

The Role of Self-Construals in Obsessive-Compulsive Disorder

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ABSTRACT

Cognitive accounts of Obsessive-Compulsive Disorder (OCD) recognise that maladaptive beliefs are central to the maintenance of the disorder. Unhelpful beliefs underlie one's appraisal of unwanted intrusions as important and personally revealing, so that they become associated with negative affect and liable to developing into obsessions. Cognitive models additionally suggest that neutralising responses are responsible for the persistence of obsessional problems; they alleviate discomfort in the short term, but are associated with longer term maintenance of discomfort, increases in the urge to engage in further neutralising responses, and strengthening of maladaptive beliefs (Salkovskis, 1989, 1998). Given that our belief systems are intimately intertwined with self-concepts, the current thesis proposes the inclusion of such concepts in the cognitive framework for OCD.

This thesis shows that there is mounting support that self-processes are implicated in OC phenomena. In particular, ambivalence in self-worth and sensitivity in moral self-worth. There is currently, however, limited research on those aspects of the self that are less under conscious awareness, such as the implicit self. The overall aim of the current thesis is therefore to examine how both implicit and explicit self-construals relate to OCD. It was hypothesised that a discrepancy between implicit and explicit self-processes are relevant to OCD, specifically a discrepant low self-esteem (high implicit, low explicit self-esteem).

In particular, the thesis aimed to investigate three aspects of the relationship between self-construals and OCD. First, it examined whether self-beliefs (implicit and explicit) relate to OCD symptoms and beliefs. Second, it addressed the relationship that obsessions and compulsions have on self-beliefs. Finally, this thesis investigated how self-beliefs may serve as a liability to experiencing unwanted intrusions. Three studies

were conducted to address each of these questions. Each study comprised a sample of 20 individuals with OCD (M age = 42.25; SD = 14.98) and 120 non-clinical student participants or community controls (M age = 23.05; SD = 6.96).

In Study 1, the relative influence of implicit and explicit self-processes was examined for their impact on OC phenomena. In a combined clinical and non-clinical sample, self-ambivalence and specific discrepant implicit-explicit self views were both associated with higher levels of OC-related beliefs and OC-symptoms. Further examination revealed that discrepant implicit-explicit self views particularly relating to moral self-worth were associated with self-ambivalence, adding to our understanding of the nature of self-ambivalence in OCD. Comparisons between samples additionally revealed that non-clinical individuals with high levels of self-ambivalence and discrepant self-views showed comparable levels of OC phenomena to the clinical OCD sample.

Study 2 utilised an experimental neutralising task that tracked the experience of participants when continually exposed to their own unwanted intrusion under two different conditions, when they actively used a neutralising strategy or when they used a refocussing technique. Results on the combined clinical and non-clinical sample showed that, over time, neutralising responses increased distress and urge to neutralise, and decreased beliefs in self-worth and self-confidence.

The final study combined the data from the previous studies to examine which self-profiles make one more liable to having an aversive experience in the neutralising task. The results showed that a vulnerable self-profile (high levels of self-ambivalence, discrepant low self-esteem, sensitivity in moral self-worth) was associated with drops in self-worth and self-confidence on exposure to intrusions, which in turn was linked with increased distress and urge to neutralise.

Taken together, the results of this thesis support that a conceptual model self-construals and processes in OCD is important in understanding of the experience, development and maintenance of this disabling disorder. The thesis supports that intrusions are distressing because they are perceived to be threatening to an uncertain self-esteem. Furthermore, within the context of an ambivalent self-construal, compulsions assist initially with maintaining self-worth but are ultimately maladaptive. The limitations of the current research and clinical implications of the findings are discussed, and suggestions for future research outlined.

DECLARATION

This is to certify that

the thesis comprises only my original work towards the PhD,

due acknowledgment has been made in the text to all other material used,

the thesis is less than 100, 000 words in length, exclusive of tables, maps, bibliographies and appendices.

Claire Terese Ahern

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PART I – INTRODUCTION AND LITERATURE REVIEW

Chapter 1: Thesis Overview

The self is one of the most widely studied topics in both traditional and modern literature. While interest in the construct crosses over many disciplines, the content and structure of “the self” within the psychological arena is viewed as central to how we experience the world and provides an important foundation with which to understand psychological health. Examination of the relationship between the self and psychopathology has been extensive for a variety of mental disorders, and has provided fruitful avenues for improving our understanding of these disorders (Clark & Wells, 1995; McNally, 1993; Wilkinson-Ryan & Westen, 2000).

Although there are a number of promising indications that an understanding of self-construals could help further our understanding of Obsessive-Compulsive Disorder (OCD), the research is in its infancy. Primarily reliant on self-report methodology, the existing research on self in OCD has a limited ability to elucidate on those self-processes that individuals may not be readily able to share, specifically, implicit aspects of self-concept. The current thesis aims to address this by examining self-construals, from both an implicit and explicit level, for their relationship to OC phenomena. Moreover, given the predominant use of correlational analyses in existing self literature, the current thesis additionally seeks to aid our *in-vivo* understanding of obsessive-compulsive (OC) phenomena.

The main body of the thesis starts by presenting a general overview of the phenomenology and epidemiology OCD (Chapter 2) before going on to highlight the disability associated with this disorder, thereby justifying the need for further research.

Chapter 3 then reviews the different theoretical models for the development and maintenance of OCD. The cognitive theory is emphasised due to its prominence in the

current literature and its underpinning of effective treatments. Chapter 3 then addresses the gaps in the cognitive model, thereby proposing the possibility that examination of other relevant constructs, such as “the self”, may add to the cognitive theory of OCD.

The different theories of self are reviewed in Chapter 4. The current thesis proposes that the limitations of various theories of self can be met by the social-cognitive approach, specifically by recognising that the self develops with both internal and external modes of influence. Here the notion of an implicit self is introduced and is examined for its relationship to explicit self.

Chapter 5 brings together the research of the previous chapters. It synthesises the theoretical and empirical suggestion that self-processes are involved in OCD. In particular, it highlights how the notion of self-ambivalence and a discrepancy in implicit and explicit self-esteem are potentially a fruitful area for further investigation.

Chapter 6 outlines the three studies of this thesis. As the final chapter of the literature review, Chapter 6 integrates the material presented in the previous chapters and provides a brief introduction to the empirical analyses. The support for further examination into implicit self-construals is highlighted. Moreover, the chapter endorses the need to incorporate experimental data into research designs in order to better understand the associations between the self and OCD phenomena.

Chapters 7 to 9 are comprised of three studies that may be each understood as a separate investigation. Study 1 (Chapter 7) is based on questionnaire data and investigates the relative influence that implicit and explicit self-processes have on predicting OC phenomena. This study provides support that self-ambivalence and the discrepancy between implicit-explicit self-construals are associated with OCD. Study 2 (Chapter 8) is an experimental study that simulates the experience of obsessions and compulsions. The experiment investigates fluctuations of one’s experience and self-

construals when continually exposed to unwanted intrusions whilst using neutralisation as compared to a refocusing strategy. This study provides preliminary evidence that OC phenomena impact upon self-worth and confidence in self-worth. Study 3 (Chapter 9) then combines the questionnaire data from Study 1, and the experimental data from Study 2 using structural equation modeling. The results support cognitive theories of OCD that incorporate self-construals. Specifically, that unwanted intrusions threaten valued aspects of the self. This then leads to distress and urges to reinstate self-worth through neutralising responses. Chapter 9 additionally concludes that individuals with a vulnerable self-profile (high levels of self-ambivalence, a discrepancy between implicit and explicit self-esteem) may be particularly liable to developing OCD.

The final chapter, Chapter 10 summarises the findings of the previous chapters. It discusses the implications of the results to our understanding of OCD and clinical application of these findings. The limitations of the studies are discussed, and suggestions for future research are proposed.

Chapter 2: The Phenomenology and Epidemiology of Obsessive-Compulsive Disorder

2.1 Introduction to Obsessive-Compulsive Disorder (OCD)

OCD is a highly debilitating disorder considered to be amongst the most common and disabling psychiatric disorders. This chapter begins by outlining the diagnostic criteria for OCD and reviewing and contrasting how it is defined in the various classification systems. The phenomenology of obsessions and compulsions are subsequently discussed, and the cultural context of these symptoms considered. The chapter then presents the nature of normal obsessional and compulsive phenomena, which underlies justification for the common practice of using non-clinical populations in much OCD research. In order to appreciate the broad range of experiences and difficulties in understanding the disorder, the various OCD subtypes are considered. The chapter then outlines epidemiological and co-morbidity studies of OCD. Finally, this chapter concludes by describing the significant disability associated with this OCD, thus providing an impetus for further research to increase our knowledge regarding this disorder.

2.2 Definition and Phenomenology

2.2.1 Definition. The Diagnostic and Statistical Manual of Mental Disorders – Fourth Edition, Text Revision, (DSM-IV-TR), published by the American Psychiatric Association (2000), is one of the most accepted taxonomic systems used for the classification of mental and behavioural disorders. DSM-IV-TR currently categorises OCD as an anxiety disorder and recognises the central feature of OCD to be the presence of obsessions and/or compulsions (APA, 2000). Obsessions are defined as thoughts, images or impulses that are intrusive and occur repetitively. Sufferers experience their obsessions as intrusive and unwanted but they are hard to ignore and

difficult to control, thus marked anxiety or distress ensues. The discomfort associated with obsessions leads to attempts to ignore or suppress intrusions or neutralise them with another thought or action.

In order to differentiate OCD from other disorders with phenomena similar to obsessions (e.g., worries in Generalized Anxiety Disorder (GAD), hallucinations and delusions in psychotic disorders), DSM-IV-TR stipulates that the individual experiences the obsessions as intrusive, repetitive, ego dystonic and products of their own mind (i.e., not a thought insertion delusion). The individual is also required to have insight that their symptoms are excessive or unreasonable at some stage, although DSM-IV-TR recognises that this is not always the case and allows for a “with poor insight” subtype (American Psychiatric Association [APA], 2000).

Compulsions are recognised to be repetitive, rigid and intentional behaviours or mental acts that the individual feels driven to perform in order to help prevent or reduce the anxiety or distress that follows an obsession, or to prevent the occurrence of some future perceived threat (APA, 2000). These compulsions are applied according to rigid rules but are either unconnected in a realistic way with the obsession they are attempting to neutralise, or are clearly excessive. To differentially diagnose OCD from other possible psychiatric disorders, exclusion criteria include whether the symptoms are better explained by another Axis I disorder and whether the symptoms are the direct effect of a substance or general medical condition. Most people at some stage wonder about locking the door, thus, the diagnosis of OCD warrants the presence of marked distress, a duration of obsessions or compulsions of greater than one hour, or significant interference with one’s normal life functioning (APA, 2000).

Changes to the classification of the disorder are being considered for the forthcoming fifth edition of the DSM (APA, 2010a; Leckman et al., 2010; Storch,

Abramowitz, & Goodman, 2008). Based on the review by Leckman et al. (2010), the working group for the DSM-V are considering a variety of changes to the definition of OCD that could help improve diagnostic validity and clinical utility, including: 1) modifying the definition of obsessions by replacing the term “impulsive” with “urge” to distinguish OCD from impulsive control disorders; 2) recognition that obsessions usually, but not always, cause marked anxiety or distress; 3) greater flexibility with respect to the requirement that obsessions and compulsions are time-consuming; 4) the addition of further disorders to be considered for differential diagnoses; and 5) modification of the Insight specifier criterion to reflect that insight varies along a continuum in OCD (APA, 2010a). As will be discussed further on, there is also the potential that current hoarding subtype of OCD will be considered as a separate disorder and would therefore require differential diagnosis from OCD (APA, 2010b).

A reclassification of OCD as an anxiety disorder, to one of the obsessive-compulsive spectrum disorders (OCSD) has also been proposed, whereby OCD and related disorders grouped together on the basis that they have commonalities in etiologically relevant factors (e.g., endophenotypes) and similar response profiles (Hollander & Zohar, 2004). OCSD would be located on a compulsive-impulsive dimension and would therefore potentially include OCD, tic disorders, body dysmorphic disorder, impulse control disorders, trichotillomania as well as pathological gambling, eating disorders, addictions and autism (Hollander & Zohar, 2004). However, these changes have been widely contested as unsupported and premature (see Mataix-Cols, Pertusa, & Leckman, 2007; Storch et al., 2008).

2.2.2 Differentiation from ICD definition. In the Australian clinical context, DSM-IV-TR (APA, 2000) is the most commonly used psychiatric diagnostic system. Comparable psychiatric criteria created by the World Health Organisation (WHO,

1992), the International Classification of Disease and Related Health Problems (ICD-10), are largely used in Europe for data collection purposes. Although developed from different theoretical backgrounds, the ICD-10 was created in close consultation with the designers of the DSM-IV (APA, 1994) and the two classification systems largely converge in their definition of OCD (Andrews, Slade, Peters, & Beard, 1998).

There are, however, two differences between these two systems in the diagnosis of OCD. First, the ICD-10 further categorises OCD into subtypes based on predominance of symptoms, beyond that offered by the DSM-IV; Predominantly Obsessional Thoughts or Ruminations, Predominantly Compulsive Acts, and Mixed Obsessional Thoughts and Acts. Secondly, the ICD-10 criteria are more stringent than the DSM-IV in that they stipulate that the person must have tried to resist both the obsessions and compulsions (WHO, 1992). Research has demonstrated that 64% of diagnoses for OCD were concordant with both definitions and that discrepancies in diagnoses are primarily due to the ICD-10 requirement of attempts to resist compulsions (Andrews et al., 1998).

2.2.3 Obsessions. According to Clarke (2004, p. 28), there are five core features that define obsessions; a) they are intrusive and occur against one's will, b) they are unacceptable and thus associated with negative affect, c) there is strong subjective resistance to experiencing the obsession, d) they have a sense of uncontrollability and e) they are inconsistent with the core values of the self. Although obsessions can take a variety of forms, most commonly they are experienced as unwanted and intrusive thoughts (Rachman, 2003). For example, an individual may have the obsessive thought that "I could kill everyone in the car if I just swerved into oncoming traffic" or "Am I catching germs from this?" Other less frequent forms of obsessions, images and urges are just as repugnant and objectionable (e.g., unwanted images of incestuous acts, the

urge to push someone in front of an oncoming train). Factor analytic research on the features of different forms of obsessions revealed that obsessional urges were the most intense, relating to greater agitation and fear than thoughts and images, while obsessional images tend to be of shorter duration and are more easily dismissed (Rachman & Hodgson, 1980).

Clinically, individuals tend to experience more than one obsession (Rasmussen & Tsuang, 1986), they may experience a variety of types and obsessional themes, and these may change over time. The most common obsessional theme is contamination concerns, followed closely by pathological doubt (e.g., worrying that one has forgotten to do something) and fears of harming others (Clark, 2004; Foa & Kozak, 1995). While regular hygienic standards require a certain level of cleanliness and sterilisation, individuals with contamination obsessions commonly present with excessive fears of not being clean or concerns that they may contract an illness and will spread disease (Rasmussen & Eisen, 1998). Other obsessional themes include aggression and unacceptable sexual acts, the need for symmetry and precision, somatic/health concerns and hoarding (Foa & Kozak, 1995; Rachman, 1985; Rasmussen & Eisen, 1998; Swinson, Antony, Rachman & Richter, 1998).

As recognised by DSM-IV-TR, obsessions share some characteristics with worries, another unwanted cognitive intrusion, characteristic of GAD. Worries consist of unpleasant persistent and recurrent thoughts that distract and demand attention (Belloch, Morillo & Garcia-Soriano, 2007; Clark & Claybourn, 1997; Wells & Papageorgiou, 1998). Similarly, they are difficult to control and so interfere with daily functioning (Clark & Rhyno, 2005; Langlois, Freeston, & Ladouceur, 2000a, 2000b; Wells & Morrison, 1994). While there are a variety of characteristics that distinguish obsessions from worries, one of the key differential features is ego-dystonic thought

content; obsessions are experienced to be inconsistent with one's sense of self. By contrast, worries are concerns or problems that generally relate to the real life of the sufferer (Aradema & O'Connor, 2003; 2007; Clark & Claybourn, 1997; Langlois et al., 2000a, 2000b; Rachman, 1973; Turner, Beidel, & Stanley, 1992). Wells and Papageorgiou (1988) also delineate differential triggers for the cognitive phenomena. Worries tend to be verbal and take on the form of a chain of thoughts, while obsessions are more likely to intrude unannounced on one's chain of thought (Clark & Rhyno, 2005).

Ego-dystonicity also appears to be an important feature that distinguishes obsessions from the intrusive phenomena observed in other types of psychiatric disorders. Individuals with OCD recognise that their fears are incongruent with their self-view or ideas about the world. As lamented by Rachman (2003, p. 5), "Obsessions are... repugnant and unacceptable intrusive thoughts that conflict with the person's self-view and are resisted." For example, an older lady who regards herself as usually careful and responsible may constantly doubt whether she turned off the gas on the stove. This is in contrast to individuals diagnosed with Anorexia Nervosa who have intrusive thoughts of weight gain but are more likely to see their concerns as ego-syntonic (Serpell, Livingstone, Neiderman, & Lask, 2002). Similarly, OCD patients tend to recognise the irrationality of their contamination obsessions and try to resist them, while individuals with Hypochondriasis generally justify the seriousness of their illness and do not attempt to resist related thoughts (Starcevic, 2001).

2.2.4 Compulsions. Compulsions are voluntary acts that people feel compelled to perform. They are deliberate and never associated with pleasure (APA, 2000), but the individual believes that they are necessary to prevent distress or perceived threat. Compulsions are thus designed to neutralise the negative affect associated with the

occurrence and/or content of an obsession, or to prevent a feared event. They may be performed repetitively and according to rules that must be applied rigidly. As with obsessions, compulsions can take a variety of forms and may involve a variety of themes. Compulsions may be overt observable behaviours (e.g., washing, retracing steps, arranging items in a room) or covert mental strategies (e.g., praying, thought suppression, cancelling out obsessions with a “safe” thought).

The most common compulsive themes include checking, cleaning, counting, reassurance seeking, repeating actions and acting out behavioural patterns in a specific order (Rasmussen & Eisen, 1992; Rasmussen & Tsuang, 1986). Individuals typically experience more than one compulsion (Rasmussen & Tsuang, 1986; Reed, 1985) and checking or cleaning compulsions are two of the most common types noted by researchers (Rasmussen & Eisen, 1992), being experienced by up to 75% of people with OCD (Ball, Baer, & Otto, 1996). Compulsive checking involves either behavioural or mental checking that occurs repeatedly (e.g., appliances, locks, etc.) in excess of any reasonable function. Compulsive checking or cleaning may involve a detailed, time-consuming and sometimes bizarre ritual that is repeated. Hoarding, arranging and counting compulsions are the least common but have been rated as the most distressing of the compulsions (Foa et al., 1995). Some research has found that it is rare for patients to present with compulsions but no identifiable obsession (Foa & Kozak, 1995). Others have reported a prevalence of between 13-25% for this subgroup of OCD (Ball, Baer, & Otto, 1996; Minichiello, Baer, Jenike, & Holland, 1990) but suggest instead that they use mental compulsions (Williams et al., 2001). Indeed, Ladouceur et al. (2000) found that over 37% of their OCD sample used some form of mental compulsion, and are a primary problem for around 13% of OCD presentations (Sibrava, Boisseau, Mancebo, Eisen, & Rasmussen, 2011).

Just as intrusive thoughts are found in other disorders, repetitive and ritualistic compulsive behaviours are not specific to OCD. Unlike the compulsive behaviour seen in impulse control disorders, binge eating and paraphilias, individuals with OCD do not obtain pleasure or gratification for their compulsive actions. Individuals perform them because they feel they have to. Studies have found that compulsions are associated with negative affect because the individuals experience them to be excessive, disproportionate and even irrational (Muris et al., 1997b). Similarly, although patients with OCD may feel that they have a low control over their performance of compulsions, their responses are intentionally performed to neutralise negative affect associated with obsessions. This is in contrast to the involuntary and purposeless repetitive movements in tic disorders, movement disorders and schizophrenia (O'Connor, 2001; Miguel et al., 1995).

2.2.5 Cultural context. Just as our environmental context impacts upon our lived experience, it follows that the expression of mental disorders may not only have biological, but also social influences. Both extrinsic (cultural background, life experience) and intrinsic factors (age, sex) have been demonstrated to have an influence on the content of obsessions (Akhtar, Wig & Varma, 1978). Obsessive themes of self-impurity and contamination tend to be more common in women, whereas men more often have intrusions of symmetry, aggressive and blasphemous thoughts (Ghassemzadeh, et al., 2002; Labad et al., 2008; Li, Marques, Hinton, Wang, & Xiao, 2009). Strong religious beliefs have been associated with higher incidence of religious obsessions (Khoubila & Kadri, 2010; Yorulmaz, Gencoz, & Woody, 2009). In Iranian and Turkish samples, fears of impurity and contamination were the most common obsessional themes (Egrilmez, Gulseren, Gulseren, & Kultur, 1997; Ghassemzadeh et al., 2002), while a predominance of aggressive and religious obsessions have been

found in Brazilian and Middle Eastern samples (Fontenelle, Mendlowicz, Marques, & Versani, 2004). While traditionally religious obsessions used to be very common in Western cultures, contemporary fears (being responsible for child abuse, asbestos contamination, AIDS, Avian Flu) are now increasingly reflected (Veale, 2007; Weissman et al., 1994).

Similarly, compulsive themes also vary according to the context of the individual (i.e., culture, gender; Chavira et al., 2008; de Silva, 2006; Li et al., 2009). Research has demonstrated that cleaning compulsions are more common in females, while men are more likely to present with checking and symmetry symptoms (Ghassemzadeh et al., 2002; Karadag, Oguzhanoglu, Ozdel, Atesci, & Amuk, 2006). Muslim samples have been associated with greater use of cleaning and grooming compulsions as compared to Christian cohorts (Yorulmaz, Gencoz, & Woody, 2009). That said, individuals from Japanese cultures have shown comparable OCD symptomatology to those of Western cultures (Matsunaga, et al., 2008). While conflicting results have been found, the reviewed literature lends support to the notion that cultural, ethnic and religious experiences may affect the expression of OCD (Weissman et al., 1994; Nedeljkovic, Moulding, Foroughi, Kyrios & Doron, 2011).

2.2.6 Non-clinical obsessions and compulsions. While obsessional intrusions were traditionally considered to be rare and specific to OCD, they are now considered to essentially be a universal ‘normal’ phenomenon as the vast majority of non-clinical populations report that they experience intrusive thoughts, images or impulses (Belloch, Morillo, Lucero, Cabedo, & Carrio, 2004; Clark & Purdon, 1995; Freeston et al., 1995; Freeston, Ladouceur, Thibodeau, & Gagnon, 1991; Ladouceur, Thibodeau, & Gagnon, 1991; Janeck & Calamarui, 1999; Purdon & Clark, 1993, 1994a, 1994b; Rachman & de Silva, 1978). In their landmark study, Rachman and de Silva (1978) assessed the

qualities of intrusions experienced by individuals with OCD and a normal population. Notable similarities between abnormal (obsessions experienced by the OCD cohort) and normal intrusions were observed for form and content. Around 80% of normal individuals reported experiencing obsessions, and mental health professionals could not differentiate between the obsessional content experienced by the clinical and non-clinical group. This study and a later replication (Salkovskis & Harrison, 1984) found that compared to intrusive thoughts of the general population, obsessional thoughts occur more often and are of longer duration, are more strongly resisted and provoke more urges to neutralise, are more egodystonic and associated with greater discomfort. Most people experience intrusions on occasion, but with less frequency (Belloch et al., 2004) and intensity (Ladouceur et al., 2000) than individuals with OCD.

Similarly, compulsive behaviours are commonly performed by non-clinical individuals to help alleviate discomfort or distress, or to prevent a potential perceived future negative outcome (Freeston et al., 1991; Ladouceur et al., 1995, 2000; Muris, Harald, & Clavan, 1997a; Muris, Merckelbach, & Clavan, 1997b). In their sample of 150 university undergraduates, Muris et al. (1997b) found that more than half (54.5%) reported to sometimes or often perform ritualistic acts. Compulsions adopted by non-clinical participants were indistinguishable in terms of content from those performed by clinical participants with both samples performing checking, cleaning, ordering and ‘magical’ protective behaviours. As with obsessions, compulsions in OCD differed from normal ritualistic or repetitive behaviours in that they were more frequently employed, more intense and elicited more discomfort and resistance (Ladouceur et al., 2000; Muris et al., 1997b). Furthermore, abnormal compulsions were significantly more likely to be associated with preceding distressing thoughts or negative mood.

Later research has suggested that there may in fact be differences between normal and abnormal obsessions. Rassin, Cougle and Muris (2007) found that a healthy undergraduate sample endorsed significantly fewer clinical obsessions than normal intrusions, and proposed that there are a “subtype of obsessions that are characterized by an abnormal content” (Rassin & Muris, 2007, p. 1068). Julien, O’Connor and Aardema (2009) disputed these findings, suggesting that results of Rassin et al. (2007) were due to the methodology employed to assess intrusions. Julien et al. (2009) further showed that occurrence of intrusions of clinical and nonclinical samples did not differ on content, but that some intrusions types were experienced more frequently in the OCD group, and those of OCD participants were less directly linked to environmental triggers. Over time and with chronic use, individuals with OCD may form an association with an internal feeling so that obsessions occur in the absence of any noticeable trigger. Indeed, more recent research supports the dimensionality of intrusions, findings that the content of clinical and nonclinical obsessions were comparable (Garcia-Soriano, Belloch, Morillo, & Clark, 2011). While nonclinical participants more frequently endorsed doubts and individuals with OCD reported more contamination and superstitious obsessions, each content dimension were equally reported by both groups to be their most distressing. Rassin et al.’s findings that clinical obsessions were less commonly endorsed by non-clinical participants may instead reflect that content of obsessions are further elaborated on as their intensity, frequency and duration increase. Indeed, Rassin et al. additionally showed that the experience of abnormal obsessions was associated with higher levels of OCD symptoms.

Collectively, this research has had important clinical, theoretical and research implications. Firstly, such research has highlighted the experience, rather than occurrence of obsessions differentiates patient and non-clinical groups. Second, such

research supports a dimensional view of OCD phenomenology. Third, the research provides empirical support for one of the underlying assumptions in the cognitive theory of OCD; that intrusive thoughts in the general population and obsessional patients differ not in the content of unwanted intrusions, but in their appraisal (Clark & Purdon, 1993, 1995; Purdon & Clark, 1993, 1994; Rachman, 1997, 1998; Salkovskis, 1985, 1989). The cognitive model of OCD will be elaborated further in Chapter 2 as it provides the theoretical foundation of the current thesis. That the experience of OCD symptoms is qualitatively similar in form but less intense and debilitating substantiates the use of non-clinical samples as a substitute for clinical samples in much research. A review of the use of non-clinical samples for researching OCD concluded that non-clinical groups “suffer from the same type of symptomatology as OCD patients, but to a lesser degree of severity” (Gibbs, 1996, p. 765). Consequently, the use of non-clinical obsessions as analogues of clinical obsessions have increased since the Rachman and De Silva’s (1978) study, and have contributed to our understanding of the development of the disorder (Rachman 1998; Salkovskis, 1996).

2.2.7 Subtypes/Dimensions of OCD. OCD is increasingly recognised to be a heterogeneous condition. Although the current diagnostic criteria suggest a discrete disorder, the manifestation of OCD symptoms can vary widely and variant symptoms can have differential responses to treatment (McKay et al., 2004). This has led researchers and clinicians to investigate possible subtypes of OCD and to evaluate whether there may be divergent aetiologies and treatment responses.

The most popular basis for classifying subtypes for OCD has been according to the predominant overt compulsive features. Traditionally, individuals have been separated on the basis of whether their predominant symptoms involve checking or washing (Lewis, 1936). Rasmussen and colleagues (Rasmussen & Tsuang, 1986;

Rasmussen & Eisen, 1992) showed that cleaning and checking were the most common types of compulsions reported by the majority of their sample. This finding has since been replicated (Summerfeldt, Antony, Downie, Richter, & Swinson, 1997) and the distinction between washers and checkers has been supported in several studies (Khanna & Mukherjee, 1992; Rachman & Hodgson, 1980; Steketee, Grayson, & Foa, 1985). While the groups did not differ on demographic variables, washers, relative to checkers, are more likely to have their fears triggered by their external cues (Steketee et al., 1985), are less indecisive (Frost & Shows, 1993) and are more likely to respond to treatment (Minichiello, Baer, & Jenike, 1988).

Other empirically sanctioned subtypes include hoarding (clutter that precludes activities for living, along with the excessive acquisition and the failure to discard possessions of little use or objective value; Frost & Gross, 1993; Frost, Krause, & Steketee, 1996) and pure obsessionals (obsessions with no overt compulsions; Akhtar, Wig, Varma, Peershad, & Verma, 1975; Rachman, 1985; Rasmussen & Tsuang, 1986; Ball et al., 1996). Pure obsessions have been associated with worse outcomes (Abel, 1993; Alonso et al., 2001; Hohagen et al., 1998), have been found to be difficult to treat (Starcevic & Brakoulias, 2008), and have been found to have high levels of co-morbid depressive symptoms (Arts, Hoogduin, Schaap, & de Haan, 1993; Kyrios, Hordern, & Bhar, 2003). Similarly, compulsive hoarding has been associated with lower quality of life (Saxena et al., 2011), symptoms that worsen over time (Ayers, Saxena, Golshan, & Wetherell, 2010; Tolin, Meunier, Frost, & Steketee, 2010), differential cognitive processes (Pertusa et al., 2010; Steketee, Frost, & Kyrios, 2003) and lesser responsiveness to treatments (Ball, Baer, & Otto, 1996; see Pertusa et al., 2010 for a review). More recently, Hoarding Disorder has been proposed as a separate condition (Mataix-Cols et al., 2010). The differences between hoarding and other OCD symptoms

are thought to outweigh the similarities, and in most cases, hoarding symptoms occur independently from OCD symptoms (Pertusa et al., 2008; Mataix-Cols et al., 2010). Consequently, the next edition of the DSM is examining whether hoarding should be classified as a separate syndrome (APA, 2010b).

There are, however, difficulties in determining clear subtypes based on symptom profile. Clinically, mixed presentations are common and may overlap with other symptoms, for example, washing due to obsessions of moral impurity (Tallis, 1995; Summerfeldt, 2004). Further, individuals with OCD may demonstrate changes in compulsive symptoms over time (Haslam, Williams, Kyrios, McKay, & Taylor, 2005; Rasmussen & Tsuang, 1986; Skoog & Skoog, 1999). In response to these limitations, other sub-typing frameworks have been suggested, such as a) presence vs. absence of tics (Hoehn-Saric & Barksdale, 1983); b) early vs. late onset (Minichiello, Baer, Jenike, & Holland, 1990); c) on the basis of co-morbid disorders (Bejerot, 2007; Coles, Pinto, Mancebo, Rasmussen, & Eisen, 2008; Garyfallos et al., 2010); and d) whether symptoms are triggered by internal or external stimuli (Lee & Kwon, 2003; Moulding, Kyrios, Doron, & Nedeljkovic, 2007).

Other methods of classifying the different dimensions of OCD have focused on statistically devised symptom dimensions. Factor analysis on measures of OCD symptoms, such as the Maudsley Obsessional Compulsive Inventory (MOCI; Hodgson & Rachman, 1977), the Padua Inventory (PI-R; Burns, Keortge, Formea, & Sternberger, 1996; PI; Sanavio, 1988) and the Yale-Brown Obsessive Compulsive Scale (YBOCS; Goodman, Price, Rasmussen, & Mazure, 1989) consistently yield four to five symptom dimensions. These include contamination/washing, obsessions/checking, symmetry/ordering, hoarding, with some studies also finding a pure obsessiveness dimension (Abramowitz, Franklin, Schwartz, & Furr, 2003; Calamari et al., 2004;

Haslam, Williams, Kyrios, McKay, & Taylor, 2005; Leckman et al., 2007; Mataix-Cols et al., 2002). Nonetheless, inconsistencies in the number and type of subtypes have been reported. While this may be due to use of methodological discrepancies such as use of different measures and different analytical strategies (Calamari et al., 2004), there is no one taxonomy that has been universally accepted (Summerfeldt et al., 1999).

Nevertheless, such research highlights the variability in the specific manifestations of OCD and underscores the importance of studying not only the disorder as a whole, but also all dimensions of the disorder.

2.3 Epidemiology

2.3.1 Prevalence. OCD was once regarded to be a relatively rare disorder, with a community prevalence rate of 0.05% (Rudin, 1953) and clinical prevalence rates of 0.5% (Coryell, 1981). Using DSM-III criteria, the Epidemiologic Catchment Area (ECA) study (Karno, Golding, Sorenson, & Burnam, 1988; Robins et al., 1984), was the first to challenge the assumption that OCD is a rare disorder. The lifetime prevalence rates for OCD ranged from 1.9% to 3.3%, with a 6-month and 1-year incidence of 1.5% and 1.6% respectively (Karno et al., 1988, Robins et al., 1984). This was considerably higher than previously thought and indicated that OCD is the fourth most common psychiatric disorder (Karno et al., 1988). These rates correspond to similar rates found in a number of countries (Canada, Finland, Africa, Germany, Korea, & New Zealand; Weissman et al., 1994) where lifetime prevalence rates range from 1.9 to 2.5%.

In 1997, a national survey of mental health and wellbeing was conducted on adults in all states and territories of Australia using ICD-10 criteria (Australian Bureau of Statistics, 1998). OCD was found to be less prevalent than other anxiety disorders (Social Phobia, Generalized Anxiety Disorder, Post-Traumatic Stress Disorder, Agoraphobia, Panic Disorder in order of prevalence), with a prevalence of 0.4%.

Norwegian and German samples have similarly found lower prevalence rates (Grabe et al., 2000; Kringlen, Torgersen, & Cramer, 2001). However, the later National Survey of Mental Health and Wellbeing in 2007 showed that 12-month prevalence rates for OCD in Australia of 2.1% (Slade, Johnston, Oakley Browne, Andrews, & Whiteford, 2009). Although this difference from the 1997 data may reflect a true change in the prevalence over time, discrepancies between various epidemiological studies may also be partly explained by differences in diagnostic instruments (Slade et al., 2009) and interviewer expertise (Swinson et al., 1998). In contrast to the recent studies which used trained clinicians, the ECA study utilised lay people as interviewers, who have been shown to over-diagnose OCD due to mislabelling worries as obsessions and overestimating degree of distress related to OCD symptoms (Stein, Forde, Anderson, & Walker, 1997). Hence, taking into account the different criteria and methodologies, which have resulted in varying estimates of the prevalence of the disorder, lifetime prevalence rates are considered likely to be between 1% and 2.5% (Clark, 2004).

2.3.2 Demographics. The occurrence of OCD has been confirmed across all geographic, ethnic and socioeconomic populations (Antony, Downie & Richard, 1998). As previously discussed, culture and society may impact upon the presentation of symptoms (Rasmussen & Tsuang, 1986; Veale, 2007; Weissman et al., 1994; Yorulmaz, Gencoz, & Woody, 2009), but the types and frequencies of symptoms tend to be fairly consistent across cultures. Studies have not found differences in the prevalence of OCD based on race, religion or socio-economic status (Burnam et al., 1997; Karno et al., 1988; Valleni-Basile et al., 1994).

Although early research generally considered OCD to affect males and females equally (Karno et al., 1988), most studies have since reported slightly higher incidence among adult women (Rasmussen & Eisen, 1992; Weissman et al., 1994). Research on

Australian samples showed prevalence of 2.2% in females, as compared to 1.6% in men (Slade et al., 2009). Similarly, Swinson et al. (1998) report a preponderance of females in epidemiological studies (i.e., prevalence rates vary from 1.5% to 3.2% for females and from 1.1% to 2.8% for males) but also found an approximately equal ratio of females to males in clinical samples.

Nevertheless, some gender related differences exist in OCD. Firstly, compared to males, females have been found to have higher rates of contamination/cleaning and lower rates of sexual/religious symptoms in clinical (Labad et al., 2008; Lensi et al., 1996) and non-clinical samples (Purdon & Clark, 1993). Secondly, the average age of onset tends to be earlier for males than females (Lensi et al., 1996); 6 to 15 years in males and 20 to 29 years in females (APA, 2000). Accordingly, in child and adolescent populations, males outnumber females by up to 2:1 (Bellodi, Sciuto, Diaferia, Ronchi, & Smeraldi, 1992). Further, in terms of co-morbidity, females patients with OCD tend to have higher rates of depression, panic disorder and eating disorders, while a higher percentage of males have substance use disorders (Lensi et al., 1996; Pigott & Lac, 2002; Sobin et al., 1999).

2.3.3 Course. OCD usually begins in adolescence and early adulthood (APA, 2000). In epidemiological and clinical samples, the mean age of onset is consistently found to be around 19.8 to 25.6 years, although OCD tends to begin earlier in males than females (Swinson et al., 1998). Onset is generally gradual; Rasmussen and Tsuang (1986) found that only 8% of OCD sufferers have acute onset OCD. Even though the onset with OCD is generally during adolescence or early adulthood, it is often only first reported and/or recognised in the 25 – 49 year old age group (Feinstein, Fallon, Petkova, & Liebowitz, 2003). In a study investigating the recognition of patients with OCD amongst 2282 psychiatric outpatients, only 28% of those who met DSM-IV

criteria for OCD were also given this diagnosis by their consultant leaving a further 70% without a valid diagnosis and associated treatment (Wahl et al., 2010).

Consequently, sufferers often go undiagnosed for many years because of a lack of understanding and intense feelings of embarrassment and guilt (Antony et al., 1998).

The mean duration of untreated illness was 7.6 years (Rasmussen & Tsuang, 1986). A number of studies have found that symptom onset after the age of 50 is rare (Kolada, Bland, & Newmann, 1994; Swinson et al., 1998).

OCD is typically understood to be chronic and lifelong, with some fluctuations in the severity of symptoms over time (APA, 2000). In their sample of 44 patients, Rasmussen and Tsuang (1986) identified three courses for OCD; 84% followed a continuous, chronic course, 14% deteriorated and 2% had an episodic course. Eisen & Steketee's (1997) review confirmed that episodic OCD with full remissions occurs rarely (10-15%), although this percentage increased with longer follow-up periods. Exacerbation in symptoms is often related to life stressors such as the birth of a child (Neziroglu et al., 1992) or a loss of some kind (Rasmussen & Tsuang, 1986). Childhood onset is generally associated with greater severity, particularly in males, and poorer prognosis (Swinson et al., 1998). Features that indicate a favourable prognosis include mild symptoms (Maher et al., 2010), short duration and good premorbid personality (Koloda et al., 1994) and high pretreatment motivation (Langner et al., 2009; Steketee et al., 2011).

2.4 Comorbidity

2.4.1 Axis I. More often than not, individuals with a primary diagnosis with OCD will also experience another mental disorder. In a lifetime study of comorbidity, 86% of patients with OCD met the criteria for another Axis I disorder (Crino & Andrews, 1996). Based on DSM-IV criteria, Swinson et al. (1998) found that 17.2% of

their OCD patients met criteria for one additional diagnosis, 18.2% for two additional diagnoses and 18.4% for three or more. Subsequent research has similarly shown that at least one comorbid Axis I disorder was present in greater than two thirds of OCD patients, where two comorbid conditions was relatively common (27.5%; Tuekel, Polat, Oezdemir, Aksuet, & Tuerksoy, 2002).

The most frequently occurring comorbid disorder in OCD is Major Depressive Disorder (MDD; Jin et al., 2004; Demal, Lenz, Mayrhofer, Zapotoczky, & Zitterl, 1993; Quarantini et al., 2010; Rasmussen & Eisen, 1992; Tuekel et al., 2002). At any one time, around 30%-39.5% of OCD patients are found to have co-morbid MDD, and around 67.5% report a lifetime history of MDD (Quarantini et al., 2010; Rasmussen & Eisen, 1992; Rasmussen & Tsuang, 1986; Tuekel et al, 2002). Typically, comorbid MDD begins after the development of OCD (Demal et al., 1993; Welner, Reich, Robins, Fishman, & van Doren, 1976). Demal et al., (1993) found that OCD began first in 47% of individuals, MDD first in 36%, and both conditions began concurrently in 17% of patients. Research has proposed that the comorbidity between OCD and MDD occurs because the disorders influence each other reciprocally. Depressive symptoms may develop as a result of the frustration and functional impairment associated with OCD (Donahue, 2005). Alternatively, given the relationship between low positive affect and negative thinking (Joiner & Rudd, 1996; Van der Does, 2005), depression may increase the tendency to interpret obsessions in a negative way (Rachman, 1997) and may deplete cognitive resources needed for mental control over obsessions (Najmi & Wegner, 2008). Comorbid MDD is associated with more severe general psychopathology (Quarantini et al., 2010; Ricciardi & McNally, 1995).

Next to MDD, anxiety disorders are the most common occurring comorbid conditions (Brown & Barlow, 1992; Brown, Campbell, Lehman, Grisham, & Mancil,

2001; Torres et al., 2006; Tuekel et al., 2002; Welkowitz, Struening, Pittman, Guardino, & Welkowitz, 2000). Patients with OCD often meet the diagnostic criteria for generalized anxiety disorder (12 - 31%), agoraphobia or panic disorder (13.6 - 22%), social phobia (15.6 - 17%), and specific phobia (15 – 17.7%; Torres, et al., 2006; Tuekel et al., 2002). Welkowitz et al., (2000) showed that 92.9% of individuals with OCD who experienced both obsessive and compulsive symptoms also suffered symptoms from at least one another anxiety disorder in the past month; 22.3% of individuals with OCD had one additional anxiety disorder, 32.5% had two other anxiety disorders and 28.9% had three, with GAD being the most common comorbid anxiety disorder.

2.4.2 Axis II. As well as being vulnerable to comorbid Axis I disorders, around 36% - 74% of OCD sufferers additionally meet the criteria for a personality disorder (Axis II in the DSM-IV-TR; Denys, Tenney, van Megen, de Geus, & Westenberg, 2004; Torres et al., 2006; Wu et al., 2006). Historically, personality pathology was viewed as related to the causal development of OCD. Freud (1917) proposed that the “anal character”, characterised by orderliness, parsimony and obstinacy, predisposed to developing an obsessive-compulsive personality and ‘obsessional neuroses’. As recognised by the DSM-IV, Obsessive Compulsive Personality Disorder (OCPD) shares some similar psychological features with OCD, namely excessive preoccupation with orderliness, perfectionism and mental control (APA, 2000). In support of a relationship between the Axis I and II disorder, OCPD is often found to be the most frequently occurring personality disorder in patients with OCD, occurring in around 23 – 36% of OCD sufferers (Albert, Maina, Forner, & Bogetto, 2004; Bejerot, Ekselius, & von Knorring, 1998; Coles et al., 2008; Diaferia et al., 1997; Eisen et al., 1999; Garyfallos et

al., 2010; Pinto, Mancebo, Eisen, Pagano, & Rasmussen, 2006; Samuels et al., 2000; Tenney et al., 2003).

Nevertheless, there is also growing evidence to suggest no specific relationship between OCD and OCPD (Pfohl & Blum, 1991; Torres et al., 2006; Wu, Clark & Watson, 2006). In their assessment of the comorbid Axis II disorders in OCD, Wu and colleagues (2006) showed that the prevalence of OCPD did not differ between OCD and non-OCD patients, and that OCPD was not the most frequently diagnosed personality disorder in the OCD sample. The authors suggest that the comorbidity of OCPD and OCD in previous studies may have been overestimated due to the overlapping criteria such as perfectionism and hoarding. Consistent with this view, individuals with OCD and OCPD reported significantly higher rates of symmetry, ordering and hoarding symptoms than OCD sufferers without comorbid OCPD (Coles et al., 2008; Garyfallos et al., 2010). Indeed, hoarding is listed as part of the diagnostic criteria for OCPD and is additionally sometimes considered to be a subtype of OCD, despite not being specified in the DSM-IV-TR criteria for OCD (APA, 2000). Related studies find that Avoidant PD, not OCPD, has closer links with OCD (Torres et al., 2006; Shea et al., 2004; Summerfeldt, Huta, & Swinson, 1998; Wu et al., 2006). Avoidant PD is characterised by a pervasive avoidance of social interaction, social inhibition, feelings of inadequacy and extreme sensitivity to negative evaluation (APA, 2000). A relationship between Avoidant PD and OCD may go some way to explain some of the intense shame and embarrassment that OCD sufferers experience with their symptoms (Antony et al., 1998).

2.5 Disability

OCD is recognised to be one of the ten leading cause of disability for adults by the World Health Organisation (2001). In a review of the indirect indicators of quality

of life in individuals with OCD, Torresan, Smaira, Ramos-Cerqueira and Torres (2008) found that impairment due to OCD is severe and that OCD affects several life domains including life satisfaction, social and occupational functioning and physical health. There is consistent evidence that the greater the severity of the symptoms, the lower the perceived quality of life (Albert, Maina, Bogetto, Chiarle, & Mataix-Cols, 2010; Eisen et al., 2006; Huppert, Simpson, Nissenson, Liebowitz, & Foa, 2009; Moritz et al., 2005; Pallanti, Quercioli & Koran, 2002), where the presence of comorbid MDD further impedes upon life satisfaction (Albert et al., 2010; Huppert et al., 2009; Quilty, Van Ameringen, Mancini, Oakman, & Farvolden, 2003; Rapoport, Clary, Fayyad, & Endicott, 2005). There is also some indication that quality of life improves with treatment. In their assessment of current OCD patients with and without comorbid disorders, individuals with OCD in remission, and healthy controls, Huppert et al. (2009) showed that individuals with OCD plus comorbid disorders tend to be significantly more impaired than individuals with OCD without comorbidity, and both of these were significantly more impaired than healthy controls. Meanwhile, patients with OCD in remission tend to report a level of functioning and quality of life between healthy controls and OCD patients without comorbidity.

