.91$	$M_{sh} = 1.80$
4(h)	I would feel like I was “less than” other people	$M_{com} = 2.36$	$M_{sh} = 2.60$
4(i)	I would be unforgiveable	$M_{com} = 2.45$	$M_{sh} = 2.20$
4(j)	I would be tainted	$M_{com} = 2.45$	$M_{sh} = 2.60$
4(k)	I would be irredeemable	$M_{com} = 2.36$	$M_{sh} = 2.40$
4(l)	I would feel defective	$M_{com} = 2.55$	$M_{sh} = 2.80$
4(m)	other people would look down on me	$M_{com} = 2.45$	$M_{sh} = 2.40$
4(n)	other people would see me as not good enough	$M_{com} = 2.27$	$M_{sh} = 2.60$
4(o)	I would be unlovable	$M_{com} = 2.55$	$M_{sh} = 3.00$
4(p)	other people would see me as defective	$M_{com} = 2.55$	$M_{sh} = 2.80$
4(q)	other people would think there is something wrong with me	$M_{com} = 2.45$	$M_{sh} = 2.40$
4(r)	other people would not want to be near me	$M_{com} = 2.36$	$M_{sh} = 2.20$
4(s)	I would be an outcast	$M_{com} = 2.45$	$M_{sh} = 2.80$
4(t)	other people would think I am a bad person	$M_{com} = 2.64$	$M_{sh} = 2.80$
4(u)	other people would think I am mentally unstable	$M_{com} = 1.82$	$M_{sh} = 1.40$
4(v)	other people would think I am dangerous	$M_{com} = 1.73$	$M_{sh} = 1.20$
4(w)	other people would think I am wicked	$M_{com} = 2.00$	$M_{sh} = 1.60$
4(x)	other people would treat me like an outcast	$M_{com} = 2.64$	$M_{sh} = 3.00$
4(y)	other people would shun me	$M_{com} = 2.64$	$M_{sh} = 3.00$
4(z)	other people would hate me	$M_{com} = 2.09$	$M_{sh} = 2.00$

APPENDIX 3B - Second critique by experts

Mean Rating of Relevancy by OCD and Shame Experts

M_{com} = Mean score for both OCD and shame experts combined

M_{sh} = Mean score for shame experts alone

1. When I have unwanted intrusive thoughts or urges:

1(a)	I feel like deep down I am a bad person	$M_{com} = 2.64$	$M_{sh} = 3.00$
1(b)	I feel inadequate	$M_{com} = 2.07$	$M_{sh} = 3.00$
1(c)	I feel alone and apart from other people	$M_{com} = 2.00$	$M_{sh} = 2.67$
1(d)	I feel small, like a rat	$M_{com} = 2.07$	$M_{sh} = 2.67$
1(e)	I want to hide	$M_{com} = 2.43$	$M_{sh} = 3.00$
1(f)	I want to sink into the floor and disappear	$M_{com} = 2.57$	$M_{sh} = 3.00$
1(g)	I feel worthless	$M_{com} = 2.29$	$M_{sh} = 2.67$
1(h)	I want to avoid eye contact with anyone	$M_{com} = 2.21$	$M_{sh} = 2.00$
1(i)	I want to avoid other people	$M_{com} = 2.36$	$M_{sh} = 2.67$
1(j)	I feel disgraceful	$M_{com} = 2.38$	$M_{sh} = 2.33$
1(k)	I worry about what other people would think of me if they knew about my intrusions	$M_{com} = 2.36$	$M_{sh} = 2.33$
1(l)	I wish I was invisible	$M_{com} = 2.43$	$M_{sh} = 3.00$
1(m)	I feel disgusted with myself	$M_{com} = 2.50$	$M_{sh} = 2.67$
1(n)	feel exposed	$M_{com} = 2.07$	$M_{sh} = 3.00$
1(o)	I feel defective	$M_{com} = 2.21$	$M_{sh} = 3.00$
1(p)	I feel unforgiveable	$M_{com} = 2.21$	$M_{sh} = 2.00$
1(q)	I want to crawl into a hole	$M_{com} = 2.50$	$M_{sh} = 3.00$