OCD has an adverse effect on social functioning. Around 46 – 70% of patients with OCD are single (Hafner, 1998; Sobin et al., 1999; Steketee, 1993; Swinson et al., 1998), and married individuals with OCD are more likely to report marital distress than individuals without OCD (Horwath & Weismann, 2000). This is not surprising when one considers the negative impact on the quality of life for those who live with someone with OCD (Albert, Salvi, Saracco, Bogetto, & Maina, 2007; Stengler-Wenzke, Kroll, Matschinger, & Angermeyer, 2006; Torresan et al., 2008). For instance, family members may be asked to assist with rituals and may become the outlet of frustration

for failures to comply. Similarly, given the time taken to complete rituals, it is understandable that individuals with OCD and family members find it difficult to complete daily activities. This corresponds with the low occupational functioning amongst people with OCD. Individuals with OCD are more likely to be unemployed or financially supported on disability pensions than are the general population (Jenkins et al., 1997; Koran, Thienemann & Davenport, 1996; Sobin et al., 1999).

In a further demonstration of the broad effects of this disorder, physical health can also be impaired by the symptoms of OCD (Albert et al., 2010; Eisen et al., 2006; Rodrigues-Salgado et al., 2006). For example, OCD sufferers that fear contamination may avoid medical consultations, reduce their liquid and food intake, and risk dermatological health with excessive washing and use of strong cleaning products. When all these facets of everyday life are taken together it makes it easier to understand the severe impact that OCD has on one's quality of life. Indeed, compared to some chronic physical conditions, other anxiety disorders, depressive disorders and in some aspects, even schizophrenia, OCD is associated with greater quality of life impairment (Torresan et al., 2008).

2.6 Summary

This chapter began by defining and describing the phenomenology of OCD. Important for the current thesis is the understanding that obsessions are distinct from other intrusive thoughts in that they are ego-dystonic. It presented evidence that obsessive phenomena may be framed as dimensional rather than categorical, substantiating the use of analogue samples for OCD research. The epidemiology, course and disability associated with OCD paint the picture of a chronic and incapacitating disorder found in all geographic, ethnic and socioeconomic populations.

The next chapter examines the aetiological models for OCD, with an emphasis on the cognitive theory. The core tenets of the cognitive framework are reviewed, and the efficacy of cognitive-behavioural therapy discussed. The chapter then summarises some of the important limitations of cognitive understanding of OCD, providing some justification for further investigation of self-processes in OCD.

Chapter 3: Aetiological theories of OCD

3.1 Introduction

This chapter examines the major theoretical models of OCD and the related treatment modalities. The cognitive account is emphasised due to its prominence in the current literature and its underpinning of effective psychological treatments. The core assumptions of this theory are reviewed. This chapter then outlines some of the unresolved issues within the cognitive account; introducing the possibility that examination of self-construals may help to address some of the current limitations of the cognitive account of OCD.

3.2 Biological, Neuroscientific, and Genetic Theories of OCD

The development of increasingly sophisticated technologies has facilitated the exploration of possible neurological and genetic substrates underlying OCD. According to biological models, the symptoms of OCD are the result of neurologically based dysfunction, for detailed reviews see Graybiel and Rauch (2000), Langen, Durston, Kas, van Engeland, & Staal (2011) and Menzies et al. (2008). Neurobiological perspectives contend that neural circuits trigger problems in cognitive processes such as memory, attention, concentration and executive function; so that, despite awareness of the nonsensical nature of their symptoms, individuals with OCD are unable to control them (Graybiel & Rauch, 2000). Functional imaging studies point to abnormal activity within the cortico-basal ganglia network (also referred to as the “OCD circuit”); this area has shown different activation patterns in OCD cohorts when compared to non-clinical controls, and activity in this area is more pronounced while the individual with OCD are experiencing symptoms and lessens after successful treatment (Insel, 1992; Langen et al., 2011; Remijnse et al., 2006; Saxena, Bota & Brody, 2001; Saxena, Brody, Schwartz, & Baxter, 1998). However, these results have not been consistently found:

MRI findings for this region in OCD patients have alternatively demonstrated comparable, increased or decreased volume of activity relative to healthy controls (Langen et al., 2011). Furthermore, in a review of the neurobiology of OCD, Graybiel and Rauch (2000) note that while alterations in cortico-basal ganglia circuits may be implicated, the mechanisms by which these translate into OCD symptoms remain unclear.

The effectiveness of selective serotonin reuptake inhibitors (SSRIs) for OCD symptoms has stimulated research into the serotonin system in this disorder. A Cochrane review of the therapeutic effects of SSRIs supported the efficacy and tolerability for short-term use for OCD symptoms (Soomro, Altman, Rajagopal, & Oakley-Browne, 2008). However, the mechanisms by which serotonin is involved in OCD are not yet fully understood (Langen et al., 2011; Van Dijk, Klompmakers, & Denys, 2008). For instance, a relationship between the level of serotonin transporters and OCD symptoms has been demonstrated but the results are not always consistent. While some studies have found reduced serotonin transporters in OCD patients relative to controls (Reimold et al., 2007; Zitterl et al., 2007), other studies show equal numbers (Simpson et al., 2003; van der Wee et al., 2004). Since SSRIs increase serotonin concentration, serotonin receptor dysfunction has also been investigated in OCD, but the findings remain unclear. Some studies have found increased sensitivity of serotonin receptor 2A in OCD patients compared to controls (de Leeuw & Westenberg, 2008), while others report no difference in the same receptor (Simpson et al., 2011). A review on the serotonergic system in the pathophysiology of OCD concluded that the mechanisms are uncertain as both agonists and antagonists for the same receptor site show positive effects on OCD symptoms (Van Dijk et al., 2008).

The role of genetics in OCD is reviewed in Pauls (2010). Family aggregation studies have provided substantial evidence to suggest that the rate of OCD among relatives of individuals with OCD is significantly greater than the rate in controls and the population prevalence (Albert, Maina, Ravizza, & Bogetto, 2002; Fyer, Lipsitz, Mannussa, Aronowitz, & Chapman, 2005; Grabe et al., 2006; Nestadt et al., 2000). However, such findings only demonstrate that OCD is familial, not that genetic factors are necessarily responsible for the expression of symptoms. Nonetheless, results from twin studies demonstrate that familial risk is due in part to genetic factors. A review of twin studies on OCD has concluded that the genetic influence on OC symptoms is between 45-65% for children and 27-47% for adults (van Grootheest, Cath, Beekman, & Boomsma, 2005). Later studies have confirmed that genetic effects account for around 30% of the variance in OC symptoms (Bolton, Rijdsdijk, O'Connor, Perrin, & Eley, 2007; Tambs et al., 2009). Family and twin studies suggest that the underlying mechanisms of OCD involve genes, and although no specific OCD gene has been identified, there is research to suggest that particular versions or alleles of certain genes may signal greater vulnerability (Samuels, 2009), although such variability appears non-specific to OCD (Kendler, Neale, Kessler, Heath, & Eaves, 1992; Swinson et al., 1998).

Taken together, the literature provides inconsistent findings with regard to brain anomalies and serotonin involvement in OCD. Although there is some suggestion that these influences may play a part in the disorder, their role is perhaps secondary or modulatory (Langen et al., 2011). While there is some support for genetic involvement in OCD, there may be less specificity in genetic or familial influence than originally thought. As mentioned by Graybeil and Rauch (2000), biological factors are important in the manifestation of OCD but are not the only consideration, as environmental factors

are proposed to interact with and precipitate the expression of these genes and other abnormalities into a disorder.

3.3 Psychodynamic Model

Freud (1896/1966) was one of the first to distinguish the clinical entity of ‘obsessional neurosis’. In traditional psychoanalytic views, OCD was conceptualised as a neurotic disorder, where the symptoms caused by rigid and punitive toilet training practices in the anal phase of psychosexual development led to internalised conflicts between intolerable unconscious sexual or aggressive impulses (id), the demands of a hypermoral conscience (superego) and reality (ego) (Fenichel, 1945). In an effort to control and cope with the resulting anxiety and shame from the battle between the superego and id, the ego of the individual with OCD employs defense mechanisms such as reaction formation (adopting character traits opposite to feared id impulses) and undoing (engaging in contrary behaviour to ‘undo’ threatening ideas and impulses) (Freud, 1937/1966). This way, the obsessive-compulsive individual develops characteristic personality traits of perfectionism and conscientiousness to ward off sexual and aggressive impulses. As defense mechanisms are not always successful, these impulses are able to break through, resulting in immoral obsessions (Kempke & Luyten, 2007). Although normal individuals are hypothesised to have the same psychic structure and conflicts, the ego of the individual with OCD is unable “to integrate or balance these contradictory aspects of a single self” (Kempke & Luyten, 2007, p. 293).

While the idea that compulsions are defensive strategies against intolerable impulses remains central to current DSM-IV definitions (APA, 2004), there is a paucity of research concerning psychoanalytic hypotheses of OCD (Esman, 2001) and those available are based on case studies (Freud, 1909/1955; Leclaire, 1971). Furthermore, psychodynamic therapies are not generally successful in treating OCD symptoms

(Jenike, 1998); individuals may become conscious of their conflicts but symptoms are likely to persist (Malan, 1979). Consequently, as noted by Kempke and Luyten (2007) “psychoanalysis currently has a very limited place in the mainstream theory of OCD” (p.297).

3.4 Behavioural Model

Behaviourist models are based on Mower’s (1947) two-stage theory that proposes that obsessional fears are acquired through classical conditioning and maintained by operant conditioning (Kyrios, 2003). In classical conditioning, when a neutral stimulus (e.g., shoes) is repeatedly paired with an aversive event or stimulus (e.g., different members of the family standing in dog faeces and walking through the house) that naturally elicits negative affect (e.g., disgust, fear of contamination and illness), then the two stimuli become associated; a fear response is elicited from the previously innocuous stimuli (e.g., shoes) even though the person is aware that this is an illogical connection. Through classical conditioning, shoes can become a conditioned stimulus associated with fear and anxiety. In OCD, the conditioning generalises to include more situations, objects and events (e.g., all shoes, any surface where people walk) so that these too become conditioned stimuli or triggers of fear.

The compulsive behaviours in OCD are proposed to strengthen with the operant conditioning procedure of negative reinforcement. When a behaviour (e.g., washing hands, avoiding touching floors) is followed by the removal of an aversive stimulus (e.g., reduction in disgust and feelings of contamination), an increase in the behaviour’s frequency is likely. While the behaviour provides immediate reward in the form of anxiety relief, these behaviours are only effective until the next trigger of fear. The rituals then become established and entrenched means of coping with fear, thereby preventing habituation. That is, normally in the presence of feared stimuli, the

physiological and psychological arousal associated with fears of contamination would naturally decrease over time without the need to perform behaviours.

Classical and operant conditioning can be eliminated through the process of extinction. Mower's (1947) behavioural model is therefore important as it led to the first successful psychological treatment of OCD, introduced by Meyer, exposure and response prevention (ERP; Meyer, 1966). ERP requires that individuals with OCD face the situations that induce anxiety and are then encouraged to refrain from engaging in compulsive rituals. In this way, the individual can learn to habituate to the anxiety associated with conditioned stimuli. Therefore, in the example provided, the sufferer would be systematically exposed to the conditioned fear stimuli (e.g., shoes) and then asked to refrain from any washing or avoidance rituals until the anxiety associated with the shoes had dissipated. Over time, the shoes lose their power as a conditioned stimulus and so they no longer provoke fear, and this alleviates the need to respond with a compulsive behaviour.

There is now considerable evidence supporting significant symptom improvement among most patients who complete ERP (Abramowitz, 2006; Foa & Kozak, 1996; Kyrios, 2003). For instance, Foa and Kozak (1996) showed that symptoms reduced in 75 percent of individuals with OCD who were treated with ERP. Further, randomised control trials (RCTs) have provided strong evidence for the efficacy of ERP over other control therapies such as progressive muscle relaxation (Fals-Stewart, Marks, & Schafer, 1993), anxiety management training (Lindsay, Crino, & Andrews, 1997), and pill placebo (Foa, Liebowitz, & Kozak, 2005).

Nonetheless the behavioural model and ERP have important limitations. Primarily, the behavioural framework fails to account for differences between OCD and other anxiety disorders. The acquisition and maintenance of fear has been implicated in

all anxiety disorders. The behavioural model cannot explain the different symptoms across anxiety disorders, nor can it account for the fact that few individuals with OCD recall conditioning experiences (Taylor, 2005). Moreover, ERP treatments appear to be less effective when comorbidity with depression exists (Masellis, Rector, & Richter, 2003). Indeed, around 27 – 50% of OCD patients show no significant improvement following ERP when allowances are made for refusal, dropout and non-response rates (Abramowitz, Taylor, & McKay, 2005; Clark, 2005; Salkovskis, 1998). Thus, it was realised that an alternative approach was required that addressed the limitations and utilised the strengths of the behavioural model. As obsessions involve distorted thinking, it is understandable that the cognitive approach has dominated psychological research over the last two decades (Clark, 2005; Salkovskis, 1985).

3.5 Cognitive Model

3.5.1 Unwanted intrusions. Central to the cognitive model of OCD is the understanding that unwanted intrusions form the basis of obsessions (Rachman, 1997). As noted in the previous chapter, unwanted intrusions are considered to be essentially a universal ‘normal’ phenomenon as the vast majority of non-clinical populations (72 - 100%) report that they experience intrusive thoughts, images or impulses (Clark & Purdon, 1995; Purdon & Clark, 1993; 1994; Rachman & de Silva, 1978; Salkovskis & Harrison, 1984; Wells & Morrison, 1994; Yao, Cottraux, & Martin, 1999; Yao, Cottraux, Martin, & Bouvard, 1996). Most people experience intrusions on occasion, and studies suggest that the intrusions of clinical and non-clinical individuals are similar in content (Bouvard & Cottraux, 1997; Rachman & de Silva, 1978; Salkovskis & Harrison, 1984). These findings prompted research into a continuum from intrusions to clinical obsessions, and showed that the obsessional thoughts of individuals with OCD tend to be more frequent, of longer duration, more intense, evoke greater discomfort and

are more strongly resisted than those of nonclinical samples (Belloch et al., 2004; Ladouceur et al., 2000; Salkovskis & Harrison, 1984).

3.5.2 Appraisal of intrusions. While many cognitive accounts of OCD have been developed (Clark & Purdon, 1993, 1995; Doron & Kyrios, 2005; Guidano & Liotti, 1983; Purdon & Clark, 1993, 1994a; Rachman, 1997, 1998; Salkovskis, 1985, 1989), each is based on the central assumption that the general population and obsessional patients differ in the appraisal of intrusive thoughts. According to cognitive approaches, while most people interpret their intrusive thoughts as harmless, individuals with OCD make dysfunctional appraisals that lead to anxiety, distress and/or discomfort. For instance, Salkovskis (1985) suggested that normal intrusions (e.g., a common doubt “Did I dead lock the front door?”) are appraised as a threat to self or others for which the individual is personally and pivotally responsible for preventing (e.g., “It will be my fault if the children come home while an intruder is in the house”). The resulting negative automatic thought (“Something bad might happen”) and the appraisal of a need to do something in response to the intrusion (e.g., “If I’ve thought it, it must be true”, “I must check the front door so that I am perfectly sure it is locked”) lead to the negative affect and compulsive phenomena characterised by OCD.

Similarly, in his cognitive theory of obsessions, Rachman (1997; 1998) proposed that it is the misappraisal of unwanted intrusive thoughts that turns such thoughts into obsessions; “The misinterpretation of the intrusive thoughts as being very important, personally significant, threatening or even catastrophic, has the effect of transforming a commonplace nuisance into a torment” (Rachman, 1997, p. 794). Although a variety of unwanted thoughts can contain disturbing content (e.g., Negative Automatic Thoughts, worries, etc.), Rachman argues that intrusions are likely to produce anxiety and distress when coupled with the misappraisal that the content and

occurrence of these thoughts signify some personal meaning about underlying character of the individual, providing an indication that that the person is “mad, bad, dangerous – or all three” (Rachman, 2003, p. 6). In support of this notion, Rachman (1997, p. 794) provides case examples misinterpreting intrusions as evidence of true self: “A computer analyst had recurrent thoughts and images of harming the very young children of a close friend, and interpreted this to mean that he was a potential murderer and a fundamentally evil and worthless human being.”

Providing empirical support for the cognitive hypothesis, Corcoran and Woody (2008) examined how university undergraduate students appraised abhorrent intrusive thoughts typical of OCD. The authors found that while participants judged the thoughts to be moderately bad, they did not generally attach personal significance to the occurrence of thoughts. Furthermore, appraisal ratings were significantly associated with OCD symptom severity scores. Appraisals also varied as a function of thought occurrence frequency; thoughts occurring more frequently were appraised as more personally significant than less frequent obsessions (Corcoran & Woody, 2008). This is consistent with other literature on the relationship between dysfunctional appraisals, obsession-like thoughts and OC symptom severity (Clark & Claybourne, 1997; Crye, Laskey, & Cartwright-Hatton, 2010; Freeston et al., 1991, 1992; OCCWG, 2001, 2003, 2005; Purdon & Clark, 1994a, 1994b).

3.5.3 Neutralisation. Cognitive models therefore suggest that those individuals who misinterpret unwanted intrusions as personally significant and meaningful are more likely to develop OCD (Rachman, 1997). These faulty appraisals lead to negative automatic feelings of anxiety and discomfort, provoking obsessional individuals to actively resist such thoughts. Additionally, neutralisation strategies may be performed to help attenuate the sense of threat that results from these appraisals. Neutralisation

responses involve cognitive or behavioural rituals, avoidance of trigger stimuli, reassurance seeking or attempts to suppress the intrusive thoughts (Salkovskis, 1997).

While these neutralisation strategies are designed to reduce discomfort, they are maladaptive safety seeking behaviours. Such behaviours are negatively reinforced due to the misconception that the neutralisation was responsible for preventing the negative predictions from occurring, and thus experience less discomfort associated with the intrusion (Rachman, 1998). An example might be a ritual such as touching wood multiple times as responsible for the safe arrival of family members, rather than observing their safe arrival without the need for touching wood. Additionally, attempts to suppress a particular thought can perhaps lead to a later increase in the frequency of intrusions (Najmi & Wegner, 2008; Wegner, Schneider, Carter, & White, 1987). Recurrences of intrusions may further strengthen the original appraisal of the thought as meaningful and indicative of something important about the person (Corcoran & Woody, 2007; Rachman, 1998). Consequently, while discomfort may be reduced in the short term, these deliberate attempts to neutralise unwanted intrusions paradoxically serve to increase their salience, frequency and intensity because the individual pays increased attention to their intrusions. Cognitive theories thus assert that neutralising responses promote a greater need for further use of neutralising strategies (Newth & Rachman, 2001).

Neutralising responses are thus seen as central to the persistence of obsessional problems; they alleviate discomfort in the short term but are associated with longer-term maintenance of discomfort and increases in the urge to engage in further neutralising responses (Salkovskis, 1989, 1998). The work of Salkovskis and colleagues (Salkovskis et al., 1997; 2003) empirically examined these notions using an experimental design, which will be replicated in the current thesis. After screening a large group of non-

clinical individuals, Salkovskis (1997) selected a sample that experienced unwanted intrusions often and employed cognitive neutralisation strategies in response to their intrusion. Participants were randomly allocated into one of two conditions, Neutralise or Refocus, and each condition consisted of two phases, Respond and Listen. Throughout the experiment, participants listened to looped presentations of their own intrusive thoughts and rated their distress on a Visual Analogue Scale (VAS). In the Response phase, the Neutralising group were asked to use their neutralising response while the Refocus condition were asked to count backwards when exposed to their intrusion. During the Listen phase, both groups were asked to just listen to their intrusion and refrain from either neutralising or refocusing. In each phase, the intrusion was presented 16 times and ratings of urge to neutralise and overall discomfort was obtained at baseline and after every 4th presentation of the intrusion. Results with non-clinical participants demonstrated that the response phase of the Neutralising condition was associated with significantly greater discomfort than those in the Refocusing condition (Salkovskis, 1997). In the Listening phase, the higher levels of discomfort experienced by the Neutralising group was also accompanied a significantly greater urge to use their neutralising strategy. Indeed, indicating the strong tendency to neutralise in this group, there was also an increased rate of neutralising in the Listening phase despite experimental instructions to the contrary. These results were generally replicated with a sample of clinical OCD participants (Salkovskis et al., 2003); discomfort significantly decreased over the response phase for participants in the Neutralising condition but not for those in the Refocusing condition, however only those in the Neutralising group experienced a significant increase in level of discomfort over the Listen phase. Similarly, over both phases, the urge to neutralise was significantly higher in the Neutralising condition. These findings coincide with the notion that neutralising

responses help to maintain the discomfort associated with unwanted intrusions; successful efforts to neutralise intrusions increase the urge to continue using these maladaptive responses.

As the above studies did not provide information about the possible cognitive influences on this process, Kyrios, Wright and Hordern (2001; cited in Salkovskis et al., 2003) extended the Salkovskis et al. study (1997) to examine the effect that neutralising had on OCD related beliefs. The pooled sample of 30 volunteers and 5 individuals with OCD completed each condition and the results largely replicated those of Salkovskis et al. (1997); discomfort significantly decreased over the Neutralising Respond scenario, and the Neutralising Listen scenario was associated with significantly more discomfort and urge to neutralise than the Refocus Listen scenario. In support of cognitive conceptualizations of OCD, Kyrios et al. (2001) additionally illustrated that neutralising is associated with the maintenance of dysfunctional beliefs. Compared to individuals in the Refocusing condition, those in the Neutralising condition reported greater conviction in the belief that they are personally responsible for the negative outcomes associated with their intrusions and the belief that their intrusions are serious and that negative outcomes are more likely.

These results provide an important step to understanding the mechanisms involved in the development and maintenance of obsessions and compulsions. It remains to be seen, however, what impact neutralising responses have on self-beliefs. As discussed in Chapter 5, investigation into the self-concept is relevant to the understanding of OCD. Empirical examination into the impact that neutralising has on self-concept is one of the aims of the current thesis.

3.5.4 Beliefs. The previous sections outline support for the cognitive theory that misinterpretations of the significance of intrusions, and resulting neutralising responses,

are implicated in the maintenance of OCD. This then generates further unanswered questions as to the reasons behind these misappraisals of significance, threat or responsibility. Cognitive theory holds that our interpretation of the environment is influenced by our beliefs and assumptions of the self, world and others, which in turn have been shaped by our early life experiences and relationships (Beck, 1967).

Therefore, a further fundamental assumption of the cognitive theory of OCD is that faulty appraisals are derived from an individual's general beliefs about the meaning of thoughts and thought processes. For instance, Salkovskis (1985, 1989, 1998) proposed that intrusive thoughts escalate in frequency and intensity because they activate dysfunctional beliefs about the individual being pivotally responsible for preventing harm occurring to oneself or others. The idea that a maladaptive belief system influences the misappraisal of unwanted intrusions has received staunch theoretical support (OCCWG, 1997; Purdon & Clark, 1993; Rachman, 1997, 1998; Salkovskis, 1985, 1989, 1999), and a range of beliefs and assumptions have been nominated as guiding these appraisals.

However, these ideas have struggled to be empirically validated, as relationships between OC symptoms and maladaptive beliefs have provided inconsistent results (see O'Connor & Aardema, 2007 for a review). Cognitive researchers have maintained that maladaptive beliefs are related to OC symptoms and acknowledge that contradictory findings may be a reflection of the different definitions and measures used (OCCWG, 1997). For instance, large effect sizes were demonstrated when responsibility beliefs were conceptualised as the belief in one's power to cause harm (Ladouceur et al., 1995), as opposed to general social responsibility (Frost, Steketee, Cohen, & Griess, 1994). It was therefore realised that the cognitive understanding of OCD could not advance with the use of differing measures and definitions of beliefs. An international group of

researchers in OCD, the Obsessive Compulsive Cognitions Working Group (OCCWG), therefore coordinated their efforts to establish a standardised set of cognitive measures.

A review of the OCD literature by this group (Frost & Steketee, 2002; OCCWG, 1997, 2001) identified six core beliefs considered most central to OCD: 1) an inflated sense of pivotal personal responsibility (i.e., the belief that one has the power to cause or prevent harm), 2) overestimation of threat (i.e., exaggerating the probability or severity of harm), 3) perfectionism (i.e., the belief that there is a perfect solution to every problem), 4) intolerance of uncertainty (i.e., beliefs in the necessity of being certain and an associated belief that one should not tolerate ambiguity or unpredictable change), 5) overimportance of thoughts (i.e., the belief that the presence of particular thoughts indicates their special significance), and 6) control of thoughts (i.e., overvaluation of the importance of controlling thoughts). A pool of questionnaire items were written to reflect each belief domain, and a measure with 87 items was developed, the Obsessive Beliefs Questionnaire (OBQ-87; OCCWG 2001). Subsequent factor-analytic research suggested that the six belief domains were best explained as three distinguishable factors: Responsibility/Threat Estimation, Perfectionism/Certainty, and Importance/Control of thoughts (OCCWG, 2003, 2005) and allowed for development of a shorter 44-item scale, the OBQ-44. As OC phenomena are considered to be similar in clinical and non-clinical populations (Gibbs, 1996), a considerable amount of OCD literature utilises analogue samples. Consequently, the OBQ was designed to be applicable to all populations. This then enabled researchers to test for the significance and specificity of the various belief domains in relation to OCD symptoms.

The OBQ has shown good reliability and criterion-related validity in clinical and non-clinical samples (OCCWG, 2001, 2003, 2005). Importantly, research utilising the OBQ has provided further support for the cognitive theory of OCD with relationships

between maladaptive beliefs and OC symptoms consistently demonstrated in clinical groups (Lee, Kwon, Kwon & Telch, 2005; Storchheim & O'Mahony, 2006; Taylor, Abramowitz & McKay, 2005) and non-clinical subjects (Aardema, O'Connor, Emmelkamp, Marchand & Todorov, 2005; Abramowitz, Deacon, Woods & Tolin, 2004), and in individuals from different cultures (Sica et al., 2004). Shorter versions of the OBQ have been developed recently (Moulding, Anglim, Nedeljkovic, Doron, Kyrios & Ayalon, 2011).

Much of the support for a relationship between maladaptive beliefs and OC severity has been predicated on correlational studies using self-report measures (Bouchard, Rhéaume, & Ladouceur, 1999; Clark, Purdon, & Wang, 2003; OCCWG, 2001, 2005; Frost, Novara, & Rheume, 2002; Rachman, Thorsarson, Shafran, & Woody, 1995; Rassin, Merckelbach, Muris, & Spaan, 1999; Salkovskis et al., 2000; Shafran & Mansell, 2001; Shafran, Watkins, & Charman, 1996b; Steketee et al., 1998). For instance, Steketee et al. (1998) found that the tolerance for uncertainty correlated significantly with OCD symptom scores after controlling for mood and worry. In non-clinical individuals, Clark et al. (2003) showed that importance of thought control predicted OC symptoms. Additionally, the OCCWG (2001) found that OCD patients scored significantly higher on the threat estimation subscale of the OBQ than normal controls.

There is also some experimental research to support the association between OCD beliefs and symptoms. Ladouceur et al. (1995) experimentally manipulated perceptions of responsibility in their non-clinical student subjects, and found that participants from the high responsibility group were significantly more anxious throughout a subsequent task and displayed significantly more doubting and checking behaviour than students in the low responsibility group, a finding that has been

replicated with clinical participants (Lopatka & Rachman, 1995). A later study by Menzies, Harris, Cumming and Einstein (2000), similarly showed that individuals who were presented scenarios in which they were personally responsible for negative outcome rated the outcome as more severe than individuals presented with scenarios on the actions of others. Meanwhile, Rassin and colleagues (Rassin, Merckelbach, Muris, & Spaan, 1999) examined the effects of experimentally induced thought action fusion (TAF) in non-clinical participants. TAF is the tendency to treat thoughts and actions as equivalent (Rachman, 1993); that one's thoughts are morally equivalent to action (e.g., "Having an unacceptable thought is morally equivalent to having performed an unacceptable action") or will increase the likelihood of occurrence (e.g., "Thinking about something bad makes it more likely to happen") and thus is linked to the OBQ belief domain importance/control of thoughts. In their experiment, Rassin et al. (1999) had 19 volunteers attend a bogus electroencephalogram (EEG) recording session, and informed them that the EEG was able to register the word "apple" and that thoughts of this word would administer an electric shock to another person. After 15-minutes in the EEG laboratory, participants' reported a significant increase in unwanted intrusions of the word 'apple', and greater discomfort and resistance to the intrusion. The authors took this to support the notion that TAF promotes intrusive thinking and thought suppression attempts, which in turn contribute to the development OC symptoms. Finally, as mentioned previously, Kyrios et al. (2001) found that instructed use of neutralising strategies strengthened maladaptive OC beliefs regarding being personally responsible for negative outcomes and that the negative outcomes indicated by intrusions are serious and likely to occur. Notably, however, dysfunctional beliefs appear to differ across symptom subtypes (Frost & Steketee, 2002; Julien, O'Connor, & Aardema, 2006; McKay et al., 2004). For instance, Julien et al. (2006) showed that

perfectionism/certainty predict checking scores while responsibility/threat predicted rumination scores. Support for which domains of beliefs are characteristic of each of the symptom subtypes requires further examination (McKay et al., 2004).

Although there is sound correlational and experimental evidence for a relationship between OCD symptoms and the six identified OCD beliefs, there is less consistent support for the specificity of some of the beliefs to OCD, particularly when discriminating OCD from other anxiety disorders. For instance, OCCWG (2001, 2003) found that individuals with OCD regarded their thoughts as more important than did anxious controls, while other research has found that OCD and anxious control cohorts had equal levels of TAF (Rassin, Phillip, Harald, & Peter, 2001). Similarly, the OCCWG (2003) failed to find differences between OCD and anxious controls on the threat estimation or intolerance for uncertainty subscales of the OBQ-87. Additionally, although higher in the OCD cohort, there was no statistically significant difference between anxious controls and OCD groups for the perfectionism/certainty subscale of the OBQ-44 (OCCWG, 2005). Bhar and Kyrios (2007) also found no differences between OCD and anxious cohorts on the OBQ, although both groups differed significantly from healthy controls.

These findings are less surprising when you consider that overestimations of the likelihood and seriousness of threat are commonly associated with social anxiety disorder (overestimating the threat of negative interpersonal evaluation; Clark, 1988) and panic disorder (overestimations of bodily sensations; Clark & Wells, 1995), while intolerance for uncertainty is commonly found in OCPD (Pollak, 1979) and GAD (Dugas, Gagnon, Ladouceur, & Freeston, 1998). Research has also shown that perfectionistic beliefs have strong associations with a range of disorders including depression, body dysmorphic disorder, eating disorders, social anxiety disorder, OCPD

and physical health disorders (Shafran, 2002; reviewed in Shafran & Mansell, 2001; Wilhelm & Neziroglu, 2002). Furthermore, the obsessional beliefs measured by the OBQ have demonstrated a strong relationship with measures of depression in clinical OCD patients and in non-clinical samples (Faull, Joseph, Meaden & Lawrence, 2004; Muris, Meesters, Rassin, Merckelbach & Campbell, 2001; OCCWG, 2001, 2003). Thus, there is some suggestion that depressive symptoms have an association with obsessive beliefs as well as with OC symptoms, consistent with the established relationship between low positive affect and negative thinking (Joiner & Rudd, 1996; Van der Does, 2005).

Although there is a lack of convincing evidence regarding the specificity of some of the beliefs to OCD (e.g., perfectionism), other beliefs may be more closely tied to OCD than other disorders. For instance, beliefs of responsibility have been able to differentiate individuals experiencing OCD from those with other anxiety disorders (Foa, Amir, Bogert, Molnar, & Przeworski, 2001; OCCWG, 2001, 2005, Salkovskis et al., 2000), and to predict variation in OCD symptoms independent of depression and anxiety (OCCWG, 2001; Salkovskis et al., 2000; Scarrabelotti, Duck, & Dickerson, 1995). This therefore necessitates examination of specific beliefs rather than total belief scores in OCD research.

3.5.5 Cognitive-Behavioural Therapy (CBT) for OCD. The preceding section outlined the central tenets of the cognitive account of OCD: the normality and universal experience of intrusions; faulty misappraisals of the significance of intrusions; neutralisation and avoidance; and dysfunctional beliefs (Clark, 1999). Combining techniques based on these ideas with elements of the behavioural treatment already proven to be effective (i.e., ERP) led the development of cognitive-behavioural therapy (CBT) for OCD. While there are nuances associated with the various approaches, Clark

(1999) outlines the common therapeutic elements in CBT for OCD:

1. *Education on the cognitive model*: initially the client is provided with a cognitive explanation for the persistence of obsessions and compulsions as well as the treatment rationale.
2. *Identification of faulty appraisals, neutralization, and avoidance*: clients are trained to recognize their faulty interpretations of the obsession as well as any neutralizing strategies and avoidance behaviors intended to minimize the distressing quality of the obsession.
3. *Cognitive restructuring of faulty appraisals*: through collaboration and guided discovery clients are taught to cognitively challenge their erroneous appraisals of obsessions and underlying maladaptive beliefs.
4. *Behavioral experimentation*: exposure, response prevention, and other behavioral interventions are used to test out the exaggerated importance and catastrophic consequences clients impute to the obsession.
5. *Alternative interpretations for the obsession*: clients are taught to accept a more adaptive and realistic alternative explanation for the obsession.
6. *Correcting dysfunctional beliefs*: treatment gains can be maintained only if the latent core dysfunctional beliefs that give rise to the faulty appraisals of the obsession are modified.
7. *Relapse prevention*: clients are taught self-help strategies to implement in the face of an anticipated resurgence of obsessive and compulsive symptoms (p. 411)

Current clinical guidelines recommend CBT as a first line treatment for OCD (March, Frances, Kahn, & Carpenter, 1997; National Institute for Health and Clinical Excellence [NICE], 2006). The efficacy of CBT has been demonstrated in the treatment

of OCD, with better outcomes than waitlist, placebo conditions and treatment as usual (Abramowitz et al., 2005; Gava et al., 2007). Indeed, randomised, placebo-controlled trials and meta-analytic research suggest that CBT is equal or perhaps superior to pharmacotherapy in effectively decreasing OCD symptoms (Prazeres, Souza & Fontenelle, 2007). Individuals responding to CBT, with or without pharmacotherapy, have been shown to have lower relapse rates and take a longer time to relapse, than individuals receiving pharmacotherapy alone (Math & Janardhan, 2007). Additionally, individuals with OCD who have not responded or who still present with residual symptoms on medication have shown significant symptom reduction when CBT is added to pharmacological treatments (Math & Janardhan, 2007; O'Connor et al., 1999). Importantly, there is also evidence to suggest that the effects of CBT may enable significant improvements in work, social and family functioning (Diefenbach, Abramowitz, Norberg & Tolin, 2007), although improvements in quality of life have not always been found consistently (Neiderauer, Braga, Souza, Meyer & Cordioli, 2007).

Meta-analytic reviews consistently demonstrate that when compared to other psychological therapies, CBT outperforms systematic relaxation and anxiety management (NICE, 2006). It is difficult to accurately compare ERP to CBT as they are not distinct therapy modalities; ERP involves information and strategies to engage people that resemble cognitive therapy and cognitive therapy explicitly seeks behaviour change. Nonetheless, those studies that have compared the two treatments have shown that they are either comparable or that CBT is slightly more effective than ERP (NICE, 2006; Vogel, Stiles, & Gotestam, 2004). In their RCT, Vogel et al. (2004) assigned individuals into ERP, ERP plus cognitive therapy and waitlist and found that those patients receiving additional cognitive therapy showed significantly less OCD

symptoms at six-month follow-up and fewer dropouts during treatment than other treatment conditions. CBT is also thought to be more effective for OCD symptoms that show poor response to ERP (Abramowitz et al., 2005; Albert & Brunatto, 2009; Clark, 2005; NICE, 2006; Taylor, 2005), in particular those individuals with obsessions and no overt compulsions (Ball, Baer, & Otto, 1996; Belloch, Cabedo, Carrió, & Larsson, 2010). Consequently, by advancing the theoretical understanding of OCD, the cognitive framework has also had positive implications for the effective treatment of OCD. It has assisted with the engagement of those individuals who previously refused, failed to engage with or failed to respond to ERP, as a new modality or as a means of ultimately committing the individuals to ERP.

3.5.6 Limitations of cognitive theory for OCD. Despite these advantages there are some notable limitations surrounding the cognitive model of OCD that require further investigation. The cognitive account provides a framework that recognises OCD beliefs as central to the maintenance of symptoms. Unhelpful beliefs underlie one's appraisal of unwanted intrusions as important and personally revealing (Rachman, 1997). Although helpful in alleviating distress in the short term, neutralising responses are maladaptive in that they strengthen and maintain conviction in these beliefs (Salkovskis, 1999). At present however, there is only limited theoretical accounts for how individuals have developed these beliefs in the first place (Bhar & Kyrios, 2007; Doron & Kyrios, 2005; Salkovskis; Shafran, Rachman, & Freeston, 1999). Nor is there any proposed understanding of why they are so rigidly held: what, if any, function is performed by maintaining these belief systems? For example, what benefits does one receive in being pivotally responsible for preventing negative outcomes? The continued use of irrational beliefs implies either that they subserve a function viewed as important by the individual, or that there are perceived negative consequences for failure to adhere

to the beliefs.

There is also no explanation for the strong relationships observed between belief domains. Upon examination of the identified OCD beliefs, researchers found that there were moderate intercorrelations between beliefs as measured by the OBQ ($r = .42 - .57$) (OCCWG, 2005). While the interrelationship between scales may be a reflection of a common loading to OCD, it may also represent underlying core belief/s. Indeed, as the current framework ignores core beliefs, which is central to the cognitive theory of disorders (Beck, 1967), some investigators have criticised the cognitive model for not being “cognitive enough” (Sookman, & Pinard, 1999; Sookman, Pinard & Beauchemin, 1994).

Further, despite the promise and advances that cognitive theory has given to the treatment of OCD, there are limits to its utility. Around 50% of patients still fail to show significant improvement when high refusal, dropout and differential response rates are considered (Abramowitz et al., 2005). A meta-analysis on clinically significant change in OCD following CBT showed that for those that complete treatment, only 43.8% showed significant improvement in symptoms or functioning (Abramowitz, 1998). Later work by Fisher and Wells (2005) similarly found that around 38% of OCD patients had no significant change in symptoms after CBT. Moreover, for those who complete treatment, between 20% and 30% fail to maintain treatment gains two to six years post-therapy (Foa, Franklin & Kozak, 1998). In particular, there is poorer prognosis for individuals with certain OCD symptoms (e.g., hoarding, sexual or religious symptoms, obsessions with few or no overt compulsions) perhaps reflecting the relative limitation of CBT in dealing with processes that maintain these subtypes (Rufer, Fricke, Moritz, Kloss & Hand, 2006). Indeed, current CBT programs target only a limited range of cognitions (i.e., three central belief processes) and, despite symptom

reduction, may not effect clinically significant changes on these cognitions (Summerfeldt, 2004) thus leaving the individual vulnerable to relapse.

These limitations are potentially addressable by incorporating aetiological or maintenance processes that are relevant across a range of OCD presentations. In support of previous research (Bhar, 2004; Bhar & Kyrios, 2007; Doron & Kyrios, 2005; Guidano & Liotti, 1983), the current thesis recognises that our belief systems are intimately intertwined with self-concepts and proposes the inclusion of such concepts in the cognitive framework for OCD. This may be a logical extension as current cognitive theories already imply or specifically mention self-processes are implicated in OC phenomena (Aardema & O'Connor, 2007; Ehntholt, Salkovskis, Rimes, 1999; Ferrier & Brewin, 2005; Harvey, Moeller, & Williams, 2011; O'Neill, 1999; Rachman, 1997; Rowa, Purdon, Summerfeldt & Antony, 2005). Indeed, the DSM-IV-TR (APA, 2000) recognises a role for self-concept in OCD in its definition of obsessions in OCD as “ego-dystonic”; contradictory to one’s sense of self. Importantly, a common underlying vulnerability in self-concept may clarify some of the current issues in the cognitive model of OCD in providing an explanation for the interrelationships between OC belief domains, and by inferring a function to their rigid adoption. If this assertion holds, then self-processes would also be an important target in OCD treatments in order to maintain reduced conviction in maladaptive beliefs.

3.6 Summary

This chapter examined the major aetiological models for OCD. The behavioural and cognitive frameworks were emphasised due to the positive implications that their related treatment modalities have offered individuals with OCD. The central tenets of the cognitive account for OCD were reviewed, all of which have bearing on the current thesis. Finally, the limitations of the cognitive theory of OCD were illustrated and the

chapter closed by introducing the notion that further investigation of the role that self-construals play in OCD may help address these issues.

The following two chapters provide a context to assessing these possibilities. Firstly, Chapter 4 examines definitions of the self and reviews various theoretical notions for the construct of self. Chapter 5 then explores current theoretical and empirical research to support that further research into the self is warranted for enhancing our understanding of OCD.

Chapter 4: The Self

4.1 Introduction

The self is one of the most widely studied topics in modern psychology. The diverse range of literature means that it is discussed in a variety of ways so that ultimately, it eludes a single definition. Consequently, this chapter begins by addressing the nature and definitions of self. Throughout various theoretical models the self is viewed as central to how we experience our world, thus providing an important foundation for psychological health. This chapter critically reviews the major theoretical models of the self and highlights how the social-cognitive paradigm, the central standpoint of the current thesis, may provide a comprehensive understanding of self because it incorporates both internal and external influences on the development of self-construals.

Rather than being a static entity, self-processes are presented to be multidimensional and hierarchical. This then leads to examination of the structure of self-processes and the content components of the self; the way we feel about ourselves (self-esteem) and what we believe about ourselves (self-concept). Recognising that there are differences in how people mentally process their experiences, the chapter also outlines dual process theories of self. The distinction and relationship between implicit and explicit self-processes are then explored and the measurement of these differential processes outlined. Importantly, this chapter highlights the notion that individuals strive for coherence, stability and integration within the individual. The discomfort associated with discordant self-views means that individuals are motivated to reduce conflict and incompatibility between competing impressions of the self. This chapter therefore provide a context for understanding how self-processes may serve as a vulnerability to psychopathology.

4.2 What is The Self?

One of the difficulties in defining the self is the myriad of distinct and broad ways that the term is used throughout a variety of different disciplines. As lamented by Katzko (2003, p. 84), “The term ‘self’ is used by too many different theorists in too many different ways.” The same word evokes different meanings to different theorists while, concurrently, different labels are used for concepts that appear to be phenomenologically similar. For instance, labels used interchangeably with “self” include self-concept (Rogers, 1961), self-schemas (Markus, 1977; Markus & Smith, 1981), self-perception (Bem, 1967; 1972), self-awareness (Carver & Scheier, 1981; Duval & Wicklund, 1972), self-representation (Sandler, 1987), self-structure (Kohut, 1971), self-identity (Erikson, 1968), and self-construal (Markus & Kitayama, 1991).

While the self is a large and amorphous construct that defies a single concrete definition, there are some conceptual and operational distinctions that have assisted with clarifying the concept. William James (1890), one of the first psychologists to have written extensively on the self, introduced a useful distinction between two aspects of the self that continues to inform modern literature. He made the distinction between the “I” self (self-as-knower/subject/process) and the “Me” self (self-as-known/object/structure).

The “I” self is central to theories that highlight the biological underpinnings of the self as a conscious agent with reflexive cognitive structures and processes that enable one to constitute meaning of oneself in relationship to one’s environment. From the conscious level, this entails the ability to think about oneself and those beliefs, attitudes and values with which one has identified; i.e., objective self-awareness (Duval & Wicklund, 1992). At the unconscious level it concerns information processing

systems and automatic impulses to action, for example self-consistency (e.g., Lecky, 1945); a superordinate motive that is said to strive to maintain the unity of ideas about the self.

In contrast, the “Me” self encapsulates the content of experience (thoughts, beliefs, evaluations and feelings) that one has about oneself. This conception recognises that these self-views are both individually and socially constructed and thus culturally-determined and constituted phenomena. Consequently, it is this approach to self that underpins much of the self constructs in social, cognitive, narrative and behavioural psychology, such as self-concept (Rogers, 1961) or self-esteem (Rosenberg, 1965). As will be further examined in this review, these concepts can also operate at both a conscious and unconscious level.

4.3 Theories of Self

4.3.1 Psychodynamic models. Freud decentred the self in psychological and emotional terms, and in line with views of the self as the experiencing subject (“I” self), conceived of the self as a servant of hidden unconscious desires. He additionally posited that there is potential for the self to be an object of libido or love (Westen, 1992). Freud’s work on the split between the conscious and subconscious meant that through acts of repression, certain parts of the true self may be inaccessible to the conscious forms of knowing, thinking and feeling (Harter, 1997). Consequently, Freud’s concept of the self is one at odds with itself; ambivalent and divided between subjection and denial of overwhelming emotions and moral mastery over passion (Elliot, 2007).

Later psychodynamic approaches to the self shifted the focus from internal conflicts and desires to one’s experiences of the self through our relationships with others (Kohut, 1971; Winnicott, 1990). For instance, Bowlby’s (1969) “inner working models” involved largely unconscious representations of self and others that help

individuals to predict and understand their environment. Similarly, Kernberg (1976) elaborated on the representational self, representational other and affective link between the two. According to Kohut's theory of self psychology (1971), the emotional presence of admired figures enables an infant to distinguish between themselves and non-self. When the child's needs and desires are reflected back ("mirrored") by empathic caregivers, there is a better possibility for the infant to develop a healthy and cohesive sense of self. Westen (1992) suggests that different psychoanalytic approaches have common elements, including notions that the self a) is multidimensional, b) is affectively laden, c) involves representational units, d) has conscious and unconscious components and e) is understood in relation to other representations.