1(r)	I feel totally flawed	$M_{com} = 2.29$	$M_{sh} = 3.00$
2. If other people knew about my unwanted intrusive thoughts or urges:			
2(a)	they would look down on me	$M_{com} = 2.43$	$M_{sh} = 2.00$
2(b)	they would see me as not good enough	$M_{com} = 2.43$	$M_{sh} = 2.67$
2(c)	they would see me as defective	$M_{com} = 2.29$	$M_{sh} = 3.00$
2(d)	they would think there's something wrong with me	$M_{com} = 2.50$	$M_{sh} = 2.33$
2(e)	they would not want to be near me	$M_{com} = 2.29$	$M_{sh} = 2.00$
2(f)	they would be disgusted with me	$M_{com} = 2.71$	$M_{sh} = 2.67$
2(g)	they would hate me	$M_{com} = 1.79$	$M_{sh} = 1.33$
2(h)	they would think I am a bad person	$M_{com} = 2.71$	$M_{sh} = 3.00$
2(i)	they would condemn me	$M_{com} = 2.57$	$M_{sh} = 2.33$
2(j)	they would think I am terrible	$M_{com} = 2.57$	$M_{sh} = 2.67$
2(k)	they would treat me like an outcast	$M_{com} = 2.14$	$M_{sh} = 2.33$
2(l)	they would shun me	$M_{com} = 2.43$	$M_{sh} = 2.33$
2(m)	they would see me as incompetent	$M_{com} = 1.71$	$M_{sh} = 1.67$
2(n)	I would want to run away and hide	$M_{com} = 2.57$	$M_{sh} = 3.00$
2(o)	I would want to sink into the floor and disappear	$M_{com} = 2.64$	$M_{sh} = 3.00$
2(p)	I would feel small, like a rat	$M_{com} = 2.14$	$M_{sh} = 2.33$
2(q)	I would feel exposed	$M_{com} = 2.57$	$M_{sh} = 3.00$
2(r)	I would be unable to live with myself	$M_{com} = 2.00$	$M_{sh} = 2.00$
2(s)	I would not want to show my face in public	$M_{com} = 2.57$	$M_{sh} = 3.00$
2(t)	I would be mortified	$M_{com} = 2.79$	$M_{sh} = 3.00$
2(u)	I would feel like I was an awful person	$M_{com} = 2.15$	$M_{sh} = 2.00$
2(v)	I would want to withdraw	$M_{com} = 2.36$	$M_{sh} = 2.33$

3. If I didn't do something about my unwanted thoughts to prevent what I fear from coming true:

3(a)	I would hate myself	$M_{com} = 1.93$	$M_{sh} = 1.33$
3(b)	I would be a bad person	$M_{com} = 2.21$	$M_{sh} = 2.00$
3(c)	I would feel like I shouldn't be trusted	$M_{com} = 2.07$	$M_{sh} = 1.00$
3(d)	I would feel small, like a rat	$M_{com} = 2.15$	$M_{sh} = 3.00$
3(e)	I would be disgusted with myself	$M_{com} = 2.43$	$M_{sh} = 2.67$
3(f)	I would be unforgiveable	$M_{com} = 2.29$	$M_{sh} = 1.67$
3(g)	I would be tainted	$M_{com} = 2.14$	$M_{sh} = 2.33$
3(h)	I would feel irredeemable	$M_{com} = 2.29$	$M_{sh} = 2.33$
3(i)	I would feel defective	$M_{com} = 2.14$	$M_{sh} = 3.00$
3(j)	I would not be able to live with myself	$M_{com} = 2.21$	$M_{sh} = 2.00$

4. When I have unwanted thoughts or urges, I worry that if they were true (or they came true):

4(a)	I would be an awful person	$M_{com} = 2.36$	$M_{sh} = 3.00$
4(b)	I would not be able to live with myself	$M_{com} = 2.21$	$M_{sh} = 2.00$
4(c)	I would want to run away and hide	$M_{com} = 2.46$	$M_{sh} = 3.00$
4(d)	I would be a terrible person	$M_{com} = 2.36$	$M_{sh} = 3.00$
4(e)	I would be disgusted with myself	$M_{com} = 2.50$	$M_{sh} = 3.00$
4(f)	I would feel like I was "less than" other people	$M_{com} = 2.29$	$M_{sh} = 2.33$
4(g)	I would be unforgiveable	$M_{com} = 2.21$	$M_{sh} = 2.00$
4(h)	I would be tainted	$M_{com} = 2.29$	$M_{sh} = 2.67$
4(i)	I would be irredeemable	$M_{com} = 2.21$	$M_{sh} = 2.33$
4(j)	I would feel defective	$M_{com} = 2.29$	$M_{sh} = 3.00$
4(k)	other people would look down on me	$M_{com} = 2.57$	$M_{sh} = 2.33$
4(l)	other people would see me as not good enough	$M_{com} = 2.21$	$M_{sh} = 2.67$

4(m)	I would be unloveable	$M_{com} = 2.14$	$M_{sh} = 2.67$
4(n)	other people would see me as defective	$M_{com} = 2.23$	$M_{sh} = 3.00$
4(o)	other people would think there is something wrong with me	$M_{com} = 2.00$	$M_{sh} = 2.00$
4(p)	other people would not want to be near me	$M_{com} = 2.29$	$M_{sh} = 2.33$
4(q)	I would be an outcast	$M_{com} = 2.43$	$M_{sh} = 2.33$
4(r)	other people would think I am a bad person	$M_{com} = 2.57$	$M_{sh} = 2.67$
4(s)	other people would think I am a wicked person	$M_{com} = 2.14$	$M_{sh} = 2.00$
4(t)	other people would treat me like an outcast	$M_{com} = 2.14$	$M_{sh} = 2.33$
4(u)	other people would shun me	$M_{com} = 2.43$	$M_{sh} = 2.33$
4(v)	other people would hate me	$M_{com} = 1.93$	$M_{sh} = 1.33$
4(w)	I would want to sink into the floor and disappear	$M_{com} = 2.57$	$M_{sh} = 3.00$

APPENDIX 4A - Exploratory Factor Analysis

Steps taken to achieve simple structure

Item removed	Reason for removing item	Factors retained	Extraction Method	Rotation Method	Total Variance Explained	Items loading below .45	Items communal below .5	Cross loading items at .35	Items correlating above .85	% Residuals above .05
		4	PAF	DO	71.93%	2m 2n 2q	1a = .478 1d = .470	1j 2q 2m and 2o not well separated		10
1a	Low communality	4	PAF	DO	72.43%	2m 2n 2q 2o	1d = .47	1j 2q 2m not well separated	2l with 2m .868	9
2m	Not well separated and high correlation with 2l, low loading at .4	4	PAF	DO	72.51%	2n 2q	1d = .47	1j 2q	2q with 2r .817	8
2q	Cross loading on factors 1 and 3, and loading below .4	4	PAF	DO	72.66%	2n 2o	1d = .47	1j 2n 2o not well separated		8

1j	Cross loading	4	PAF	DO	72.85%	2n	1d = .47			7
1k	Loading with items reflecting forecasted external shame	4	PAF	DO	73.21%	2n 2o	1d = .47			7
1m	Loading with items reflecting forecasted external shame	4	PAF	DO	73.48%	2l, 2n, 2o, 2r	1d = .48	2o – separated by .102		6
2o	Lowest loading (.400)	4	PAF	DO	73.88%	2l, 2n, 2r	1d = .48			6
2n	Lowest loading (.406)	4	PAF	DO	74.34%	2l, 2r	1d = .46			6
2l	Lowest loading (.418)	4	PAF	DO	74.56%	2r	1d = .46			6
2r	Lowest loading	4	PAF	DO	74.91%	Nil	1d = .46			6
1d	Low communality	4	PAF	DO	75.66%	Nil	Nil	Simple structure		6

APPENDIX 4B – Steps taken to achieve item reduction

Item removed	Reason for removing item (e.g., correlated at .89 with x and lower rating by shame experts)	Factors retained	Extraction Method	Rotation Method	Total Variance Explained	Items loading below .4	Items comm below .5	Cross loading items	Items correlating above .85	% Residuals above .05
4q	Redundancy suggested by correlation with 4p of .894, plus identical ratings by shame and OCD experts (combined) and by shame experts alone. 4(q) chosen for removal because it had the lowest loading	4	PAF	DO	75.51%	Nil	Nil	Nil	4k and 4l correlate at .881 4i and 4h correlate at .880 4d and 4e correlate at .878 4u and 4p correlate at .857 4n and 4p correlate at .876	6
4l	Redundancy suggested by correlation with 4k of .881. plus identical ratings by shame experts alone. Combined shame and OCD experts rated k higher than 4l and 4 k had the higher loading,	4	PAF	DO	75.48%	Nil	Nil	Nil	4i and 4h correlate at .880 4d and 4e correlate at .878	7

	and so 4l was chosen for removal.								4u and 4p correlate at .857 4n and 4p correlate at .876	
4i	Redundancy suggested by correlation with 4h of .880. 4h rated more highly by all experts.	4	PAF	DO	75.56%	Nil	Nil	Nil	4d and 4e correlate at .878 4u and 4p correlate at .857 4n and 4p correlate at .876	4
4d	Redundancy suggested by correlation with 4e of .878, plus identical ratings by shame experts alone. Combined experts rated 4e more highly, and so 4d was chosen for removal.	4	PAF	DO	75.45%	Nil	Nil	Nil	4n and 4p correlate at .876 4u and 4p correlate at .857	4
4n	Redundancy suggested by correlation with 4p of .876. Combined experts rated 4p more highly, and so 4n was chosen for	4	PAF	DO	75.26%	Nil	Nil	Nil	4u and 4p correlate at .857	4