One of the major criticisms with the psychoanalytic paradigm is its failure to consider the role of culture (Westen, 1992). While the context in which psychoanalytic theory developed strongly influenced the theory's form (Carver & Scheier, 2008), the cross-cultural validity of Freudian ideas of self and other have not been fully explored. As mentioned by Kandel (1999), an additional issue with psychoanalytic tradition is the lack of scientific investigation:

Although psychoanalysis has historically been scientific in its aim, it has rarely been scientific in its methods; it has failed over the years to submit its assumptions to testable experimentation. As a result of this failure, it has not been able to progress as have other areas of psychology and medicine (p. 506).

There is a disinclination within the psychoanalytic framework to operationalise constructs, which therefore undermines any move towards empirical examination and

testing of the validity of such accounts. Clinicians are then forced to opt for psychoanalytic models based on their own subjective beliefs of suitability rather than on objective measurements of their effectiveness. Nonetheless, as will be demonstrated throughout this review, the insights gained from psychoanalytic understanding have inspired investigations of other theoretical formulations (i.e., importance of parent-child interactions).

4.3.2 Cognitive views of the self. Cognitive models conceptualise the self as a cognitive construction, or self-schema; a set of beliefs that individuals hold about themselves and their relation to the world (Epstein, 1973). Humans are recognised to be active, constructive information processors whereby a self-schema constitutes a heuristic that structures information about the self into an organised framework (Eysenck, 2006). These cognitive generalisations about the self are formed over time from past experiences and influence both the input and output of information related to the self (Fiske & Taylor, 1991; Klein et al., 1996; Markus, 1977). The self thus serves to filter, process and organise self-related information from the vast amounts of data available to the individual at any given moment (Kelly, 1955; Rogers, 1977).

Schemata function as selective mechanisms which determine whether information is attended to, how it is structured, how much importance is attached to it, and what happens to it subsequently (Markus, 1977, p. 64).

There is a considerable body of support for the role of self-schemas in processing and attention. Examination of the attention allocated to schema-congruent material has found that self-relevant information is quickly and efficiently processed.

For instance, individuals with a self-schema in a given domain show better performance in accurately discriminating schema-consistent information (Ingram, Bernet & McLaughlin, 1994; Maitlin, Williams, & Clark, 1991; Matthews & Southall, 1991; Mogg & Marden, 1990; Nieznanski, 2009). Using a dichotic listening task to assess attention to negative and positive stimuli, Ingram et al. (1994) demonstrated that individuals who were at risk of depression showed better performance in accurately identifying information that was congruent with their self-schemas (e.g., emotional stimuli) than information that was not (e.g., neutral non-emotional stimuli). Similarly, Nieznanski (2009) investigated the detection and response bias in the recognition of self words, and found that self words are better discerned than non-self words. Not only is information related to self-schemas more easily attended to, but is also more efficiently processed (Fehr & Gelfand, 2010; Markus, 1977; Markus, Smith, & Moreland, 1985; Wagar & Cohen, 2003), whereas contradictory information leads to slower processing (Markus, 1977; Wagar & Cohen, 2003).

Material related to the self—a rich and highly elaborated structure—is better recalled and recognised compared to material related to schemas that are less well-elaborated in long-term memory. Words encoded in domains related to the self are remembered better than those encoded at a superficial level or in relation to others (Kuiper & Rogers, 1979). The memory difference for words encoded in relation to self versus other can be reduced or even eliminated when the target ‘other’ is a highly intimate other, for whom one also has a very rich schema (Symons & Johnson, 1997). Thus, self-schemas have been found to play an important role in differential attention of information about the self, how quickly and efficiently selected information is processed and interpreted, and enhanced memory of schema-congruent material.

The cognitive account has been criticised for seeing humans as too mechanical without incorporating affective and motivational processes (Westen, 1992); however, as will be discussed, there are some exceptions that have led to important findings (Higgins, 1990; Markus & Nuris, 1986). The following sections outline the social models of self and demonstrate how an integration of social-cognitive theoretical frameworks may help to circumvent some of the above-mentioned limitations.

4.3.3 Social models of the self. The development of a self-concept is an inherently social process. In as much as the self-concept provides an interpretive framework for comprehending other entities (e.g., objects, people, groups), social theorists understand that there is a mutual and reciprocal interdependence between self-knowledge and knowledge about others (Markus, Smith & Moreland, 1985). They observe that individuals tend to use the same categories in describing themselves as they do others (Church, 1997; Higgins, King & Mavin, 1982; Lewicki, 1983), and that these descriptions are often based according to social roles and cultural norms (Brown, 1988).

Within the social science literature, there has long been a position that it is impossible to separate the intrapsychic from the interpersonal. James (1890) recognised that the self is fundamentally interpersonal; that one's social self is a culmination of the recognition received from peers; "a man has as many social selves as there are individuals who recognize him" (p. 179). Cooley (1902) introduced the concept of the "looking-glass self" which suggests that one perceives him or herself according to how they are perceived by others. Expanding upon Cooley's ideas, Mead (1934) argued that the use of language is an inherently social process itself, where we learn to see ourselves from the viewpoints of other people. Sullivan (1953) also emphasised that the self arises out of social interaction; however, he highlighted the interaction of the child with significant others rather than broader society.

Psychological research has consequently been criticised for its reliance on a Westernised view of the self that emphasises one's individuality, difference and uniqueness from others (Markus & Kitayama, 1991; 1994). In doing so, the role of the other in development of self is largely ignored and this particularly problematic when considering the self-concept of individuals from cultures that emphasize the connectedness of humans to each other (Markus & Kitayama, 1991). This is not to say that social theorists do not recognise that self perceptions may include uniquely individual characteristics. Allport (1955) coined "proprium" as a term for self that includes "all the regions of our life that we regard as peculiarly ours" (p. 40). Social theorists contend, however, that we need other people in order to determine what is distinctive about our own self.

This process begins at infancy. Although initially immersed in their social environment, children gradually discriminate between what they can do on their own and what they can get others to do for them and from this they derive a sense of identity, the feeling that we are a being separate from others (Durkin, 1995). Beyond early childhood, awareness of self is prompted through exchanges with others who try to regulate the individual's behaviour. Through approval or disapproval of everyday interactions, children receive information about their self and their relation to others (Dunn, 1988). This is how emotions become pivotal to the development of self. They give meaning to our experiences and underscore our motivation to seek out, or shy away, from novel situations (Durkin, 1995). Infants in emotionally ambiguous situations will monitor their parents' reactions to help them interpret a situation and guide their own response (Rosen et al., 1992), and parents' reactions to emotional displays can inform the child what is socially acceptable and how to define the self. In adolescence, the self-concept increasingly parallels the evaluations by the child's parents

(Oosterwegel & Oppenheimer, 1993). This suggests that understanding of self-concept and self-esteem requires recognition that emotional facets of the self are dialectically interwoven with the social context, and also underscores the importance of incorporating a developmental framework into an understanding of self-processes. The current thesis adopts a social-cognitivist paradigm for its recognition that the self-concept is influenced by both internal and external sources. Indeed, an abundance of literature on self-concept comes from a social and/or cognitive standpoint. These will be outlined in the following sections.

4.3.4 Social-cognitive paradigm. According to basic social-cognitive principles, there are a series of connections in our memory between self and significant-other representations. Consequently, the role of significant others, in particular caregivers, are seen as critical to the development of self-representations (Mikulincer, 1995). Relations linked to the self hold great importance, and so internal representations are not only readily accessible but laden with affect (Andersen & Chen, 2002). Thus, as well as being a powerful tool used to help understand and organise incoming information, one of the main functions of self-schemas is to help maintain relationships (Epstein, 1973; Mikulincer, 1995).

This is an idea that crosses over many psychological subdisciplines. For instance, the central tenet of attachment theory is the notion that our mental models of the self are largely shaped by early experiences with caregivers (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1969). Social-cognitivists maintain that the role of social and early attachment is fundamental to the development of self-evaluation. Following from the work of Bowlby (1969), Guidano and Liotti (1983) contended that the view of oneself implied by early attachment experiences provides the individual with an inner working model, or a set of expectations, about other close relationships.

For instance, as cognitive developments become more abstract as the individual moves from adolescence into adulthood, the search for a coherent integration of self involves a continuous return to beliefs and schemas gathered during infancy and childhood. Other researchers have similarly suggested that critical aspects of one's sense of self in childhood remain within the self-concept of adults (Block, 1981; Brim & Kagan, 1980; Mikulincer, 1995). Past self-perceptions are represented in one's enduring concerns and the circumstances that prompted these concerns, and when activated may influence behaviour (Markus & Nurius, 1986). For instance, someone with a high degree of self-worth, with strong memories of winning a debating award, may confidently place suggestions in a work meeting. A socially anxious individual who ties themselves to the memory of being criticised, shy and awkward in front of others, may retreat from group involvement. Hence, social-cognitivists recognise one's self-concept is informed by, but not limited to, childhood experiences.

Theorists working from a social-cognitive viewpoint therefore recognise that both relational and individual features are integral to the understanding of self; that the self-concept involves personal meaning associated with our interpersonal relationships, social roles and situational contexts (Deaux, 1993; Mikulincer, 1995). Thus, the inventive and constructive nature of the self is constrained by social determinants; any number of varieties of self-concept are available to the individual, but the pool of possibilities derive from the sociocultural and historical context and the individual's immediate social experiences (Markus & Nurius, 1986).

There are similarly reciprocal relationships between personal characteristics and environment. In his social-cognitive theory, Bandura (1989) suggested that cognitions such as expectations and beliefs are developed and modified by social influences while, at the same time, people evoke different reactions from their social environment

according to observable characteristics and social status (Lerner, 1982). These elicited social reactions further affect one's self-perception and strengthen or alter the environmental bias. Consequently, the social-cognitive account acknowledges a reciprocal influence between an individual and the context in which they are placed.

4.4 Nature of self

4.4.1 Multiplicity of self. Researchers of self-concept have emphasised two seemingly contradictory aspects of the self. Great importance has been attached to the idea that the self is regarded as stable, continuous and unitary, a generalised construct that resists change (Hermans & Goncalves, 1999; Markus & Kunda, 1986). People are determined to preserve their self-view. They will actively seek information that verifies their perceptions and are resistant to information that threatens these views (see Epstein, 1991; Markus, 1977; Swann, 1996; Rosenberg, 1979). As remarked by Epstein (1991), "people have a vested interest in maintaining the stability of their personal theories of reality, for they are the only systems they have for making sense of their world and guiding their behavior" (p. 97).

Yet it is also acknowledged that self-perceptions can be dynamic and malleable in nature. Individuals play a number of roles in society, and different social contexts demand different ways of being; individuals vary moment to moment in the self-relevant thoughts, feelings and behaviour associated with their roles (Rafaeli-Mor & Steinberg, 2002). One might see oneself as submissive in the role of employee but authoritative in the role of supervisor, worthy when asked for a date and unworthy when stood up for one. Moreover, each person may go through significant changes throughout their life cycle. Conceptions of the self as a monolithic entity were thus criticised for being unable to capture the diversity of behaviour to which it is related (Hermans, 1996).

Indeed, in his classic distinction between the I-self and Me-self, James (1890) appreciated the need for a plurality of selves. Hence, there was a move towards recognising the self to be dynamic and multifaceted; that is, individuals may have different concepts of themselves in different situations that are integrated into a global self-view (Eccles, Wigfield, Flanagan, Miller, Reuman, & Yee, 1989; Greenwald, 1980; Hermans, 1996; Kelly, 1955; Markus & Wurf, 1987; Marsh, Parada, & Ayotte, 2004; Paulhus, 1993; Rosenberg, 1979).

4.4.2 Structure of the self. Accepting a complex and multifaceted view of self allows for a distinction between the contents and structure of self-concept (Campbell et al., 1996). There may be individual differences in the content or valence associated with different selves, but also in the organisational features of self-knowledge (Rafaeli-Mor & Steinberg, 2002). The content components include self-knowledge (e.g., personal traits and characteristics) and self-evaluations (e.g., self-worth). Structural components refer to how information about the self and specific self-beliefs are organised (Campbell et al., 1996; Rafaeli-Mor & Steinberg, 2002).

A host of different structural organisations have been proposed. For instance, the compartmentalisation model of self-structure (Showers & Zeigler-Hill, 2007; Zeigler-Hill & Showers, 2007) refers to the extent to which individuals partition differently valenced self-knowledge into distinct or integrated categories. Segregation is when specific evaluative beliefs correspond to distinct self-aspects (e.g., one may associate their social and work lives with positive characteristics but associate their family life with negative characteristics), while those individuals who demonstrate more integration in their self-structure may view both negative and positive beliefs in all roles of their lives. Campbell's (1990) notion of self-concept clarity refers to the degree to which the self is clearly and confidently defined and the internal and temporal

consistency of these self-beliefs. Recognising that individuals differ in the complexity with which they perceive and mentally organise information, Linville (1985) applied this idea to self-information and coined the term self-complexity. Self-complexity incorporates the quantity and overlap of self-aspects, where complexity increases as the number of different aspects in self-descriptions, and the difference between these aspects increases. Further, Guidano and Liotti's (1983) theory of self-ambivalence refers to the extent to which individuals hold contradictory and competing self-views at the same time. This uncertainty in the 'true' nature of one's self-worth creates ambivalent feelings within the person, and means that these individuals are preoccupied with verifying their self-worth through their environment.

However, the above models for self-structure focus primarily on the actual self; one's interpretation of who they currently are (Higgins, 1987; James, 1890). This has resulted in an increased interest into the self's dynamic potentials, or possible selves (Niedenthal, Setterlund & Wherry, 1992). Possible selves derive from past self-representations and pertain to how individuals think about their potential and their future (Markus & Nurius, 1986). Reflecting hopes, fears and fantasies, they are any set of imagined roles that one would like to be (ideal-self), ought to be (ought-self) or is afraid of becoming (undesired-self) (Higgins, 1987; Ogilvie, 1987). These alternative aspects of self have been referred to as tenses of the self (Nuttin, 1985).

Given the amount of different self-perceptions available across time and situations, how is it that we are able to think of ourselves as a whole? James (1890) emphasised that continuity of self-structure, a "self-identity" and a "sense of sameness" through time, comes from the "I" self (p. 332). We can observe our alternative self-perceptions and their structure, and be involved in their structural organisation. So, rather than there being a strict division between self-aspects, the "I" self actively

processes the various parts of self-knowledge into a cohesive experience of self (Damasio, 2010). The theories on self-structure mentioned above may thereby incorporate the process of knowing, consciously or unconsciously, the structural organisation of self. This in turn may have an impact on our self-esteem. For instance, Guidano and Liotti (1983) note that the process of continually choosing between contrasting self-views leads to feelings of ambivalence in self-worth.

While there is no widely accepted definition of the nature of the self, different theories converge on the idea that the self-concept is hierarchically organised (Epstein, 1973; 2003), with more specific elements subsumed under more inclusive elements (Kihlstrom & Cantor, 1984; Marsh & Shavelson, 1985). Situation specific lower-order constructs are thought to be more amenable to change than higher-order constructs (Epstein, 1991; Hattie, 1992). Although there are numerous models on the relationship between global self-concept and specific self-views, James' (1890) hierarchical model is perhaps the most influential. James (1890) argued that self-aspects are placed at varying levels of importance, with those areas deemed to be important having more of an impact on the overall self-perception. This is an idea that has subsequently resonated with many theorists (e.g., Coppersmith, 1967; Harter, 1996; Rosenberg, 1965, 1979; Wylie, 1974) and will be further elaborated in the following section.

4.4.3 Self-esteem. As mentioned, the contents of the self-concept pertain to not only beliefs about the self, but an evaluation of these beliefs. Self-esteem is therefore a “self-reflexive attitude addressing how one feels about the self” (Campbell, 1990, p. 539); an overall evaluation of one's worth or value. This definition lends itself to the idea of a global judgement of worthiness and suggests that self-esteem is a trait that remains constant over time (Epstein, 1993). However, it is also known that self-esteem

can reflect a state and fluctuate in response to different situations, feedback and events (Rosenberg, 1979).

Importantly, self-esteem has a role in shaping self-concept, which pertains to beliefs about oneself. Indeed, even before they have developed the ability to assess self-beliefs, affect helps children to translate their early social experiences with primary caregivers into a basic sense of trust or mistrust, pride or shame. Mood states make mood-congruent information more accessible, so as people develop they form self-views that relate to their general sense of self-worth (Brown & Taylor, 1986; Pelham & Swann, 1989; Sedikides, 1992, for a review). Thus, changes in the content of self-concept may reflect changes in mood or experience (see Baumgardner, Kaufman, & Levy, 1989; Markus & Kunda, 1986; Rosenberg, 1979; Showers, Abramson, & Hogan, 1998). This implies that specific self-views should relate to global self-esteem and although they are strongly related, they are not equivalent (Pelham & Swann, 1989). The ultimate impact that specific self-views have on self-esteem depends on the meaning attached to them. As argued by James (1890), goals and values that are identified to be personally important have a greater impact on general self-esteem; “men have arranged the various selves which they may seek in an hierarchical scale according to their worth” (p. 314)

Rosenberg (1965) similarly theorised that negative self-conceptions will detract from global self-esteem, whereby specific self-conceptions of perceived greater importance will have a larger impact on esteem. Harter (1996) agreed, arguing that individuals can make global judgements of their worth as a person, as well as provide specific self-evaluations across a variety of domains. Individuals imbue their various self-relevant domains with different levels of importance, and global self-worth is influenced by domains that one regards to be of greater rather than lesser importance

(Harter & Whitesell, 2003).

Crocker and colleagues (Crocker, Luhtanen, Cooper, & Bouvrette, 2003; Crocker & Park, 2004; Crocker & Wolfe, 2001) argue that people differ in their bases of self-esteem, which are influenced by beliefs about what they value as important in being a person of worth; in essence, one's self-worth is contingent upon obtaining success in valued life domains. Individuals' contingencies of self-worth may be associated with early attachment experiences, where inconsistent feedback from parents, such as fluctuations in approval and disapproval, provide conflicting messages to the child (Crocker & Park, 2004; Harter & Whitesell, 2003). When combined with pressures to feel or behave in specific ways, the individual is likely to develop an unstable sense of self-worth that is conditional upon perceived competence in personally important domains. For instance, Harter, Marold and Whitesell (1992) posited that a contingent self-worth develops when parents make their approval contingent upon their children meeting very high and often unrealistic standards. When perceived competence in one's valued domains has been achieved, self-worth is enhanced and there are temporary boosts of positive affect, such as pride. Conversely, failure in these domains leads to a drop in overall self-esteem and increases in negative emotions such as sadness (Crocker & Park, 2004), anger or shame (Tangney, Wagner, Hill-Barlow, Marschall, & Gramazow, 1996). One's overall self-esteem is therefore a reflection of a person's average and ongoing level of success at satisfying contingencies of self-worth (Crocker, 2002).

These ideas resonate with Higgins' (1987) proposal that individuals are motivated to reach a condition where their self-concept matches personally important self-guides. Higgins' (1987) self-discrepancy theory postulates that there are three basic domains of self; the actual-self (set of attributes you believe you actually possess), the

ideal-self (attributes you would like to possess) and ought-self (attributes you should possess). Importantly, people vary in the consistency of these self-beliefs and Higgins (1987) showed that the magnitude of different discrepancies related to differences in the kinds of discomfort people were likely to experience; larger discrepancies between actual-self and ideal-self were associated with greater dejection-related emotions (e.g., disappointment, dissatisfaction, sadness), while larger discrepancies between the actual-self and ought-self were associated with more intense agitation-related emotions (e.g., fear, threat, restlessness). Similarly, Ogilvie (1987) showed that the distance between actual-self and undesired-self (attributes you do not want to be) was more trenchant to overall levels of life-satisfaction than the distance from an ideal-self. The difficulties with the theories of Higgins (1987) and Ogilvie (1987), is that they solely focus distinction between the actual and a future self. The potential impact that conflicting representations of the current self has on self-esteem is not addressed. Guidano and Liotti's (1983) theory of self-ambivalence provides a framework for understanding the discomfort associated with conflicting current self-views, suggesting that concurrently held incompatible and contradictory self-conceptions lead to negative affective and motivations to attain congruence within.

These models highlight the themes of social-cognitive literature on the self, that one's appraisal of self-components and resultant affect is intimately related to the content and structure of self-concept. Additionally important for the current thesis is the understanding that negative self-construals serve as a psychological vulnerability. The impact that self-concept and self-esteem have on the development of psychopathology is a proposal that will be elaborated further in the following chapter.

A limitation shared by the outlined accounts is that they fail to account self-construals that may be outside our awareness. As part of the hierarchical organisation of

self, social-cognitivists realise that there may be multiple subsystems that are less accessible to conscious reflection and that examination of these areas may offer deeper understanding to our experience of self. While certainly not a new endeavour, enhanced measurement techniques have renewed interest in these less accessible self-views, and have further promoted the idea that cognition involves two types of thinking (De Neys, 2006; Evans, 2002, 2003; Holyoak & Spellman, 1993; Paulhus, 1993; Sloman, 1996). The next section reviews models of dual processing and how they apply to self-concept.

4.5. Dual process theories

4.5.1 Two modes of experience. Dual-processing models have been recognised as early as James (1890) who discussed two modes of thinking, associative and true reasoning. James (1890) posited that “a true act of reasoning is apt to be a thing voluntarily *sought*” (p. 329, emphasis in original) such that it is purposeful logical thought, which is particularly useful for novel situations. In contrast, thoughts that spontaneously arrive through “association by similarity” (p. 346) are based on prior experiences, providing ideas of comparison or abstraction.

One of the more recent influential accounts that incorporate dual processes of cognition is Epstein’s cognitive self-theory (1985, 1990, 1994). Cognitive self-theory assumes that we experience our world through two distinct cognitive systems. The experiential system is an intuitive, automatic pattern detecting and matching system; a rudimentary way of instantly assessing and responding to reality. It is cognitive, containing generalisations of past experience, particularly those that are emotionally laden in early development, and their consequences (positive or negative) (Epstein, 2003). Hence, the experiential system is intimately related to the experience of affect and consequently, behaviour is primarily mediated by affect associated with previous experience; directing behaviour to achieve pleasurable outcomes and avoid undesired

ones (Epstein, 1991); “The experiential system operates in a manner that is preconscious, automatic, rapid, effortless, holistic, concrete, associative, primarily nonverbal, and minimally demanding of cognitive resources.” (Epstein, 2003, p. 164).

In contrast, the rational system involves intentional, logical reasoning. While the experiential system generally requires repeated encounters with new information before it is able to change, the rational system takes new information into account immediately, and is thus relatively slower (Epstein, 1994). The rational system functions according to socially prescribed rules of inference, looking for justification via logic and evidence. Being responsible for active and conscious processing of events, behaviour related to the rational system is mediated by conscious appraisal of events (Epstein, 1991). “The rational system is an inferential system that operates according to a person’s understanding of the rules of reasoning and of evidence, which are mainly culturally transmitted... It operates in a manner that is conscious, analytical, effortful, relatively slow, affect-free, and highly demanding of cognitive resources” (Epstein, 2003, p. 165).

Epstein (1994) proposes that people have constructs of the self, and the world, within both systems, where self-knowledge in the rational system is referred to as beliefs (or *explicit* beliefs because they are known to us), and that in the experiential system function as implicit beliefs. The distinction between these self-processes will be discussed in the following section.

4.5.2 Implicit and explicit self cognitions. Both inside and out of the social-cognitive literature, the distinction between implicit and explicit cognition has been implicated in a range of dual-process approaches under a variety of terms, including: implicit-explicit (Greenwald & Banaji, 1995; Reber, 1993; Schacter, 1987); procedural-declarative (Anderson, 1976); heuristic-systemic (Chen & Chaiken, 1999); primary-secondary (Smith & De Coster, 2000), peripheral-central (Petty & Cacioppo, 1986);

automatic-controlled (Paulhus, 1993); associative-rule based (Smith & de Coster, 1999; Sloman, 1996), subconscious-conscious (Brewin, 1989); spontaneous-intentional (Uleman, 1999), nonverbal-verbal (Bucci, 1985; Paivio, 1986), and impulsive-reflective (Strack & Deutsch, 2004). The current thesis uses the terms implicit-explicit due to the prominence of this dichotomy in literature examining self-knowledge (Connor & Barrett, 2005; Conner, Perugini, O’Gorman, Ayres, & Prestwich, 2007; Epstein & Morling, 1995; Fazio, 1990; Fazio & Olson, 2003; Strack & Deutsch, 2004; Wilson, Lindsey & Schooler, 2000).

Although there may be specific differences between the various dual-process theories of cognition, they tend to converge on particular characteristics (Smith & de Coster, 2000). Compiled from literature in the following paragraphs, Table 4.1 outlines the contrasting features of implicit and explicit processes.

Table 4.1

Comparison of implicit and explicit processes.

	Implicit	Explicit
Speed	Fast, spontaneous, automatic	Slow, deliberate
Awareness	May lie outside awareness	Conscious
Control	Difficult to control	Controllable
Effort	Effortless, efficient	Requires effort, energy, motivation
Behaviour	Spontaneous, observed	Controlled, Self-reported
Affective	Presence or absence of core	Appraisal of core affect
Relationship	affect	

Note. Compiled from information in Asendorpf, Banse, & Mucke, 2002; Brinol, Petty, & Wheeler, 2006; Connor & Barrett, 2005; Rudman, 2004; Rudolph, Schroder-Abe, Riketta, & Schutz, 2010; Spalding & Hardin, 1999)

As with other constructs related to the self, the social-cognitive paradigm argues that implicit self-beliefs develop from early self-evaluations (DeHart, Pelham & Tennen, 2006; Koole, Dijksterhuis & van Knippenberg, 2001; Rudman, Phelan, & Heppen, 2007). Through attachment experiences, early self-evaluations may act as a mental working model that guides the flow of self-relevant information (Mikulincer, 1995). Repeated utilisation provides confirmation and reinforcement of these self-views so that self-relevant information is retrieved with great ease, and becomes able to influence self-evaluations automatically and unwittingly (Bargh et al., 1996). Indeed, DeHart et al. (2006) found that parenting styles related to children's levels of implicit self-esteem. Thus, implicit self is recognised to be a well-practiced and chronically activated aspect of the self that has developed over lengthy time period (Fazio, Sanbonmatsu, Powell & Kardes, 1986; Wilson et al., 2000).

With consistent use and development over time, the implicit self is theorised to become a habitual automatic processes; that is, a fast and spontaneous mode of information processing that is efficient or effortless and difficult to control (Boldero, Rawlings & Haslam, 2007; Greenwald & Banaji, 1995; Moors & De Houwer, 2006; Pelham & Hetts, 1999). Consequently, in the context of a hierarchical model of self, implicit processes are tied with higher-order self-constructs and are thought to be less amenable to change than situation specific lower-order explicit beliefs (Epstein, 1991; Hattie, 1992).

Implicit self-cognitions are additionally thought to be involved in processes that are activated unintentionally or outside conscious awareness (Greenwald & Banaji, 1995; Fazio et al., 1986). This does not suggest that an individual is unaware of their implicit self, rather that upon presentation of self-relevant information, implicit beliefs may be activated without the need for conscious reflection (Fazio & Olson, 2003;

Olson, Fazio, & Hermann, 2007; Wilson et al., 2000). Consequently, implicit self is termed in the literature as involving automatic, as opposed to unconscious, processing.

It therefore follows that implicit processes are also responsible for automatic evaluations of self-attributes. Given that it is a faster and more basic mode of thinking, implicit self-attitudes are thought to be automatically associated with core affective states; spontaneous gut reactions of feeling negative or positive (Karpinski & Hilton, 2001; Olson & Fazio, 2001, 2002; Rudman, 2004). In middle childhood, the development of complex cognitive schemas enables self-reflection and the appraisal of basic affective experiences into particular emotions (e.g., negative affect appraised as shame) (Rudman, 2004). In their examination of spontaneous affective experiences, Connor and Barrett (2005) found that regardless of individuals' explicit self-views, individuals with negative implicit self-attitudes reported higher levels of negative affect and were more likely to report that they were "having a bad day" than those with positive implicit self-views. Like previous researchers (Dijksterhuis, 2004), the authors also found that implicit self-attitudes had stronger ties to negative affective states than positive states.

Also related to their automaticity and less controllable nature, is the theoretical and empirical suggestion that implicit self-processes are linked with spontaneous and nonverbal behaviours (e.g., shifting in seats, twiddling thumbs). In contrast, conscious and logically based explicit processes are related to deliberate and more controlled behavioural outcomes (Asendorpf et al., 2002; Connor & Barrett, 2005; Greenwald & Banaji, 1995; Rudolph et al., 2010; Spalding & Hardin, 1999) and may reflect self-presentation strategies (Baumeister, 1982; Tedeschi, 1981). For instance, Spalding and Hardin (1999) showed implicit self-esteem more strongly affected nonverbal anxious behaviours. Although explicit self-esteem was unrelated to nonverbal anxious

behaviours, it did predict levels of self-reported anxiety. Similarly, Rudolph et al. (2010) found that implicit self-evaluations uniquely predicted experimenter ratings of anxiety, linguistic aspects of anxiety and spontaneous self-confident behaviours, while self-reported self-esteem uniquely predicted controlled and deliberative behaviours. Additionally, Back, Schmukle, and Egloff (2009) found that implicit measures of self-beliefs of neuroticism and extraversion predicted related behaviours, to a greater extent than did explicit measures.

4.5.3 Measurement of implicit and explicit self. The problems inherent in defining the self are also reflected in the measurement of this amorphous construct. In any case, whether we are assessing self-constructs or self-evaluations, with multiple or single dimensions, explicit constructs are assessed through self-report techniques, that is, asking people to consciously reflect on their own beliefs or evaluations.

However, there are inherent difficulties in reliance on this measurement procedure. Response distortion, such as positive self-presentational strategies may be associated with research into self-esteem, given the Western world's emphasis on self-satisfaction and the need to feel good about oneself (Tafarodi & Ho, 2006). Indeed, assessment of explicit measures of self-esteem may not always be accurate as they have been shown to correlate with measures of impression management, self-presentation and self-deception, where individuals typically present themselves as having a higher self-esteem than they actually do have (Bosson, 2006; Dijksterhuis, Albers, & Bongers, 2009; Greenwald & Banaji, 1995; Greenwald & Farnham, 2000; Jordan, Spencer, Zanna, Hoshino-Browne & Correll, 2003; Olson et al., 2007; Paulhus, 1986). Moreover, self-report methodology requires individuals to be able to accurately introspect, which may be difficult for more automatic self-processes. This does not necessarily imply that findings from self-report data are invalid, only that alternative methodologies may also

be worthy of investigation.

While we may not have direct awareness of our implicit beliefs, we can infer them from noticing patterns in behaviour (Epstein, 2003). Consequently, in cognitive psychology, there have been a variety of measurement techniques employed to assess the automatic mental associations that are difficult to gauge with explicit self-report measures. These techniques work on the assumption that people assign value to objects that are closely associated with the self (Bosson, Swann & Pennebaker, 2000). From only a few months of age, young children's self-evaluations demonstrate a preference for positive feedback (Fernald, 1993; Swann & Schroeder, 1995). With verbal maturity, children have the capacity to self-evaluate, and so this self-enhancement tendency becomes more pronounced (Swann, Pelham & Krull, 1989; Swann & Schroeder, 1995). As previously mentioned, early self-evaluations may structure the flow of self-relevant information (Bowlby, 1973; Mikulincer, 1995) and become consolidated in one's cognitive-affective structure. By adolescence a self-positivity bias has become stable and automated, to an extent great enough to withstand the identity confusion that comes with adolescence (Koole et al., 2001). Consequently, on average, people evaluate self-relevant information more favourably than non-relevant self-information (Greenwald & Banaji, 1995; Paulhus, 1993) and prefer feedback for positive rather than negative self-views (Swann, Pelham & Krull, 1989). For these reasons, self-descriptions tend to be positive, and their chronic activation will result in an automatic self that is positive (Paulhus, 1993).

Nonetheless, people still vary the extent to which they feel favourable towards self-relevant information (Bosson et al., 2000). For instance, anxious-ambivalent individuals who lacked a secure base in childhood may be so overwhelmed by the negative aspects of their experience that they cannot recognise or integrate positive

aspects into their self-view. Indeed, Mikulincer (1995) found that when compared to individuals with a secure attachment, the schemas of anxious-ambivalent people were more negative: they had more negative self-descriptions and greater recall for negative self-referent information. Thus, the strength of the association in between self-attributes and evaluations of these attributes is also reliant on the individuals' psychosocial context. Those associations that are stronger have increased likelihood of being activated (Fazio, 1989).

Because people are not necessarily aware that self-relevant stimuli are in some way connected to them, attitudes towards them can be understood as reflecting their implicit self-esteem (Bosson et al., 2000). This thinking gave rise to a popular measure of implicit self-esteem, the Name Letter Preference Task (NLPT; Nuttin, 1985). The NLPT assesses the extent to which individuals prefer the letters that are in their name, relative to other letters of the alphabet. Those individuals who feel greater preference for letters in their name relative to other letters are thought to possess high implicit self-esteem (Nuttin, 1985).

Other measurement tools are based on automatic activation of attitudes in memory. Research has shown that when an attitude object (e.g., self) is encountered, an evaluation of that object is automatically activated (e.g., good, bad), which facilitates the processing of mood-congruent information (and impedes the processing of mood incongruent information) thereby guiding subsequent behaviour (Bargh, Chaiken, Govender, & Pratto, 1992; Fazio, 1990; Fazio, Sanbonmatsu, Powell, & Kardes, 1986). It is this reasoning that has given rise to another of the most popular implicit measurements of self-esteem, the Implicit Association Test (IAT; Greenwald, McGhee & Schwartz, 1998). Based on reaction times, the IAT is a computer categorisation task that directly assesses the relative strength of automatic association between self-relevant

and non-self-relevant words to pleasant and unpleasant words. Thus there are four categories: “me”, “not me”, “pleasant” and “unpleasant”. For each trial an attitude object (“me”/“not me”) is paired with an evaluation (“pleasant”/“unpleasant”) on the screen. For some trials the two categories “me”-“pleasant” are paired together on the one hand of the screen (with “not me” and “unpleasant” concurrently on the opposite side), while other trials “me”-“unpleasant” are paired together (with “not me” and “pleasant” concurrently paired on the opposite side). Over a number of different trials, participants rapidly categorise presented stimuli into their correct category. For instance, when “me”-“pleasant” are paired on the left hand side of the screen (and “not me”-“unpleasant” paired on the right), the stimulus word ‘smile’ or the self-referent word “me” would be correctly allocated in the category “pleasant” by pressing the left keyboard key. According to Greenwald and his colleagues (Greenwald & Farnham, 2000; Greenwald, McGhee & Schwartz, 1998), those individuals who are faster at categorising stimuli when self-pleasant categories are paired together, compared to when self-unpleasant categories are paired together, are predicted to have higher implicit self-esteem.

The resultant reaction times from the IAT are however based on having an attribute object opposed to the target object, in the case provided being the “other” category, thus constraining the ability to directly interpret attitudes towards any single attitude object (Nosek & Banaji, 2001). It may be equally true to say that individuals that are faster at appropriately categorising stimuli when self-pleasant are paired together do so not because of an implicit positive view, but because of strong automatic associations of others as negative. Alternatively, if the *self* category was to be contrasted with a different opposing category (e.g., *animals* in place of *other*), then the resultant reaction times favouring self-pleasant categories may differ.

These, and other issues related to implicit measurement tools (see Fazio & Olsen, 2003 for a review), led Nosek and Banaji (2001) to create a variant of the IAT that does not require the use of a contrast category, the Go/No-Go Association Task (GNAT). Based on correct responses and errors rather than reaction times, the GNAT asks participants to actively respond to certain categories by pressing the space bar (“Go”) and not to respond to other categories by not pressing any key (“No-Go”). The strength of automatic self-associations are assessed by the degree to which items belonging to the target category and evaluation (e.g., self and pleasant) can be successfully discriminated from distracter items that do not belong to those concepts (e.g., unpleasant). The task assumes that greater accuracy in performance when the categories self + pleasant are paired together compared to when the categories self + unpleasant are paired together indicate stronger automatic associations in memory of self and pleasant, and hence imply a positive automatic attitude towards the self. The flexibility of the GNAT to evaluate an attitude of a category with no context at all means that it provides greater specific attitude accuracy. This makes it preferable to the IAT when assessing single attitude objects without the confounding influence of contrast categories.

4.5.4 Relationship between implicit and explicit self. Three alternative hypotheses have been proposed for the relationship between implicit and explicit self-processes: that implicit and explicit self attitudes represent distinct constructs; that they are different manifestations of the same core attitude; or that implicit and explicit self-attitudes are related to the same core attitude but represent different levels in a hierarchical model of self (Dijksterhuis et al., 2009). Although these hypotheses are based on self-attitudes in general, the majority of the research on the relationship

between implicit and explicit processes has focused on self-esteem (Bosson et al., 2000; Spalding & Hardin, 1999).

Evidence for a correlation between implicit and explicit attitudes are far from unequivocal. Some researchers find a relationship (Banse, Seise, & Zerbis, 2001; DeHart, et al., 2006; Greenwald & Farnham, 2000), while others report no relationship (Bosson et al., 2000; Spalding & Hardin, 1999; Karpinski & Hilton, 2001). Meta-analytic research supports that the different measures are generally related, and suggests that any disparate findings may be due to the amount of spontaneity in self-report measures: the less time that people are able to consider their responses on self-report measures, the greater the correlation with implicit measures (Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005). For instance, Koole et al., (2001) showed high correlations between implicit and explicit measures when the participants were under cognitive load or had a time limit, yet no correlation when explicit measures had no pressure component. Alternatively, low correlations between measures may also reflect the experience of the population or topic under examination. As will be discussed in a later section, individuals can have implicit self-views that are discrepant with their explicit self-views.

In further support for both measures tapping the same underlying core is the finding that explicit and implicit self-esteem have comparable consequences (Dijksterhuis et al., 2009). Just like low explicit self-esteem, low implicit self-esteem leaves one vulnerable in the face of negative experiences (Spalding & Hardin, 1999; Greenwald & Farnham, 2000). Indeed threats to the self, such as negative feedback, have been shown to affect both implicit (Dijksterhuis, 2004) and explicit self-esteem (Crocker & Park, 2004; Harter et al., 1992).

Importantly however, explicit self-beliefs and self-evaluations significantly

correlate with measures of self-deception, self-presentation and impression management (Greenwald & Farnham, 2000; Jordan et al., 2003; Raskin, Novacek, & Hogan, 1991). This suggests that explicit self-attitudes are an active, constructive process (Fiske & Taylor, 1991; Klein et al., 1996; Markus, 1977). When combined with the finding that people generally have a poor ability to introspect on their core beliefs or attitudes, unless under pressure (Hofman et al., 2005; Koole et al., 2001), it appears that explicit measures are less able to reflect core self-processes than implicit measures (Dijksterhuis et al., 2009; Olson, Fazio, & Hermann, 2007). Thus, there is greatest support for a hierarchical model; implicit measures tap a lower order base understanding of self, and although explicit processes have links to the underlying implicit self, they have greater connections with higher order self-processes (Epstein & Morling, 1995).

4.5.5 Discrepancy between implicit and explicit self. The previous section outlines how the hierarchical model of self explains the relationship between explicit and implicit self-processes; and how the majority of the research attempts to find concordance in the different measures, thus engendering support that they relate to the same underlying self-view (Koole et al., 2001). However, just as individuals can hold incompatible self-views at an explicit level (e.g., Higgins, 1987; Ogilvie, 1987), explicit and implicit self-views may not necessarily correspond. Consequently, there is a growing body of research specifically examining the discrepancy in explicit-implicit self-views and self-esteem (Bosson, Brown, Zeigler-Hill, & Swann, 2003; Brinol et al., 2006; Jordan et al., 2003; Kernis, 2003; Kitayama & Uchida, 2003; McGregor & Marigold, 2003). That is, a negative implicit self in the context of a positive explicit self, or vice versa. There are plenty of theoretical suggestions for the underlying cause of incompatible implicit-explicit self-views. For instance, the discrepancies may represent repressed self-evaluations (Wilson et al., 2000), old evaluations (Koole et al.,

2001; Petty, Tormala, Brinol & Jarvis, 2006), societal pressures (Tice, Butler, Muraven, & Stillwell, 1995), or others' evaluations of oneself (DeHart et al., 2006; Guidano & Liotti, 1983), to name a few.

Regardless of the source, central to many classic models of psychology is the understanding that internal self-incongruence is experienced as unpleasant and associated with unfavourable psychological outcomes (Freud, 1923/1961; James, 1890; Rogers, 1961), a view that has resonated with later researchers (Bosson et al., 2003; Brinol et al., 2006; Campbell, 1990; Guidano & Liotti, 1983; Higgins et al., 1987; Jordan et al., 2003; McGregor & Marigold, 2003; Ogilvie, 1987; Petty, 2006; Petty et al., 2006). The methodology used to calculate self-discrepancies varies across studies. Using regression analysis, some research examines moderation hypotheses looking for possible interactions between implicit and explicit self-views (Schroder-Abe, 2007; Vater et al., 2010), while others methods that are more interested in examining the magnitude of the discrepancy, examine the absolute value of the differences between standardised scores (Brinol et al., 2003; 2006; Higgins, 1987). Both methods suggest that contradictory self-views give one a sense of unpredictability and uncontrollability within, whereby any available understanding is inevitably experienced to be possibly wrong (Guidano, 1991).

Incompatible implicit-explicit self-views are consequently associated with a variety of negative affective experiences including agitation or dejection related emotions (Higgins, 1987; McDaniel & Grice, 2008), low life satisfaction (Ogilvie, 1987), anger suppression, nervousness and depressive attributional styles (Schroder-Abe et al., 2007), internal tension and dysphoria (Vater, Schroder-Abe, Schutz, Lammers, & Roepke, 2010), low self-confidence (Petty et al., 2006; Rudolph et al., 2010), self-doubt (Brinol et al., 2003), defensiveness and narcissistic qualities (Jordan et

al., 2003) and perfectionism (Zeigler-Hill & Terry, 2007). Importantly, discrepant self-views relate not only to unpleasant emotions, but also behavioural (e.g., Lupien, Seery, & Almonte, 2010; Shedler, Mayman & Manis, 1993) and physical indications of distress (e.g., Schroder-Abe et al., 2007; Shedler et al., 1993). For instance, McDaniel and Grice (2008) showed that actual-ideal and actual-ought self discrepancies explained unique variance on measures of depression, anxiety and self-esteem. Schroder-Abe et al. (2007) demonstrated that implicit and explicit self-discrepancies related to more depressive attributional styles, nervousness, anger suppression and more days of impaired health as compared to congruent self-esteem.

In order to help resolve or minimise the internal discrepancy and resultant negative affect, individuals engage in enhanced thinking or information processing to gain more evidence for one side or the other of their ambivalent attitude (Brinol, Petty, & Wheeler, 2006; Hanze, 2001; Hass, Katz, Rizzo, Bailey, & Moore, 1992; Hodson, Maio, & Esses, 2001). For instance, Brinol et al. (2006) showed that people paid more careful attention and engaged in more thinking about information related to the dimension where their implicit-explicit discrepancy existed. The message transmitted did not necessarily need to be explicitly related to the discrepancy, but perceived to be relevant to that dimension.

Importantly, different self-discrepancies are associated with particular emotional, cognitive and behavioural outcomes. Self-discrepancies take two forms: discrepant high self-esteem (low implicit/high explicit) and discrepant low self-esteem (high implicit/low explicit) (Zeigler-Hill, 2006). Individuals with discrepant high self-esteem are aware of and report positive attitudes towards the self, but they also harbour an underlying insecurity, and so they are fragile and vulnerable to threat. The self-doubts associated with discrepant high self-esteem lead to self-enhancement (Bosson et

al., 2003) and defensive behaviour (Jordan et al., 2003). It is not surprising that individuals with discrepant high self-esteem also possess the highest levels of narcissism (Zeigler-Hill, 2006).

For individuals with a discrepant low self-esteem, the ease of accessing negative explicit self-beliefs may taint positive implicit self-esteem, but not completely hide them. A high implicit self-esteem in the context of a low explicit self-esteem may leave individuals with “a glimmer of hope” (Zeigler-Hill & Terry, 2007, p.140); an inner optimism that they are able to raise levels of explicit self-esteem and improve upon themselves and self-evaluations if only they work hard enough. As a result, individuals with this discrepancy style have been found to have less self-protection and more unhelpful perseverance than is typical of individuals with low explicit self-esteem (Spencer et al., 2005). It is these factors that are thought to explain for the found relationship between discrepant low self-esteem and the adoption of maladaptive perfectionistic standards (Zeigler-Hill & Terry, 2007).

Concordant with these findings, examination of disorders with perfectionistic tendencies, such as eating disorders (Franco-Paredes, Mancilla-Diaz, Vazquez-Arevalo, Lopez-Aguilar, & Alvarez-Rayon, 2005), reveals that individuals with bulimia nervosa and binge eating disorder had lower explicit but higher implicit self-esteem relative to healthy controls (Cockerham, Stopa, Bell, & Gregg, 2009). Perfectionistic beliefs can lead to dichotomous thinking, so that the eating disordered individuals believe they “must” be the perfect weight and are excessively critical of their body image (Franco-Paredes et al., 2005).

Important for the current thesis is the understanding that perfectionistic beliefs are also found in OCD (OCCWG, 2003, 2005). The notion of a discrepant low self-esteem in OCD will be further elaborated in the following chapter.