4p	Redundancy suggested by correlation with 4u of .857. Combined experts rated 4u more highly, and so 4p was chosen for removal.	4	PAF	DO	75.05%	Nil	Nil	Nil	2f and 2g .872	5
2f	Redundancy suggested by correlation with 2g of .872 and identical ratings by combined experts. 2f had lowest rating by shame experts, so 2f was removed	4	PAF	DO	74.75%	Nil	Nil	Nil	Nil	4

APPENDIX 5 - Confirmatory Factor Analysis

Steps taken to improve fit and reduce items

Subscale 1

Beginning with 1b, 1e, 1f, 1g, 1i, 1l, 1n, 1o, 1q, 1r

Item removed	Reason for removing item (e.g., high MI or high standardised residual covariance)	Standardised residual covariance over 2	Highest MI (and par)	Bootstrapped p value
		2.642, between item 1O and 1R	ell(1R) and e6 (1O) = 52.711	$\chi^2(35) = 196.526, p < .000$
1R	High MI	2.046, between 1O and 1N	E5(1G) and e12(1B) = 22.951	$\chi^2(27) = 112.30, p = .000$ RMSEA = .106 CFI = .956 TLI = .942 SRMR = .0352
1B	High MI	2.117 between 1N and 1O	E8 (1N) and e13 (1O) = 20.799	$\chi^2(20) = 79.824, p = .009$ RMSEA = .103 CFI = .965 TLI = .951 SRMR = .0340
1O	High MI	Nil	E5(1G) and e6(1I) = 9.699	$\chi^2(14) = 49.193, p = .05$ RMSEA = .094 CFI = .977 TLI = .966 SRMR = .0243
1G	High MI			$\chi^2(9) = 34.785, p = .046$ RMSEA = .101 CFI = .980

				TLI = .966 SRMR = .0226
1I	Reinstated 1G because removing it resulted in a worse fit. Removed 1I instead	Nil	No MIs.	$\chi^2(9) = 17.974$, $p = .590$ RMSEA = .059 CFI = .993 TLI = .988 SRMR = .0167

Loadings for subscale 1

1E = .88

1F = .91

1G = .80

1L = .80

1N = .68

1Q = .87

Subscale 2

Beginning with 2b, 2c, 2d, 2g, 2h, 2k

Item removed	Reason for removing item (e.g., high MI or high standardised residual covariance)	Standardised residual covariance over 2	Highest MI (and par)	Bootstrapped p value
		Nil	E1(2B) and e2(2C)	$\chi^2(9) = 116.452$, $p = .000$ RMSEA = .206 CFI = .940 TLI = .900 SRMR = .0351
2B	High MI		E8 (2D) and e2(2C) = 33.409	$\chi^2(5) = 52.203$, $p = .002$ RMSEA = .183 CFI = .966 TLI = .933 SRMR = .0268
2C	High MI			$\chi^2(2) = 3.441$, $p = 1.000$ RMSEA = .051, TLI = .996 CFI = .999, SRMR = .0068

Loadings for subscale 2

2G = .91

2K = .91

2D = .84

2H = .93

Subscale 3

Beginning with 3c, 3e, 3f, 3g

Item removed	Reason for removing item (e.g., high MI or high standardised residual covariance)	Standardised residual covariance over 2	Highest MI (and par)	Bootstrapped p value
		Nil	E2(3C) and e3 (3E) = 8.054	$\chi^2(2) = 12.633$, $p = .159$ RMSEA = .137 CFI = .991 TLI = .973 SRMR = .0117