4.6. Summary

This chapter reviews various theoretical models, with emphasis on the social-cognitive standpoint for its recognition that the self has both internal and external sources of influence. The self is recognised to be a multidimensional and hierarchical entity; we have multiple different experiences of self in different contexts that relate to a core understanding of self. Thus, a dual process model to self is recognised, where implicit processes relate to core and explicit relates to situation specific self-views. The measurement modalities of these distinctive self-properties are also addressed. Importantly, this chapter highlights that the self is central to one's experience of the world. The next chapter further explores this idea specifically with respect to OCD.

Chapter 5: Self-processes in OCD

5.1 Introduction

This final chapter of the literature review integrates the literature provided by the preceding chapters. Taking into account the phenomenology of OCD, theoretical notions of the development or maintenance of the disorder and the general understanding of the nature of self-processes, it synthesises how “the self” is implicated in OCD. The chapter begins by presenting theoretical accounts that credit the involvement of self-processes in OCD. Emphasis is given to Guidano and Liotti’s (1983) theory of self-ambivalence as it directly addresses the developmental processes in OCD. Then, empirical support for a relationship between self-esteem, self-concept and self-ambivalence and OC phenomena is reviewed. In line with a hierarchical view of self, a self-worth contingent upon meeting high moral standards is considered to have a notable association with OCD. Burgeoning research into implicit processes, and their discrepancy with explicit self-processes are also explored. This chapter therefore highlights that the self in individuals with OCD may provide a fertile area for ongoing research.

5.2 Theoretical discourse about self processes in OCD

5.2.1 Cognitive theory. Investigation into self-processes may be a logical extension of current cognitive accounts of OCD. Indeed, in Rachman’s (1997) influential cognitive theory of obsessions, he notes that one of the pivotal reasons that unwanted intrusions are so distressing to people with OCD is because these individuals believe they reveal something about the person’s true self.

[Patients with OCD] Interpreted these thoughts, impulses or images 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 weird, I am going insane (and will lose control), I am a sinful person, I am fundamentally immoral. (p.794)

Similarly, strong recognition for the crucial role of self-concept in OCD comes from the DSM-IV-TR's (APA, 2000) definition of obsessions in OCD as "ego-dystonic"; that is, inconsistent with an individual's self-concept. Along these lines, Purdon and Clark (1999) theorise that ego-dystonic intrusions are more likely to turn into obsessions because they represent a threat to the individual's self-view. Clark (2004) argues that individuals who are uncertain in their self-concept are vulnerable to perceiving their unwanted intrusions as a "threat to core personal values and ideals" (p.139). Likewise, O'Connor, Aardema and Pelissier (2006) place fundamental importance on the idea that a "biased" self-construal is responsible for the misappraisal of mental states and results in discordance between the individual and the obsession. Aardema and O'Connor (2007) propose that an under-developed self-concept leads to self-doubt, excessive self-monitoring and distrust in an individual's self-concept, and consequent absorption in imaginary possibilities of self. This makes them vulnerable to noticing intrusions and promotes discordance between a person's actual self and their feared possible self. The authors suggest that the resulting distress leads to compulsive attempts to correct or safeguard the self (Aardema & O'Connor, 2007). Certainly there are a number of cognitive accounts that credit the involvement of self-processes in OCD (Aardema & O'Connor, 2007; Bhar & Kyrios, 2007; Doron & Kyrios, 2005; Ehntholt,

Salkovskis, Rimes, 1999; Ferrier & Brewin, 2005; Guidano & Liotti, 1983; Harvey, Moeller, & Williams, 2011; O'Neill, 1999; Rowa, Purdon, Summerfeldt & Antony, 2005). Guidano and Liotti's model of self-ambivalence is an early influential model that directly addresses the self in OCD and its developmental prequelae.

5.2.2 Guidano and Liotti's (1983) theory of self-ambivalence. Based on an extensive examination of a range of psychological literature and reflections on their own case studies, Guidano and Liotti (1983) developed a theoretical model expounding the etiology of obsessionality. They contended that to understand the full complexity of emotional disorders, models of psychotherapy need to incorporate the development and active role of self-knowledge. Following from the work of Bowlby (1969), Guidano and Liotti (1983) suggested that the view of oneself implied by early attachment experiences provides the individual with an inner working model, or a set of expectations, about oneself and close relationships. As cognitions become more abstract from adolescence into adulthood, the search for a coherent integration of self can involve a continuous return to beliefs and schemata gathered during infancy and childhood. Hence, the authors recognise one's self-concept is influenced by, but not limited to, childhood experiences. Drawing from psychoanalytic, cognitive, developmental and social frameworks, Guidano and Liotti further proposed that individuals who have an ambivalent self-concept, as well as a broad focus on moral perfectionism due to early developmental influences, are predisposed to developing OCD. As explained in the following paragraphs, the theory of self-ambivalence is based upon three related features: contradictory self-views, uncertainty about self-worth and preoccupation in verifying one's self-worth.

Guidano and Liotti (1983) postulated that as a result of childhood attachment experiences, individuals with OCD develop a self-concept based on contradictory and

competing self-views about moral self-worth. These views are polarised into positive and negative terms that the individual has difficulty integrating into a united self-concept; such self-ambivalent individuals concurrently see themselves as both ‘worthy’ and ‘unworthy.’ The authors maintain that during the developmental period, children begin to structure a self-image through interaction with the people closest to them. Parents in particular provide their children with meaningful sources of information. It is through this information that children learn to recognise attributes that define them as worthy to others, and consequently to themselves. In short, Guidano and Liotti proposed that the “parents, as a mirror, provide children with a self-image” (p. 103). In a healthy and reciprocal relationship, the caregivers respond to the child’s signals in an appropriate fashion and validate the child’s internal experience. Guidano and Liotti contended that the reciprocity within the attachment relationship of self-ambivalent individuals is poor, where parental behaviour toward the child is perceived by the child to give plausible but competing interpretations about their worth. For example, the parent may constantly care for and show interest in the child, but be unaffectionate and undemonstrative. In this way, OCD is characterised by ambivalent attachments derived from parenting styles experienced as rejecting but camouflaged under an outward mask of absolute devotion.

Guidano (1991) has further suggested that this gives the child a sense of unpredictability and uncontrollability in their attachment relationships and creates an environment where the child becomes insecure and feels they cannot trust any available information. As a result, the child experiences recurrent oscillations between contradictory feelings, thereby encouraging the development of incompatible and changing self-views. In order to achieve a coherent self-image, Guidano and Liotti (1983) propose that self-ambivalent individuals tend to favour one of the dichotomous

views as reflecting the “true” nature of themselves. Nevertheless, the opposing self-view is still held and their chosen self-perfection is easy to dispute. Because the individual’s favoured position is not securely attained, their self-perception continues to fluctuate from one extreme to the other. Guidano and Liotti maintain that one’s self-concept involves continuous feedback from ongoing self-perceptions, so contrasting and changing self-views make it difficult for the individual to be certain about evaluations of the self; hence, individuals with such experiences develop uncertainty about their self-worth. In addition, because self-ambivalence is concerned with evaluations of self-worth, a distinction with self-esteem should be made clear. Specifically, self-esteem involves the extent that the self is regarded positively or negatively (Campbell et al., 1996), whereas self-ambivalence relates to the lack of certainty in these evaluations.

In order to achieve clarification of their self-worth, Guidano and Liotti (1983) proposed that self-ambivalent individuals are in constant pursuit of certainty of self-worth. Based on their clinical experience, the authors argued that throughout development, the family environment for these individuals is highly verbal. Rational explanations and analytical reasoning prevail over overt demonstrations of emotional and physical warmth. Parents typically demand high degrees of responsibility, and positive regard is perceived as being conditional on the individual explicitly conforming to moral rules and ethical principles. Consequently, the child learns that these values are central to their sense of self, and that their self-worth depends upon their ability to comply with moral rules. Thus, self-ambivalent individuals focus on perfectionistic adherence to certain criteria, such as conforming to precise moral rules, as verification of their self-worth.

Guidano and Liotti (1983) contended that, due to having grown up in a predominantly verbal environment, self-ambivalent individuals learn that feelings and

emotional expressions incongruent with these beliefs must not only be controlled, but not felt at all. To be satisfied that one has met personal demands, the self-ambivalent individual purportedly feels it necessary to exclude and control any mixed feelings or uncertainty. As such feelings are inevitable, the individual experiences a pervasive sense of uncontrollability and is thus impelled to move further towards verbal and analytic reasoning, placing utmost importance on managing thoughts and behaviour (Guidano, 1987; 1991). As the self-ambivalent individual becomes selectively inattentive to emotional experiences, they vigilantly monitor their thoughts and behaviours, perceiving them as a meaningful measure of their self-worth, so that their “sense of personal worth is intertwined with omnipotence of thought” (Guidano, 1987, p. 178). In this way, self-ambivalent individuals are particularly predisposed to attending to unwanted intrusions; the basis of the obsessions that are characteristic of OCD.

Unwanted intrusions that challenge the reliability of one’s self-worth are likely to arouse excessive alarm, partly due to their uncontrollable nature, but mostly because they threaten the self-ambivalent individual’s rigid standards of moral perfectionism (Guidano & Liotti, 1983). Consequently, the thought becomes more salient and is likely to be perceived as particularly meaningful. Intrusions are then more likely to be attended to, and this in turn exacerbates their frequency and intensity (Rachman, 1997). In this way, self-ambivalent individuals are particularly liable to develop obsessions characteristic of OCD.

As obsessions develop from this excessive attention to intrusions that threaten valued self-views, the self-ambivalent individual seeks to reinstate their self-worth. Thus, Guidano and Liotti (1983) suggested that neutralisation strategies, such as compulsions, become solutions for self-ambivalent individuals to control their mixed

feelings. Whilst the authors do not mention how specific compulsions develop, they contend that each compulsive act is designed to counter ambivalent feelings. For instance, an individual may compulsively recite prayers in order to resolve blasphemous thoughts. Another individual may engage in compulsive checking in order to avoid feelings of irresponsibility. Doing so provides the individual with evidence that they are adhering to their moral values, and thus their moral self-worth is reinstated. So, rather than acknowledging their limitations, the self-ambivalent individual strives for total control, believing that there is a need to be more vigilant, to try harder; “the solution is to become more perfect, and thus even more obsessional” (Guidano, 1987, p. 186). Until recently, the theoretical model of etiology proposed by Guidano & Liotti (1983) has received little empirical attention (Bhar & Kyrios, 2007). The relevant empirical literature will be reviewed in a section below.

Furthermore, Guidano and Liotti’s (1983) model of self-ambivalence provides a theoretical framework for the development and maintenance of a range of maladaptive belief systems associated with OCD (Bhar & Kyrios, 2007; OCCWG, 2005). For instance, given that self-ambivalent individuals are preoccupied with seeking certainty regarding their self-worth, it is likely that they would develop an intolerance of uncertainty. Due to the rigid standards that self-ambivalent individuals deem essential to their self-worth, particularly with respect to control and personal standards, they are prone to developing beliefs about perfectionism and control of thoughts. Furthermore, as a result of their focus on morality and strong commitment to preventing negative outcomes and maintaining idealised self-perceptions, self-ambivalent individuals are vulnerable to developing an inflated sense of responsibility. As self-ambivalent individuals are prone to exaggerate the harm that intrusive thoughts will have on their self-worth, it is also likely that they will hold maladaptive beliefs concerning the

overestimation of threat. Thus, Guidano and Liotti's (1983) model of self-ambivalence is consistent with the notion that the belief systems thought to be central to OCD may have evolved as a consequence of the individuals attentiveness to thoughts and mechanisms to protect a valued self-view.

5.3 Empirical support for self processes in OCD

5.3.1 Self-ambivalence in OCD. According to Guidano and Liotti (1983), the self-concept in self-ambivalent individuals is structured in such a way that they concurrently endorse positive and negative self-evaluations. Riketta and Zeigler (2006) showed that the experience of contradictory self-beliefs and feelings (experienced ambivalence) and the co-presence of positive and negative self-views (structural ambivalence) relate to low self-esteem. In a follow up study, the same authors demonstrated that the self-esteem of self-ambivalent individuals is labile and varies according to their environmental context (Riketta & Zeigler, 2007). The authors randomly assigned individuals to success versus failure conditions and showed that for individuals low in self-ambivalence, self-esteem remained constant over both conditions. In contrast, the self-esteem and self-evaluations of ability in highly self-ambivalent individuals fluctuated to be more negative after failure and more positive after success. This suggests that self-ambivalent individuals are more likely to evaluate themselves negatively in the context of negative feedback. Guidano and Liotti (1983) proposed that, as a result of their uncertainty in self-beliefs, self-ambivalent individuals look to their environment for confirming evidence of either of their self-views. In this way they are predisposed to attending to their unwanted intrusions. The findings from Riketta & Zeigler (2006; 2007) further suggest that the self-ambivalent individual will

interpret unwanted intrusions in a way that is associated with greater negative effects on the self.

Despite the purportedly important role of self-ambivalence in establishing a vulnerability to obsessions, compulsions and maladaptive beliefs, Guidano and Liotti's (1983) model was based solely on clinical observations. A review of empirical evidence identified only one research group that has directly empirically examined the association between self-ambivalence and obsessive-compulsive (OC) phenomena (Bhar & Kyrios, 2000; 2007). Drawing from the theory of self-ambivalence, clinical experience and consultation with clinicians familiar with Guidano and Liotti's model, Bhar and Kyrios (2007) developed an instrument to assess individuals' level of self-ambivalence, the Self-Ambivalence Measure (SAM). Items in the SAM were created to represent the three features central to self-ambivalence: dichotomous self-views, uncertainty about self-worth and preoccupation with verifying self-worth. Consistent with this definition, the SAM correlated moderately to strongly with measures of self-dichotomy, self-clarity and self-preoccupation (Bhar, 2004).

Firstly, in line with Guidano and Liotti's (1983) notions for the role that parenting has on the development of self-ambivalence, the SAM was shown to have strong correlations with measures of ambivalent parenting, ambivalent attachment and insecure identity (Bhar, Kyrios, Hordern, & Frost, 2001). These variables in turn demonstrated strong relationships with obsessive beliefs and OCD symptoms. Moreover, individuals with OCD ($N = 58$) scored significantly higher on the SAM than non-clinical individuals. However, while participants with OCD had higher SAM scores than participants with other anxiety disorders, this difference was not significant. At first this may be seen as evidence that self-ambivalence represents a general vulnerability to a variety anxious disorders. It must be noted, however, that the anxious

control group also did not differ in their endorsement of specific OC beliefs, which is an unexpected finding that is contrary to usual comparisons with OCD groups (OCCWG, 2003; 2005).

Considering this, the high score on the SAM in both clinical groups may actually reflect their shared conviction in unhelpful beliefs associated with OCD. Indeed, the SAM significantly correlated with measures of OCD related beliefs. Additionally, after controlling for symptoms of anxiety and depression, hierarchical regression analyses revealed that the SAM significantly predicted OCD symptoms (Bhar & Kyrios, 2000; 2007), with this relationship fully mediated by OC beliefs (Bhar & Kyrios, 2000). Providing further support for the relationship between SAM and OC thinking styles, when the association between beliefs and self-ambivalence was partialled out, the interrelationships between the OC beliefs decreased markedly (Bhar & Kyrios, 2000). Notably, the SAM correlated highest with checking compulsions and obsessions about harm coming to self or others ($r = .48 - .61$) but poorly with grooming and contamination compulsions ($r = .26 - .31$). Self-ambivalence has also been implicated in OC related disorders such as compulsive hoarding (Frost, Kyrios, McCarthy, & Matthews, 2007), body dysmorphic disorder and social anxiety (Labuschagne, Castle, Dunai, Kyrios, & Rossell, 2010; Phillips, Moulding, Kyrios, Nedeljkovic, & Mancuso, 2011).

These are promising findings providing preliminary evidence to support that an ambivalent self-concept is related to OC phenomena. Although the theoretical formulations postulate that self-ambivalence leads to the development and maintenance of OCD, the little research that has been undertaken has essentially been correlational and cross-sectional in nature. It cannot be deduced from these findings whether changes in self-ambivalence cause, or are a result of, OCD symptoms. Experimental research

that examines fluctuations of self-variables in response to OC phenomena is therefore required. The opposite pathways, whereby changes to self-variables follow OC phenomena, could also be tested to clarify the relationships involved.

Moreover, as the SAM total score relates to general ambivalence in self-worth, it does not capture specific notions regarding the multidimensional and contingent nature of self-worth (Eccles et al., 1989; Harter & Whitesell, 2003; Markus & Wurf, 1987; Marsh et al., 2004), particularly relating to Guidano and Liotti's (1983) focus on compliance with moral rules. In line with their theoretical predictions and a multidimensional view of self, Bhar and Kyrios (2007) created a subscale of the SAM to assess ambivalence about morality. Like the total SAM score, the moral ambivalence subscale (MA) significantly predicted OC beliefs and symptoms and even outperformed the SAM in predicting the unhelpful beliefs of responsibility and the importance of thoughts. The idea that morality has relevance to the self-worth of individuals with OCD is not unique to these researchers and will be further elaborated in a latter section of this chapter.

5.3.2 Self-esteem. The reciprocal relationship of self-esteem to personal goals, self-beliefs, and interactions with others means that it is fundamentally related to our experience of daily life (Crocker & Park, 2004). Consequently, it is not surprising that a relationship between low self-esteem and psychopathology is widely demonstrated throughout the literature (see Zeigler-Hill, 2007, for a review). Low self-esteem has been implicated in both the expression (APA, 2000; Boden, Ferfusson, & Horwood, 2008; Coyne & Calarco, 1995) and development of psychological disorders (Beck, 1967; Mann, Hosman, Schaalma, & de Vries, 2004; Neff & Vonk, 2009; Orth, Robins, & Meier, 2009; Orth, Robins, & Roberts, 2008).

In their retrospective examination into prodromal symptoms, Fava Savron, Rafanelli, Grandi and Canestrari (1996) found that low self-esteem was one of the common symptoms preceding the onset of OCD, suggesting that it may be a vulnerability to OCD. However, it is perhaps a nonspecific predisposing factor as other disorders also demonstrate premorbid signs of low self-esteem (e.g., depression; Orth et al, 2008; 2009). Furthermore, although a wealth of research shows that OCD symptoms have an association with low self-esteem, it appears that it cannot distinguish OCD from other mental disorders (Bhar & Kyrios, 2007; Ehntholt, Salkovskis & Rimes, 1999; Teachman & Clerkin, 2007). For instance, Ehntholt et al. (1999) showed that depressive, anxious and obsessive symptoms all had significant correlations with self-esteem.

It is possible, however, that examination of self-esteem in isolation from other variables is not specific enough to detect differences between disorders. For instance, Wu et al. (2006) found that the combination of low self-esteem and low entitlement were able to distinguish OCD patients from other psychiatric outpatients. Similarly, Ehntholt et al. (1999) showed that compared to anxious controls, the low self-esteem of individuals in the OCD group was characterised by specific concerns about criticism from others. Thus, although global self-esteem appears to have an association with mental distress in general, particular domains of self-esteem may be specific to OCD.

5.3.3 Self-concept.

5.3.3.1 Obsessions as ego-dystonic.

Theoretical models of the self in OCD suggest that the very reason that obsessions are distressing is because they are ego-dystonic; contradictory to one's sense of self. There is also growing empirical evidence to support the contention that ego-dystonic intrusions are more likely to cause distress and become obsessions. For

instance, sexually anxious and erotophobic students reported feeling more disapproval and more distress about sexual intrusions, and a greater desire to avoid sexual intrusions, than students with a positive disposition toward sexuality (Byers, Purdon & Clark, 1998). Similarly, Rowa and colleagues (Rowa & Purdon, 2003; Rowa, Purdon, Summerfeldt & Antony, 2005) compared the most and least upsetting current obsessions in both nonclinical and clinical OCD samples and found that distress ratings were best explained by the degree to which intrusions contradicted the individual's sense of self. Additionally, Rachman and de Silva (1978) demonstrated that the intrusions reported by a cohort with OCD were more alien to individuals' sense of self than the intrusions of a non-clinical sample. Taken together, these findings imply that one's self-concept is implicated within the distress related to unwanted intrusions. Yet, given that the majority of the population experience intrusive phenomena, how is it that only certain people will go on to develop OCD? Particular self-profiles may make the individual be more vulnerable to noticing and interpreting intrusions as threatening. The following sections highlight support for this notion.

5.3.3.2 Moral self in OCD.

While the self was traditionally treated as a stable and unitary generalised construct, current research shows self-perceptions to be dynamic and multifaceted: that is, individuals may have alternative concepts of themselves in different situations that are integrated into a global self-view (Eccles et al., 1989; Marsh et al., 2004). Individuals hold their various self-relevant domains to be at different levels of importance, where global self-worth can be influenced more by domains that one regards as more rather than less important (Harter & Whitesell, 2003). Crocker and colleagues (Crocker, Luhtanen, Cooper, & Bouvrette, 2003; Crocker & Park, 2004; Crocker & Wolfe, 2001) argued that when an individual's perceived competence in

their valued domains has been achieved, self-worth is enhanced and there are temporary boosts of positive affect, such as pride. Conversely, failure in these domains leads to a drop in overall self-esteem and increases in negative emotions such as sadness (Crocker & Park, 2004), anger and shame (Tangney, Wagner, Hill-Barlow, Marschall, & Gramazow, 1996). As a result, self-worth contingencies may serve as a liability to the development of psychopathology when individuals are faced with threats to their important domains.

In line with Guidano and Liotti's theory (1983), researchers suggest that an individual's contingencies of self-worth are associated with specific attachment styles, where inconsistent feedback from parents, such as fluctuations in approval and disapproval, provide conflicting messages to the child (Crocker & Park, 2004; Harter & Whitesell, 2003). When combined with pressures to feel or behave in specific ways, the individual is likely to develop an unstable sense of self-worth that is dependent on perceived competence in personally important domains. For instance, Harter et al. (1992) revealed that a contingent self-worth develops when parents make their approval contingent upon their children meeting very high and often unrealistic standards. Consequently a multi-dimensional self-concept, where global self-worth is influenced by competence in important self-domains, may be relevant to Guidano and Liotti's (1983) theory of self-ambivalence. In particular, a self-worth that is highly contingent upon moral standards may have particular relevance to OCD.

As suggested, this is a proposal that has been theoretically and empirically derived from literature outside Guidano and Liotti's (1983) model. Rachman (1997) has argued that those individuals who strive for moral perfectionism are more prone to obsessions as they view all of their actions and thoughts as significant markers of their moral standing. Additionally, Shafran, Thordarson and Rachman (1996) hypothesised

that individuals with OCD have a tendency to view their unacceptable thoughts as morally equivalent to unacceptable actions, a process they labeled Moral Thought Action Fusion (Moral-TAF). They propose that Moral-TAF is an appraisal process that leads an individual to inflate the significance of their thoughts. This then drives the individual to try and suppress such thoughts, which paradoxically serves to intensify the intrusions so that they become obsessions. In support of this theory, Moral-TAF was demonstrated to predict thought suppression, which in turn predicted OCD symptoms in a psychology undergraduate sample (Rassin, Muris, Schmidt, & Merckelbach, 2000).

The content of moral intrusions can relate to a variety of themes, including sex (Gordon, 2002), religion (Abramowitz et al., 2004) or ethical values (Ferrier & Brewin, 2005), although even intrusions that are seemingly unrelated to morality can be interpreted as having moral overtones (Guidano & Liotti, 1983). Examination of detailed case analyses show that a variety of obsessions can have strong moral connotations. One individual with OCD judged her intrusions regarding symmetry to be morally unacceptable because they were “crazy” (O'Neill, 1999, p. 81). Another found his intrusions distressing because of the implications that they had on his moral worth (O'Neil, Cather, Fishel, & Kafka, 2005). This individual had thoughts of harming his two year old son and was driven to hold his son after an intrusion, not to ensure that his son was safe but to reassure himself that he was not evil and able resist “temptation”.

There is also some empirical support that morality may be relevant to the self-worth of individuals with OCD. For instance, when compared with anxious and community controls, individuals with OCD were significantly more likely to make negative moral inferences about themselves based on their intrusions (Ferrier & Brewin, 2005). These authors additionally reported that the ‘feared self’ of the OCD sample was significantly more likely to consist of bad and immoral traits. Of particular interest to

the current study, Doron, Kyrios and Moulding (2007) analysed undergraduate psychology students on a variety of self-concept domains, OC beliefs and OC symptoms. Self-domains were conceptualised as being ‘sensitive’ if the individual highly valued the domain yet concurrently felt incompetent in that domain. Individuals sensitive in moral self-concept demonstrated significantly greater levels of all OC beliefs and symptoms severity than individuals not sensitive in moral self-concept, even when general self-esteem was controlled statistically. A follow-up study with a clinical sample confirmed that moral self-sensitivity was related to higher severity of OCD symptoms (specifically, obsessional thoughts of harm, contamination and checking) and OCD cognitions within the group with OCD compared to a group with other anxious disorders and a nonclinical control group (Doron, Moulding, Kyrios, & Nedeljkovic, 2008).

Overall, in line with Guidano and Liotti’s (1983) theory of self-ambivalence, when theoretical and empirical studies and case analyses are taken together, there is mounting evidence that a moral self-concept may have a particular association with OC phenomena.

5.3.4 Implicit self and OCD. While a growing empirical literature base supports that self-knowledge may have utility in understanding OCD, this research is primarily based on self-report methodology. The limitations of this methodology means that response distortions and an inability to introspect can lead to inherent difficulties in obtaining accurate measurement through self-report measures, particularly in assessing self-concept and self-esteem (Bosson, 2006; Dijksterhuis et al., 2009; Greenwald & Banaji, 1995; Greenwald & Farnham, 2000; Jordan et al., 2003; Olson et al., 2007; Paulhus, 1986). It therefore follows that research into OCD phenomena may be enhanced through use of additional methodologies.

It becomes surprising that the majority of OCD research has omitted measures of implicit cognitive processes when you consider that implicit measures have shown an ability to predict phenomena relevant to the experience of OCD including: immediate affective responses and physiological reactivity (Egloff & Schmukle, 2002; McConnell & Leibold, 2001; Spalding & Hardin, 1999; Van Bockstaele et al., 2011), spontaneous behaviour, particularly non-verbal anxiety behaviour (Egloff & Schmukle, 2002; McConnell & Leibold, 2001; Rudolph et al., 2010; Steffens & Schulze-König, 2006) and depressive symptomatology (Franck, Raedt & Houwer, 2007; Greenwald & Farnham, 2000).

Moreover, implicit measures have demonstrated they can outperform explicit measures in predicting specific aspects of psychopathology that are relevant to OCD. For instance, Rudolph et al. (2010) found that implicit self-evaluations uniquely predicted ratings by an experimenter blind to the studies aims of anxiety, linguistic aspects of anxiety and spontaneous self-confident behaviours, while self-reported self-esteem uniquely predicted controlled and deliberative behaviours. Back et al. (2009) found that implicit measures of neuroticism and extraversion predicted related behaviours, above that predicted by explicit measures. Spalding and Hardin (1999) showed implicit self-esteem more strongly affected nonverbal anxious behaviours (e.g., nervous mouth movements, hand position, speech dysfluency and overall anxious presentation). Although explicit self-esteem was unrelated to nonverbal anxious behaviours, it did predict levels of self-reported anxiety. Similarly, using trained judges that were blind to the participants other ratings, Egloff and Schmukle (2002) found that implicit ratings of anxiety predicted anxious behaviours that explicit measures were unable to predict. Additionally, Van Bockstaele et al., (2011) found that only implicit measures were able to predict changes of heart rate when exposed to fearful stimuli

(e.g., spiders). Further, Franck et al., (2007) showed that after controlling for initial symptoms of depression, implicit (but not explicit) self-esteem was a significant predictor of depressive symptoms at six-month follow-up.

There is, however, a relative lack of literature examining implicit self-construals in processes that are more directly relevant to OCD. With experimental manipulations on the meaning of intrusive thoughts, one research group has examined how aspects of the cognitive theory of OCD relate to implicit self (Teachman & Clerkin, 2007; Teachman, Woody & McGee, 2006). Teachman et al. (2006) experimentally manipulated appraisals of the importance of intrusive thoughts, informing participants that their intrusions were either important, meaningless, or where no information was given. The authors found that, for individuals high on OCD beliefs, information that their intrusions were important lead to implicit appraisals of themselves as more dangerous than harmless. In a related study that manipulated the moral meaning of intrusions, Teachman and Clerkin (2007) showed that for individuals who had a high need for certainty, the moral condition related to implicit ratings of self as dangerous. The authors suggested that these findings are in line with the cognitive model of OCD and mood-state dependent hypotheses; when under conditions that induce stress, OCD beliefs may serve as a cognitive vulnerability to negative implicit self-judgments (Teachman et al., 2006). These were promising findings on a healthy non-clinical sample. It remains to be examined how pre-existing self-profiles and more severe symptoms may be involved in OCD processes.

5.3.5 Self-discrepancy and OCD. Research that involves contrasting and competing self-views in OCD currently implicates known, or explicit, self-views (Aardema & O'Connor, 2007; Bhar & Kyrios, 2007; Doron et al., 2007, 2008; Ferrier & Brewin, 2005; Guidano & Liotti, 1983). Although no research identified has directly

examined implicit and explicit discrepancies in OCD, the following research lends preliminary support that a discrepant low self-esteem may be an area worthy of further investigation for research in OCD.

A growing body of research supports the notion that regardless of the direction, discordance between implicit and explicit self-esteem is associated with a variety of negative affective experiences (Jordan et al., 2003; Lupien et al., 2010; Petty et al., 2006; Rudolph et al., 2010; Schroder-Abe et al., 2007; Shedler et al., 1993; Vater et al., 2010). Brinol et al. (2006) further show that individuals with these discrepancies engage in a greater elaboration of discrepancy-related information, presumably in an effort to reduce the discrepancy. Although implicit-explicit discrepancies can take two forms (Zeigler-Hill, 2006), it is the discrepant low self-esteem (high implicit-low explicit) that may have particular relevance to OCD phenomena. Zeigler-Hill and Terry (2007) contend that the high implicit self-esteem in the context of a low explicit self-esteem provides individuals with an inner optimism, and a sense that they only need to “try harder” and persevere. Unrealistically high and rigid perfectionistic standards may then be adopted in an effort to raise levels of explicit self-esteem and resolve their inconsistent self-attitudes (Guidano & Liotti, 1983). This is mainly due to findings that people with this self-discrepancy profile show the highest levels of maladaptive perfectionism as measured by the Multidimensional Perfectionism Scale (MPS; Frost, Marten, Lahart, & Rosenblate, 1990); that is doubt over actions (e.g., “Even when I do something very carefully, I often feel that it is not quite right”), concern over mistakes (e.g., “People will probably think less of me if I make a mistake”), parental criticism (e.g., “I never felt like I could meet my parents’ standards”) and parental expectations (e.g., “My parents have expected excellence from me”) (Zeigler-Hill & Terry, 2007). Importantly, the maladaptive perfectionism subscale of the MPS (Frost, Heimberg,

Holt, Mattia, & Neubauer, 1993) has showed an ability to predict OCD symptoms, above and beyond depressive symptoms (Wu & Cortesi, 2009); and doubts about actions were able to differentiate OCD from other anxiety disorders (Antony, Purdon, Huta, & Swinson, 1998).

When these results are considered in relation to existing research on self-ambivalence and moral self-worth in OCD, it raises questions as to whether self-reported ambivalent self-esteem and sensitivity in moral self-concept are due to a discrepancy between implicit and explicit self-views. Perhaps the previous findings also represent that individuals with OCD have an internal conflict between explicit beliefs that they are not yet worthy or good and an inner optimism that they can be. The current thesis seeks to further test out these theories.

5.4 Conclusion

This chapter provides the theoretical and empirical context for understanding how self-processes may be implicated in OCD. It showed that the cognitive theory of OCD alludes to the importance of the self in the development of OCD. Guidano and Liotti's (1983) theory of self-ambivalence was fully explored for incorporating the possible developmental origins of the disorder. Specifically, these authors contended that due to confusing and conflicting early childhood experiences, individuals may develop dichotomous self-views. As these views are not securely attained they can fluctuate, ultimately leading to self-uncertainty. This results in an overattentiveness to thoughts so the individual can find verification in self-standing, and the potential development of rigid maladaptive beliefs in an effort by the individual to protect a valued self-view. In line with cognitive models for OCD, this would then sets the stage for the individual to develop OCD-related beliefs and noticing, and feeling threatened

by unwanted intrusions. Guidano and Liotti's notions are also consistent with empirical understandings of the motivation to maintain a secure and stable sense of self.

Empirical evidence for a relationship between OC phenomena and self-processes were then reviewed. In line with Guidano and Liotti's (1983) contentions, an ambivalent self-worth contingent upon meeting high moral standards was proposed to have specific relevance to OCD. The majority of OCD research supporting these notions has focused on explicit self-views. Although this research has provided insights into the nature of self and OCD, this thesis contends that the field may be further advanced through examination with alternative methodologies. Consequently, this chapter outlines the new but growing field of implicit processes in OCD and suggests that a discrepancy between implicit and explicit self-processes, specifically a discrepant low self-esteem, may also be relevant to OC phenomena. Consequently, this chapter provides the justification for the central aim of the current thesis: to further examine both implicit and explicit self-processes in OCD.

Chapter 6: This Thesis

The literature review has provided the theoretical and empirical context for understanding the phenomenology of OCD and how self-processes may be implicated in the disorder. Research on self-structure provides support for the proposal that incompatible and competing self-views lead to an unstable sense of self (Baumeister, 1999; Campbell, 1990; Linville, 1985). In order to resolve the resultant self-uncertainty, individuals engage in more thinking and pay more attention to discrepancy-related information to try and gain more evidence for the positive side of their ambivalent attitudes and minimise internal discrepancies (Brinol et al., 2006; Hanze, 2001; Hass et al., 1992; Hodson et al., 2001). This is in line with cognitive accounts of the development of OCD: self-uncertainty results in an overattentiveness to thoughts as evidence of self-standing; in a propensity to interpret intrusions as a personal threat to self-ideals; and in the potential development of rigid maladaptive beliefs in an effort to protect a valued self-view (Aardema & O'Connor, 2007; Bhar & Kyrios, 2007; Clark, 2004; Doron & Kyrios, 2005; Guidano & Liotti, 1983; Purdon & Clark, 1999). Further, recent empirical findings support that OC phenomena are associated with ambivalence in self-views (Bhar & Kyrios, 2005) and 'sensitivity' in moral self-worth (e.g., morality is valued as important to the individual's self-concept and yet concurrently they feel morally incompetent; Doron et al., 2007; 2008). Consequently, there is a growing literature base that suggests that understanding the complexity of OCD requires theoretical models that incorporate the development and active role of self-knowledge. In particular, a discrepancy in self-views is proposed to be particularly relevant to OC phenomena.

However, the available literature is primarily reliant on explicit measures of self. This may be problematic because the outcomes are contingent on honest and accurate

responses. Although not suggesting that survey responses by those with OCD are untrustworthy, sole reliance on this methodology could be influenced by the shame and embarrassment surrounding the disorder and motivation to protect particular self-views and/or a potential inability to introspect on less accessible aspects of the self. Further support for investigating alternative methodologies comes from findings that, relative to explicit measures, implicit measures have shown a greater ability to predict behaviours and negative affective experiences associated with OCD (Rudolph et al., 2010; Spalding & Hardin, 1999). Importantly, self-discrepancies can exist between the explicit and implicit levels of awareness, and although there are indications that a specific discrepancy between implicit and explicit self-esteem may be implicated in the development of maladaptive OCD related beliefs (Zeigler-Hill & Terry, 2007), these ideas have yet to be directly investigated. Indeed, there is a relative paucity of literature that examines implicit self-processes in OCD.

Moreover, the promising findings of previous research into the self-construals of OCD (Bhar & Kyrios, 2005; Doron et al., 2007; 2008) are based on correlational data. While this is an important first step towards demonstrating relationships between self-concept and OC phenomena, progress in our understanding necessitates experimental research. In particular, that which examines the relative impact that various OC-related phenomena have on self-construals. Although there is a paucity of experimental research in this area, the methodology already exists to look at the fluctuations affect and specific cognitions in response to different OC-phenomena. For instance, Salkovskis et al. (1997; 2003) examined the differential effects that exposure to unwanted intrusions, maladaptive neutralising and adaptive refocusing had on anxiety and urges to neutralise. It remains to be seen, however, what impact these responses have on self-beliefs.

The overall aim of the thesis is to examine self-construals in OCD. In particular, the thesis aimed to investigate three aspects of the relationship between self-construals and OCD. First, it examined whether self-beliefs (implicit and explicit) relate to OCD symptoms and beliefs. Second, using experimental methodology, it addressed the immediate impact that obsessions and compulsions have on self-beliefs. Finally, this thesis investigated how self-beliefs may serve as a liability in appraising the experience of unwanted intrusions as overly threatening. Three studies were conducted to address each of these questions, each which may be understood as a separate investigation.

In Study 1 (Chapter 7), various measures of implicit and explicit self-esteem and self-concept were added into a hierarchical regression to assess their ability to predict OCD symptoms. Two measures of implicit self-concept were tested. One implicit measure used was the Name-Letter Preference Task (NLPT; Nuttin, 1985), where individuals who report greater preference for letters in their name relative to other letters in the alphabet are thought to have a high general implicit self-esteem. In line with evidence that explicit and implicit self-views do not necessarily correspond, and may have relevance to OCD, a discrepancy profile that contrasts implicit and explicit self-esteem was created; standardized scores of the NLPT were subtracted from standardized scores of an explicit measure of general self-esteem (Rosenberg Self-esteem Scale; Rosenberg, 1965). Overall positive scores indicate a greater explicit self-esteem relative to implicit and conversely, an overall negative score suggest a higher implicit score relative to explicit score. Scores around zero suggest congruent explicit and implicit self-ratings. There is support for the notion that individuals with OCD generally report low self-esteem (Fava et al., 1996; Wu et al., 2006), and that individuals who are ambivalent in their self-worth have low self-esteem and have higher levels of OCD symptoms (Bhar & Kyrios, 2005; 2007). Study 1 was interested to

investigate if underlying these findings is a discrepancy between implicit and explicit self-views. That is, does the concept of self-ambivalence incorporate a concurrent high implicit self-esteem and low explicit self-esteem? The above results may represent that individuals with OCD concurrently hold negative self-evaluations that they are bad, but an inner hope that they have the potential to be good.

Nevertheless, the NLPT only provides an indication of overall, general self-esteem at the implicit level and does not address the multifaceted nature of self. To examine implicit self-worth in a domain shown to have relevance to OCD, the second implicit measure in Study 1 was the Go No-Go Assessment Task (GNAT; Nosek & Banaji, 2001). This version of the GNAT examines the relative strength of automatic associations of oneself as a moral versus immoral individual. Higher GNAT scores suggest automatic associations of oneself with concepts of being a moral individual and conversely, lower GNAT scores suggest implicit associations of one as immoral. The inclusion of this variable will enable us to see if the highly moral self-worth purported to have particular relevance to OCD (Doron et al., 2007; 2008), also operates at an implicit level of awareness.

The relationship of these implicit variables to OCD phenomena was investigated in the context of two explicit self-variables. In accordance with findings that individuals with OCD are ambivalent about their self-worth because they hold incompatible and contradictory self-views (Bhar & Kyrios, 2007), the Self-Ambivalence Measure (SAM) was one of the explicit self-measures used. As mentioned, the OCD literature also notes increasing theoretical and empirical support for the suggestion that morality is relevant to the disorder. In particular, individuals who value morality as an important indicator of self-worth, but do not believe that they are able to meet their high moral standards appear more vulnerable to OC phenomena (Doron et al., 2007; 2008). Consequently, an

explicit measure of anxious concern over moral self-worth was also included (the Obsessive Sensitive Self Inventory; OSSI).

In order to fully examine the relative contribution that these variables make in predicting OC symptoms, variables that have demonstrated an association to both OC symptoms and self-processes were included in analyses (e.g., OCD-related beliefs and depressive symptoms). Ordering the variables into hierarchical steps enabled examination of the theorised relationship between implicit and explicit self-variables, obsessive beliefs and OCD symptoms. It was predicted that discrepant implicit self-variables would significantly predict OCD symptoms, but that this relationship would be mediated by explicit self-variables, which in turn would be mediated by maladaptive OC beliefs. The variability in the specific manifestations of OCD underscores the importance of studying not only the disorder as a whole but all dimensions of the disorder (McKay et al., 2004). Indeed, previous examination of self in OCD showed that relationships differ between the different OCD subtypes (Bhar & Kyrios, 2000; Doron et al., 2007; 2008). So, although initial regression analyses utilised an OCD symptom total score, Study 1 also sought to explore the relationship between implicit and explicit self-measures and symptom subtypes.

While Study 1 was designed to provide an indication of self-processes involved in OCD, it can only do so from a “trait” perspective; the correlational evidence can only show how one’s self-concept relates to the current status of one’s OCD beliefs and symptoms. The findings therefore cannot inform us how self-processes change in response to OCD phenomena. In cognitive accounts of OCD, obsessions are interpreted as threats to valued self-views and neutralising responses are seen as central to the persistence of obsessional problems (Corcoran & Woody, 2008; Newth & Rachman, 2001; Rachman, 1997, 1998; Salkovskis, 1998; Wegner et al., 1987). Experimental

evidence has demonstrated that neutralising strategies are associated with increased conviction in obsessive beliefs, discomfort and urge to continue using such responses (Salkovskis et al., 1997, 2003; Kyrios et al., 2001). However, the impact of obsessions and compulsions on self-belief processes has not previously been confirmed empirically.

Consequently, the second aim of this thesis was to examine the effect that neutralising responses have on explicit self-variables. Replicating the experimental design of Salkovskis et al. (1997, 2003). In Study 2 (Chapter 8) participants were continually exposed to one of their unwanted intrusions and they were asked to respond with neutralising strategies or just listen to, and consider the content, of their thought. In an extension of previous research, Study 2 not only tracked fluctuations relevant to OC experience (distress and urges to neutralise), but also the effect that the task had on self-variables. As the ratings noted were via self-report, Study 2 was limited to assessing the effect that neutralising has on explicit self-variables. The methodology required for assessing implicit self-concepts was longer than would suitably fit within the experimental task.

To establish that self appraisals fluctuate differentially with responses to unwanted intrusions, Study 2 provided experimental evidence of how self-worth and confidence in self-worth (herein referred to as self-confidence) change on exposure to unwanted intrusions with the use of maladaptive neutralising versus adaptive refocusing strategies. These findings therefore provide an experimental examination of cognitive and self-based theories of obsessions. In line with theoretical ideas that obsessions threaten valued self-views and lead to self-uncertainty (Byers et al., 1998; Clark, 2004; Guidano & Liotti, 1983; Rowa et al., 2005; Rowa & Purdon, 2003), it was predicted that self-worth and self-confidence would drop when participants were exposed to

unwanted intrusions, and refrained from using any neutralising responses. Further, given that neutralising responses are proposed to reinstate and secure valued self-views (Guidano & Liotti, 1983), it was also hypothesised that ratings of these self-variables would increase when using neutralising strategies.

Although the design of Study 2 was experimental and it can show the effect that intrusions and neutralising have on self-processes, the findings however remain correlational. The results will not clarify the relationship between fluctuations in self-variables and changes in one's OC experience throughout the task, and so will leave unanswered questions as to the process by which unwanted intrusions translate into obsessions; do increases in the OC variables of distress and urge to neutralise result in lowered self-worth and self-confidence, or vice versa?

Additionally, the findings of Study 2 will not reveal how different population groups experience the experimental task. Previous research suggests that both clinical and non-clinical individuals experience increased distress and urges to neutralise when faced with unwanted intrusions (Salkovskis, 1997, 2003). However, there has yet to be an assessment of the specific vulnerability factors that lead participants to have more maladaptive OC experiences in the task (i.e., more intense levels of distress and urge to neutralise). These findings could importantly identify characteristics in individuals that, due to their vulnerability towards unpleasant experiences when exposed to intrusions, have an increased risk of developing OCD.

The third aim of the current thesis was to clarify these issues. By testing and comparing different structural equation models, Study 3 (Chapter 9) aimed to examine proposed relationships between the variables in the experimental task of Study 2. Concordant with Rachman (1997, 1998), it was hypothesised that drops in self-worth and self-confidence in the Neutralising task would correspond with a more adverse OC

experience in the Neutralising task (greater distress and increased urges to neutralise). This model is congruent with cognitive models for OCD that suggest that individuals with an ambivalent self-concept feel distress and urges to reinstate self-worth when exposed to obsessions (Bhar & Kyrios, 2007; Guidano & Liotti, 1983). These pathways were compared with another model whereby the opposite relationship is investigated; that is, increases in distress and urge to neutralise relate to drops in self-worth and self-confidence. Given the theoretical support for the former model (Bhar & Kyrios, 2007; Guidano & Liotti, 1983; Rachman, 1997; 1998), it was proposed to be a better fit for the data.

Study 3 additionally examined if particular vulnerability profiles, identified from the questionnaire data in Study 1, translate to a specific deleterious experience throughout the experimental task in Study 2. The findings of Study 3 will therefore enable us to understand whether changes to self-esteem are part of the experience in having obsessions and compulsions, or if particular self-profiles serve as a pre-existing vulnerability. It is predicted that a vulnerable self-profile will have an indirect relationship with one's OC experience in the experimental task; a vulnerable self will significantly predict OC-severity and changes to self-variables in the experimental task, which will impact upon one's OC-experience throughout the experimental task. Specifically, as per Study 1, high levels of self-ambivalence and discrepant self-views would lead to greater OC-related beliefs and symptoms, which in turn would result in more distress and urges to neutralise in the experimental task of Study 2. Concurrently, high levels of self-ambivalence would lead to greater perceived threat to individuals' self-views in the experimental task, resulting in a more aversive OC experience. Consequently, the findings from Study 3 will help to elucidate the mechanisms by which a vulnerable self-concept translates into obsessions and compulsions.