Subscale 3 factor loadings

3C = .89

3E = .92

3F = .94

3G = .91

Subscale 4

Beginning with 4a, 4c, 4e, 4f, 4h, 4j, 4k, 4m, 4r, 4u, 4v

Item removed	Reason for removing item (e.g., high MI or high standardised residual covariance)	Standardised residual covariance over 2	Highest MI (and par)	Bootstrapped p value
		None. 4C and 4V = 1.483	45.021 e12 and e13 (4R and 4U)	X2(44) = 347.858, p = .000 TLI = .897 CFI = .917 RMSEA = .156 SRMR =
4R	High MI	None 4C and 4V reduced to 1.283	39.802 (.291) e11 and e13 (4K and 4U)	X2(35) = 241.531, p = .000 TLI = .917 CFI = .935 RMSEA = .145 SRMR = .0310
4U	High MI	None	38.025 (.327) e2 and e14 (4C and 4V)	X2(27) = 170.546, p = .000 TLI = .931 CFI = .948 RMSEA = .137 SRMR = .0289
4V	High MI	None	18.121 (.192) e9 and e10 (4A and 4E)	X2(20) = 110.906, p = .001
4E	High MI and possibly captures disgust rather than shame	None	14.530 (.151) e5 and e6 (4H and 4J)	X2(14) = 66.636, p = .014 TLI = .960 CFI = .973 RMSEA = .115 SRMR = .0224

4H	High MI and more people may know what defective means as compared with tainted	None	E2 (4C) and e6 (4J) = 5.754	X2(9) = 29.542, p = .141 RMSEA = .09 (but confidence interval includes .055) CFI = .987 TLI = .978 SRMR = .0178
4J	High MI		Nil	X2(5) = 15.506, p = .236 RMSEA = .086 CFI = .991 TLI = .982 SRMR = .0156

Subscale 4 factor loadings

4C = .85

4F = .88

4M = .85

4A = .84

4K = .89

All four factors

Beginning with:

1e, 1f, 1g, 1l, 1n, 1q

2g, 2h, 2k, 2d

3c, 3e, 3f, 3g

4f, 4k, 4m, 4a, 4c

Item removed	Reason for removing item (e.g., high MI or high standardised residual covariance)	Standardised residual covariance over 2	MI (and par)	Bootstrapped p value
		Nil		X2(146) = 340.618, p = .001 TLI = .957 CFI = .963 RMSEA = .069 SRMR = .0431
4K	High MI			X2(129) = 289.032, p = .001 TLI = .961 CFI = .967 RMSEA = .066 SRMR = .0411
2D	High MI and not clearly an indicator of shame – the something that is wrong may not be wrong in the sense of defective. It may be wrong in the sense of depressed or scared ...			X2(113) = 249.100, p = .006 TLI = .962 CFI = .968 RMSEA = .068 SRMR = .0393

Final scale

1e, 1f, 1g, 1l, 1n, 1q

2g, 2h, 2k
 3c, 3e, 3f, 3g
 4f, 4m, 4a, 4c

After inserting higher order factor above factors three and four

Item removed	Reason for removing item (e.g., high MI or high standardised residual covariance)	Standardised residual covariance over 2	MI (and par)	Bootstrapped p value
				$\chi^2(114) = 259.951, p = .001$ TLI = .962 CFI = .968 RMSEA = .067 SRMR = .0396

APPENDIX 6A - Discriminant Validity Analysis

Using data from first CFA

Factor	Items	I^2	Error variance (E)	Variance extracted
Subscale 1	1E	.755	.648	
	1F	.811	.461	
	1G	.653	.870	
	1L	.651	.793	
	1N	.472	1.167	
	1Q	.773	.526	
	Sum	4.115	4.465	
		Sum of I^2 and E	8.58	.480
Subscale 2	2G	.829	.477	
	2H	.862	.343	
	2K	.819	.436	
	Sum	2.51	1.256	
		Sum of I^2 and E	3.766	.666
Subscale 3	3C	.796	.539	
	3E	.836	.412	
	3F	.873	.313	
	3G	.820	.471	
	Sum	3.325	1.735	
		Sum of I^2 and E	5.06	.657

Subscale 4	4A	.712	.851	
	4C	.755	.721	
	4F	.757	.692	
	4M	.706	.896	
	Sum	2.93	3.16	
		Sum of I ² and E	6.09	
				.481

Subscale 1 and 2

Average variance extracted	.573
Correlation between factors	.552
Correlation Squared	.305
Discriminant validity	Yes

Subscale 1 and 3

Average variance extracted	.569
Correlation between factors	.569
Correlation Squared	.324
Discriminant validity	Yes

Subscale 1 and 4

Average variance extracted	.480
Correlation between factors	.628
Correlation Squared	.394
Discriminant validity	Yes

Subscale 2 and 3

Average variance extracted	.662
Correlation between factors	.584
Correlation Squared	.341
Discriminant validity	Yes

Subscale 2 and 4

Average variance extracted	.574
Correlation between factors	.685
Correlation Squared	.469
Discriminant validity	Yes

Subscale 3 and 4

Average variance extracted	.569
Correlation between factors	.768
Correlation Squared	.590
Discriminant validity	No

APPENDIX 6B – Second Discriminant Validity Analysis

Using data from second Confirmatory Factor Analysis

Factor	Items	l^2	Error variance (E)	Variance extracted
Subscale 1	1E	.880	.606	
	1F	.930	.373	
	1G	.830	.839	
	1L	.825	.905	
	1N	.724	1.298	
	1Q	.900	.498	
	Sum	5.089	4.519	
		Sum of l^2 and E	9.608	.529
Subscale 2	2G	.892	.580	
	2H	.957	.234	
	2K	.947	.276	
	Sum	2.796	1.09	
		Sum of l^2 and E	3.886	.719
Subscale 3	3C	.733	.781	
	3E	.844	.353	
	3F	.859	.331	
	3G	.768	.616	
	Sum	3.204	2.081	
		Sum of l^2 and E	5.285	.606
Subscale 4	4A	.844	.883	
	4C	.880	.740	
	4F	.878	.700	

	4M	.826	.998	
	Sum	3.428	3.321	
		Sum of I^2 and E	6.749	.510

Subscale 1 and 2

Average variance extracted	.624
Correlation between factors	.567
Correlation Squared	.321
Discriminant validity	Yes

Subscale 1 and 3

Average variance extracted	.568
Correlation between factors	.646
Correlation Squared	.417
Discriminant validity	Yes

Subscale 1 and 4

Average variance extracted	.520
Correlation between factors	.669
Correlation Squared	.448
Discriminant validity	Yes

Subscale 2 and 3

Average variance extracted	.663
Correlation between factors	.706
Correlation Squared	.498
Discriminant validity	Yes

Subscale 2 and 4

Average variance extracted	.615
Correlation between factors	.746
Correlation Squared	.557
Discriminant validity	Yes

Subscale 3 and 4

Average variance extracted	.558
Correlation between factors	.810
Correlation Squared	.656
Discriminant validity	No

APPENDIX 7 – Ethics clearances

To: Dr Sunil Bhar, FHAD

SHR Project 2014/245 Emotion-based mechanisms of change in OCD symptoms over the course of therapy

Dr Sunil Bhar, Ms Andrea Wallace (Student), Dr Maja Nedeljkovic, Dr Denny Meyer - FHAD
Approved duration: 30-10-2014 to 31-05-2017 [adjusted]

I refer to the ethical review of the above project protocol by Swinburne's Human Research Ethics Committee (SUHREC). Your responses to the review, as emailed on 22 October 2014 with attachments, were put to the Committee delegate for consideration.

I am pleased to advise that, as submitted to date, ethics clearance has been given for the above project to proceed in line with standard on-going ethics clearance conditions outlined below. In issuing this clearance, the understanding is that research or funding agreements entered into to cover the research are in accord with the research protocol submitted for ethical review.

- All human research activity undertaken under Swinburne auspices must conform to Swinburne and external regulatory standards, including the *National Statement on Ethical Conduct in Human Research* and with respect to secure data use, retention and disposal.
- The named Swinburne Chief Investigator/Supervisor remains responsible for any personnel appointed to or associated with the project being made aware of ethics clearance conditions, including research and consent procedures or instruments approved. Any change in chief investigator/supervisor requires timely notification and SUHREC endorsement.
- The above project has been approved as submitted for ethical review by or on behalf of SUHREC. Amendments to approved procedures or instruments ordinarily require prior ethical appraisal/clearance. SUHREC must be notified immediately or as soon as possible thereafter of (a) any serious or unexpected adverse effects on participants and any redress measures; (b) proposed changes in protocols; and (c) unforeseen events which might affect continued ethical acceptability of the project.
- At a minimum, an annual report on the progress of the project is required as well as at the conclusion (or abandonment) of the project. Information on project monitoring, self-audits and progress reports can be found at: <http://www.research.swinburne.edu.au/ethics/human/monitoringReportingChanges/>
- A duly authorised external or internal audit of the project may be undertaken at any time.