Studies 1 to 3 and their findings are described in Chapters 7 to 9. Each Study may be understood as separate investigations, each with their own aim. They have been structured, ready for publication, so that the information within each study may be understood in isolation from the rest of the thesis. Nevertheless, there are shared themes. In particular, a review of the cognitive theory of OCD, limitations with our current understanding, and the importance of investigating self-construals. Consequently, the information presented in each study may overlap with that presented in the previous chapters. Following the description of the three empirical studies, a final chapter summarises the findings and overall implications of these studies.

PART II – EMPIRICAL ANALYSES

Chapter 7: Study 1

Self-profiles and their relationship to OC phenomena

7.1 Introduction

Obsessive Compulsive Disorder (OCD) is a chronic and incapacitating anxiety disorder found across all geographic, ethnic and socioeconomic populations (Antony, Downie, & Swinson, 1998; Nedeljkovic, Moulding, Foroughi, Kyrios, & Doron, 2011). The central components of OCD include obsessions and compulsions. Obsessions are experienced as intrusive and intolerable thoughts, images or urges that the individual finds hard to ignore and difficult to control (APA, 2000). Importantly, they are also considered to be ego-dystonic; inconsistent with the core values of the self (Clark, 2004). To help alleviate the negative affect associated with obsessions, or to prevent the occurrence of a perceived threat, individuals with OCD feel compelled to perform behaviours or mental acts (APA, 2000). Symptoms can vary widely, variant symptoms can have differential responses to treatment and differential associated dysfunctional beliefs (McKay et al, 2004). Consequently, OCD is increasingly recognized to be a heterogeneous condition.

As obsessions involve distorted thinking, it is understandable that the cognitive approach has dominated psychological OCD research over the last two decades (Clark, 2005; Salkovskis, 1998). Central to the cognitive model is the understanding that unwanted intrusions form the basis of obsessions (Rachman, 1997). The content of intrusions are qualitatively similar across non-clinical and clinical cohorts (Rachman & de Silva, 1978), thus substantiating the use of analogue samples for OCD research. Differences are found between the groups in their appraisal of the unwanted phenomena. Individuals without obsessive-compulsive tendencies interpret their

intrusions as relatively meaningless or harmless and so there are little resulting negative effects. In contrast, misinterpretations of intrusions as important or personally significant produce considerable anxiety and distress (Purdon & Clark, 1999; Rachman, 1997). This leads to resistance of such thoughts and neutralisation responses such as compulsions or avoidance of triggers (Salkovskis, 1997). Neutralisation strategies are maladaptive safety seeking behaviours and are considered responsible for the persistence of obsessional problems; they alleviate discomfort in the short term but are associated with longer term enhancement of discomfort, increasing the urge to engage in responses and strengthening the misconception that neutralisation was responsible for preventing the negative effects associated with obsessions (Rachman, 1998; Salkovskis, 1989, 1998).

A further assumption of the cognitive theory of OCD is that faulty appraisals are derived from an individual's general belief system. International researchers in OCD have identified a range of specific belief domains thought to be central to the disorder, including an inflated sense of personal responsibility, the overestimation of threat, perfectionism, the belief that uncertainty can not be tolerated, a belief that thoughts are overly important and reflect something about the individual, and the belief that thoughts must be controlled (OCCWG, 1997, 2001, 2003, 2005). Correlational and experimental evidence supports that these specific beliefs are associated with higher OCD symptom scores (Clark et al., 2003; Frost et al., 2002; Ladouceur et al., 1995; Lee et al., 2005; Lopatka & Rachman 1995; OCCWG, 2001, 2005; Storchheim & O'Mahony, 2006; Taylor et al., 2005).

Together with behavioural strategies (i.e., Exposure with Response Prevention), interventions targeting these central tenets of cognitive theory are recommended as a first line treatment for OCD (March et al., 1997; NICE, 2006). Randomised, placebo-

controlled trials and meta-analytic research suggest that cognitive-behaviour therapy (CBT) is equal or perhaps superior to pharmacotherapy in effectively decreasing OCD symptoms (Prazeres et al., 2007). Meta-analytic reviews consistently demonstrate that CBT outperforms some other psychological therapies (i.e., systematic relaxation, anxiety management) and is more effective for OCD symptoms (e.g., obsessions, hoarding) that show poor response to ERP (Abramowitz, Taylor, & McKay, 2005; Clark, 2005; NICE, 2006). As a new modality, or as a means of ultimately engaging clients in ERP, the cognitive framework and CBT have had positive implications for the effective treatment of OCD.

However, there are still some notable limitations. The cognitive account recognises that OCD beliefs are central to the development and maintenance of symptoms but gives no theoretical account for how these beliefs developed in the first place (Bhar & Kyrios, 2007; Doron & Kyrios, 2005). Current CBT programs tend to only target the specific belief systems, which may leave the individual with OCD vulnerable if the underlying development of these beliefs is not addressed. Indeed, despite the promise and advances that cognitive theory has given to the treatment of OCD, around 50% of patients still fail to show significant improvement when high refusal, drop-out and differential response rates are considered (Abramowitz et al., 2005; Fisher & Wells, 2005). For those who do respond, between 20-30% fail to maintain treatment gains two to six years post-therapy (Foa et al., 1998). It is possible that such limited outcomes can be addressed by furthering our knowledge of vulnerabilities to OCD that could be subsequently targeted in treatment. The current study suggests further examination of self-processes may aid our understanding of how individuals develop unhelpful OC beliefs, thus increasing our potential to help people with this disorder.

7.1.1 Self-processes in OCD. The DSM-IV-TR definition of obsessions in OCD as “ego-dystonic”, that is, contradictory to one’s sense of self (APA, 2000) provides strong recognition that self-concept is related to OCD. Indeed, investigation into self-processes may be a logical extension for cognitive accounts for OCD. Current theoretical models suggest that obsessions are distressing because they are ego-dystonic (Purdon & Clark, 1999; Rachman, 1997) and empirical evidence supports these contentions. Rachman and de Silva (1978) found that when compared to the intrusions of a nonclinical sample, individuals with OCD reported obsessions that were more alien to their sense of self. Similarly, Rowa and colleagues (Rowa & Purdon, 2003; Rowa et al., 2005) found that distress ratings of obsessions were best explained by the degree to which they contradicted one’s sense of self, in both nonclinical and clinical OCD samples.

Given that the vast majority of the population experience unwanted intrusions (Clark & Purdon, 1995; Purdon & Clark, 1993; 1994), what is it that makes particular people more vulnerable than others to noticing and interpreting intrusions as threatening? In line with previous research (Aardema & O’Connor, 2007; Bhar & Kyrios, 2000, 2007; Clark, 2004; Doron et al., 2007, 2008; Guidano & Liotti, 1983), the current thesis argues that individuals who are uncertain in their self-concept may be more susceptible to developing OCD.

Guidano and Liotti (1983) postulated that as a result of ambivalent attachment experiences, individuals with OCD develop a self-concept based on contradictory and competing self-views. Recurrent oscillations between discrepant beliefs lead to uncertainty about their self-worth and vigilant attempts to evaluate their thoughts and behaviours as a meaningful measure of their self-worth (Guidano, 1987). In this way, self-ambivalent individuals are predisposed towards attending to unwanted intrusions.

As intrusions threaten their self-views, the self-ambivalent individual seeks to reinstate their self-worth. Thus Guidano and Liotti suggested that neutralisation strategies, such as compulsions, become solutions whereby self-ambivalent individuals can essentially confirm their worth and thus control their mixed feelings.

These ideas are in line with the literature on self-structure, which agrees that incompatible and competing self-views lead to an uncertain sense of self (Baumeister, 1999; Campbell, 1990; Linville, 1985; Riketta & Zeigler, 2006) and that in order to resolve the resultant self-uncertainty, individuals engage in enhanced thinking or information processing to minimize any internal discrepancies and gain more evidence for one side of their ambivalent attitudes (Brinol et al., 2006; Hanze, 2001; Hass et al., 1992; Hodson et al., 2001). Indeed, Riketta and Zeigler (2006, 2007) showed that self-ambivalent individuals are more likely to evaluate themselves negatively in the context of negative feedback, supporting Guidano and Liotti's (1983) contention that individuals will interpret unwanted intrusions in a way that is associated with negative effects on the self. Moreover, there is also some empirical support that OCD is associated with self-ambivalence; individuals with OCD had higher levels of self-ambivalence than non-clinical individuals, and self-ambivalence was highly correlated with measures of self-esteem, depression, OC beliefs and OC symptoms (Bhar & Kyrios, 2007). Indeed, self-ambivalence predicted OC symptoms, but this relationship was mediated by OC beliefs (Bhar & Kyrios, 2000).

In line with a multidimensional view of self, Guidano and Liotti (1983) contend that morality is integral to the self-worth of individuals with OCD. There is also some empirical suggestion that uncertainty in moral worth is relevant to OC phenomena. Doron et al. (2007) analysed undergraduate psychology students on a variety of self-concept domains, OC beliefs and OC symptoms. Individuals who reported that morality

was important to their self worth but concurrently felt incompetent in that domain were associated reported significantly greater OC beliefs and symptoms than did individuals who were not concerned with their moral worth. A follow-up study with a clinical sample further supported that uncertainty in moral self-worth is related to higher severity of OCD symptoms and OCD cognitions within individuals with OCD (Doron et al., 2008).

There is therefore a growing empirical literature base to support the notion that the development and active role of self-knowledge may be useful in helping our understanding of the complexity of OCD. Unfortunately, the available literature is primarily based on self-report methodology, and thus can only assess explicit beliefs of self. There are potential difficulties in obtaining honest and/or accurate assessments by reliance on this measurement procedure. Explicit measures of self-esteem have shown correlations with measures of impression management, self-presentation and self-deception, so that individuals typically present themselves as having a higher self-esteem than they actually do (Bosson, 2006; Dijksterhuis et al., 2009; Greenwald & Banaji, 1995; Greenwald & Farnham, 2000; Jordan et al., 2003; Olson et al., 2007; Paulhus, 1986). Further, accurate responses depend on one's ability to introspect on self-processes. Individuals with OCD tend to take a long time to present for help, citing intense shame and embarrassment as preventive factors (Feinstein et al., 2003). This supports that self-presentational issues may be particularly relevant to this population group and so it is possible that they may have enhanced motivation to protect particular self-views as assessed through self-report modalities. Consequently, measures that investigate self-components without the need for conscious reflection may help to add to our understanding of the experience of individuals with OCD, and examination of implicit self-construals may provide additional understanding of OCD.

7.1.2 Implicit self-processes. Implicit self-processes are proposed to have developed from early self-evaluations (Rudman et al., 2007), where their repeated activation over time leads to automaticity (Bargh et al., 1996); it becomes a fast and spontaneous mode of information processing that is efficient or effortless and difficult to control (Boldero et al., 2007; Greenwald & Banaji, 1995). As faster and more primitive modes of thinking, implicit self-attitudes are thought to be automatically associated with core affective states (e.g., feeling “good” or “bad”; Rudman, 2004). In contrast, as a more controlled and deliberate processes, explicit self-processes enable the appraisal of these experiences (e.g., shame, scared, anger; Rudman, 2004).

As well as the added benefits of circumventing difficulties associated with self-report measurement, implicit measures have shown a greater ability to predict behaviours and negative affective experiences that are associated with OCD, such as neurotic behaviours (Back et al., 2009), nonverbal anxious behaviours (Rudolph et al., 2010; Spalding & Hardin, 1999) and increased heart-rate when individuals are exposed to fearful stimuli (Van Bockstaele et al., 2001). Only one research group has directly examined the association between implicit self-construals and OC phenomena (Teachman & Clerkin, 2007; Teachman, et al., 2006). On a nonclinical sample, Teachman and Clerkin (2006) experimentally manipulated appraisals of the importance of intrusive thoughts. Individuals who received information that their intrusions were important and who also reported high levels of OCD beliefs implicitly rated themselves as more “dangerous” than safe. In a related study that manipulated the moral meaning of intrusions, Teachman et al. (2007) showed that for individuals who were instructed that their thoughts were a meaningful measure of one’s moral character, there was an association between implicit ratings of themselves as dangerous and OCD beliefs. These findings are inline with the cognitive model whereby, under conditions of stress,

OCD beliefs may serve as a cognitive vulnerability to negative implicit self-judgments, or vice-versa (Teachman et al. 2007).

Further suggestion that implicit self-processes may be a worthy area of further investigation comes from findings that a discrepancy between implicit and explicit self-esteem are associated with phenomena related to OCD, such as perfectionistic beliefs (Zeigler-Hill & Terry, 2007) and negative affective experiences (Jordan et al., 2003; Lupien et al., 2010; Petty et al., 2006; Rudolph et al., 2010; Schroder-Abe et al., 2007; Vater, et al., 2010; Shedler et al., 1993). Zeigler-Hill and Terry (2007) found that individuals with discrepant low self-esteem (high implicit-low explicit) had the highest levels of maladaptive perfectionism. The authors proposed that the high implicit self-esteem in the context of a low explicit self-esteem provides individuals with an inner optimism that they need only to “try harder”. This in turn may leave them vulnerable to setting unrealistically high perfectionistic standards to try and raise levels of explicit self-esteem and resolve inconsistent self-attitudes.

Although the authors have not specifically mentioned the role of implicit self, these notions are in line with Guidano and Liotti’s (1983) theory of self-ambivalence and the discomfort associated with concurrent discrepant self-views. It is therefore possible that a discrepancy between implicit and explicit self-views may be involved in previous findings of a relationship between OCD and self-ambivalence. Perhaps an inner positive self-esteem is providing individuals with OCD with the motivation that they can be good, if only they continue using compulsions perfectly. These ideas remain to be tested.

Taken together, although there are promising indications that implicit self-processes may have relevance to our understanding of OCD; these ideas are yet to be

directly investigated. Indeed, there is a relative paucity of literature that examines the implicit self in OCD.

7.1.3 This study. This study aimed to examine the relative influence that both implicit and explicit self-processes have on OC phenomena relative to OCD-related beliefs and negative mood, and to examine the nature of self ambivalence and self vulnerability to OCD symptom severity.

Firstly, a range of predictors was entered into a hierarchical regression with OCD symptoms as the dependent variable. As OCD has high comorbidity with Major Depressive Disorder (Jin et al., 2004; Demal et al., 1993; Quarantini, 2010; Rasmussen & Eisen, 1992; Tuekel et al., 2002), and depressive symptomatology is associated with low self-esteem (Back et al., 1996), the regression analysis began by adding a measure of depressive symptoms to control for any confounding influences. Following that, self and beliefs variables were entered in steps in accordance with casual models proposed in the literature. As a more primary mode of processing (Rudman, 2004), implicit self-variables were entered next, which were then be followed by the addition of explicit self-variables. Finally, in line with findings that OC beliefs mediate the relationship between self and OCD symptoms (Bhar & Kyrios, 2000), a measure of OCD-related beliefs was entered last.

Two implicit self-constructs were examined. In accordance with notions that OCD involves concurrent opposing self-views, a discrepancy profile that contrasts implicit and explicit self-esteem was created; standardised scores of an implicit self-esteem measure were subtracted from standardised scores of an explicit self-esteem measure. The use of this discrepancy score was the same as used by previous researchers (Brinol et al., 2003; 2007; Higgins, 1985), and enables examination of how the magnitude of the discrepancy corresponds with other data. Overall positive scores

on the resultant variable indicate a discrepant high self-esteem (low implicit, high explicit), while negative scores indicate a discrepant low self-esteem (high implicit, low explicit) and scores around zero suggest that the person's place in the distribution is exactly the same on both the implicit and explicit measures (i.e., congruent implicit-explicit self-ratings). Given that perfectionism is one of the core beliefs identified in OCD (OCCWG, 2001, 2003, 2005), and findings that a discrepant low self-esteem is related to maladaptive perfectionistic beliefs (Zeigler-Hill & Terry, 2007), it was anticipated that a discrepant low self-esteem would significantly predict OCD symptoms.

The other implicit variable recognises the multifaceted nature of self so assessed implicit self-worth in a specific domain. As OC phenomena have demonstrated an association with moral self-worth (Doron et al., 2007, 2008), the second implicit measure for Study 1 was the Go No-Go Assessment Task (GNAT; Nosek & Banaji, 2001). The GNAT assesses the relative strength of automatic associations of oneself as a moral versus immoral individual; higher GNAT scores suggest automatic associations of oneself as a moral individual and conversely, lower GNAT scores suggest implicit associations of oneself as immoral. Study 1 proposed that the importance of morality to the self-worth of individuals with OCD is due to inner, implicit views that they are a moral person.

In accordance with findings that individuals with OCD are ambivalent about their self-worth (Bhar & Kyrios, 2007) and hold particular concerns about their moral self-worth (Doron et al., 2007, 2008), explicit measures of these concepts were also used, where a positive relationship with OCD symptoms was predicted. It was anticipated that the relationship between explicit self-variables and OCD symptoms would be mediated by maladaptive OC beliefs.

In order to further understand the mechanisms involved in the concept of self-ambivalence, an additional regression was run with self-ambivalence as the dependent variable. Given previous findings of a low self-esteem in individuals with self-ambivalence, (Bhar & Kyrios, 2005; 2007), the study investigated if a high implicit self-esteem is implicated. For instance, does the experience of self-ambivalence incorporate a discrepancy between implicit and explicit self-views? It was anticipated that a discrepant low self-esteem would significantly predict self-ambivalence scores. In line with notions that morality is relevant to self-ambivalence (Guidano & Liotti, 1983), it was predicted that a positive implicit moral worth, and explicit concerns of moral worth, would significantly predict self-ambivalence scores.

The regression analyses utilised an OCD symptom total score. However, Study 1 also sought to acknowledge the heterogeneous nature of the symptoms and beliefs involved in OCD (McKay et al., 2004). Indeed, the work of previous research of self-concept in OCD suggests stronger relationships with obsessions of harm and checking compulsions, than contamination and grooming compulsions (Bhar & Kyrios, 2000; Doron et al., 2007; 2008). Consequently, this study explored the relationships between implicit and explicit self-measures to various OCD subtypes and belief systems using a correlation matrix. In line with previous research, it was proposed that self-ambivalence and anxious concern of moral-self worth have strongest associations with obsessions and checking symptoms. The study additionally explored the relationship that self-variables have with different maladaptive belief domains associated with OCD.

A final aim of Study 1 was to further examine the idea that particular self-profiles serve as a vulnerability to OC-phenomena. The non-clinical sample was grouped into high and low levels of self-ambivalence and discrepant self-esteem. These groups were then compared with the OCD group on levels of OCD symptoms and

beliefs. These analyses enable the examination of whether nonclinical individuals with a vulnerable self-profile report levels of OC phenomena similar to individuals with OCD. Participants with OCD were predicted to have significantly higher levels of OCD symptoms and beliefs than nonclinical individuals. It was also expected that nonclinical individuals with high levels of self-ambivalence have higher levels of OCD symptoms than nonclinical participants with low self-ambivalence. Again, all analyses controlled for effects of depressive symptoms.

7.2. Method

7.2.1 Participants. Non-clinical and clinical individuals participated in this study. The clinical sample comprised 20 individuals with OCD, with 13 males (M age = 41.31; SD = 15.18) and 7 females (M age = 44.00; SD = 15.62). OCD participants were recruited via their participation in a clinical assessment for treatment through the Swinburne University Psychology Clinic OCD group therapy program, and via advertisements in the Swinburne Psychology Clinic newsletter and the Anxiety Recovery Centre Victoria (ARCVic) website, newsletter and support groups (Appendix A). All clinical participants were either assessed with the Structured Clinical Interview for DSM-IV (SCID; First, Spitzer, Gibbon, & Williams, 1995) or the Mini-International Neuropsychiatric Interview (MINI; Sheehan et al., 1998). All clinical participants met the SCID or MINI criteria for a diagnosis of OCD, where the majority also met criteria for a comorbid diagnosis; MDD (35%), Generalised Anxiety Disorder (15%) or OCPD (10%). As part of the treatment program, the Yale-Brown Obsessive Compulsive Scale (Y-BOCS; Goodman et al., 1989) was also administered to clinical individuals recruited via the OCD group therapy at Swinburne Psychology Clinic (M = 23.38, SD = 4.36, N = 16). Clinical participant's self-described ethnicity was predominantly Australian (85%)

or European (10%). While 20% of the clinical population had not had any further education after finishing high school, the majority had received further education (75%).

The non-clinical sample group consisted of 104 student controls (SC) and 16 community controls (CC). The SC participants comprised of 75 females (M age = 21.71; SD = 5.55) and 29 males (M age = 24.24; SD = 15.18), and the CC participants comprised of 10 females (M age = 29.70; SD = 9.32) and 6 males (M age = 25.00; SD = 4.80). CC participants were recruited with the aim of increasing the age range in the normal control group. The SC participants were first year undergraduate psychology students from the Hawthorn campus of Swinburne University of Technology in Melbourne. The SC participants volunteered in exchange for course credit after they were invited to participate via an online notice board and a sign up sheet at 1st year undergraduate psychology lectures (Appendix B). The CC participants were from the social network of the researcher and were recruited via snowball sampling. All participants had no prior knowledge of the Study's aims, and were informed that we were researching self-concept and OCD.

Non-clinical participant's self-described ethnicity was predominantly reported as Australian (73%), with the balance of the participants describing themselves as European (9%), Asian (7%) or Other (11%). For 40% of the non-clinical participants, it was their first year of education after finishing high school, while 61% had received further education. All participants completed clinical measures of anxious and depressive symptoms [Beck Anxiety Inventory (BAI), Beck, Epstein, Brown, & Steer, 1988; Beck Depression Inventory-II (BDI-II), Beck & Steer, 1990], and self-reported on any current mental health concerns. Please refer to Table 7.1 for comparative demographics for the two cohorts.

Table 7.1

Demographic variables across the two cohorts

<i>Variable</i>	OCD	NC	<i>Comparisons</i>
	<i>M (SD)</i>	<i>M (SD)</i>	
Age	42.25 (14.98)	23.10 (6.97)	$t(20.47) = -5.61, p < 0.001$
Education (years)	15.32 (2.31)	14.73 (2.05)	$t(19.69) = -5.91, p < 0.001$
Live in Australia (years)	42.26 (15.29)	20.84 (8.06)	$t(131) = -3.06, p = 0.003$
% Female	35%	74%	$\chi^2(2) = 12.42, p = 0.002$
% Never married	45%	78%	$\chi^2(2) = 31.64, p < 0.001$
BDI-II	19.75 (13.44)	11.90 (9.56)	$t(19.69) = -5.91, p < 0.001$
BAI-II	13.16 (10.26)	10.00 (7.88)	$t(134) = -1.56, p > 0.05$

Note. OCD = OCD group; NC = Non-clinical participants (SC & CC). BDI-II=Beck Depression Inventory; BAI-II=Beck Anxiety Inventory.

Table 7.1 shows that the OCD group, on average, tended to be significantly older than non-clinical participants. Likely to be related, the clinical group also tended to have had significantly more years of education and years living in Australia than the non-clinical participants. When compared to the non-clinical group, the OCD group was also more likely to be married and male. Although the OCD group reported higher levels of depressive and anxious symptoms, the difference from the non-clinical group was only significant for the BDI-II. Additional to the clinical measures in Table 7.1 (BDI-II and BAI-II), all participants were also asked to self-report any mental health problems for which they are seeking treatment, the current status of their mental health and treatment taken for their mental health problems. Compared to 12.71% of the non-

clinical group, 50% of the OCD group reported having anxiety and/or depression. Similarly, compared to 75% of the OCD group, only 7.6% of the non-clinical group were on psychotropic medication. The OCD group also rated that their mental health was more likely to be disabled than the non-clinical group. These differences were all significant (Mental health problem: $\chi^2(7) = 115$, $p < 0.001$; Medication: $\chi^2(2) = 60.03$, $p < 0.001$; Current status: $t(32) = -2.10$, $p = 0.04$). These comparisons suggest that, perhaps not surprisingly, that the OCD group tended to have more mental health issues.

7.2.2 Measures.

7.2.2.1 Go No-Go Association Task (GNAT; Nosek & Banaji, 2001).

Implicit moral self-attitudes were assessed through two different versions of the GNAT. Each GNAT was modified from Experiment 5 in Nosek and Banaji's research, and asked participants to classify word stimuli into broader level categories to assess the strength of associations between categories. In this study, the GNAT was used to assess the strength of association between the category *Self* with the evaluative dimensions *Moral* and *Immoral*. The GNAT consisted of two blocks; in one of the blocks (Self-Moral), the target category *Self* was paired with the attribute *Moral*, and in the other block (Self-Immoral) the target category *Self* was paired with the attribute *Immoral*. Each block consisted of 81 trials. The first 9 were practice trials and were followed by a reminder screen before the participant completed the 72 critical trials.

Category labels appeared continuously at the top of the screen and stimulus items were presented briefly in the middle of the screen. In the Self-Moral (SM) block, the category labels *Self* and *Moral* appeared at the top of the screen. Participants were asked to actively respond and press the space bar ('Go') as quickly as possible whenever the presented stimulus belonged to either of the categories. If the stimulus presented did not belong to these categories (i.e., stimuli items from the distractor category *Immoral*), the

participant was required to not press any key ('No-go) and wait for the next stimulus item to appear. In the Self-Immoral (SI) block, the labels at the top of the screen were *Self* and *Immoral* and the distractor category becomes items from the *Moral* category.

Participants categorised an item at any time during the 700 milliseconds (ms) that the stimulus item remained on the screen. On correct trials, a green "O" appeared below the stimulus item during the inter-stimulus interval for 250 ms to provide continuing feedback about performance accuracy. Trials where items were incorrectly responded to were noted as with a red "X" that appeared for 450 ms (e.g., pressing the space bar when the stimulus presented did not belong to either category on the screen, or not responding by hitting the space bar in time when the stimulus item does match one of the categories). The order of the SM and SI blocks was randomised. An independent samples *t* test revealed no significant differences based on the order of block presentation ($p < 0.05$). The instructions used to inform participants about the structure of the task are presented in Appendix C.

Four stimulus items were selected for each category. Stimuli in each category were the same as used in Teachman et al.'s (2006) study, as this was the only study found to have examined implicit associations with moral self-worth. Teachman et al. (2006) chose these items from a larger pool, because they were the most easily classified into their given category. The items used are presented in Table 7.2.

Table 7.2

Category label and associated stimuli in the GNAT

	Category		
	Self	Moral	Immoral
Stimuli	Self	Moral	Immoral
	I	Pure	Impure
	Me	Noble	Dirty
	My	Virtuous	Tainted

Following other researchers who have used the GNAT (e.g., Nosek & Banaji, 2001; Teachman & Clerkin, 2007), inferences about the strength of implicit association between targets in each block were based on the accuracy with which participants could classify words. Performance in the SM and SI blocks were analysed with the sensitivity index (d'). Using Signal Detection analyses, d' compares the amount of errors made in each condition (false alarms or misses) to the amount of correct responses (hits or correct rejections). The d' therefore assesses discriminability; in the SM task it demonstrated how well the signal category (Moral) can be distinguished from the noise category (Immoral). Possible d' scores range from 0 (no discrimination) to infinity (perfect discrimination), although in practice a d' of 4 or more indicates nearly perfect performance. The fewer errors made during the task, the greater the d' and the greater the automatic associations in memory.

Sensitivity index scores were calculated separately for each of the two critical blocks, resulting in separate sensitivity scores for the SM and SI blocks. The index score for the SI block was subtracted from that of the SM block to provide an overall GNAT d' score. Higher GNAT d' scores are associated with greater accuracy in the SM

block when compared to the SI block, and therefore suggest stronger automatic associations of oneself as a moral individual than an immoral individual.

Various versions of the GNAT have demonstrated acceptable levels of internal consistency and test-retest reliability over a one-week period (Rudolph et al., 2010). Split-half reliability was calculated for the GNAT by producing two D values, each reflecting a random half of the critical trials across both critical blocks. For our GNAT, $r = .69$, indicating generally acceptable levels of reliability; in fact, this level of reliability is rather high for indirect measures (see, e.g., Bosson et al., 2000, for a review of reliability in indirect measures of self-esteem).

7.2.2.2 Name-Letter Preference Task (NLPT; Nuttin, 1985).

Nuttin (1985) coined the term name letter effect for the finding that people tend to prefer the letters of their own name to non-name letters. Given that this occurs without the need for conscious reflection and without knowledge of the purpose of evaluating letters, Greenwald and Banaji (1995) suggest the name letter effect can serve as a measure of implicit self-esteem. Consequently, the NLPT was used to measure general implicit self-evaluations. In this task, participants are asked to evaluate the attractiveness of each letter of the alphabet, presented in random order, on a 9-point Likert scale (0 = not at all beautiful, 4 = neutral, 8 = extremely beautiful). The overall score was calculated by subtracting the normative liking score of the specific alphabet letters from the rated attractiveness of name letters (e.g., the rated attractiveness of the letter 'A' for people who have A in their name minus the mean liking score of the letter 'A' for people who do not have the letter 'A' in their name). Scores below 0 are taken to represent a negative effect, while scores above 0 indicate a positive effect. Koole et al. (2001) showed that the name letter effect is especially apt in assessing self-evaluations in the absence of conscious self-reflection, where individuals with implicit positive self-

esteem tended to rate their own name letters as more attractive than non-name letters.

See Appendix D.

7.2.2.3 Obsessive Sensitive Self Inventory (OSSI; Doron, Moulding, Nedeljkovic, & Kyrios, 2008).

The OSSI is a 10-item self-report measure of moral self-worth (Appendix E). The OSSI consists of two 5-item subscales that assess importance of morality to self-worth (e.g., Some people feel acting morally is extremely important) and anxiety about moral self-worth (e.g., For some people, considering how moral they are is very distressing). Participants were asked to rate to what extent the statements provided describe them as a person on a 6-point Likert scale (0 = not at all true of me, 5 = very true of me). Total scores were summed across items. Higher scores suggest that individuals hold morality as important to their self-worth but are anxious in their moral self-worth. Lower scores suggest that morality is not important to their self-worth and they are not anxious about their moral-worth.

7.2.2.4 Self-Ambivalence Measure (SAM; Bhar & Kyrios, 2007).

The SAM is self-report instrument designed to measure ambivalence about participant's general sense of self-worth (Appendix F). Across 19-items, three aspects of self-ambivalence were assessed: self-uncertainty ("I doubt whether others really like me"), self-dichotomy ("I tend to evaluate myself in terms of 'good' and 'bad'") and self-preoccupation ("I think about my worth as a person"). Participants indicate the extent to which they agree with each statement on a 5-point scale (0 = not at all, 4= agree totally). Total scores were summed across items, where higher scores indicated higher levels of general self-ambivalence, with the possible total range being between 0 and 76. The authors report the SAM to show high internal consistency in clinical and non-clinical

cohorts ($\alpha = .91 - .93$), and to demonstrate satisfactory convergent and discriminant validity.

7.2.2.5 Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965).

The RSES is a measure of global self-esteem that is comprised of 10 items that reflect feelings of self-acceptance, self-respect and self-worth (Appendix G). Each item is rated on a 4-point Likert-type scale ranging from 1 (strongly disagree) to 4 (strongly agree), where half of the items are negatively scored. An example of a positively scored item includes “I feel I am a person of worth” and an example of a negatively scored item includes “I certainly feel useless at times”. Total scores were calculated by summing across all items. High total scores indicate greater overall self-esteem. The scale has demonstrated high internal consistency (Cronbach’s $\alpha = 0.72$ to 0.88) and temporal stability over 4-weeks (0.84) to one year (0.53) (Gray-Little, Williams, & Hancock, 1997; Martin-Albo, Nunez, Navarro & Grijalvo, 2007). Construct validity of the RSE has been demonstrated by its convergence with measures of depression, anxiety, self-discrepancy and other measures of self-esteem (Rosenberg, 1979).

7.2.2.6 Obsessive Beliefs Questionnaire-44 (OBQ-44; OC Cognitions Working Group [OCCWG], 2005).

The OBQ-44 measures beliefs considered pertinent to development of obsessions in OCD. Across clinical and non-clinical cohorts, the 44-items on the OBQ-44 reflect three underlying factors: inflated responsibility and overestimation of threat (e.g., “Not preventing harm is as bad as causing harm”), perfectionism and intolerance of uncertainty (e.g., “I should be upset if I make a mistake”), and over importance and need to control thoughts (e.g., “I should be able to rid my mind of unwanted thoughts”). See Appendix H. Participants self-report the extent that each item reflects their own typical beliefs and attitudes on a 7-point scale (1 = disagree very much, 7 = agree very

much). Total OBQ-44 scores were calculated by summing across items, with higher scores suggesting greater conviction in OC beliefs. In both OCD and non-OCD samples (anxious, student and community controls), the OBQ-44 total and subscales have demonstrated excellent internal consistency ($\alpha = .89 - .95$) (OCCWG, 2005).

7.2.2.7 Obsessive Compulsive Inventory Revised (OCI-R; Foa et al., 2002).

The OCI-R is a self-report measure for assessing symptoms of OCD (Appendix I). Participants are asked to rate how much the experience of each item has distressed or bothered them in the past month on a 5-point Likert-type scale (0 = not at all, 4 = extremely). The 18 items form six subscales, each with three items, based on the symptom categories commonly found in OCD; washing (e.g., “I sometimes have to wash or clean myself simply because I feel contaminated.”), obsessing (e.g., “I find it difficult to control my own thoughts”), checking (e.g., “I check things more often than necessary”), ordering (e.g., “I get upset if objects are not arranged properly”), neutralizing (e.g., “I feel compelled to count while I am doing things”) and hoarding (e.g., “I have saved up so many things that they get in the way”). The authors showed that the OCI-R has adequate to excellent internal consistency (Chronbach’s α range .57 - .91) for the full scale and the subscales for patients with OCD as well as non-clinical controls. Good to excellent test-retest reliability across a 2-week time period for OCD patients (r ’s = 0 .74 – 0.91) and a 1-week period of non-clinical controls (r ’s = 0 .57 – 0.87) have also been reported . The OCI-R has also demonstrated excellent convergent validity with other measures of OCD.

7.2.2.8 Beck Depression Inventory-II (BDI-II, Beck, Steer, & Brown, 1996)

The BDI-II is one of the most widely used instruments for measuring the severity of depression. In accordance with the DSM-IV criteria, the 21 item self-report measure assesses the presence of depressive symptoms over a two-week period. Items

are rated on a 4-point scale ranging from 0 to 3, where higher scores indicate increased levels of depressive symptoms. The BDI-II has demonstrated high internal consistency in clinical ($\alpha=0.92$) and non-clinical student sample ($\alpha=0.93$), and excellent test-retest reliability over a one-week period ($r = 0.93$). The measure is able to differentiate clinically depressed patients from patients with anxiety, adjustment or other disorders (Beck et al., 1996). Please refer to Appendix J.

7.2.3 Procedure. All participants contacted the researcher regarding preliminary interest to be involved in the study. Following more verbal information, individuals wishing to participate were given a plain language statement (Appendix K and L), and provided their written consent (Appendix M). Study 1 involved questionnaires and a computer task. SCs completed the questionnaires at the testing rooms of the Swinburne University of Technology, Hawthorn campus. The CC and OCD participants were mailed questionnaires to their home address. To ensure that questionnaire and computer data were temporally matched, questionnaires were mailed one week prior to their appointment for the computer task.

The SCs and OCD participants completed the computer task in a private testing room at the Swinburne University testing rooms while the CC group completed the computer task in a private room at the participants' home. Following participation in the study, each participant was asked to rate their level of distress and was provided further information about the aims (Appendix N).

The order of the measures in the questionnaire battery was counterbalanced. An independent samples *t*-test comparison revealed that there were no significant differences based on the order of measures in the questionnaire battery ($p > 0.05$).

7.3 Results

7.3.1 Descriptive statistics and correlations. To assess the internal consistency of the measures used in the study, Chronbach's α coefficients were calculated. Table 7.3 displays the means, standard deviation, range and reliabilities of each variable. All variables showed satisfactory internal reliability.

Table 7.3

Means, Standard Deviation, Range and Reliabilities of the Variables

<i>Variable</i>	<i>M</i>	<i>SD</i>	<i>Range</i>	<i>N</i>	α
BDI-II	12.90	10.53	0 - 46	139	.93
NLPT	2.98	8.02	-35.14 - 23.54	140	.88
GNAT	0.66	0.91	-2.04 - 3.92	130	*
OSSI	0.00	1.54	-4.15 - 3.45	127	.83
RSES	19.60	5.89	2 - 31	139	.91
SAM	33.68	14.56	4 - 66	136	.90
OBQ-44	146.75	44.82	44 - 257	139	.96
OCI-R	19.18	15.06	0 - 64	137	.93

Note. BDI-II = Beck Depression Inventory; NLPT = Name Letter Preference Task; GNAT = Go No-Go Assessment Task; OSSI = Obsessive Sensitive Self Inventory; RSES = Rosenberg Self-Esteem Scale; SAM = Self Ambivalence Measure; OBQ-44 = Obsessive Beliefs Questionnaire; OCI-R = Obsessive Compulsive Inventory Revised. All means are for non-normally adjusted and non-centred variable values.

* Internal consistency analyses of GNAT blocks calculated by split-half method with Spearman-Brown correction. Self-Moral block = 0.62, Self-Immoral block = 0.57

7.3.2 Preliminary data screening. Data screening and subsequent analyses were performed using SPSS version 17.0. As multiple regression analyses require N to

be at least 50 (Green, 1991), Study 1 did not have enough power to examine the CC and OCD groups independently. Consequently, for the regression and correlation analyses, the clinical and non-clinical samples were combined. Box's M's test of equality of covariance matrices was conducted to explore homogeneity of covariance matrices across the three samples.¹ The test did not indicate significant heterogeneity in the covariance matrices across the samples [$F(110, 3966) = 1.14, p = .15$]. Nonetheless, as shown in Table 7.1, there were significant differences between the clinical and non-clinical groups on various measures and so all analyses controlled for the possible influence of clinical status. A dummy variable was created, OCDNC, so that clinical OCD participants (OCDNC = 1) could be compared with non-clinical CC and SC's (OCDNC = 2).

Outliers were defined as cases with a standard score of at least 3.29 ($p < .001$, two tailed; Tabachnik & Fidell (1996)). Two outliers were identified on the NLPT and these cases were excluded from the analyses. There were no univariate outliers for BDI-II, GNAT, RSES, OSSI, SAM, OBQ-44 or OCI-R scales.

Before running the analysis, the assumptions of multiple regression were addressed. Skewness and kurtosis ratios showed a significant positive skew for the OCI-R, BDI-II and NLPT therefore these variables were transformed using the square root. This transformation eliminated the skew for all of the variables, but the kurtosis ratio for the NLPT worsened after the transformation ($z = 4.55, p < 0.05$). Thus transformed variables for the OCI-R and BDI-II were used for the regression analyses, and the NLPT was left untransformed.

¹ Box's M is a test for the equality of the group covariance matrices. It tests the null hypothesis that the observed covariance matrices of the independent and dependent variables are equal across groups.

7.3.3 Regression analysis. First, to examine the relative contribution that implicit and explicit self-processes have in predicting OCD symptoms, a hierarchical regression was performed. In line with the assumptions of regression analyses, one multivariate outlier was detected using the Mahalanobis distance method [$\chi^2(9) > 27.88$, $p < .001$], and so this case was removed from the analysis. Linearity and equal variance assumptions were met, as indicated by examination of the distribution of residuals in a scatterplot.

Next, the discrepant self-esteem measure was created by subtracting standardized scores of the NLPT from standardised scores of the RSES. Overall positive scores indicate a greater explicit self-perception relative to implicit and conversely, an overall negative score suggest a higher implicit score relative to explicit score. Scores around 0 suggest congruent explicit and implicit self-ratings.

Finally, assessment of tolerance figures suggested that there were multicollinearity issues with the BDI-II ($VIF = 2.9$) and self-measures (SAM, RSES-NLPT). It appears that the severity of depressive symptomatology from the BDI-II was appropriately captured in these self-measures, or vice versa. As the self-measures were more central to the hypotheses being investigated, they remained in further analyses and the BDI-II was excluded from the model.

Then, a four-step hierarchical regression was performed with OCI as the dependent variable. To control for possible confounding influences of clinical status OCDNC was entered in step one. At step two of the model, the implicit moral measure and discrepant self-esteem measure (GNAT, RSES-NLPT) were entered, step three added the explicit variables (SAM, OSSI) and step four added OC beliefs (OBQ).

The intercorrelations between the variables and the regression statistics are presented in Tables 7.4 and 7.5 respectively.

Table 7.4

Correlation between dependent and independent variables

	1	2	3	4	5	6	7	8
1. OCI	1.00							
2. OCDNC	.33***	1.00						
3. BDI-II	.58***	.17*	1.00					
4. GNAT	.23**	.04	.14	1.00				
5. RSES-NLPT	-.38***	-.10	-.44***	-.22**	1.00			
6. OSSI	.37***	.18*	.64***	.06	-.29**	1.00		
7. SAM	.40***	-.07	.34***	.05	-.48***	.44***	1.00	
8. OBQ	.64***	.12*	.58***	.16*	-.43***	.49***	.45***	1.00

Note. OCDNC = Clinical status; BDI-II = Beck Depression Inventory; RSES-NLPT = Discrepant Explicit-Implicit Self-Esteem; GNAT = Go No-Go Assessment Task; OSSI = Obsessive Sensitive Self Inventory; SAM = Self Ambivalence Measure; OBQ-44 = Obsessive Beliefs Questionnaire; OCI-R = Obsessive Compulsive Inventory Revised.

$N = 118$

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

As shown in Table 7.4, there were significant positive relationships between OCI and OCDNC, BDI, GNAT, SAM, OSSI and OBQ. Individuals who reported higher levels of OC symptoms, also tended to report greater depressive symptoms, have a more positive implicit moral self-view, were more ambivalent about their self-worth, were

more anxious about their moral self-worth and have higher conviction in obsessive beliefs.

There was a significant negative relationship between OCI-R and RSES-NLPT suggesting that people with a discrepant low self-esteem (high implicit, low explicit) tended to also report greater levels of OC symptoms.

As shown in Table 7.5, as expected, at all stages of the regression, clinical status (OCDNC) was a significant predictor of OC symptoms.

In step two, an additional 14% of the variation in OCI-R was explained by the addition of the implicit self-variables RSES-NLPT and GNAT. RSES-NLPT significantly predicted OCD symptoms, while contrary to expectations, GNAT was not a significant predictor.

The addition of explicit self-variables at step three explained a further 11% of the variance in the OCI, where SAM was the only significant self-variable. Lastly, an additional 14% of the variance in OCI was explained by the addition of the OBQ at step four of the model. While OCDNC and the SAM remained as significant predictors, the OBQ became the most important predictor in the model.

7.3.4 Mediation Analyses. To examine mediational effects of the OBQ, the three steps of mediational analyses were performed in accordance with guidelines of Frazier, Tix, and Barron (2004). Three regressions were conducted; OBQ was regressed on SAM (Regression equation 1), OCI-R on SAM (Regression equation 2), and OCI-R on both SAM and OBQ (Regression equation 3). All of these regressions must be significant in order to meet conditions for mediation (Baron & Kenny, 1986). The regression results are displayed in Table 7.6. All regressions controlled for the influence of the BDI-II.

Table 7.5

Hierarchical regression predicting OCI-R

		B	SE B	β	ΔR^2	<i>F-change</i>
Step 1					0.11	13.97***
	OCDNC	1.70	0.46	0.33***		
Step 2					0.14	10.7***
	OCDNC	1.31	0.42	0.25**		
	GNAT	0.25	0.14	0.15		
	RSES-NLPT	-0.31	0.10	-0.25**		
Step 3					0.11	9.52***
	OCDNC	1.58	0.41	0.32***		
	GNAT	0.28	0.13	0.16		
	RSES-NLPT	-0.16	0.11	-0.13		
	OSSI	0.03	0.02	0.14		
	SAM	0.03	0.01	0.29**		
Step 4					0.14	30.36***
	OCDNC	1.25	0.37	0.24**		
	GNAT	0.21	0.12	0.12		
	RSES-NLPT	-0.05	0.10	-0.04		
	OSSI	-0.00	0.02	-0.00		
	SAM	0.02	0.01	0.19*		
	OBQ	0.02	0.00	0.47***		

Note. OCDNC = Clinical status; BDI-II = Beck Depression Inventory; RSES-NLPT = Discrepant Explicit-Implicit Self-Esteem; GNAT = Go No-Go Assessment Task; OSSI = Obsessive Sensitive Self Inventory; SAM = Self Ambivalence Measure; OBQ-44 = Obsessive Beliefs Questionnaire; OCI-R = Obsessive Compulsive Inventory Revised.

N = 118

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 7.6

Summary of Regression Equations for Mediation Analysis with OCI-R

	<i>B</i>	<i>SE B</i>	β	R^2	<i>F</i>
1. DV - OBQ				.35	33.73***
BDI-II	12.34	2.64	.42***		
SAM	.71	.28	.23*		
2. DV – OCI-R				.36	35.58***
BDI-II	.52	.10	.46***		
SAM	.02	.01	.12*		
3. DV – OCI-R				.50	42.39***
BDI-II	.29	.10	.26**		
SAM	.01	.01	.09		
OBQ	.02	.00	.47***		

Note. BDI-II = Beck Depression Inventory; SAM = Self Ambivalence Measure; OBQ-44 = Obsessive Beliefs Questionnaire; OCI-R = Obsessive Compulsive Inventory Revised.

N = 132

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

As shown in Table 7.6, all regressions were significant. As indicated by the β values, the SAM no longer remained a significant predictor of the OCI-R when the OBQ was added into the model. This suggests that the OBQ fully mediates the relation between the SAM and the OCI-R. A post hoc analysis using Sobel's test indicated that the indirect effect SAM on OCD symptoms via OC beliefs was significant ($z = 2.31$, $p = .009$).

6.3.5 Regression analysis with self-ambivalence as the dependent variable.

When examining the relative influence that implicit and explicit measures had in predicting OCD symptoms, the addition of the self-ambivalence measure appeared to explain some of the variance that those variables added earlier (see Table 7.5). The current study was interested in better understanding the relationship between self-

ambivalence and other self-variables, in order to elucidate potential mechanisms underlying self-ambivalence. A regression analysis was performed, with SAM as the dependent variable. Four variables were entered into a simple regression; BDI-II, GNAT, OSSI and RSES-NLPT. The model was significant and explained around 51% of the variance in SAM scores ($r^2 = 0.51$, $F(4, 114) = 29.06$, $p < 0.001$). With the exception of implicit moral-self worth, all variables were significant predictors of self-ambivalence (BDI-II $\beta = .47$, $p < 0.001$; GNAT $\beta = -.08$, $p = 0.25$; OSSI $\beta = .22$, $p = 0.002$; RSES-NLPT $\beta = -.22$, $p = 0.004$).

7.3.6 Correlational analysis. Next, to explore the relationship between various OCD symptom subtypes and OC belief domains and implicit and explicit self-measures, Pearson correlations were conducted. The results are displayed in Table 7.7.

Table 7.7

Pearsons correlations of OCI-R total and subscale scores, OBQ total and beliefs with self-variables and depression

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1. SAM	1.00														
2. OSSI	.44***	1.00													
3. RSES-NLPT	-.48***	-.29**	1.00												
4. GNAT	0.05	0.06	-.22*	1.00											
5. BDI	.64***	.34***	-.44***	0.14	1.00										
6. OCI Total	.40***	.37***	-.38***	.23*	.58***	1.00									
7. OCI Wash	.25***	.36***	-.28**	0.11	.42***	.79***	1.00								
8. OCI Obsess	.54***	.40***	-.34***	0.07	.61***	.67***	.42***	1.00							
9. OCI Hoard	.33***	.25**	-.32***	0.18 ^a	.40***	.62***	.43***	.41***	1.00						
10. OCI Order	.29**	.25**	-.23*	0.18 ^a	.38***	.75***	.57***	.34***	.27**	1.00					
11. OCI Check	.21*	.22*	-.22*	0.10	.35***	.76***	.59***	.40***	.35***	.51***	1.00				
12. OCI Neut	0.18	0.10	-.19*	0.11	.30**	.67***	.53***	.27**	.33***	.50***	.48***	1.00			
13. OBQ Total	.45***	.49***	-.43***	0.16	.58***	.64***	.53***	.54***	.35***	.57***	.44***	.34***	1.00		
14. OBQ RT	.38***	.38***	-.33***	0.14	.55***	.59***	.46***	.49***	.38***	.49***	.45***	.32***	.88***	1.00	
15. OBQ PC	.42***	.48***	-.45***	.23*	.51***	.61***	.54***	.46***	.26**	.63***	.42***	.27**	.89***	.66***	1.00
16. OBQ ICT	.38***	.42***	-.34***	0.04	.45***	.43***	.35***	.46***	.24**	.36***	.22*	.28**	.82***	.59***	.62***

Note. OCI total = OCI-R total score; OCI Wash = OCI-R Wash subscale; OCI Obsess = OCI-R Obsess subscale; OCI Hoard = OCI-R Hoard subscale; OCI Order = OCI-R Order subscale; OCI Check = OCI-R Check subscale; OCI Neut = OCI-R Neut subscale; OBQ RT = OBQ Responsibility/Threat subscale; OBQ PC = OBQ Perfectionism/Certainty subscale; OBQ ICT = OBQ Importance/Control of thoughts subscale;

N = 118,

^a = $p = 0.05$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 7.7 reveals that the SAM has significant correlations with all variables, with the exception of the GNAT and the neutralising subscale of the OCI-R. When looking at the variables related to OCD phenomena, the obsessions subscale of the OCI-R and the OBQ total were shown to have the highest correlations where higher levels of self-ambivalence related to higher OCI-obsession or OBQ total scores. As predicted, SAM and OSSSI correlated strongest with the obsessions subscale of the OCI. Contrary to previous research however, checking symptoms only had a weak correlation with SAM and OSSSI.

The discrepant self-esteem measure, RSES-NLPT, showed significant negative correlations with all variables; higher OCI and OBQ scores corresponded with higher levels of implicit self-esteem relative to explicit self-esteem. This relationship was strongest between the RSES-NLPT and OCI-R total scores, the BDI and the perfectionism/uncertainty subscale of the OBQ.

The implicit moral measure, the GNAT, only showed significant positive correlations with the perfectionism/certainty subscale of the OBQ and the total OCI-R score, although there was a trend towards significance with the hoarding and order subscales of the OCI-R. This suggested that implicit moral self-worth, as compared to immoral self-worth, corresponded with higher OCI scores and beliefs on the need for perfectionism and certainty.

6.3.5 Analysis of covariance analyses. Using analysis of covariance (ANCOVA), nonclinical participants with different self-profiles were compared to OCD participants on levels of OCD symptoms and beliefs. Assumptions for normality, independence, homogeneity of variances and homogeneity of regression slopes were met.

Using the top and bottom quartile scores of SAM, the non-clinical sample data was grouped into high and low levels of self-ambivalence. OCD participants were compared with grouped SAM non-clinical data on OCD symptoms and beliefs. Therefore, two one-

way ANCOVAs were performed, with depression as the controlled variable; one with OCD symptoms as the dependent variable and the other with OC-beliefs as the dependent variable. The ANCOVAs revealed that, after controlling for depression, there were significant differences between the self-ambivalence groups on OCI scores ($F(2, 74) = 12.08, p < 0.001, \text{partial } \eta^2 = 0.25$) and on OBQ scores ($F(2, 75) = 4.26, p = 0.01, \text{partial } \eta^2 = 0.10$).

Similarly, non-clinical scores for the RSES-NLPT were grouped into high discrepant self-esteem (high explicit, low implicit), low discrepant self-esteem (low explicit, high implicit), and congruent self-esteem. To compare these groups with the OCD group on OCD symptoms and OC-beliefs, two one-way ANCOVAs were performed, with depression as the confounding variable. This second set of ANCOVAs revealed that, after controlling for depression, there were significant differences between the discrepant self-esteem groups on OCI scores ($F(3, 130) = 9.77, p < 0.001, \text{partial } \eta^2 = 0.18$), and OBQ scores ($F(3, 132) = 7.42, p < 0.001, \text{partial } \eta^2 = 0.14$). The means, standard deviations and pairwise comparisons are presented in Table 8.8, and graphical depictions of these comparisons are shown in Figures 7.1 and 7.2.

Table 7.8

Comparison of OCI-R and OBQ scores for OCD group and vulnerability self-profiles of the non-clinical group

<i>Groups</i>	<i>M</i>	<i>OCI-R SD</i>	<i>N</i>	<i>M</i>	<i>OBQ SD</i>	<i>N</i>
NC participants						
Low SAM	2.61 ^b	1.28	31	118.13 ^c	31.05	31
High SAM	4.95 ^{ab}	1.27	27	168.29	41.35	28
Low Imp – High Exp	2.84	1.61	30	116.50	35.09	30
Congruent Imp - Exp	3.65 ^e	1.24	55	136.20 ^f	37.78	56
High Imp – Low Exp	4.89 ^{de}	1.42	30	175.71 ^f	39.53	31
OCD participants	5.71 ^{ad}	1.78	20	176.90 ^c	44.34	20

Note. NC = Non-clinical; SAM = Self Ambivalence Measure; OBQ-44 = Obsessive Beliefs Questionnaire; OCI-R = Obsessive Compulsive Inventory Revised.

Pairwise comparisons; ^a $p = 0.02$, ^b $p = 0.007$, ^c $p = 0.005$, ^d $p = 0.04$, ^e $p = 0.009$, ^f $p = 0.001$.

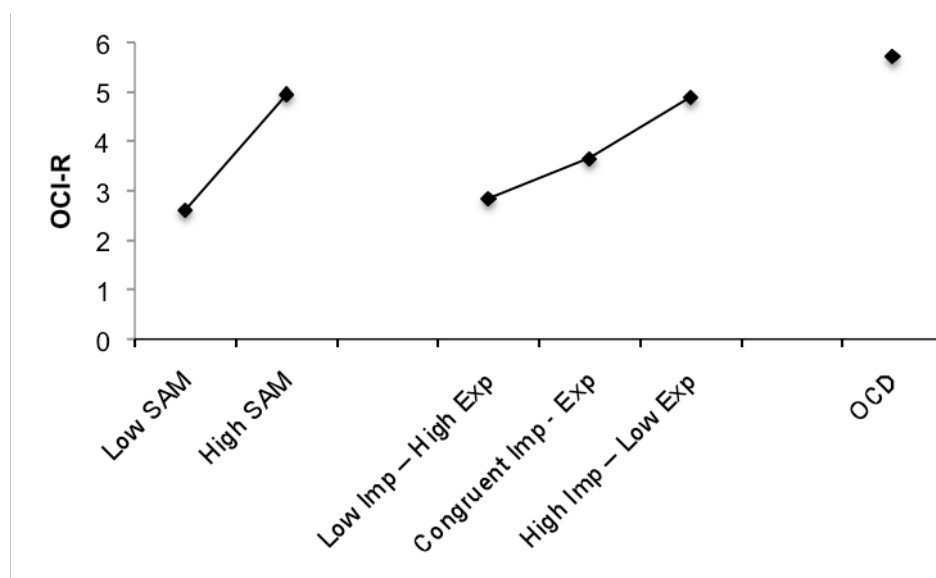


Figure 7.1

Comparison between groups on OCI-R symptom score

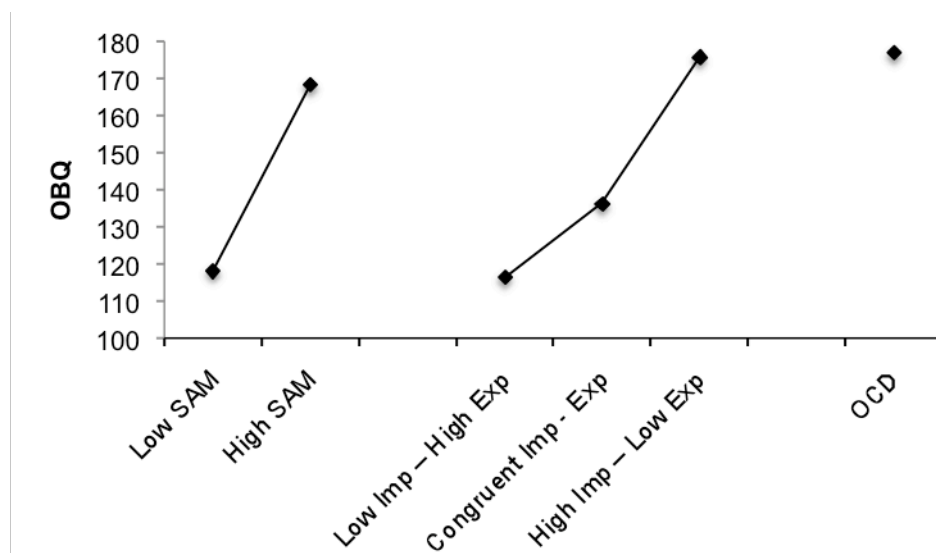


Figure 7.2

Comparison between groups on OBQ belief scores

7.4 Discussion

Although there are promising indications that implicit self-processes have relevance to our understanding of OCD, there is a relative paucity of literature on the area. Consequently, one of the aims of Study 1 was to investigate the influence that implicit and explicit self-variables have on OCD symptoms. Two implicit and two explicit self-constructs were examined. As anticipated, a discrepant low self-esteem (high implicit, low explicit) and self-ambivalence were found to be significant predictors of OCD symptoms. Additional examinations revealed that the experience of self-ambivalence incorporates depressive symptoms, a discrepant self-esteem and anxious moral-worth. Investigation into relationships of self-variables to OCD symptom and belief subtypes highlighted the variability within OC-phenomena. Finally, nonclinical participants grouped into specific self-profiles were compared with the OCD group on measures of OC-phenomena. High levels of self-ambivalence and a discrepant low self-esteem exhibited a particular relationship with OCD. Overall, the results predominantly supported the hypotheses and substantiated the importance of examining both implicit and explicit self-constructs. These findings are further discussed below.

7.4.1 Implicit self-processes and OC-phenomena. The results from Study 1 support that a discrepancy between implicit and explicit self-esteem are relevant to OC-phenomena. Discrepant self-esteem had significant correlations with all OCD symptom scores and belief domains, and also significantly predicted OCD symptom scores, where individuals with a discrepant low self-esteem tended to also report higher levels of OCD phenomena. When comparing non-clinical and OCD cohorts, not surprisingly, individuals with OCD held the highest levels of OCD symptoms. Of the nonclinical participants however, individuals with this particular self-profile reported the highest level of OC symptoms. These results add to the growing literature on the uncomfortable feelings

associated with a discrepant explicit and implicit self-esteem (Brinol et al., 2003; Lupien et al., 2010; Schroder-Abe et al., 2007; Vater et al., 2010), and suggest that the findings of low self-esteem in OCD in previous research (Fava et al., 1996; Wu et al., 2006) are in the context of a high implicit self-esteem.

These findings concur with Zeigler-Hill and Terry's (2007) contentions that in the context of a low explicit self-esteem, high implicit self-esteem may provide individuals with a glimmer of hope that may result in more optimism and less self-protection than is typically seen among individuals with low explicit self-esteem (Spencer et al., 2005). These individuals may be more inclined to adopt higher and more rigid standards for themselves and procedures for interacting with their environment, and may be vulnerable to developing rigid beliefs systems and OC symptoms. Indeed, nonclinical individuals with a discrepant low self-esteem reported conviction in maladaptive obsessive beliefs comparable to individuals with OCD. The non-significant difference was unexpected and may reflect a sampling issue as the majority of clinical OCD participants had undergone CBT for OCD and so may be better placed to critically evaluate their unhelpful OC beliefs. Nevertheless, similar to Zeigler-Hill and Terry's findings, the current results showed that this profile corresponded strongest with beliefs on the need for certainty and perfectionism. In line with cognitive theories of OCD, this group becomes liable to faulty appraisals of unwanted intrusions as being important and so is at an increased risk of developing OCD.

Although implicit moral perceptions showed an association with OCD symptoms and beliefs, it appears that this relation was more appropriately explained by variance in other predictors. When it comes to OC-phenomena, the results suggest that is it not implicit processes *per se* that are relevant, but their discrepancy with explicit construals. It is also possible that judgments of moral self-worth require reflective self-evaluation and was too specific to be appropriately captured by implicit measurement tools. For instance, Connor

and Barrett (2005) demonstrated that implicit self-judgments are generally related to undifferentiated affective experience (i.e., feeling “good” or “bad”) rather than particular evaluative emotions.

7.4.2 Explicit self-processes in OC phenomena. Consistent with previous research by Bhar and Kyrios (2007), Study 1 demonstrated that self-ambivalence predicts OC symptoms. Further, nonclinical individuals who reported high levels of self-ambivalence also reported a level of OCD symptoms and beliefs similar to the OCD group. These findings support Guidano and Liotti’s (1983) premise that individuals who are self-ambivalent are vulnerable to developing OC symptoms; because the self-ambivalent individual is unable to restore concordance in their self-views within, they attend to their environment and become hyper-vigilant for cues that promote a particular self-view. In line with the cognitive model of OCD, unwanted intrusions are thus likely to be noticed, interpreted as personally significant and meaningful (Rachman, 1997), and seen as “evidence” that they are unworthy. Indeed, examination of symptom subtypes showed that “pure” obsessions appear to be particularly relevant to the concept of self-ambivalence.

Guidano and Liotti (1983) contend that these faulty appraisals lead to negative automatic feelings of anxiety and discomfort, provoking the self-ambivalent individual to respond to alleviate their distress and “prove” their worthiness. The current results suggest that neutralising strategies, such as counting, do not appear to be a favoured method of reinstating self-worth. Instead, hoarding and ordering were shown to be the compulsions most related to self-ambivalence.

The relationship between self-ambivalence to OC symptoms was fully mediated by OC belief systems. Guidano and Liotti’s (1983) model of self-ambivalence suggests that the belief systems thought to be central to OCD may have evolved as a consequence of their attentiveness to thoughts and mechanisms to protect the valued self-view. For instance,

given that self-ambivalent individuals are preoccupied with seeking certainty regarding their self-worth, it follows that they would develop intolerance of uncertainty. Due to the rigid standards that self-ambivalent individuals deem essential to their prove self-worth, particularly with respect to control and personal standards, it also seems likely they will develop beliefs about perfectionism and the control of thoughts. Indeed, self-ambivalence showed the strongest relationship to perfectionism/certainty, which was also the belief system that ordering compulsions were most closely related to.

Although anxious concern about moral self-worth showed a relationship with OC phenomena, it did not show a unique predictive utility for OC symptoms when self-ambivalence was included in the model. Thus it appears that the moral component of OC phenomenology shown in previous research (Doron et al., 2007, 2008) was appropriately captured by self-ambivalence in the current study. This corresponds with Bhar and Kyrios' (2007) analysis that the SAM can incorporate a subscale measuring moral ambivalence, and is consistent with theoretical suggestion that for self-ambivalent individuals moral values are central to their self-worth yet that they are anxious about their ability to meet with their rigidly held moral standards (Guidano & Liotti, 1983).

There is also some suggestion that self-ambivalence appropriately represents discrepant self-esteem, where individuals with a discrepant low self-esteem had the highest levels of self-ambivalence. While self-ambivalent individuals are able to readily self-report having low self-esteem, they may be uncertain in their self-worth because they hold concurrent implicit positive self-feelings. This supports Guidano and Liotti's (1983) premise that individuals who are ambivalent in their self-worth hold opposing self-views at the same time and could suggest that the reported low self-esteem in self-ambivalent individuals in previous research (Bhar & Kyrios, 2007), is in the context of a positive implicit self-esteem.

At first glance, it may be expected that individuals with a discrepant high self-esteem (low implicit, high explicit) would also experience high levels of self-ambivalence. These people report positive attitudes towards the self, but hold an underlying insecurity, so it could be reasonably expected that they would also be experiencing associated distress. As this discrepant self-profile has also been associated with unrealistic self-enhancement (Bosson et al., 2003) and narcissistic tendencies (Zeigler-Hill, 2006), it is possible that these individuals artificially inflated their reported self-esteem, or underestimated negative affective experiences, in order to protect an inner fragile self-view.

It is important to acknowledge that variance in self-ambivalence was most explained by depressive symptoms. The relationship between depressive symptoms and self-ambivalence was so strong that they appear to be tapping into shared phenomena, and therefore the BDI-II was removed from analyses predicting OC symptoms. This is not altogether that surprising. The BDI-II includes questions on self-worth and the cognitive literature on depression provides a multitude of evidence to support that depression is associated with negative cognitions (Joiner & Rudd, 1996; Smith, Alloy & Abramson, 2006; Van der Does, 2005) and self-perceptions (Constantino, Wilson & Horowitz, 2006; Coyne, Gallo, Klinkman & Calarco, 1998; Erkolahti, Ilonen, Saarijarvi & Terho, 2003; Haugen & Lund, 2002). It is similarly possible that individuals who are ambivalent about their self-worth may develop depressive symptoms as they experience helplessness in continually failing to manage their conflicting feelings.

7.4.3 Implications. The results from Study 1 add to the growing body of literature to suggest that self-processes are related to OC phenomena. In particular, a discrepant low self-esteem and anxiety about moral concerns are associated with self-ambivalence, and so may serve as an important vulnerability to developing obsessive beliefs and symptoms. Study 1 additionally supported the applicability of implicit measurement techniques in OCD

research. Indeed, to our knowledge, this is the first finding that a positive implicit self-esteem, in the context of a negative explicit self-esteem, is associated with OC phenomena. These findings may be seen as an important first step towards clarifying the current issues surrounding the cognitive theory of OCD by highlighting a possible explanation for the development and maintenance of dysfunctional obsessive beliefs and providing an understanding for how and why particular intrusions become the focus of attention.

In practice, clinical assessment could thereby incorporate examination of the individual's self-ambivalence, sensitivity to particular types of intrusions and the beliefs associated with the appraisal of specific intrusions. As proposed by Rowa and colleagues (Rowa et al., 2005; Rowa & Purdon, 2003), people may better understand their intrusions if they learn that they are not arbitrary, but noticeable because they threaten one's self-worth.

Furthermore, part of DSM-IV criteria for OCD is that the individual is aware of the irrationality of their experienced, at some stage throughout the course of the disorder. So on the one level, the individual realises their experience is irrational, but on another, they fear there may be "truth" to their obsessions and feel compelled to respond. Clients may appreciate an understanding that a positive implicit self-esteem is providing an internal drive to persevere with compulsions. These additions are also helpful because they aid clinicians to create relapse prevention strategies that incorporate their client's personal vulnerabilities.

7.4.4 Limitations and directions for future research. One of the primary constraints of the present study was the need for a greater sample size. Certainly as it stands, the use of a predominantly student sample limits the extent to which the findings can be generalised to other populations. Larger samples that allow comparison of different population groups would help to clarify the proposed predictions regarding the response of individuals with different self-profiles.

Additionally, the present design was cross-sectional and correlational in nature. While vulnerability or causality is often implied by interpretations of the data, causality cannot be established. Research that incorporates experimental designs and directly examines fluctuations in distress and self-worth in the context of exposure to intrusions can assist with causal interpretations, and are to be explored in Study 2.

7.4.5 Conclusion. The present study examined the nature of implicit and explicit self-processes in their relationship to OC phenomena. In particular, self-ambivalence and a discrepant low self-esteem showed a relationship to OC phenomena. Post-hoc analyses showed that self-ambivalence incorporated depressive symptoms, discrepant low self-esteem and anxiety about moral self-worth. These individuals may be more inclined to adopt higher and more rigid standards for themselves and procedures for interacting with their environment, and may be vulnerable to developing rigid beliefs systems and OC symptoms. Guidano and Liotti's (1983) theory of self-ambivalence was utilised as a useful model to explain why specific individuals are more likely to notice intrusions and interpret them as meaningful. In line with the cognitive theory of OCD (Clark & Purdon, 1993, 1995; Purdon & Clark, 1993, 1994; Rachman, 1997, 1998; Salkovskis, 1985, 1989), the results indicated that the relationship between self-ambivalence and OC symptoms was partially mediated by obsessive beliefs. Taken together, the current study highlights the importance for future research to investigate individuals' self-concept as an important vulnerability to OC phenomena. Investigations of the fluctuations in self-worth over time may help to further elucidate the causal processes that were proposed.

Chapter 8: Study 2

Exposure to unwanted intrusions, neutralising and their effects

8.1 Introduction

Central to the cognitive model of OCD is the understanding that unwanted intrusions form the basis of obsessions (Rachman, 1997). Unwanted intrusions are considered to be essentially a universal ‘normal’ phenomenon as the vast majority of non-clinical populations report that they experience intrusive thoughts, images or impulses (Clark & Purdon, 1995; Purdon & Clark, 1994a; Rachman & de Silva, 1978). While many cognitive approaches to OCD have been developed (Clark & Purdon, 1993, 1995; Doron & Kyrios, 2005; Guidano & Liotti, 1983; Purdon & Clark, 1993, 1994; Rachman, 1997, 1998; Salkovskis, 1985, 1989), each recognise that intrusive thoughts of the general population and obsessional patients differ not in the content of unwanted intrusions, but in their appraisal.

Due to pre-existing attitudes and beliefs, individuals who misinterpret the occurrence and/or content of unwanted intrusions as being personally significant and meaningful are more likely to develop OCD (Rachman, 1997). Overvaluing and appraising unwanted intrusions in this way results in discomfort and anxiety, which then provoke one to respond to alleviate negative affect or to avoid the negative outcome. The individual with OCD may attempt to relieve their distress through efforts to neutralise the intrusion or its effects. Neutralisation responses involve cognitive or behavioural rituals, avoidance of trigger stimuli, reassurance seeking or attempts to suppress the intrusive thoughts (Salkovskis, 1997).

While these neutralisation strategies are designed to reduce discomfort, they are a maladaptive safety seeking behaviour as the individual negatively reinforces the misconception that neutralisation was responsible for preventing the negative predictions and discomfort associated with the intrusion (Rachman, 1998). For instance, the individual

may attribute that holding a crucifix as being responsible for the safe arrival of family members rather than observing that they would have arrived safely without holding the crucifix. Additionally, neutralising efforts to suppress a particular thought can lead to a later increase in the frequency of intrusions (Wegner, Schneider, Carter, & White, 1987). Consequently, while discomfort may be reduced in the short term, these deliberate attempts to neutralise unwanted intrusions paradoxically serve to worsen their salience, frequency and intensity because the individual pays increased attention to their intrusions. Cognitive behavioural theories thus assert that neutralising responses promote a greater need for further use of neutralising strategies (Newth & Rachman, 2001).

Neutralising responses are thus seen as central to the persistence of obsessional problems; they alleviate discomfort in the short term but are associated with longer term enhancement of discomfort and with increases in the urge to engage in further neutralising responses (Salkovskis, 1989, 1998). The work of Salkovskis and colleagues (Salkovskis et al., 1997; 2003) empirically examined these notions using an experimental design. Participants were randomly allocated to one of two conditions, a neutralisation condition (“Neutralising”) or an attentional refocusing condition (“Refocusing”). Each condition consisted of two phases, Respond and Listen. In both conditions, participants listened to repeated recorded presentations of one of their own intrusive thoughts. In the Respond phase, the Neutralising group used a cognitive neutralisation strategy that they had identified prior to admission into the study. The Refocusing group were asked to undertake a simple cognitive task counting backwards by threes from a randomly generated number over 100. In the Listen phase of both conditions, participants were asked just to listen to the recording of their thought and refrain from either neutralising or refocusing. In each phase, the intrusion was presented once per minute for 16 minutes and ratings of urge to neutralise

and overall discomfort were obtained at baseline and after every 4th presentation of the intrusion using a Visual Analogue Scale (VAS).

In the Respond phase, a sample of non-clinical participants allocated to the Neutralising group experienced significantly greater discomfort than those in the Refocusing condition (Salkovskis, 1997). Additionally, in the Listen phase, the higher level of discomfort experienced by individuals in the Neutralising group was also accompanied by a significantly greater urge to use their neutralising strategy. Indeed, indicating the strong tendency to neutralise, there was also an increased rate of neutralising in the Listen phase despite experimental instructions to the contrary. These results were generally replicated with a sample of clinical OCD participants (Salkovskis et al., 2003); discomfort significantly decreased over the response phase for the Neutralising condition but not for the Refocusing condition, however only those in the Neutralising group experienced a significant increase in level of discomfort over the Listen phase. Similarly, over both phases, the urge to neutralise was significantly higher in the Neutralising condition.

These findings support the notion that neutralising responses help to maintain the discomfort associated with unwanted intrusions and that successful efforts to neutralise intrusions increase the urge to continue using these maladaptive responses. While these results are promising, the sampling methodology limits generalisations to specific sub-populations that frequently have intrusive thoughts and naturally respond with a covert neutralising strategy. For instance, from a potential pool of 1370 participants, the final sample of 28 non-clinical individuals were selected for the study if they experienced 10 or more intrusive thoughts over the past week; if these were associated with at least mild discomfort (greater than 30 out of 100) and if they ‘often’ or ‘always’ cognitively neutralised their intrusions (Salkovskis et al., 1997). Similarly, the study of clinical OCD participants required that individuals have an identifiable neutralising thought and engage in

some form of mental neutralising that they could use in the laboratory conditions (Salkovskis et al., 2003). When one considers that clinical and non-clinical populations experience intrusive images, urges and thoughts (Clark & Purdon, 1995), and that around 80% of individuals with OCD present with overt compulsions (Karno et al., 1988), the confines of selection criteria in the Salkovskis et al. (1997; 2003) studies are problematic.

Consequently, the first aim of Study 2 was to enhance the ecological validity of previous research and see if the results of Salkovskis et al. (1997; 2003) can be replicated with a broader range of intrusion types and neutralising responses, in a combined non-clinical and clinical OCD sample. In line with their findings, it was anticipated that discomfort would significantly decrease while responding to intrusions with a neutralising strategy, and that levels of discomfort will increase significantly when asked to just listen after having used a compulsive strategy. Similarly, given that neutralising responses negatively reinforce their own continued use, it was predicted that the Neutralising condition would be associated with a significantly increased need to neutralise over both phases. The Refocusing condition was designed to stop participants from engaging with their intrusions. Therefore, as demonstrated by Salkovskis et al. (1997; 2003), it was predicted that the Refocusing condition would be associated with a significant reduction in discomfort in the response phase and that this would be maintained when asked to listen and refrain from using the refocusing technique. It was further anticipated that the Refocusing condition would not have an effect on the urge to neutralise.

The current study also sought to extend the work of Salkovskis et al. (1997; 2003) so as to explore the impact that neutralising responses have on self-related processes related to OCD. As discussed in earlier chapters, there are theoretical suggestions and some emerging empirical support that individuals with OCD are ambivalent about their self-worth (Bhar & Kyrios, 2007; Guidano & Liotti, 1983), Guidano and Liotti (1983) contended that self-

ambivalent individuals seeks to restore a positive self-view by essentially “proving” their worth via the use of neutralising strategies. Neutralising, such as compulsions, serve to enhance self-worth and restore an individual’s confidence in the beliefs that they are inherently worthy. Bhar and Kyrios (2000; 2007) showed that self-ambivalence significantly predicted OCD symptoms and that this relationship was mediated by obsessive-compulsive beliefs. Further, when compared to a non-clinical group, individuals with OCD had significantly higher levels of self-ambivalence. The results of Study 1 generally replicated these findings. Additionally, Study 1 showed that non-clinical individuals with high levels of self-ambivalence had comparable OCD symptom scores to the clinical OCD group. However, there has been little direct evidence of a relationship between neutralisation and fluctuations in self appraisals.

Consequently, the second aim of Study 2 was to empirically test the ideas of previous authors (Bhar & Kyrios, 2007; Guidano & Liotti, 1983) while using the experimental design developed by Salkovskis et al. (1997; 2003). Specifically, the study examined the effect that neutralising and refocusing responses to unwanted intrusions have on self-worth and confidence in self-worth. Consistent with the theory of self-ambivalence (Bhar & Kyrios, 2007; Guidano & Liotti, 1983), neutralising is anticipated to help restore a sense of self-worth and confidence in self-worth (herein referred to as self-confidence for the purposes of brevity). Also, given the reciprocal interdependence between negative affect and low self-worth (Park & Crocker, 2008; Pelham & Swann, 1989) and low confidence in self-worth (Baumgardner, 1990; Campbell et al., 1996; Rosenberg, 1979), it follows that fluctuations in these self-variables should be inversely related to the amount of discomfort experienced throughout the experimental task. That is, increases in discomfort would relate to decreases in self-worth and decreases in confidence in self-worth, and vice versa. Consequently, it was predicted that levels of self-worth and confidence in self-worth, would

significantly increase throughout the response phase for both the Neutralising and Refocusing conditions. It was further anticipated that during the Listen phase, the Neutralising condition would be associated with significant drops in self-worth and self-confidence while, in the Refocusing condition, these variables would not show any significant changes.

8.2 Method

8.2.1 Participants. The study employed the same participants as Study 1.

8.2.2 Design.

8.2.2.1 Neutralising Assessment Task (NAT; Adapted from Salkovskis et al., 1997; 2003).

The NAT is a computer-administered adaptation of the experimental design of Salkovskis et al. (1997; 2003). The task tracks the experience of participants who are continually exposed to their own unwanted intrusions and asked to just listen to their intrusions, or to perform neutralising strategies and or to use refocusing strategies. As per the procedure section, prior to the commencement of the NAT, participants' intrusions were selected and recorded, the participant and researcher selected the neutralising strategy, and the participant was instructed on how to complete the task. The NAT consisted of four scenarios; two conditions (Neutralising and Refocusing) and two phases within each condition (Respond and Listen). Each scenario was 12 minutes in length and the first 20-seconds of every minute presented the participant's own unwanted intrusion through earphones. While the intrusion was playing, participants were asked to listen to their intrusion and imagine themselves in the situation. The remaining 40-seconds of each minute was silent through the earphones and required the participant to follow the instructions for

within their condition. A reminder was displayed on screen during this time, as displayed in Table 8.1.

Table 8.1

Instructions for the 40-second silent period within each condition for the NAT

Phase	Condition	
	Neutralising	Refocusing
Respond	Use your chosen neutralising strategy until the recording starts again.	Count backwards, in 3's, from the number presented below* until the recording starts again.
Listen	Continue to think about your intrusion. Refrain from using your neutralising strategy.	Continue to think about your intrusion. Refrain from counting backwards.

Note: * Computer presented a different three digit prime number each time.

After the 1st, 4th, 8th and 12th presentation of the intrusion in each phase, a visual analogue scale (VAS) would be presented on the screen and participants were asked to rate their experience during the time that they had just heard their intrusion, on a number of different aspects. Participants are asked to respond on the VAS their level of agreement to the anchor points at either end of a continuous line. See Table 8.2 for a list of the different VAS presented. The VAS was utilised for its applicability to computer methodology and because it has demonstrated an ability to outperform other scales (Grant et al., 1999). Participants had 40-seconds to use the computer mouse to rate their experience before the intrusion loop started playing again. Scales not attended to in this time frame were automatically entered by the computer as missing data. Participants were verbally instructed

that the scales would only be presented for a brief time period, so that ratings made should be fast and without too much conscious reflection.

Table 8.2

Visual Analogue Scales presented after the 1st, 4th, 8th and 12th presentation of intrusion

Scale	Instruction	Words at anchor points	
		0 (Low)	100 (High)
Discomfort	What was your level of discomfort?	No discomfort at all	The most discomfort I have ever felt
Urge	How strong was your urge to neutralise?	No urge at all	The strongest urge I have ever felt
Self-worth	To what extent did you feel like you are a worthy person?	I feel I am a very unworthy person	I feel I am a very worthy person
Confidence in self-worth	How confident were you that you were a worthy person?	No confidence at all	Completely confident

8.2.3 Procedure. Following completion of the computer task in Study 1, participants were offered a break. To assist with use of the NAT computer task in this study, participants were then provided a handout that defined unwanted intrusions and that gave some common examples (see Appendix O). In a private room with the researcher, participants were asked to consider one of their own naturally occurring intrusions that they associated with mild to moderate discomfort, which was a score of less than 70 out of 100 on a VAS. In the event that a participant selected an intrusion that was too distressing (<70/100), they were asked to

select a less upsetting intrusion, or to alter their intrusion so that it was not as distressing, for ethical reasons. If participants had more than one intrusion, they were asked to choose the most frequent. Distress ratings of chosen intrusions ranged from 0 to 70 ($M = 52.71$, $SD = 16.09$, $N = 129$). Participants with distress ratings < 20 were excluded from further analyses ($N = 2$).

Once a suitable intrusion was selected, participants were asked to write about their intrusion, in the first person point of view and present tense, and were asked to elaborate on the associated negative aspects so that when spoken aloud, their reading should take approximately 20-seconds. A researcher was present throughout this process to assist participants in identifying one of their own intrusions, to help participants distinguish between unwanted intrusions and worries, to ensure that no highly distressing intrusions were selected, and to help participants elaborate and record their intrusions.

Following the recording of their intrusion, participants were briefed on the nature of neutralising and provided with some common examples (see Appendix P). Participants were asked what their naturally occurring neutralising strategy was and if deemed appropriate, it was used. That is, the strategy chosen was required to be able to be suitable to the confines of the private room and while sitting in front of a computer. To ensure differences between the Neutralising and Refocusing condition, researchers were careful to elucidate that the neutralising strategy chosen must be designed to alleviate discomfort associated with their intrusion and must not be a refocusing technique. Those participants who could not identify a strategy, or if due to the confines of the laboratory environment could not partake in their naturally occurring neutralising strategy, were assisted to select another suitable strategy or a modified version. For instance, individuals who would normally return to their house and physically check the front door were asked to mentally check their front door; individuals who would normally wash their hands were asked if wiping their hands on their lap would

produce similar feelings of relief. The types of neutralising strategies employed in the NAT are displayed in Table 8.3.

Table 8.3

Types of neutralising strategy employed throughout the NAT

Strategy	Frequency	%
Replace with safe/good thought	37	26.4
Checking	34	24.3
Cleaning	15	10.7
Repeat comforting phrase/Pray	14	10
Tap/touch until feel “OK”	11	7.9
Avoid	6	4.3
Organise/Arrange	6	4.3
Count to 10	4	2.9
Not recorded	13	9.3
Total	140	100

Following the recording of intrusion and selection of suitable neutralisation strategy, participants were verbally instructed on how to complete the NAT task.

During this computer task you will hear your recorded intrusion come through the earphones once every minute. You are asked to listen to your intrusion and imagine yourself in the situation. When the recording stops, you are to follow the instructions on the screen. The instructions will change according to what stage you are up to. There are four stages, each

taking 12 minutes. In one stage you will be to use the neutralising strategy we just selected, in another you will be asked to count backwards in 3's from the number presented on the screen. The other two stages ask you to just think about your intrusion and not use your neutralising strategy or count backwards. The stages just mentioned may not necessarily happen in that order. After you have completed two of the stages, the computer will stop the experiment and ask you to take a break. When you see this, come out of the room and tell the researcher.

Participants were then provided with a screen print out of the scales.

To track how you are feeling, at various times a screen just like this will pop up and ask you to rate your experience on the scales using the mouse. The first question will always be about your level of distress, the second about urge to use your neutralising strategy and so on. Click and hold down the mouse on the curser and drag the bar according to how you feel. You are to rate your experience according to how you feel during the time you just heard your intrusion. This screen will automatically disappear after 40-seconds and start playing your intrusion again, so go with your initial impression and don't think too much about any one scale. Do these instructions make sense? Do you have any questions?

Each participant completed both conditions with a ten-minute break between conditions. In each condition, the Respond phase preceded the Listen phase. Participants

were randomly allocated to complete the Neutralising or Refocusing condition first to control for possible order effects and fatigue. No order effects were found³.

8.3 Results

8.3.1 Preliminary data screening and descriptives. Analyses were performed using SPSS version 17.0. In view of the small sample size of the clinical group, the suitability of pooling clinical and non-clinical samples was assessed. Levene's test for equality of variances was not significant ($p > 0.05$) suggesting homogeneous variance for clinical and non-clinical groups on measures in the NAT, thus it was deemed suitable to combine the data samples. Before running the analysis, skewness and kurtosis statistics were assessed to examine deviations from normality. All dependent variables showed normal distribution.

8.3.2 Analyses. To examine the change in experience across each scenario, we compared responses at the 1 minute mark (after the first intrusion presentation) to the 12 minute mark (after the last intrusion presentation).

8.3.2.1 Discomfort.

A 2(Condition) x 2(Phase) x 2(Time) repeated measures ANOVA was conducted, comparing the levels of discomfort. There were significant main effects for Phase ($F(1, 105) = 13.66, p = .001, \text{partial } \eta^2 = 0.10$), but not for Condition ($F < 1$) or Time ($F < 1$). There was a significant interaction between Phase x Time ($F(1, 105) = 13.66, p < .001, \text{partial } \eta^2 = 0.12$) but not between Condition x Phase ($F < 1$) or between Condition x Phase x Time ($F < 1$). There was a non-significant trend indicated in the interaction between Condition x Time ($F(1, 105) = 2.68, p = 0.08, \text{partial } \eta^2 = 0.03$) that may have been found to be

³ Independent groups *t*-tests compared the individuals who completed the neutralising condition first to those who completed the Refocusing condition first. No significant differences ($p > 0.05$) were found for mean levels of distress, urge to neutralise, self-worth or self-confidence throughout the task.

significant if there was greater power (*Observed power* = .40). The means and standard deviations of levels of discomfort at first and last presentation are presented in Table 8.4.

Planned comparisons were carried out, comparing all possible pairs, using paired samples t-tests, where the superscript annotations in Table 8.4 highlight significant differences in distress scores. While distress dropped over the Neutralising-Respond phase, this drop was only a trend ($p = .08$). There was however a significant increase in discomfort between the first and last presentation of the intrusion in the Neutralising-Listen scenario ($t(105) = -2.20, p = 0.03$). In contrast, distress levels significantly decreased over the Refocusing-Respond phase ($t(105) = 2.63, p = 0.01$), but there were no significant gains in distress in the Refocusing-Listen scenario ($p = .78$). In both conditions, discomfort was significantly higher after twelve minutes of participants having listened to their intrusions without responding (*Neutralising*: $t(105) = -3.4, p = 0.01$; *Refocusing*: $t(105) = -3.49, p = 0.001$). A graphical depiction of the change in discomfort at each time point throughout the task is shown in Figure 8.1.

8.3.2.2 Urge to neutralise.

A 2(Condition) x 2(Phase) x 2(Time) repeated measures ANOVA was conducted comparing the conditions on the urge to neutralise. There were significant main effects for Phase ($F(1,75) = 4.63, p = .04, \text{partial } \eta^2 = 0.06$), but not for Condition ($F < 1$) or Time ($F < 1$). There was a significant interaction between Condition x Time ($F(1, 75) = 5.64, p = 0.02, \text{partial } \eta^2 = 0.07$) but not for Condition x Phase ($F < 1$), or Condition x Phase x Time ($F < 1$). Phase x Time showed a non-significant trend ($F(1, 75) = 3.14, p = 0.07, \text{partial } \eta^2 = 0.04, \text{Observed power} = .45$). The means and standard deviations of urge to neutralise at first and last presentation are presented in Table 8.4

Planned comparisons were carried out using paired samples t-tests, with urge as the dependent variable. The superscript annotations in Table 8.4 show that while the urge to

neutralise increased over the Neutralising-Respond scenario, this was not significant. There were however significant increases in urge to neutralise over the Listen phase of the Neutralise condition ($t(75) = -2.28, p = 0.03$).

There were no significant changes in urge to neutralise over the Refocusing condition. At the end of the Respond phase, individuals reported significantly lower urge to neutralise when in the Refocusing condition compared to the Neutralising condition ($t(75) = -1.98, p = 0.04$). In the Refocusing condition, urge to neutralise was also significantly higher after twelve minutes of listening compared to urge after twelve minutes of responding with the refocusing technique ($t(75) = -2.38, p = 0.02$). A graphical depiction of the change in urge to neutralise at each time point throughout the task is shown in Figure 8.2.

8.3.2.3 Self-worth.

A 2(Condition) x 2(Phase) x 2(Time) repeated measures ANOVA was conducted, comparing levels of self-worth. There were no significant main effects (condition ($F < 1$), Phase (< 1), Time ($F(1, 26) = 2.75, p > 0.05, \text{partial } \eta^2 = 0.09$)). There was a significant interaction between Phase x Time ($F(1, 26) = 11.61, p = 0.002, \text{partial } \eta^2 = 0.31$) but not for Condition x Phase ($F(1, 26) = 2.06, p > 0.05, \text{partial } \eta^2 = 0.07$), Condition x Time ($F < 1$) or Condition x Phase x Time ($F < 1$). Although time and the interaction between Condition x Phase showed medium effect sizes (Cohen, 1992), there was insufficient power to detect a significant F-ratio (*Observed power*; Time = 0.33, Condition x Phase = 0.28). The means and standard deviations of self-worth at first and last presentation are presented in Table 8.4.

Planned paired samples t-test comparisons were conducted to test for differences in self-worth. Significant differences are indicated in the superscript annotations in Table 8.4. Self-worth significantly increased while responding in the Neutralising ($t(26) = -2.95, p = 0.007$) and Refocusing condition ($t(26) = -2.72, p = 0.01$). Self-worth also dropped in the

Response phase of both conditions, however there was only a trend towards significance in the Neutralising-Listen scenario ($t(26) = 1.87, p=.07$). This may be found to be significant in a larger sample. A graphical depiction of the change in self-worth throughout the task is shown in Figure 8.3.

8.3.2.4 Self-confidence.

A 2(Condition) x 2(Phase) x 2(Time) repeated measures ANOVA was conducted, comparing confidence in self-worth. There were no significant main effects [Condition ($F < 1$), Phase ($F < 1$), Time ($F(1, 15) = 2.75, p > 0.05, \text{partial } \eta^2 = 0.20$)] or interactions [(Condition x Phase ($F(1, 15) = 0.11, p > 0.05, \text{partial } \eta^2 = 0.11$), Condition x Time ($F(1, 15) = 0.07, p > 0.05, \text{partial } \eta^2 = 0.07$), Phase x Time ($F(1, 15) = 0.22, p > 0.05, \text{partial } \eta^2 = 0.22$), Condition x Phase x Time ($F(1, 15) = 0.04, p > 0.05, \text{partial } \eta^2 = 0.04$)]. Although Time and the interactions between Condition x Phase and Phase x Time showed large effect sizes (Cohen, 1992), there was insufficient power to detect a significant F-ratio (*Observed power*; Time = 0.44, Condition x Phase = 0.25, Phase x Time = 0.49). The means and standard deviations of self-confidence at first and last presentation are presented in Table 8.4.

Planned paired samples t-tests were conducted to test for differences in self-confidence. The superscript annotations in Table 8.4 show significant differences. Self-confidence increased over the Response phase for both conditions, but this was only significant for using the refocusing technique ($t(15) = -2.36, p = 0.03$). There were no significant changes in either condition over the Listen phase, although self-confidence was significantly higher at the end of the Refocusing-Listen scenario compared to the Neutralising-Listen scenario ($t(15) = -2.26, p = 0.04$). Additionally, there was the trend towards higher levels of self-confidence at the end of the Response phase, compared to the Listen phase, for both conditions (*Neutralising*: $t(15) = 1.71, p = 0.1$; *Refocusing*: $t(15) =$

2.00, $p = 0.06$). A graphical depiction of the change in self-worth at each time point throughout the task is shown in Figure 8.4.