Please contact the Research Ethics Office if you have any queries about on-going ethics clearance, citing the project number. Please retain a copy of this email as part of project record-keeping.

Best wishes for the project.

Yours sincerely,
Astrid Nordmann
Secretary, SUHREC

Dr Astrid Nordmann
Research Ethics Executive Officer
Swinburne Research (H68)
Swinburne University of Technology
PO Box 218, Hawthorn, VIC 3122
Tel: +613 9214 3845
Fax: +613 9214 5267
Email: anordmann@swin.edu.au

To: Dr S Bhar Ms A Wallace (bc) FLSS

Dear Sunil and Andrea,

SUHREC 2013/278 Cognitive-behavioural model of obsessive compulsive disorder featuring shame as a central component

Dr S Bhar Ms A Wallace et al FLSS

Approved duration from 20/12/2013 To 31/03/2017

I refer to the ethical review of the above project protocol undertaken by a SUHREC Subcommittee (SHESC2). Your responses to the review, as e-mailed on 20 December 2013, were put to a SUHREC delegate(s) for consideration.

I am pleased to advise that, as submitted to date, the project may proceed in line with standard on-going ethics clearance conditions here outlined.

- All human research activity undertaken under Swinburne auspices must conform to Swinburne and external regulatory standards, including the current *National Statement on Ethical Conduct in Human Research* and with respect to secure data use, retention and disposal.
- The named Swinburne Chief Investigator/Supervisor remains responsible for any personnel appointed to or associated with the project being made aware of ethics clearance conditions, including research and consent procedures or instruments approved. Any change in chief investigator/supervisor requires timely notification and SUHREC endorsement.
- The above project has been approved as submitted for ethical review by or on behalf of SUHREC. Amendments to approved procedures or instruments ordinarily require prior ethical appraisal/ clearance. SUHREC must be notified immediately or as soon as possible thereafter of (a) any serious or unexpected adverse effects on participants and any redress measures; (b) proposed changes in protocols; and (c) unforeseen events which might affect continued ethical acceptability of the project.
- At a minimum, an annual report on the progress of the project is required as well as at the conclusion (or abandonment) of the project.
- A duly authorised external or internal audit of the project may be undertaken at any time.

Please contact the Research Office (resethics@swin.edu.au) if you have any queries about on-going ethics clearance. The SUHREC project number should be quoted in communication. Chief Investigators/Supervisors and Student Researchers should retain a copy of this email as part of project record-keeping.

Best wishes for project.

Yours sincerely,

Ann

Dr Ann Gaeth
Administration Officer (Research Ethics)
Swinburne Research (H68)
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APPENDIX 8 - Authorship Indication Forms



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TECHNOLOGY

Swinburne Research

Authorship Indication Form

For PhD (including associated papers) candidates

NOTE

This Authorship Indication form is a statement detailing the percentage of the contribution of each author in each associated 'paper'. This form must be signed by each co-author and the Principal Coordinating Supervisor. This form must be added to the publication of your final thesis as an appendix. Please fill out a separate form for each associated paper to be included in your thesis.

DECLARATION

We hereby declare our contribution to the publication of the 'paper' entitled:

Conceptualising Obsessive-Compulsive Disorder Compulsions as Shame Regulation Strategies

First Author

Name Andrea Wallace Signature: A Wallace

Percentage of contribution: 85%

Date: 24 / 02 / 2017

Brief description of contribution to the 'paper' and your central responsibilities/role on project:

Andrea developed the conceptualisation and design of the study and wrote the paper.

Second Author

Name: Sunil Bhar Signature: [Signature]

Percentage of contribution: 10%


Date: 24 / 02 / 2017

Brief description of your contribution to the 'paper':

Sunil Bhar contributed to the conceptualisation, design and writing of this paper.

Third Author

Name: Maja Nedeljkovic _____

Signature: 

Percentage of contribution: 5%

Date: 24/02/2017

Brief description of your contribution to the 'paper':

Maja Nedeljkovic read drafts, and commented on the quality and coherence of this paper.

Principal Coordinating Supervisor:

Name: _Sunil Bhar

Signature: _____



Date: 24 / 02 / 2017

In the case of more than four authors please attach another sheet with the names, signatures and contribution of the authors.



Swinburne Research

Authorship Indication Form

For PhD (including associated papers) candidates

NOTE

This Authorship Indication form is a statement detailing the percentage of the contribution of each author in each associated 'paper'. This form must be signed by each co-author and the Principal Coordinating Supervisor. This form must be added to the publication of your final thesis as an appendix. Please fill out a separate form for each associated paper to be included in your thesis.