Table 8.4

Change in ratings from first to last presentation for each phase

Rating	Condition	Phase	Time (minutes)				N
			1		12		
			M	SD	M	SD	
Discomfort	Neutralising	Respond	41.84	25.38	37.61 ^c	28.22	106
		Listen	41.01 ^a	27.34	45.73 ^{ac}	30.62	
	Refocusing	Respond	43.83 ^b	26.18	37.68 ^{bd}	27.10	
		Listen	43.67	26.62	44.29 ^d	30.33	
Urge to Neutralise	Neutralising	Respond	39.09	28.20	41.49 ^a	28.54	76
		Listen	39.11 ^b	27.74	45.62 ^b	27.98	
	Refocusing	Respond	40.84	27.82	36.30 ^{ac}	28.30	
		Listen	41.42	26.47	42.37 ^c	28.90	
Self-Worth	Neutralising	Respond	74.33 ^a	22.14	80.11 ^a	18.66	27
		Listen	76.81	23.69	74.04	27.77	
	Refocusing	Respond	73.89 ^b	26.38	78.70 ^b	22.44	
		Listen	78.33	23.91	76.89	25.17	
Self-Confidence	Neutralising	Respond	76.25	25.23	80.31	18.85	16
		Listen	76.00	27.31	74.06 ^a	28.74	
	Refocusing	Respond	72.75 ^b	29.10	81.44 ^b	19.61	
		Listen	78.63	23.48	77.44 ^a	26.27	

Note.

^{abcd} superscript annotations demonstrate a significant difference in t-tests for that rating

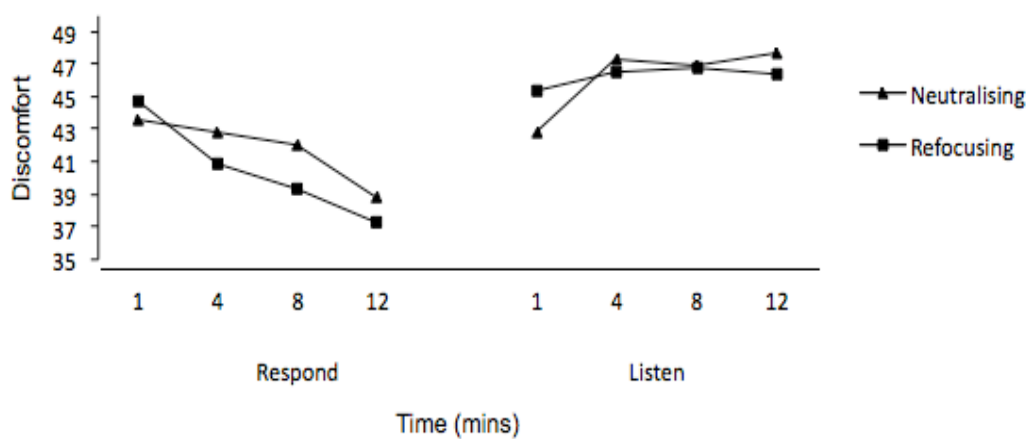


Figure 8.1
Change in Discomfort at each time point

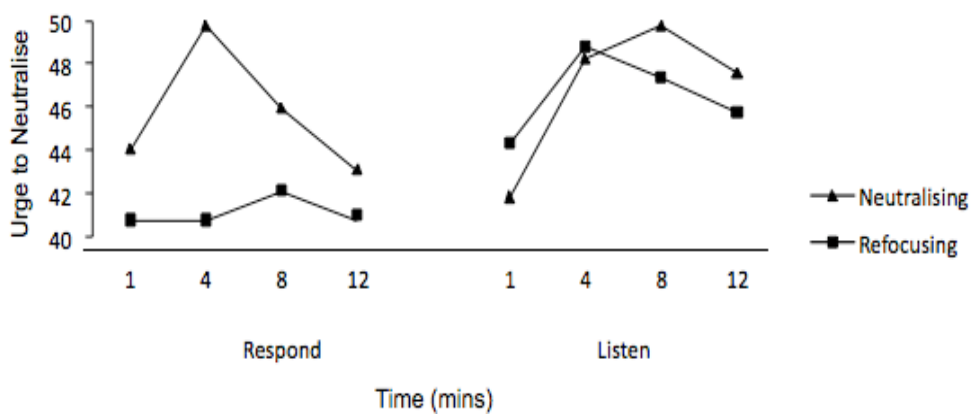


Figure 8.2
Change in Urge to Neutralise at each time point

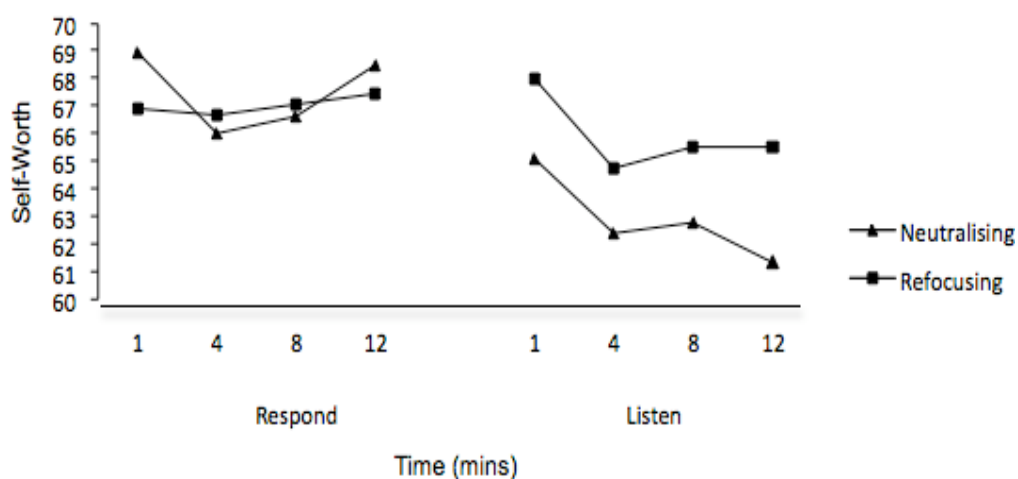


Figure 8.3
Change in Self-Worth at each time point

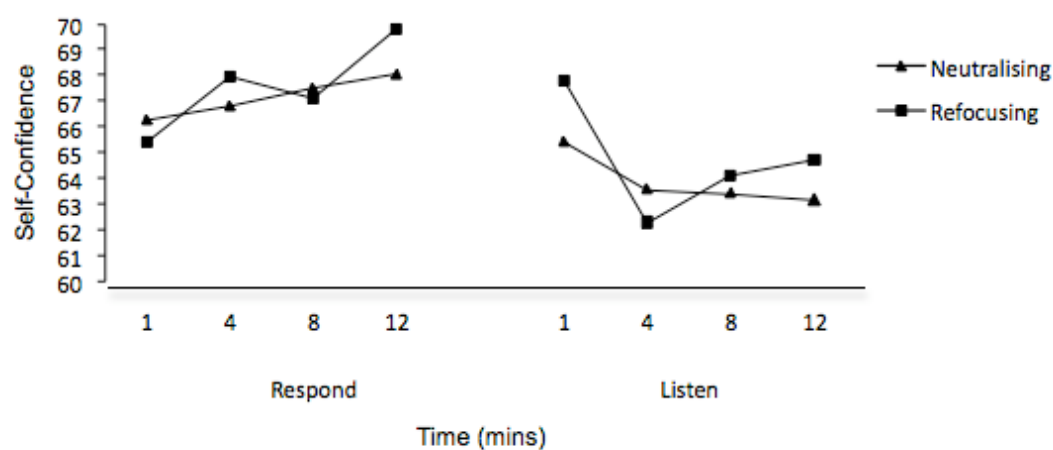


Figure 8.4
Change in Self-Confidence at each time point

8.3.2.5 Relationships between variables. Mean ratings were calculated for each variable by taking the average of the first, fourth, eighth and twelfth rating. The interrelationships between mean ratings of distress, urge to neutralise, self-worth and self-confidence were examined for each scenario with correlations and are displayed in Table 8.5.

Table 8.5
Intercorrelations of mean ratings

Scenario	Scale	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
Neutralise Respond	1. Distress	1.00															
	2. Urge	.87	1.00														
	3. Self-worth	-.49	-.47	1.00													
	4. Self-Confidence	-.47	-.52	.80	1.00												
Neutralise Listen	5. Distress	.82	.79	-.48	-.41	1.00											
	6. Urge	.74	.81	-.44	-.36	.83	1.00										
	7. Self-worth	-.48	-.49	.82	.75	-.60	-.49	1.00									
	8. Self-Confidence	-.49	-.49	.81	.78	-.60	-.55	.90	1.00								
Distract Respond	9. Distress	.71	.69	-.47	-.39	.65	.60	-.46	-.45	1.00							
	10. Urge	.68	.76	-.42	-.37	.62	.69	-.48	-.43	.86	1.00						
	11. Self-worth	-.52	-.51	.73	.67	-.48	-.41	.84	.78	-.58	-.57	1.00					
	12. Self-Confidence	-.46	-.43	.74	.68	-.50	-.39	.79	.78	-.47	-.41	.80	1.00				
Distract Listen	13. Distress	.79	.76	-.43	-.38	.73	.68	-.47	-.51	.83	.78	-.52	-.44	1.00			
	14. Urge	.78	.82	-.44	-.39	.76	.79	-.46	-.48	.77	.82	-.53	-.44	.89	1.00		
	15. Self-worth	-.48	-.46	.82	.69	-.53	-.48	.88	.85	-.53	-.49	.82	.79	-.56	-.52	1.00	
	16. Self-Confidence	-.52	-.49	.75	.78	-.53	-.48	.83	.90	-.54	-.50	.84	.80	-.57	-.54	.90	1.00

Note: $N = 108$; All correlations are significant at the $p < 0.001$ level.

Table 8.5 shows the intercorrelations between mean ratings of each scale for each scenario. All correlations were significant and demonstrated moderate to strong relationships (range $r = 0.36 - 0.9$). Within each scenario, there were strong positive correlations between distress and urge to neutralise, and between self-worth and self-confidence (range $r = 0.8 - 0.9$). Similarly, each variable correlated highly with its equivalent across scenarios, (range $r = 0.36 - 0.9$). There were moderate negative correlations between distress and the self-variables (range $r = -.47 - -.06$), and urge to neutralise and self-variables (range $r = -.41 - -.057$).

8.4 Discussion

Using a broad range of intrusion types and neutralising responses, Study 2 sought to extend the research of Salkovskis et al. (1997, 2003) by tracking fluctuations in self appraisals throughout an experimental task that exposed participants to idiosyncratic intrusive thoughts and asked them to respond by either neutralising or refocusing. The hypotheses of Study 2 were partially supported. While expected patterns emerged for participant's experiences in each scenario, the changes shown were not always significant, although this may have been due to insufficient sample size and power.

In accordance with the findings of Salkovskis et al. (1997; 2003), responding to unwanted intrusions with a neutralisation strategy was associated with immediate and ultimate decreases in discomfort and immediate increases in the urge to neutralise. While the differences from first to last iteration were not significant, the predicted increase in discomfort was significant when participants were asked to just listen to intrusions after having used a compulsive strategy. Similarly, the act of neutralising reinforced the continued need to neutralise. When asked to just listen to intrusions and

refrain from neutralising, individuals experienced significantly greater urge to use their neutralising strategies. On its own, the amount of time exposed to the intrusion had no bearing on discomfort and urge, but significant interactions suggested that discomfort was highest after twelve minutes of having to listen without responding, and urge was greatest at the end of both phases of the Neutralising condition.

The present results hold some support for the cognitive behavioural theory of OCD. While this study found a trend towards decreased distress and a significant increase in urge to neutralise when neutralising was being employed, there were ultimately increases in distress and urge over the Neutralising Listen phase. Furthermore, throughout the experiment, distress tended to be associated with a greater urge to neutralise. There was one exception whereby at the four-minute mark of the Respond phase, neutralising was associated with a spike in urge to neutralising. Hence, neutralising is a maladaptive response whereby its continued use is reinforced. Small amounts of neutralising feed the urge to continue doing so, and so individuals are vulnerable to becoming more reliant on it when experiencing unwanted intrusions (Salkovskis, 1999).

Although not predicted, the finding that discomfort did not significantly reduce over the Neutralising Respond scenario may be indicative of the wider experience of intrusions. Firstly, while not significantly alleviating distress (although it was close to doing so with $p=0.08$), the repetition of the activity does appear to prevent increases in distress. This then provides an incentive for the individual to extend the duration of relief through repeating their neutralising actions. Additionally, because the relief gained by each neutralisation is present but in itself insufficient on its effect on reducing distress, a further spur to repeat performance results. The slight alleviation in discomfort necessitates the need for further attempts, and the limited success to rid significant

amounts of negative affect may promote more elaborate responses. Moreover, as neutralisation strategies become more complex, demanding and time-consuming, they can themselves be experienced as distressing (Muris et al., 1997b). Indeed, despite the use of neutralising, participants remained continually exposed to their intrusion throughout the task. Non-significant drops in discomfort may therefore also represent the frustration in the futility of their neutralising responses to stop unwanted intrusions.

Nevertheless, as the findings of Study 2 do not entirely replicate those of Salkovskis's study (1997; 2003), other features of the experimental design may be involved. While these researchers only included participants who frequently used mental neutralisation strategies, the current study did not use any exclusion criteria based on their responses to naturally occurring neutralisations. Over half of the sample had overt neutralisation behaviours that were adapted for use in the laboratory environment. Some strategies were readily modifiable, and participants' personal accounts suggested that they had greater ecological validity (e.g., individuals that would normally wash their hands in water would instead wipe their hands on their lap), while other strategies may not have imparted the same effectiveness as those used outside the laboratory environment (e.g., individuals that would normally organise a particular room would instead arrange items on the desk in the testing room). Future research would therefore benefit in noting how alike the strategy employed in research conditions is with those use in real life circumstances.

It should also be noted that no significant main effects were demonstrated for condition in any of the measures, suggesting that the Neutralising and Refocusing conditions were not as different as was intended. The Refocusing condition was designed to prevent the participant from fully engaging with their distressing intrusion so that the effects of refocusing observed in the Neutralising condition were controlled.

Although great care was taken to ensure that the neutralising strategy selected for each participant met specific criteria to differentiate it from a refocusing technique, the two conditions may involve similar processes for some participants. It is still possible that some participants neutralised in an effort to refocus. Conversely, continued use of the same refocusing technique applied with rigid instructions could be experienced as a compulsive neutralising strategy in some participants. Consequently, future research could investigate participants' motivations behind selection of their Neutralising and Refocusing.

Nonetheless, from the first to last presentation of their intrusion, the response phase of the Refocusing condition was associated with the expected significant decreases in discomfort while the Listen phase of this condition showed no significant changes. Furthermore, there was no significant change in urge to neutralise in the Refocusing condition. So despite no statistical difference between the two conditions, there is still some evidence to suggest that the Refocusing condition was more adaptive. This is consistent with the theoretical justification for exposure and response prevention (ERP), which is the primary therapeutic psychosocial intervention in cognitive-behavioural therapy (CBT) for OCD (March et al., 1997), which requires that individuals with OCD face the situations that induces anxiety but must refrain from engaging in compulsive rituals. Refocusing and stress management techniques are frequently employed to assist individuals with their high levels of discomfort. Although discomfort will initially be very high and intense, it will decrease over time without the use of compulsions (Freeston, Ladouceur, Provencher, & Blais, 1995; Ladouceur et al., 2000) and will assist in reducing the urges to use what are ultimately unhelpful strategies.

As well as largely replicating the research by Salkovskis et al. (1997; 2003) and

maintaining support for the cognitive theory of OCD, the current study extended investigations by being the first known study to directly examine the effect that neutralising has on self appraisals. Across the experiment, increases in distress and urge to neutralise were associated with lower self-worth and lower confidence in self-worth. Of note, within the first four minutes of using neutralising responses, there was an immediate drop in ratings of self-worth, which coincides with a spike in urge to neutralise. Thereafter, self-worth and self-confidence increased while using the neutralising strategy and refocusing technique, although there was no significant overall change from first to last iteration. Self-ratings decreased when participants were asked to just listen to their intrusions for both conditions, although the Refocussing condition showed a trend toward gains to self-worth and self-confidence at the later parts of the Listening phase.

These findings are consistent with the ideas of previous researchers (Bhar & Kyrios, 2007) that unwanted intrusions threaten value aspects of the self and that use of neutralisation strategies help to reinstate self-worth and confidence in self-worth. Indeed the strongest ratings of urge to neutralise coincide with drops in self-worth, not with spikes in distress. The results of the current study also suggest that refocusing techniques have similarly positive affects on self appraisals. This is a promising finding when one considers the preferred use of refocusing techniques over neutralising responses in the successful management of OCD phenomena.

Unexpectedly however, the changes in self-confidence throughout both phases of the Neutralising condition, and self-worth in the Neutralising–Listen scenario, were not significant. Theoretically, the non-significant increase in self-confidence while using neutralising responses may reflect that individuals are suspicious that gains in self-worth are not lasting; they feel greater self-worth but are concurrently not confident

in their rating of self-worth. This is in contrast to the Refocusing condition, where individuals feel greater self-worth and confidence in self-worth in the response phase. It is thus possible that individuals can identify that neutralisation strategies are less helpful for their self-worth than refocusing techniques.

Similarly, the finding that ratings of self-worth and confidence did not significantly reduce in the listening phases of the Neutralising condition was interesting. It suggests that when exposed to intrusions, individuals feel better if they are able to respond, but do not feel worse when told they must stop. In the context of the theory of self-ambivalence this may suggest that exposure to intrusions doesn't overly threaten a valued self-view but that individuals will seize the opportunity to improve their self-perceptions, through use of response strategies, if it is an option available to them. However, this explanation does not fit with the demonstrated relationship between OC-phenomena (distress and urge to neutralise) and self-phenomena (self-worth and confidence in self-worth) as shown in the correlation matrix. Indeed, the graphs demonstrate steady decreases in self-ratings for the Neutralising-Listen phase.

These disparate findings may instead reflect Type II error. Although there were large effect sizes for some of the interactions, due to unforeseen methodological circumstances, the resultant small sample for self-measures meant that there was insufficient power to detect a significant result. For instance, the order of the scales meant participants recorded their self-phenomena ratings after discomfort and urge ratings. Despite instructions to rate their initial impressions, the majority of participants did not complete these scales in the 20-second time allocation for both the one-minute and twelve-minute mark in each scenario and thus were not included in data analyses. If missed responses were due to time management, the use of a countdown timer in the corner of the screen may assist timely responses.

Further, unlike Salkovskis et al. (1997; 2003) who used VAS's presented by the researcher, the current study was computer administrated. Given that the NAT is a fairly lengthy task of 48-minutes, having a researcher present throughout may assist participants to remain focused and adhere to the requirements of the task and to complete all questions without too much consideration of any one response. It could have the additional benefit of allowing the researcher to assess whether there is an appropriate use of neutralising and refocusing strategies.

Nevertheless, despite the need for replication with larger sample sizes and improved methodology as outlined above, Study 2 successfully tracked how one's experience fluctuates when constantly exposed to unwanted intrusions and through use of both adaptive and maladaptive responses. Using a combined sample of clinical and non-clinical participants, with a range of intrusion types and neutralising strategies, the findings support cognitive accounts that neutralising is crucial to the development of OCD. Importantly, a relationship between self-processes and compulsive rituals was revealed adding to the growing body of literature to support that self-concept and self-worth have relevance to OCD phenomena.

The experiment was designed to elicit an "OCD-like" experience for all participants and the results generally reflect that that this was achieved. However, it is equally true to say there are particular vulnerabilities that may lead to a more uncomfortable experience for some individuals, and protect others, throughout the task. Anecdotal accounts certainly reflected that the experience was varied. Consequently, the next step is to examine what are the particular vulnerabilities within an individual that relate to a more negative experience throughout the task. In order to further elucidate these relationships, path analyses were carried out.

Chapter 9: Study 3

Study 3: Self-vulnerabilities to experiencing Obsessive-Compulsive phenomena

9.1. Introduction

According to cognitive accounts of the development of OCD, symptoms of the disorder stem from maladaptive belief systems (OCCWG, 1997; Purdon & Clark, 1993; Rachman, 1997, 1998; Salkovskis, 1985, 1989, 1999). For instance, Salkovskis (1985, 1989, 1998) proposed that intrusive thoughts escalate in frequency and intensity because they activate dysfunctional beliefs about being pivotally responsible for harm to oneself or others. A review of the literature by an international group of researchers in OCD (Frost & Steketee, 2002; OCCWG, 1997, 2001) identified six core beliefs central to the disorder: Inflated responsibility and overestimation of threat; perfectionism and intolerance of uncertainty; over-importance and the need to control thoughts. In support of the cognitive theory of OCD, relationships between these maladaptive beliefs and OC symptoms have been consistently demonstrated in clinical OCD (Lee et al., 2005; Storchheim & O'Mahony, 2006; Taylor et al., 2005) and non-clinical populations (Aardema et al., 2005; Abramowitz et al., 2004).

These findings have led to important advances in the psychological treatment of OCD. Adding a cognitive element to exposure and response prevention (ERP) led the development of cognitive behavioural therapy (CBT) for OCD (Clark, 1999). Current clinical guidelines recommend CBT as a first line treatment for OCD (March et al., 1997; NICE, 2006), and CBT has demonstrated better outcomes than waitlist, or placebo conditions, or treatment as usual (Abramowitz et al., 2005; Gava et al., 2007), while CBT is equal or superior to pharmacotherapy in effectively decreasing OCD symptoms (Prazeres et al., 2007). Moreover, CBT helps to engage those individuals who previously refused, failed to engage with or failed to respond to ERP, either as a

new modality of treatment or as a means of ultimately committing them to ERP (Abramowitz et al., 2005; Clark, 2005; NICE, 2006; Taylor, 2005).

Nevertheless, CBT is still limited in its ability to help a lot of individuals with OCD. Many sufferers still fail to show clinically significant improvement (Abramowitz et al., 2005), and there is poorer prognosis for certain OCD symptom subtypes (Rufer et al., 2006). Current CBT programs primarily target a limited range of cognitions (i.e., mainly six central belief processes) and despite symptom reduction, may not effect clinically significant changes on these cognitions leaving the individual vulnerable to relapse (Summerfeldt, 2004). Consequently, the cognitive theory has been criticised for not being “cognitive enough” in ignoring those underlying core beliefs, schemas or processes that may be responsible for the development of maladaptive OCD belief systems (Bhar & Kyrios, 2007; Doron & Kyrios, 2005; Sookman, & Pinard, 1999; Sookman et al., 1994).

Traditional cognitive accounts recognise that our interpretation of the environment is influenced by our beliefs and assumptions regarding the self, world and others (Beck, 1967). Investigation into self-processes was thus a logical extension for contemporary cognitive accounts of OCD. While there are a growing number of cognitive accounts and empirical evidence that credit the involvement of self-processes in OCD (Aardema & O'Connor, 2007; Bhar & Kyrios, 2007; Byers et al., 1998; Clark, 2004; Doron et al., 2007; Ehntholt et al., 1999; Harvey et al., 2011; Purdon & Clark, 1999; Rachman, 1997; Rowa et al., 2005; Teachman & Clerkin, 2007), Guidano and Liotti's (1983) model of self-ambivalence is one of the few that directly addresses OCD and its developmental prequelae.

According to the theory of self-ambivalence (Bhar & Kyrios, 2007; Guidano & Liotti, 1983), the self-concept in self-ambivalent individuals is structured in such a way

that they concurrently endorse positive and negative self-evaluations. Competing and contradictory self-views lead to uncertainty about one's self-worth (Campbell, 1990), and as they cannot trust internal feelings, self-ambivalent individuals are preoccupied with verifying their self-worth from 'evidence' in their environment (Guidano & Liotti, 1983). When exposed to an unwanted intrusion, these individuals are vulnerable to interpreting intrusions as confirmation that they are inherently bad. The self-ambivalent individual therefore adopts rigid personal standards, and performs compulsive strategies in an effort to reinstate and 'prove' self-worth (Guidano & Liotti, 1983). This way, self-ambivalence serves as a liability to the development of OC beliefs and symptoms.

Consistent with the theoretical notion of self-ambivalence, the findings from Study 1 support that self-ambivalence may incorporate competing and contrasting self-views; that is, a self-reported low self-esteem in the context of a positive implicit self-esteem. Moreover, self-ambivalence incorporated depressive symptoms and anxious concern about one's ability to meet high moral standards. In line with previous researchers (Bhar & Kyrios, 2007), Study 1 additionally showed that self-ambivalence predicts both OCD beliefs and symptoms.

These findings were however based on correlational data. To further explore Guidano and Liotti's (1983) contentions, Study 2 employed an experimental design to examine the influence that obsessions and compulsions have on self-worth and confidence in self-worth (herein referred to as self-confidence for the purposes of brevity). Replicating and extending the research of Salkovskis et al. (1997; 2003), Study 2 demonstrated that experiencing unwanted intrusions and responding with neutralising strategies may have an effects on one's level of self-worth and self-confidence; self-worth and self-confidence drop on exposure to intrusions but increase when using neutralising strategies, although the changes were not significant. Changes in self-

variables had an inverse relationship on one's OC experience. That is, decreases in self-worth and self-confidence were associated with increases in distress and urges to neutralise. Even though Study 2's design was experimental and the findings provide initial support for Guidano and Liotti's (1983) conceptual model of etiology for OCD, we need to better understand the possible inter-relationships between a range of variables in order to fully appreciate the psychological processes associated with vulnerability to OCD. Hence, while it may be true to say that changes in self-variables caused distress and urge to neutralise, it is equally possible that changes in one's OC experience in the task led to changes in self-variables. Clearly, these are two distinct pathways. Clarification of the relationships at play could enhance our understanding of the experience of OCD for individuals and could provide important information regarding the development of the disorder. Indeed, it may lead to different treatment approaches.

Furthermore, the relatively limited sample size in Study 2 which, for example, could have allowed comparisons of nonclinical and clinical groups leaves us unclear as to whether the experimental task had the same effect on participants all round. Further, it remains unknown what, if any, pre-existing personality profiles are likely to lead to a more unpleasant and intolerable experience in the Neutralising task. It is important to identify such influences, as they may be associated with greater risk for developing OCD.

Consequently, Study 3 aims to address these limitations. Using structural equation modeling (SEM), it seeks to compare alternative models for the relationship between one's experience of self (self-worth and self-confidence) and one's OC experience (distress and urge to neutralise) in the Neutralising task. It will also investigate those vulnerability profiles that are associated with a more unpleasant

experience throughout the Neutralising task. In particular, the study will examine self-vulnerabilities and severity of OC phenomena as measured through questionnaire data, for their relationship with each other and their relationship with variables of the Neutralising task.

Study 3 focused on changes to variables throughout the Neutralising condition of the Neutralising Assessment Task, given that it best represents the cognitive account for the experience of OCD. The Neutralising condition had two different phases, Respond and Listen. The Respond phase simulates the experience of responding to unwanted intrusions with a neutralising strategy (e.g., compulsion), whereas the Listen phase simulates the experience of having to “just listen” to one’s intrusions and refrain from using any response strategy. Although these are distinct situations, one’s experience throughout these two phases is predicted to be based on the same vulnerabilities and therefore follow the same pathway. The hypotheses in the following paragraphs are based on both the Respond and Listen phase of the Neutralising task, but to investigate whether the pathways hold for the different scenarios, the phases will be tested individually.

To fulfill the aims of Study 3, two alternate pathways will be tested. Model 1 suggests that in the Neutralising condition, changes in self-variables result in changes in one’s OC experience (distress and urge to neutralise). The opposite pathway, Model 2, proposes that changes in distress and urge to neutralise lead to changes in one’s self-experience. The Model 1 is outlined in Figure 9.1. The hypothesised pathways of this model will be discussed first.

Consistent with the findings of Study 1 and those of previous researchers (Bhar & Kyrios, 2007; Doron et al. 2007), self-concept vulnerabilities relevant to OCD phenomena are proposed to consist of self-ambivalence, anxious concern over moral

worth, and a discrepant low self-esteem. In line with these findings, a vulnerable self-profile is likely to lead to greater obsessive beliefs and symptoms (see Path 1 in Figure 9.1). It therefore follows that those individuals with high OC phenomena may also experience greater levels of distress and more intense urges to neutralise throughout the experimental task (see Path 2 of Figure 9.1). These pathways propose that one's pre-existing self-vulnerabilities have an indirect relationship with one's OC experience in the experimental task, via OC-severity. These relationships are the same for both Model 1 and 2.

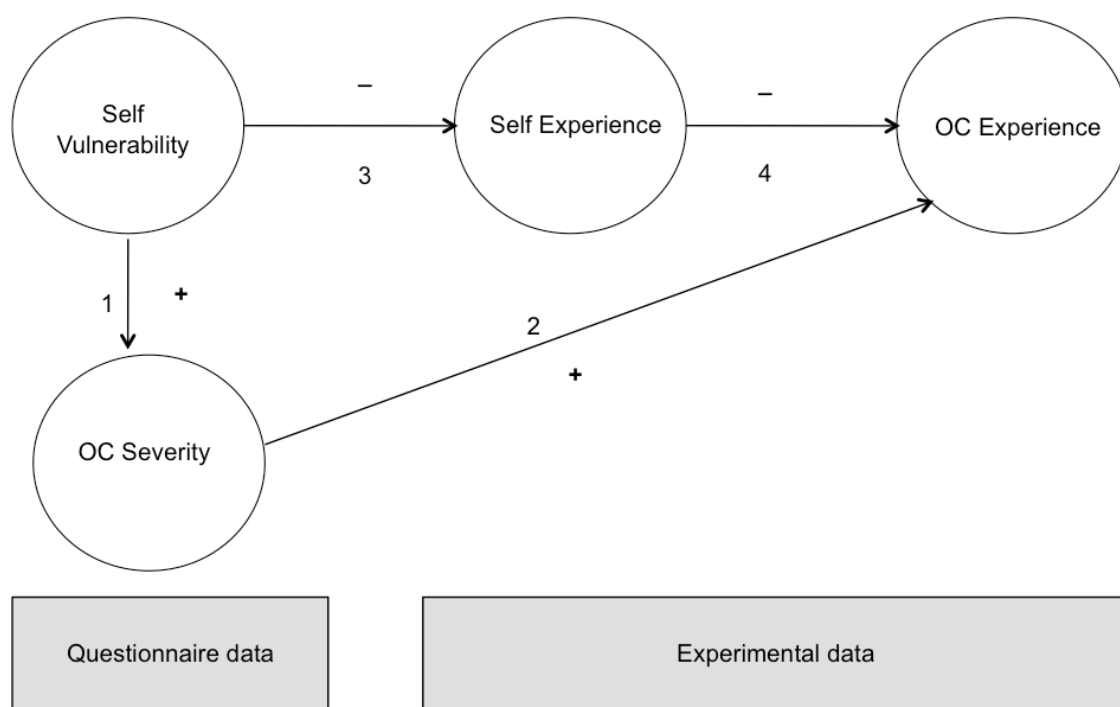


Figure 9.1

Model 1. Pre-existing self-vulnerabilities have an indirect relationship with one's OC experience in the experimental task, via OC severity and changes to self-variables in the experimental task.

The following pathways are unique to Model 1 (refer to Path 3 and 4 in Figure 9.1). Self-vulnerabilities may also have a direct impact on one's experience in the experimental task. In accordance with the developmental pathway proposed by Guidano and Liotti (1983), individuals who have greater pre-existing self-vulnerabilities are more likely to interpret unwanted intrusions in the as a direct threat to self, and so experience lower self-worth and confidence in self-worth. Therefore, self-vulnerabilities are predicted to have a negative relationship with one's self-experiences in the task (Path 3). Pathway 4 contends that drops in one's experience of self result in greater distress and urge to neutralise. This means that pre-existing self-vulnerabilities are predicted to influence one's obsessive-compulsive experience in the Neutralising task indirectly through changes in self-phenomena in the Neutralising task.

This is one theoretically based argument that stems from correlational findings. Consequently, Study 3 will also examine an alternate possibility for the data, Model 2, as per Figure 9.2. As mentioned, both models suggest that self-vulnerabilities predict one's OC experience in the task indirectly through one's pre-existing OC severity. Pathways 1 and 2 of Figure 9.2 represent these relationships.

Unique to Model 2 is the notion that pre-existing self-vulnerabilities have a direct influence on OC experience in the experiment (refer to Paths 3 and 4 in Figure 9.2). In line with findings that contradictory self-views are a vulnerability to behavioural (e.g., Lupien et al., 2010; Shedler et al., 1993) and physical indications of stress (e.g., Schroder-Abe et al., 2007; Shedler et al., 1993), Model 2 proposes that individuals with greater self-vulnerabilities may experience a more intense OC-like experience (Path 3). Furthermore, it is possible that drops in self-worth and confidence are part of the negative affect associated with OC-phenomena (Clark, 2004).

Consequently, the final path for Model 2 suggests that one's OC experience in the task predict changes to self-worth and self-confidence (Path 4).

It is hoped that comparison of these Models will elucidate the processes involved in OC phenomena. As mentioned, these different pathways have distinct implications for our understanding of the experience of sufferers with OCD. Consistent with theoretical contentions for the involvement of self in OCD, it is predicted that Model 1 will be a better fit for the data.

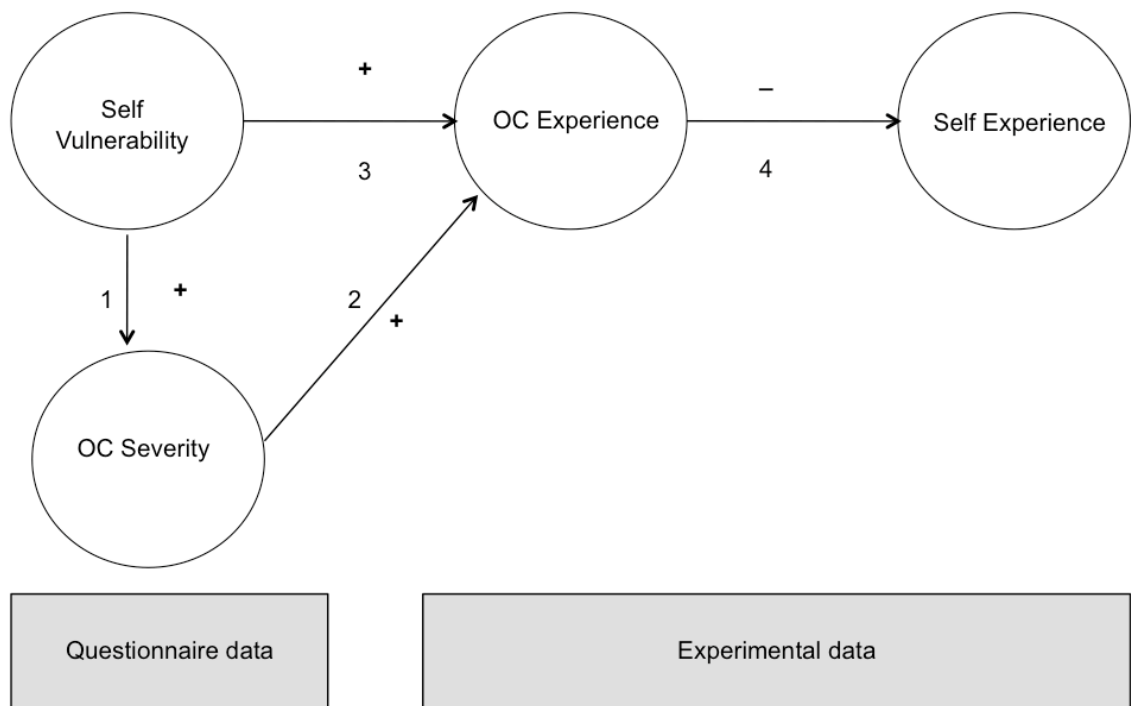


Figure 9.2

Model 2. Pre-existing self-vulnerabilities have a direct relationship with one's OC experience in the experimental task, and an indirect relationship via OC vulnerabilities. Changes to self-variables are the result of changes to OC-variables in the experimental task.

9.2 Method

9.2.1 Participants, materials, procedure. The samples in Study 3 are identical to those in Study 1. The samples comprise individuals with OCD (OCD), Student Controls (SC) and Community Controls (CC). The composition, size and demographics are described in Study 1.

Similarly, the questionnaire materials are identical to those in Study 1. The questionnaires relevant to Study 3 include (1) the Self-Ambivalence Measure (SAM), (2) the Rosenberg-Self-Esteem Scale (RSES), (3) the Name-Letter Preference Task (NLPT), (4) Obsessive Sensitive Self Inventory (OSSSI), (5) the Obsessive Beliefs Questionnaire (OBQ) and (6) the Obsessive Compulsive Inventory (OCI). Descriptions of these measures have already been provided in Chapter 2.

Participants were additionally administered the scales of the Neutralising Assessment Task (NAT) described in Study 2. There were two measures of self-processes, Self-Worth and Confidence in Self-Worth, and two of OC-phenomena, Discomfort and Urge to Neutralise. This study examined total scores for each scale of the Respond and Listen phases of the Neutralising condition. For example, total Discomfort scores in the Respond phase are the summation of discomfort at the four time points throughout the 12-minute scenario. The scales, measurement intervals and procedure for the Neutralising Assessment Task (NAT) are described in Study 2.

The procedure of Study 3 was a combination of that used in Study 1 and 2. Participants were first administered the questionnaires, and after a break completed the NAT.

9.2.2 Statistical methods. Structural equation modeling (SEM) analyses were performed using AMOS (Arbuckle, 1997), using maximum likelihood estimation. There were two models being tested. Both models comprised four latent variables, two that

relate to questionnaire-assessed variables (self-vulnerability and OC-severity) and two that relate to experimental-assessed variables (self experience and OC experience). Of the questionnaire data, the variables chosen to indicate self-vulnerability include the SAM, the discrepancy between RSES and NLPT and the OSSI. The OBQ and OCI were chosen to represent obsessive-compulsive severity. Of the experimental data, the variables chosen to indicate one's experience of self throughout the task were Self-Worth and Self-Confidence. Distress and Urge to neutralise were chosen to represent obsessive-compulsive experience in the Neutralising task.

SEM was conducted to test two alternative models. AMOS produces several goodness-of-fit indices that indicate how well the tested models account for the observed correlational structure of the data. In the present study, the following indices were used: (1) the χ^2 goodness-of-fit value, which is required to be nonsignificant for the tested model to provide a good fit for the data, (2) Akaike's information criterion (AIC) which is a fit index that takes into account the parsimony of the tested model (i.e., the number of included paths); AIC is a relative measure: that is to say, the model with the smallest number provides the best fit, (3) the comparative fit index (CFI) which compares the fit of the model with the hypothetical model in which none of the variables are correlated. A CFI of 0.95 or higher indicates that the tested model fits the data well, (4) The root-mean-square error of approximation (RMSEA), which assesses the discrepancy per degree of freedom. A RMSEA less than .05 corresponds to a good fit, and less than .08 to an acceptable fit. (5) The parsimony comparative fit index (PCFI) which assesses the parsimony of the model in comparison to the saturated model. When comparing models, the model with the lower PCFI is better (see, for an extensive discussion of these indices, McDonald & Ho, 2002 and Schumacker & Lomax, 1996).

9.3 Results

9.3.1 Descriptive statistics. To assess the internal consistency of the measures used in the study, Chronbach's alpha coefficients were calculated. Table 9.1 displays the means, standard deviation, range and reliabilities of each variable. All variables showed satisfactory internal reliability.

Table 9.1

Means, Standard Deviation, Range and Reliabilities of the Variables

<i>Latent variable</i>	<i>Observed Variable</i>	<i>M</i>	<i>SD</i>	<i>Range</i>	<i>N</i>	<i>α</i>
Self-vulnerability						
	SAM	33.68	14.56	4 - 66	136	.90
	RSES	19.60	5.89	2 – 31	139	.91
	NLPT	2.98	8.02	-35.14 - 23.54	140	.88
	OSSI	35.41	7.88	14 - 53	127	.83
OC-severity						
	OBQ-44	146.75	44.82	44 – 257	139	.96
	OCI-R	19.18	15.06	0 – 64	137	.93
Self experience						
(Respond)	Self-Worth	65.47	24.31	8-100	126	.96
	Self-Confidence	65.22	24.17	14-100	120	.97
Self experience						
(Listen)	Self-Worth	61.65	25.8	0-100	129	.98
	Self-Confidence	62.91	25.8	0-100	125	.98
OC experience						
(Respond)	Discomfort	42.35	24.35	0-97	133	.95
	Urge to neutralise	46.36	26.04	0-100	133	.93
OC experience						
(Listen)	Discomfort	46.45	26.65	0-100	131	.95
	Urge to neutralise	46.5	25.84	0-100	131	.93

Note. All means are for non-normally adjusted and non-centred variable values.

9.3.2 Preliminary analyses. Data screening was performed on SPSS version 17.0. The preliminary analyses were identical to those performed in Study 1. In line with the requirements for structural equation modeling (SEM), significant outliers ($z > 3.29$, $p <$

.001) were removed and variables that showed significant skewness were transformed.

The assumptions of linearity and equal variances were met.

As there was not enough power to examine the population groups independently, they were combined for SEM analyses. The combined sample size of 138 participants was at the low end of the recommended range for the number of variables under investigation (Nunnally, 1967). To investigate clinical status differences in the pattern of relationships, we examined the correlations between clinical status (0 = non-clinical group, 1 = OCD group) and scores on the scales used in Study 2. The correlations were very small and non-significant, ranging from $-.02$ to $.17$. One exception was a significant relationship between clinical status and OCD symptoms (OCI: $r = .31, p < 0.01$). This indicates that clinical status had little to no impact on the relationships between, and among, the majority of the variables in the model.

As per Study 1, a measure of discrepant self-esteem was created by subtracting standardized scores of the NLPT from standardized scores of the RSES. Overall positive scores indicate a greater explicit self-perception relative to implicit and conversely, an overall negative score suggest a higher implicit score relative to explicit score. Scores around 0 suggest congruent explicit and implicit self-ratings.

9.3.3 Intercorrelations. Table 9.2 presents the intercorrelations between the questionnaire measures and measures of the Neutralising task in the Respond and Listen phase. Intercorrelations between questionnaire measures are already presented in Study 1 and intercorrelations between Neutralising task items are presented in Study 2.

Table 9.2

Correlations between Questionnaire Measures and Experimental Measures

Experimental measures	Questionnaire measure				
	SAM	RSES - NLPT	OSSI	OBQ	OCI
Neutralising Respond					
Self-Worth	-.39***	.28**	-0.17	-.23*	-.25**
Self-Confidence	-.31***	.21*	-.20*	-0.15	-.19*
Discomfort	0.15	-0.15	0.13	0.08	0.17
Urge to neutralise	0.11	-0.09	0.18	0.04	0.15
Neutralising Listen					
Self-Worth	-.34***	.23*	-0.17	-.15	-.17*
Self-Confidence	-.37***	.26**	-.20*	-0.19*	-.19*
Discomfort	0.12	-0.13	0.14	0.03	0.15
Urge to neutralise	0.14	-0.09	0.19*	0.09	0.23*

Note. $N = 110$ * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The correlations reveal that the self-vulnerability variables tend to have a significant relationship with levels of self-worth and self-confidence in the Neutralising task. Lower levels of self-worth correspond with greater self-ambivalence and a greater implicit self-esteem relative to explicit-self esteem. Higher obsessive-beliefs and symptoms also relate to lower self-worth and self-confidence, although this is not consistent across both the Neutralising conditions. With the exception of self-confidence in the Respond phase, self-confidence had a significant correlation with all of the pre-existing questionnaire variables; higher self-confidence corresponds with lower self-ambivalence, higher explicit relative to implicit self-esteem, lower moral anxiety, obsessive beliefs and OCD symptoms. Interestingly, of the OC-like experience

measures of the Neutralising task, only urge to neutralise in the Listen scenario showed any significant correlations. There was a positive correlation with OSSI and OCI scores.

9.3.4 Structural equation modeling analyses. Schematic representations and the empirically established path coefficients and squared multiple correlations of models 1 and 2 are displayed in Figures 9.3 and 9.4 respectively. Numbers in parentheses represent path coefficients and squared multiple correlations for the Neutralising Listen scenario.