DECLARATION

We hereby declare our contribution to the publication of the 'paper' entitled:

Shame in obsessive-compulsive disorder: Development and validation of the Intrusion-Related Shame scale

First Author

Name Andrea Wallace Signature: A Wallace

Percentage of contribution: 80%

Date: 24 / 02 / 2017

Brief description of contribution to the 'paper' and your central responsibilities/role on project:

Andrea developed the conceptualisation and design of the study and wrote the paper.

Second Author

Name: Sunil Bhar Signature: [Signature]

Percentage of contribution: 10%

Date: 24 /02/2017

Brief description of your contribution to the 'paper':

Sunil Bhar contributed to the conceptualisation, design and writing of this paper.


*Third Author*Name: Denny Meyer _____ Signature: 

Percentage of contribution: 5%

Date: 24 /02/2017

Brief description of your contribution to the 'paper':

Denny Meyer provided advice on the statistical methods for this study. She also provided feedback on successive drafts of this paper with regards to the reporting of statistical methods and findings.

*Fourth Author*Name: Maja Nedeljkovic _____ Signature: 

Percentage of contribution: 5%

Date: 24/02/2017

Brief description of your contribution to the 'paper':

Maja Nedeljkovic read drafts, and commented on the quality and coherence of this paper.

Principal Coordinating Supervisor:

Name: _Sunil
Bhar _____ Signature: 

Date: 24 / 02/ 2017

In the case of more than four authors please attach another sheet with the names, signatures and contribution of the authors.



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NOTE

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DECLARATION

We hereby declare our contribution to the publication of the 'paper' entitled:

Influence of intrusion-related shame on compulsion severity: Investigation of a moderator effect

First Author

Name Andrea Wallace Signature: 

Percentage of contribution: 85%

Date: 24 / 02 / 2017

Brief description of contribution to the 'paper' and your central responsibilities/role on project:

Andrea developed the conceptualisation and design of the study and wrote the paper.

Second Author

Name: Sunil Bhar Signature: 

Percentage of contribution: 10%

Date: 24 / 02 / 2017

Brief description of your contribution to the 'paper':

Sunil Bhar contributed to the conceptualisation, design and writing of this paper.

Third Author

Name: Maja Nedeljkovic _____ Signature: 

Percentage of contribution: 5%

Date: 24/02/2017

Brief description of your contribution to the 'paper':

Maja Nedeljkovic read drafts, and commented on the quality and coherence of this paper,

Principal Coordinating Supervisor:

Name: Sunil Bhar _____ Signature: 

Date: 24 / 02 / 2017

In the case of more than four authors please attach another sheet with the names, signatures and contribution of the authors.



Swinburne Research

Authorship Indication Form

For PhD (including associated papers) candidates

NOTE

This Authorship Indication form is a statement detailing the percentage of the contribution of each author in each associated 'paper'. This form must be signed by each co-author and the Principal Coordinating Supervisor. This form must be added to the publication of your final thesis as an appendix. Please fill out a separate form for each associated paper to be included in your thesis.

DECLARATION

We hereby declare our contribution to the publication of the 'paper' entitled:

Examining the relationship between change in shame and in OCD symptoms across treatment

First Author

Name Andrea Wallace Signature: AWallace

Percentage of contribution: 80%

Date: 24 / 02 / 2017

Brief description of contribution to the 'paper' and your central responsibilities/role on project:

Second Author

Name: Sunil Bhar Signature: [Signature]

Percentage of contribution: 10%

Date: 24 / 02 / 2017

Brief description of your contribution to the 'paper':

Sunil Bhar contributed to the conceptualisation, design and writing of this paper.

Third Author

Name: Maja Nedeljkovic

Percentage of contribution: 5%



Signature:

Date: 24/02/2017

Brief description of your contribution to the 'paper':

Maja Nedeljkovic read drafts, and commented on the quality and coherence of this paper,

Fourth Author

Name: Denny Meyer

Signature: 

Percentage of contribution: 5%

Date: 24/02/2017

Brief description of your contribution to the 'paper':

Denny Meyer provided advice on the statistical methods for this study. She also provided feedback on successive drafts of this paper with regards to the reporting of statistical methods and findings.

Principal Coordinating Supervisor:

Name: __Sunil Bhar

Signature:



Date: 24 / 02/ 2017

In the case of more than four authors please attach another sheet with the names, signatures and contribution of the authors.

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