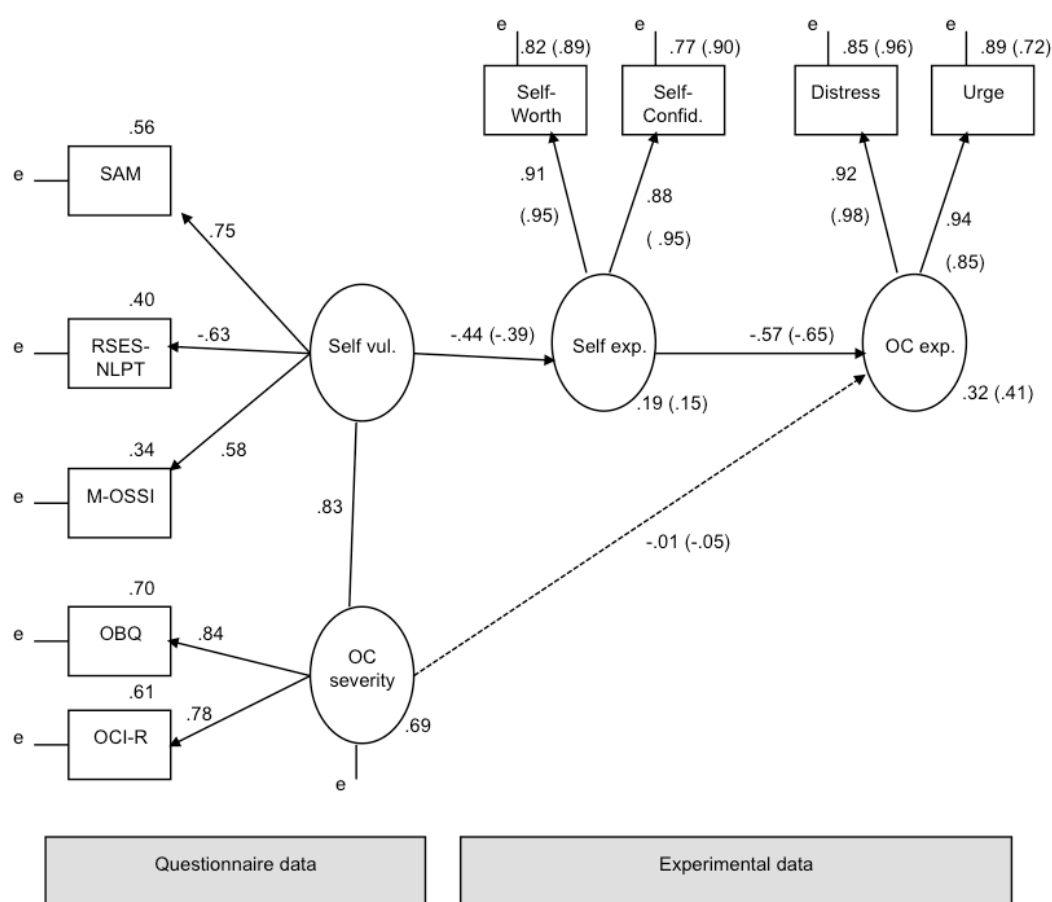


Figure 9.3

Model 1. Unbroken lines were significant ($p < .001$; two-tailed). Dashed lines represent a non-significant relationship.

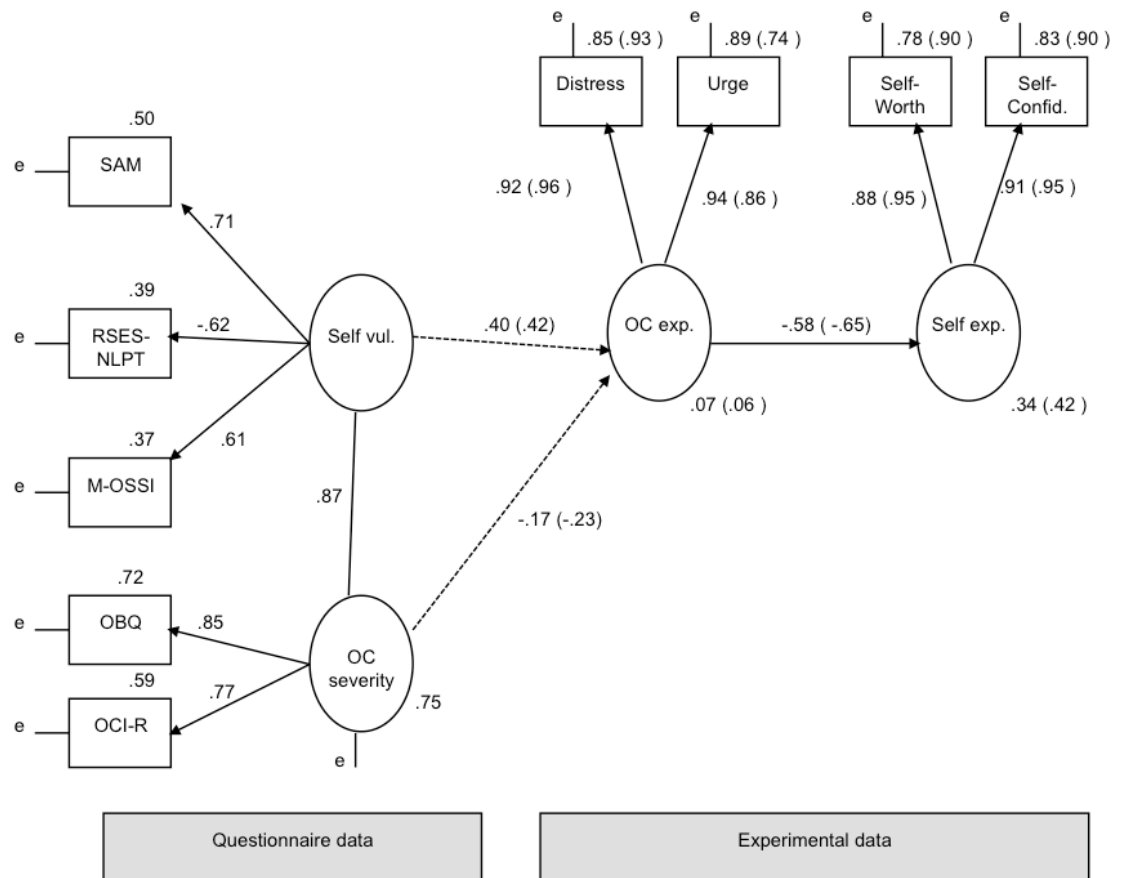


Figure 9.4

Model 2. Unbroken lines were significant ($p < .001$; two-tailed). Dashed lines represent a non-significant relationship.

Figure 9.3 supports the predicted relationships between latent variables of Model 1. Higher self-vulnerabilities correspond with a lower experience of self-variables in the Neutralising task, which in turn relates to a more intense OC experience. The indirect relationship accounts for 25% of the variance in one's OC-experience in the Neutralising task. Although pre-existing self-vulnerabilities significantly predict OC-severity, this in turn had essentially no relationship with one's OC experience in the Neutralising task.

Model 2 in Figure 9.4 demonstrates that there was no direct, or indirect, pathways that predict one's OC experience in the Neutralising task. One's OC-like experience did show the expected negative relationship with one's self experience in both phases of the Neutralising task; a more intense OC experience corresponds with a lower self experience. The indices for the Models 1 and 2 are displayed in Table 9.3.

Table 9.3

Goodness-of-fit indices for the two Models

<i>Neutralising condition</i>		χ^2 (23)	<i>AIC</i>	<i>CFI</i>	<i>PCFI</i>	<i>RMSEA</i>
Model 1	Respond	29.98	91.68	.99	.51	.05
	Listen	33.09	95.09	.98	.50	.06
Model 2	Respond	42.11**	104.11	.97	.49	.09
	Listen	44.14**	106.14	.97	.49	.09

Note.

$N = 138$

** $p < 0.01$

As can be seen in Table 9.3, Model 1 provides a good fit for the data for both phases of the experimental task. Model 2 provides a poor fit for the data as the χ^2 values reach significance, the AIC values are comparatively higher than Model 1 and the RMSEA value greater than .08.

9.3.5 Post-hoc analyses. Given that the non-significant relationship between OC-severity and one's OC experience in the experimental task, Study 3 tested an additional model that removed the non-significant path of Model 1, and included an

additional path. According to the correlation matrix, there is a significant positive correlation between OCD symptoms and urge to neutralise in the Neutralising Listen phase. Therefore, a path linking these variables was added. Path coefficients for this relationship were non-significant for both the Respond ($\beta = .46, p > 0.05$) and Listen phase of the Neutralising task ($\beta = .46, p > 0.05$).

9.4 Discussion

Cognitive accounts for OCD implicate the importance of an individuals' self-concept (Clark, 2004; Rachman, 1997). There is also growing empirical support for the association of OC phenomena with discrepant and uncertain self-views (Bhar & Kyrios, 2007; Doron et al., 2007; Study 1). Indeed, Study 2 demonstrated that exposure to unwanted intrusions leads to drops in self-worth and confidence in self-worth, but use of neutralising strategies, such as compulsions, were associated with gains in these self variables. In Study 3 two potential models for the data were examined and compared in order to better understand the possible nature of interrelationships between self and OC phenomena. As predicted, Model 1 was the best model, whereby changes in one's experience of self-variables predict changes in OC experience in the Neutralising task. Unexpectedly, OC severity did not predict one's OC experience in the Neutralising task in either model. The competing models and pathways are discussed below.

9.4.1 Pathways shared by the different models. The predicted path from self-vulnerabilities to OC severity was shown in both models (Path 1) and was consistent with the findings of Study 1 and previous research (Bhar & Kyrios, 2007). Unexpectedly, both models also showed a nonsignificant relationship between pre-existing OC severity and one's experience of OC phenomena in the Neutralising task. This demonstrates that all participants, regardless of their pre-existing OCD severity,

experienced similar levels of distress and urge to neutralise throughout the experimental task. This initially seems counterintuitive; one could reasonably expect that those who have a more severe symptomatology would experience more intense levels of discomfort and urges to neutralise. There are possible procedural processes influencing this result. For instance, there may have been a ceiling effect on the level of distress associated with the unwanted intrusion exposed to throughout the task. To comply with ethical agreements and prevent uncomfortably high levels of distress, participants were asked to choose one of their own naturally occurring intrusions which they rated the associated distress to be less than 70 out of a possible 100. Anecdotal accounts from clinical participants suggested that this was difficult to do so without significantly altering the content of their intrusions. This likely resulted in different interpretations of meaning, and changed their experience in the Neutralising task so that it did not match their normally high levels of negative affect associated with intrusions outside testing conditions. Moreover, as participants self selected a threatening situation that was relevant to them, they were all vulnerable to experiencing distress and urge to neutralise in the task, regardless of their pre-existing OCD severity profile. Indeed, this reflects the relative effectiveness of the experimental task eliciting an “OCD-like” experience.

There was however one exception; higher OCD symptom scores were associated with a greater urge to neutralise when exposed to an unwanted intrusion but instructed not to respond with any form of compulsion. So while these individuals may not experience higher levels of distress, there remains a feeling of being compelled to do something out of it. This may demonstrate why clinicians find it difficult to engage OCD clients in ERP, and partly explains the high numbers of dropout (Foa et al., 1998). Nevertheless, as the strength of the correlation was weak, firm conclusions are premature.

9.4.2 Unique pathways of Model 1. As per growing theoretical suggestions (Aardema & O'Connor, 2007; Clark, 2004; Bhar & Kyrios, 2007; Guidano & Liotti, 1983), individuals who have a vulnerable self concept are not only likely to report greater levels of obsessive beliefs and symptoms, but also have a more unpleasant experience when confronted with their own unwanted intrusions. The particular self-concept profile thought to be relevant to OCD phenomena was shown in Study 1 to comprise self-ambivalence, anxious concern of one's moral self-worth and a discrepancy between implicit and explicit self-esteem. As proposed by Guidano and Liotti (1983), and later supported by Bhar and Kyrios (2007), unwanted intrusions are likely to challenge the stability of one's self-worth in individuals with an ambivalent self-concept. Study 3 supports this notion, showing that individuals who hold a contradictory and uncertain self-concept may interpret unwanted intrusions as a threat to their self, and thus experience drops in self-worth and confidence in their self-worth. Changes in distress and urges to neutralise ensue. This is in line with Guidano's (1987) contention that compulsions are an effort to gain control and reinstate self-worth. The Model 1 is the first known attempt to directly examine the process whereby one's self-concept impacts on the experience of obsessions and compulsions.

9.4.3 Comparison with Model 2.

Contrary to predictions, self-vulnerabilities did not have a direct effect on one's experience of OC variables in the Neutralising task (Path 3). So while one's pre-existing self-vulnerabilities may lead to higher levels of obsessive beliefs and symptoms, it does not correspond directly to higher distress and urge to neutralise in the experimental task. This could be interpreted as further evidence that an uncertain and contradictory self-view is a vulnerability to developing OC phenomena via fluctuations in self-worth and confidence in self-worth. Indeed, there were no significant relationships between the

pre-existing variables of the questionnaire and the experimental data. Model 2 was therefore deemed to be a poorer fit for the existing data.

That Model 1 is a better fit for the data has important implications understanding the experience of individuals with OCD. Namely, it clarifies the mechanism by which particular self-vulnerabilities translate to the development of OC phenomena. Indeed, Study 3 has demonstrated that self-vulnerabilities are a worthy area of investigation for developmental models for OCD; self-vulnerabilities predicted changes in the experimental task albeit in self-variables only, whereas pre-existing OCD did not. In aiding understanding of individuals with OCD, these findings may additionally encourage clinicians to consider exploration of self-vulnerabilities that the clients may be reluctant to share, or unable to access, and to collaborate on alternative means of reinstating self-worth.

Clearly these findings await replication. In particular, a larger sample size enabling comparison between clinical and non-clinical participants, would clarify if the models proposed depend on clinical status, particularly if methodological limitations could be overcome.

Future research may also benefit from testing additional models. For instance, cognitive theories suppose that neutralisation strategies are performed to help attenuate the discomfort associated with intrusions (Salkovskis, 1997; 2003), yet there are indications in this study that urges to neutralise may be present in the absence of high distress. Models that delineate causal pathways that treat distress and urge to neutralise as distinct factors may provide more clarification of the processes involved.

It is also important to note that the current results were based on total OCD symptom and belief scores. It remains unknown if the heterogeneous phenomena of OCD may respond differently to the experimental situation. Certainly the results from

Study 1 suggest that high obsession symptoms are associated with a more vulnerable self-profile. This in turn may correspond with lower ratings on self-variables, and higher distress and urge to neutralise throughout the experimental task. Further investigations that incorporate the varied nature of OCD are therefore warranted.

This research was the first known to present and test a model whereby specific aspects of negative self-concept leads to a more intense and aversive experience when the individual is confronted with unwanted intrusions. In accordance with the theoretical predictions of previous researchers (Bhar & Kyrios, 2007; Guidano & Liotti, 1983), individuals with a discrepant and uncertain self-concept experience unwanted intrusions as a threat to their self-worth and are consequently less confident in their self-worth. This in turn leads to feelings of distress and urges to use neutralising strategies. These findings are consistent with cognitive models for the development of OCD, and support that investigation of self-processes may provide useful insights to understanding, and treating this disorder.

PART III – GENERAL DISCUSSION AND CONCLUSION

Chapter 10: General Discussion

10.1 Introduction

This thesis concerns OCD, a debilitating disorder that is considered to be amongst the most common and disabling psychiatric conditions (Torresan et al., 2008), and which demonstrates clinically significant responses to treatment in only around 50% of cases (Fisher & Wells, 2005). Ongoing efforts to improve our understanding of psychological factors associated with the disorder are important as they can be targeted in novel treatments. This thesis contends that self-processes are implicated in the development and maintenance of OCD. In particular, an ambivalent self-concept and a discrepancy between implicit and explicit self-esteem were suggested to provide a vulnerability to OC phenomena. In this chapter, the findings of three empirical investigations are briefly reviewed and integrated within the relevant literature presented in earlier chapters. Specifically, this chapter discusses the relationship between implicit and explicit self-processes and OC phenomena; the impact that exposure to intrusions and neutralising responses have on explicit self-concept; and potential pathways whereby specific self-processes lead to OC severity. The current investigations have implications for our understanding of the phenomenology of OCD, the possible aetiological origins and maintenance of this disorder, and useful treatment approaches. The limitations of the present research are discussed, and suggestions for future research are offered. Finally, an overall summary of this thesis and concluding statement are presented.

Important for the current thesis is the recognition in the DSM-IV diagnostic criteria that obsessions are experienced to be inconsistent with one's sense of self (APA, 2000). OC phenomena are considered to be dimensional in nature rather than

categorical, underscoring justification for the common practice of using nonclinical populations in OCD research (Garcia-Soriano et al., 2011; Gibbs, 1996). Along these lines, cognitive models for OCD propose that normal intrusive phenomena may develop into obsessions and compulsions when they are responded to in specified maladaptive ways (OCCWG, 1997; Rachman, 1997, 1998; Salkovskis, 1985). Distress is associated with intrusions when they are misinterpreted as evidence that one is “mad, bad, dangerous – or all three” (Rachman, 2003, p. 6). While neutralising responses are initially helpful in alleviating this discomfort, they are central to the persistence of obsessional problems (Salkovskis, 1989, 1998). Researchers contend that these responses derive from six beliefs considered central to OCD: inflated personal responsibility, overestimation of threat, intolerance for uncertainty, perfectionism, overimportance of thoughts, and beliefs on the need to control thoughts (OCCWG, 1991, 2001). These central tenets of the cognitive account for OCD led to development of CBT, a recommended first line treatment for OCD (NICE, 2006).

Despite the advances that cognitive theory has added to our understanding of OCD, there remain some unanswered questions. Cognitive theories have not sufficiently addressed developmental issues and the motivational basis for the disorder (Bhar & Kyrios, 2007; Doron & Kyrios, 2005; O’Kearney). There is limited account for how individuals develop maladaptive beliefs, or why they are so rigidly held. It also does not answer what, if any, function is performed by these belief systems. Similarly, the interrelationships identified between OC-beliefs have not been widely addressed. The current thesis proposes that examination of self-processes may clarify some of these issues.

The thesis examines self-concept and self-esteem from a social-cognitive standpoint, chosen for its recognition that the development of self is influenced by both

internal and external sources. Importantly, both implicit and explicit self-processes are presented as worthy areas of investigation. Our experience of the world is shown to be intimately intertwined with who we are, thus providing a context for understanding how self-processes may serve as a vulnerability to psychopathology. Investigation of self-processes may be a logical extension of current cognitive theories of OCD. This thesis emphasised Guidano and Liotti's (1983) theory of self-ambivalence as it directly addresses the developmental processes in OCD, and has an established link to empirical evidence supporting the relationship of self-ambivalence to OC phenomena (Bhar & Kyrios, 2007). In line with a hierarchical view of self, a self-worth contingent upon meeting high moral standards was also considered to have a notable association with OCD (Doron et al., 2007, 2008).

To date, most of the available literature is primarily reliant solely on explicit conceptions of self-processes, self-report methodology and correlational designs, which restricts the extent to which casual interpretations can be made. The three studies in this thesis aimed to address these limitations by investigating explicit and implicit processes for their relationship to OC phenomena through correlational, experimental and structural equation modelling frameworks. The first study examined how implicit and explicit self-processes, and their discrepancy, relate to existing OCD beliefs and symptoms. The second study used an experimental design to investigate the effects that exposure to unwanted intrusions and neutralising responses have on OC phenomena and explicit self-concept. The final study compared potential models where self-vulnerabilities are related to an increased OCD response. A summary of findings from these empirical examinations follows.

10.2 Summary of findings

10.2.1 Implicit self-processes in OCD. This thesis began by examining the relative impact that implicit and explicit self-processes have on OC phenomena - finding that a discrepant low self-esteem was associated with more severe OCD symptoms, in particular obsessional phenomena. On the other hand, an implicit moral self-worth was not a significant predictor of OCD symptoms. It appears that it is not implicit self-processes *per se* that are most closely related to OC-phenomena, but their concurrent discrepancy with explicit self-esteem. These findings contribute to the growing body of literature on the discomfort and chronic doubt associated with a discrepancy in implicit and explicit self-esteem (Brinol et al., 2003; Lupien et al., 2010; Schroder-Abe et al., 2007; Vater et al., 2010) and support the investigation of implicit self-processes in OCD. It appears that previous findings of a low self-esteem in OCD (Fava et al., 1996; Wu et al., 2006) may be better understood in the context of a high implicit self-esteem.

Moreover, a discrepant low self-esteem was associated with OCD-related beliefs, particularly beliefs in the need for perfectionism and certainty. These results replicate previous research on a relationship between discrepant low self-esteem and maladaptive perfectionism (Zeigler-Hill & Terry, 2007) and offer support to the notion that individuals with this profile have more optimism, less self-protection and more unhelpful perseverance than typically seen among people with low self-esteem (Spencer et al., 2005), leaving them vulnerable to developing unrealistically high standards. Notably, nonclinical individuals with a discrepant low self-esteem reported levels of OC-beliefs comparable to individuals with OCD. This may initially be considered as one potential pathway in which a discrepant low self-esteem translates into OCD

symptoms. As will be discussed however, a discrepant self-esteem may be appropriately captured by measures of self-ambivalence.

10.2.2 Self-ambivalence. Guidano and Liotti (1983) postulated that self-ambivalent individuals have competing self-views, polarised into positive and negative terms, which the individual has difficulty integrating into a united self-concept. The findings of Study 1 supported this notion, where a discrepant low self-esteem was associated with greater ambivalence in self-worth. While Guidano and Liotti (1983) do not clearly elucidate on the level of awareness in self-ambivalence in those with OCD, the related self-ambivalence measure developed by Bhar and Kyrios (2007) assesses self-reported or explicit dichotomous self-views. So while contradictory and competing self-views may be consciously known, it appears that they are, at least partly, fuelled by an implicit positive self-esteem. Coinciding with Guidano's (1987) contentions that self-ambivalent individuals vigilantly monitor their thoughts and behaviours as a meaningful measure of self-worth, research on self-esteem discrepancies show that individuals pay increased attention, and engage in enhanced thinking about information related to their discrepancy domain, to gain more evidence for one side or the other of their ambivalent attitude (Brinol et al., 2006; Hanze, 2001; Hass et al., 1992; Hodson, et al., 2001). Incidentally, there are developmental similarities proposed for self-ambivalence and discrepant low self-esteem. Both recognise origins in early interactions with demanding parents, where love and approval is contingent on perfect behaviour (Jordan et al., 2003).

In particular, Guidano and Liotti (1983) contended that positive regard is conditional on conforming to moral rules and ethical principles. The child learns that these values are central to their sense of self, and that their self-worth depends on their ability to comply with moral rules. Along these lines, Bhar and Kyrios (2007) suggested

that their measure does include a subscale of ambivalence in moral worth, and Study 1 supported that individuals who value morality as important to their self-worth, but were concurrently anxious about their moral status, had higher levels of self-ambivalence.

There is also some suggestion that self-ambivalence and depressive symptoms tap into some common ground. This is perhaps not altogether surprising when one considers that both concepts incorporate negative cognitions and self-perceptions. Given that MDD generally presents after the development of OCD (Demal et al., 1993), the shared phenomena may represent the self-ambivalent individual's helplessness in continually failing to manage their conflicting feelings. Either way, MDD is the most frequently occurring comorbid disorder with OCD (Jin et al., 2004; Tuekel et al., 2002), is associated with more severe psychopathology (Quarantini et al., 2010; Ricciardi & McNally, 1995), and poorer treatment response (Abramowitz et al., 2005; Foa et al., 1998). Research that incorporates examination of self-ambivalence may be well placed to further elucidate the depressive experience of individuals with OCD.

10.2.3 Relationship of self-ambivalence to OC-phenomena. The current thesis contends that due to their ego-dystonic nature, unwanted intrusions represent a threat to self-views. In support of this notion, Study 2 showed that exposure to unwanted intrusions, without the use of neutralising responses, led to drops in self-worth and lower confidence in self-worth. This process is closely related to OC phenomena; reductions in self-variables corresponded with increased distress and urge to use neutralising strategies. While it is possible that these changes occur concurrently, the pathway analyses of Study 3 are consistent with the model that changes to self-variables precede changes in OC phenomena. Therefore, intrusions arouse alarm because they activate a feared self, thus endangering self-worth and confidence in self-worth.

Resultant feelings of discomfort provoke individuals to actively resist such thoughts through neutralising responses.

This largely supports the theoretical process by which self-ambivalence translates to OCD. Due to an inability to trust internal conflicting feelings related to the self, self-ambivalent individuals regard thoughts as overly important evidence for understanding reality (Guidano, 1987). In line with this notion, Study 1 showed that self-ambivalence has an association with beliefs in the importance of thoughts and the need to control thoughts. Unwanted intrusions are therefore more likely to be noticed. The extent to which ego-dystonic intrusions threaten self-standing depends on the certainty with which self-views are held. Individuals with secure self-views are likely to be able to disregard these thoughts as meaningless. On the other hand, self-ambivalent individuals are vulnerable to interpreting intrusions as a significant challenge to self-worth. In line with Rachman's (1997) cognitive theory for OCD, intrusions that are associated with personal significance are more likely to produce anxiety and distress. This in turn makes them more noticeable, more frequent, and more likely to develop into obsessions (Corcoran & Woody, 2008).

The results of Study 1 and 3 correspond with the notion that self-ambivalence serves part of the vulnerability to developing obsessions. In a replication of the research by Bhar and Kyrios (2007), Study 1 showed that self-ambivalence significantly predicted OCD symptoms, where higher levels were associated with more severe OCD symptoms, particularly obsessional symptoms. Furthermore, in the nonclinical group, individuals with higher levels of self-ambivalence reported significantly higher OCD symptom scores than individuals low in self-ambivalence, even after controlling for depressive symptoms. The analyses of Study 3 similarly showed that individuals with a vulnerable self-profile were associated with a less positive experience of self when

exposed to unwanted intrusions, which in turn lead to greater distress and urge to neutralise.

Importantly, neutralising strategies were associated with increases in self-worth and confidence in self-worth. Indeed, in the first part of the neutralising condition, a drop in self-worth corresponded with a peak in urge to neutralise. These findings are concordant with suggestions that neutralising responses become solutions to control mixed feelings and reinstate self-worth (Aardema & O'Connor, 2007; Bhar & Kyrios, 2007; Guidano & Liotti 1983). Findings from study 2 support cognitive accounts that these strategies are a maladaptive response; the act of neutralising reinforced the continued need to do so because distress and urges are highest when this response is not employed (Salkovskis et al., 1997; 2003).

While not specifically mentioned by Guidano and Liotti (1983), OCD beliefs may have evolved as a consequence of the individual's attentiveness to thoughts and use of mechanisms to protect the valued self-view. For instance, the authors note:

“In the face of a split identity, with an attitude toward oneself and an attitude toward reality that simultaneously have opposite valences, there are only two possible approaches. *Only one* of the two opposites much be “true”, or must at least become “true” through a constant effort toward perfection.” (p. 262).

Evidently, self-ambivalence and OC beliefs are related. Self-ambivalence was associated with high levels of maladaptive beliefs central to OCD, and indeed nonclinical individuals with high levels of self-ambivalence showed a level of OC beliefs comparable to sufferers of OCD. Corresponding with findings of Bhar and

Kyrios (2000), Study 1 suggested that the relationship from self-ambivalence to OCD symptoms was fully mediated by OC beliefs.

However, this explanation is not complete. It fails to account for the results in Study 3 that a vulnerable self-profile, and not maladaptive beliefs or OCD symptoms, were associated with a more aversive experience of self when exposed to unwanted intrusions. This finding reflects that different people, throughout the entire spectrum of OC vulnerabilities, have a similar experience throughout the Neutralising task. This seems counterintuitive to empirical research that suggests higher OC beliefs are associated with more distress in the face of intrusions (Clark et al., 2003; Frost et al., 2002; OCCWG, 2001, 2005; Rachman et al., 1995; Rassin et al., 1999; Steketee et al., 2003).

These findings were however primarily based on self-report techniques. In Study 3 the situations were experimentally manipulated, asking all participants to attend to and consider their unwanted intrusions that they were consistently exposed to. It appears that for all individuals, this was associated with varying levels of distress that did not correspond with their pre-existing OC vulnerabilities. Indeed, it reflects cognitive contentions that it is the frequency and attention to unwanted intrusions that correspond with negative outcomes (Corcoran & Woody, 2008). In real world settings, people with little OC vulnerability will successfully ignore unwanted intrusions or interpret them as relatively meaningless. The repetitiveness of the Neutralising task attempted to simulate a realistic experience for someone with OCD, so that all participants were unable to ignore unwanted intrusions. Showing the Neutralising task's ability to evoke an OCD-like experience, generally all participants experienced the task to be similarly unpleasant, regardless of pre-existing OCD-related beliefs or symptoms. Nevertheless, there was one exception. When asked to just listen to intrusions and refrain from using

any neutralising strategy, individuals with higher OCD symptom scores also tended to report slightly higher urges to respond.

10.3 Theoretical implications

Research on OCD has been dominated by a cognitive model for the last two decades (Clark, 2005; Salkovskis, 1998), and the introduction of CBT has led to important advances in the treatment of this disorder (March et al., 1997; NICE, 2006). The current thesis supports the influence of this approach in providing further evidence for the maladaptive impact of neutralising; neutralising reinforces its own continued use through increases in discomfort and urge to neutralise when the response is not employed. In this way, individuals are vulnerable to becoming more reliant on neutralising when experiencing unwanted intrusions, and are more vulnerable to developing the compulsive behaviours characteristic of OCD (Salkovskis, 1999). Importantly, in an extension of the research by Salkovskis et al (1997; 2003), the current study demonstrated that these interpretations hold for a wide variety of intrusion types and compulsive responses.

The cognitive account has been criticised as being incomplete for not providing an explanation as to why certain thoughts become the particular focus of attention. Some existing theories imply that intrusions that threaten value self-views are more distressing. Rachman (1997) notes that intrusions arouse discomfort because they could reveal hidden elements in their true self. Similarly, Aardema and O'Connor (2007) suggest that intrusions promote discordance between a person's actual self and feared self. In line with these notions, the current thesis supports that intrusions are distressing because they violate valued aspects of the self. Like previous researchers (Bhar & Kyrios, 2007; Guidano & Liotti, 1983), the current thesis extends such ideas and finds

that an ambivalent self-concept predisposes one to construe intrusions in this unhelpful manner. Individuals who have a cohesive and stable self-concept are not left with uncertain feelings and so can trust their internal resolve. In other words, they know unwanted intrusions are relatively meaningless.

Importantly, the current thesis experimentally examined the mechanisms by which a vulnerable self-concept translates into OC phenomena, adding to the growing body of literature suggesting that an individual with discrepant self-views will pay increased attention and engage in enhanced information processing of information that they perceive to be relevant to a self-discrepancy (Brinol et al., 2006; Hanze, 2001; Hass et al., 1992; Hodson et al., 2001). For these individuals, there is an inherent motivation to try and resolve internal discrepancies and the associated uncertainty and self-doubt. This suggests that for someone with contradictory self-views, ambiguous unwanted intrusions may be appraised as holding important information about the self and so are attended to with greater effort than someone without this self-discrepancy (Rachman 1997; 1998). In line with Guidano and Liotti's (1983) explanation for the development of unhelpful OC beliefs and motivations behind compulsions, incongruent self-views showed the strongest association with perfectionistic beliefs and the need for certainty. Adoption of rigid belief systems may help individuals with ambivalent self-views to believe they are moving towards being the 'complete' and congruent person they feel they can or should be. Unfortunately, these thinking styles are also associated with unhelpful tendencies towards obsession. Adding to the empirical research of Bhar and Kyrios (2007), this thesis therefore elucidates that the self-ambivalent individual's strivings to be more perfect, and try harder, may stem from trying to resolve a discrepancy between a negative explicit and positive implicit self-esteem. Taken together, the current thesis adds to the growing

number of cognitive accounts that credit the involvement of self-process in OCD (Aardema & O'Connor, 2007; Bhar & Kyrios, 2007; Doron & Kyrios, 2005; Ehntholt et al., 1999; Ferrier & Brewin, 2005; Guidano & Liotti, 1983; Harvey et al., 2011; O'Neill, 1999; Rowa et al., 2005).

10.4 Practical Implications

The current thesis supports the notion that individuals with an ambivalent self-worth have increased vulnerability to developing OCD. By understanding underlying issues relating to self-ambivalence, therapists can increase the specificity and effectiveness of therapeutic interventions. Guidano and Liotti (1983) suggest that self-ambivalence has developed from an anxious ambivalent attachment relationship whereby as a child the individual receives contradictory messages on acceptability and rejection. Individuals with high attachment insecurity are vigilant to subtle cues about rejection by others (Foster, Kernis, & Goldman, 2007). Thus, in a clinical setting, therapists should be mindful that OCD clients might be sensitive to rejection, possibly as a result of their sense of shame. A consistent, supportive and open manner on behalf of the therapist will provide the ambivalent client with a contrast to their previous attachment experiences. An experience of validation will help the client to feel understood in a manner that mirrors one's appraisals of self. So, with a sound therapeutic alliance, the client can use the therapist as a secure base to explore alternate views of self. New ways of reflecting on the self can be openly negotiated, experienced and internalised into the client's self-system (Moretti & Higgins, 1999).

There are modalities that already incorporate a particular focus on self-perceptions in therapy. For instance, a narrative approach views that individuals with psychological disturbances are caught in a toxic story that adversely defines their self-

perception (Roberts, 2000). With regard to OCD, “the narratives convincingly replace confidence in the senses (and the self) with a doubting inference based on remote possibilities” (O’Connor, Koszegi, Aardema, van Niekerk, & Taillon, 2009, p. 422). In treatment, the narrative therapist helps the client to deconstruct the ‘truths’ of their stories by searching for events and experiences that contradict the dominant theme. This then enables the client to create a self-narrative that is more powerful than the problematic self-views so that they can develop a sense of self that is separate from their diagnosis (Carr, 1998). Similarly, ACT recognises that “self-identity becomes synonymous with the language of self-conceptualization” (Hayes, Strosahl, & Wilson, 2003, p. 150) and proposes that therapeutic interventions should help clients defuse their self-concept from the literal content of verbal behaviour. The ACT therapist may invite the client to examine how both positive and negative self-concepts can be detrimental at times, thereby introducing the notion that it is not the content of beliefs but over-attachment to particular beliefs that are problematic. Although it is a new area, there is some emerging evidence that support the efficacy of ACT for OCD (Eifert & Forsyth, 2005; Twohig, Hayes, & Masuda, 2006; Twohig, 2009).

These ideas are commensurate with CBT approaches of OCD, which aim to help clients restructure faulty appraisals and accept more adaptive explanations for obsessions (Clark, 1999). Indeed, ACT is considered to be part of the new generation of CBT (Martell, Addis, & Johnson, 2001) and a review comparing different modalities for OCD concluded that ACT can be “reasonably subsumed under the general label of ‘cognitive-behavioral therapy’” (Tolin, 2009, p. 45). It is possible then that the current CBT approach may benefit in being more direct in the management of self-concept for individuals with OCD. For instance, the importance of morality as a contingent domain in supporting overall self-esteem was highlighted in the current thesis. The self-

structure of anxious-ambivalent attachment is organised into a few, general affective categories (Mikulincer, 1995), and generalising self-worth from a domain in which they have inconsistent support impacts upon global self-worth (Harter & Whitesell, 2003). Therapy may benefit from recognition and explanation for how this domain became an important indicator of self-worth (Guidano & Liotti, 1983). An understanding that their focus on morality may be an internalised form of what significant others expected of them can be a starting point to encourage the development of their own standpoint (Higgins, 1987). Cognitive techniques, such as activity planning, could help to increase investment in additional domains in which one can obtain or is receiving positive support thereby expand their self-concept and broadening opportunities to develop self-worth. The rigid boundaries of maladaptive beliefs of being a moral person may be modified by challenging clients on their meaning of morality and by inviting them to consider other behaviours and attitudes that could be included in this domain.

For individuals who have an underlying ambivalence, self-feelings cannot be trusted. This corresponds with a pathological uncertainty and self-doubt, which leaves an individual with the feeling that negative events are possible. This way, individuals with OCD can be overinvested with negative possible-selves; who they fear they could become (Aardema & O'Connor, 2007). The current thesis suggests that intrusions represent feared aspects of self, and that compulsions present a living contrast to an undesired self. Mikulincer (1995) notes that individuals with anxious-ambivalent attachments feel that only negative outcomes are possible and that positive ones cannot be maintained. It therefore follows that self-ambivalent clients may benefit from understanding that their symptoms derive from a feared self that is not based on reality, but that due to their conflicting internal feelings. Collaboration with the client on their positive qualities and asking them to record thought diaries of positive self related

thoughts may enable the client to develop a more balanced self-view. When combined with behavioural experimentation that tests the exaggerated importance of beliefs of unworthiness (e.g., the client could confide in a friend about an action or thought that they perceived as evidence of their “unworthiness”, thereby provoking an opportunity for feared consequences to come about), or that helps to confirm new adaptive beliefs (e.g., asking the client to behave as a “worthy person” and note any differences to previous behaviour), the client can learn to pay less attention to feelings of self-worth but give more credence to objective measures of worth (e.g., roles in their life), thereby allowing the client to discover alternative perceptions of themselves.

These therapeutic strategies may have a broader positive impact than initially envisioned. The focus on increasing stability, consistency and certainty of self-beliefs may assist with response and adherence to treatment. Firstly, the current findings suggest that an ambivalent self-concept incorporates depressive symptoms. OCD with comorbid MDD is associated with greater pathology (Quarantini et al., 2010; Ricciardi & McNally, 1995) and lower reduction of symptoms following CBT (Abramowitz et al., 2000). Management of self-processes may indirectly improve depressive symptoms, and thus provide a new dimension to the treatment of OCD. Second, refusal and drop out from ERP has been linked to initial apprehension and fear about treatment (Maltby & Tolin, 2003; 2005). An unstable self-worth and intolerance for uncertainty could contribute to this apprehension, and so mechanisms to improve self-concept may also assist clients to engage with the treatment process.

10.5. Limitations and Directions for Future Research

A number of constraints of the current thesis have been mentioned throughout. Limitations and suggestions for improving the design of the experimental task were

discussed in Study 2. Constraints pertaining to design and procedure were amplified with issues relating to sample size impacting on the statistical power of the study. Indeed, the want for a larger clinical sample size meant that the current thesis was unable to compare the clinical and non-clinical cohorts. This means that the pathway in Study 3 may be the experience of the majority of participants, who did not have a mental disorder, but may not necessarily hold for people with OCD, or even particular subtypes of OCD. While the results of the current study add preliminary support that a discrepancy in self-views is related to obsessional OCD symptoms, the associations with other subtypes were not as convincing. Therefore, a larger sample of clinical participants is required to examine if the experience of unwanted intrusions and neutralising differs between clinical and non-clinical cohorts, and within clinical subgroups. Certainly the findings of previous research suggest that this is a possibility, as symptom subtypes show particular association with different belief systems (Frost & Steketee, 2002; Julien, et al., 2006; McKay et al., 2004). Research from a larger clinical population would enable the conclusions drawn to be more representative of various aspects of OCD phenomena.

Additionally, a comparison of clinical and nonclinical individuals revealed that they were not matched on demographic variables. While demographic differences likely reflected that clinical participants were older, this was circumnavigated to some extent by adding a control variable for clinical status. Nevertheless, compared to OCD participants, there were a greater proportion of nonclinical participants who were female and never married and the low sample size meant that there was insufficient power for additional control variables. Moreover, the nonclinical sample was not formally assessed for clinical status. Just over ten percent of the “normal” population in the current thesis reported to have a current problem with anxiety or depression, so it is

probable that some of them warrant diagnosis of a mental disorder, or possibly even OCD. While statistical analyses incorporated steps to control for confounding variables, it is possible nonetheless those individuals with psychological disturbances in the non-clinical population could have skewed the results. Future research would benefit from obtaining a control sample with similar demographics, particularly with respect to age. In general, a more representative sample of the greater population, beyond typical university students studying Psychology, would be recommended. Further, cultural composition of the current sample is such that there was only a negligible representation of non-Western participants. This means that our findings are only generalisable to Western populations, which is unfortunate given that Eastern cultures have shown comparable OCD symptomatology (Matsunaga et al., 2009). There was also no data recorded on participant's religious identification, employment and socio-economic status; so the influence that these factors have had on the current results cannot be determined. This is important when you consider that low occupational functioning is associated with more severe OCD presentations (Koran et al., 1996), or that obsessive symptoms are associated with a higher incidence of religious beliefs (Khoubila & Kadri, 2010; Yorulmaz et al., 2009). Future studies would benefit in obtaining cross-cultural samples and coding of data that may influence results.

Although the majority of the clinical participants were recruited during or following group CBT for OCD, they still reported the current status of their mental health to have no change. These findings therefore may represent treatment resistant OCD and to some extent limit the generalisability of the findings to other people with OCD. Nevertheless, it does suggest that while current CBT strategies may already have the tools to target self-processes, they continue to be inadequately addressed.

Treatments for OCD may benefit from research, which examines the impact of specific

therapeutic interventions, designed to target contradictory self-process, have on OC and depressive symptoms.

Despite experimental designs and comparative pathways, it would be premature to make firm causal conclusions from the data. For instance, the model tested in Study 3 was not exhaustive. There are a number of relationships that were not examined. It is possible that self-ambivalence develops following the advent of distressing OCD symptoms, or that maladaptive OC beliefs precede self-ambivalence. To clearly establish the current thesis that self-ambivalence serves as a vulnerability to the development of OCD, longitudinal designs are required to track at risk individuals over time.

Indeed, longitudinal designs could additionally monitor the development of self-ambivalence. Guidano and Liotti (1983) contend that self-ambivalence develops out of ambivalent attachment relationships and there is some correlational evidence that an insecure attachment and ambivalent parenting is related to self-ambivalence and OC phenomena (Bhar et al., 2001). A longitudinal design that collects data on attachment, parental style, biological factors and cumulative/significant stressors of young children over their lifespan could not only clarify Guidano and Liotti's (1983) proposed process for the development of self-ambivalence, but help with our understanding of some of the biological and cognitive bases for OC phenomena.

10.6 Conclusion

The current thesis examined the relationship that implicit and explicit self-processes have with OC phenomena. Self-ambivalence was shown to incorporate a discrepant low self-esteem and anxiety about moral self-worth. In line with Guidano and Liotti's (1983) theory, higher levels of self-ambivalence were associated with

greater OCD symptoms, more conviction in maladaptive OC beliefs and a more unpleasant reaction when exposed to unwanted intrusions. Providing important implications for the cognitive understanding of OCD, the current thesis supports that intrusions are distressing because they are perceived to be threatening to an uncertain self-esteem and that compulsions assist in a maladaptive manner with maintaining self-worth. The implications and limitations of the current thesis were discussed, and suggestions for future research outlined. This thesis adds to the growing body of literature suggesting that self-processes are implicated in the development and maintenance of OCD.

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APPENDICES

Appendix A

Recruitment of clinical participants

Swinburne University, Hawthorn "Self-Concept in Obsessive-Compulsive Disorder (OCD)"

Swinburne University is currently undertaking a study to explore self-concept and character in people with Obsessive-Compulsive Disorder (OCD). OCD is a highly disabling anxiety disorder that is characterised by obsessions (unwanted intrusive thoughts, images or impulses) and/or compulsive behaviour (E.g., repetitive cleaning, checking etc).

Currently, research shows mixed outcomes for pharmacological and psychological treatments for OCD. Consequently, recent studies highlight the need for treatments to deal with the processes that lead one to develop, and maintain, their OCD symptoms. The current study examines the role of self-concept in making an individual vulnerable to developing and then maintaining OCD symptoms. Consequently, this research will help us to better understand this disabling disorder, leading to improved treatments and early identification.

Swinburne University is currently seeking participants for the study. While we are particularly interested to speak to people who suffer from Obsessive-Compulsive Disorder (OCD), anyone aged 18 years and over is eligible to participate. Consenting individuals will be invited to complete a series of questionnaires relating to self-concept and OCD, and a number of computer tasks. Involvement in the study takes around three hours.

Participants may benefit in learning more about the nature of obsessions and compulsions. They may additionally gain insight into their own self-concept and learn how their self-concept may influence their motivation to use compulsive strategies. Participants may also benefit from knowing that their participation will help inform researchers and therapists with improved treatment strategies that can target self processes that are specific to people with OCD. Additionally, participants will get first hand experience of the process of psychological research.

If you would like to express your interest, or would like further information about the study, please contact Ms Claire Ahern (Mobile: 0412 186 517; Email: cahern@swin.edu.au).

This research is being conducted as part of a DPsych in Clinical Psychology by Claire Ahern, under the supervision of Professor Michael Kyrios of the Faculty of Life and Social Sciences, Swinburne University

Appendix B

Recruitment of student participants

Self-perceptions in Obsessive-Compulsive Disorder (OCD)

This research project is interested to examine

how your views about yourself are related to

OCD phenomena.

As a participant, you will be asked to come to the AS building to complete a questionnaire and 3 computer tasks for about 90 minutes.

During the session, you will be informed about unwanted intrusive thoughts and will be asked to consider and privately speak about one of your own.

This study will provide you with *OCD-like experience*, which will help you to further understand the experience of OCD sufferers. Additionally, it will provide you with the opportunity to reflect upon and speak about your everyday experiences.

Please sign-up on the Sign-Up Sheet marked

“Self-Perceptions and OCD” that is being passed around.

Appendix C

Preparation of Participants for the Go No-Go Assessment Task (GNAT)

- Invite participant into private testing room
- Ensure that the participants have on them any corrective lenses
- Invite participants to sit in front of computer
- Provide participants with an explanation of the task:

“In this task words pop up in the middle of the screen here (point). What you have to do, is press the spacebar if the word in the middle belongs to any of the categories at the top left and right of the screen (point). Leave the space bar if the word doesn’t belong to any of the categories.

The computer will give you a red circle or green cross to let you know if you did it correctly

The computer will automatically move onto the next word and it is quite fast. Don’t worry if you get one wrong, just concentrate on the next one

The task will give you a full set of instructions so don’t worry if you are having trouble remembering all that I have mentioned. The task will also give you practice trials to get a hang of how it works.

Do you have any questions?”

Appendix D

Name-Letter Preference Task (Nuttin, 1985)

Below we have presented each letter of the alphabet in a randomised order. We would like you to please evaluate each letter of the alphabet, by circling the appropriate number on this scale below:

	0	1	2	3	4	5	6	7	8
	Not at all beautiful			Neutral				Extremely beautiful	
G	0	1	2	3	4	5	6	7	8
L	0	1	2	3	4	5	6	7	8
C	0	1	2	3	4	5	6	7	8
P	0	1	2	3	4	5	6	7	8
N	0	1	2	3	4	5	6	7	8
K	0	1	2	3	4	5	6	7	8
S	0	1	2	3	4	5	6	7	8
Z	0	1	2	3	4	5	6	7	8
F	0	1	2	3	4	5	6	7	8
B	0	1	2	3	4	5	6	7	8
I	0	1	2	3	4	5	6	7	8
R	0	1	2	3	4	5	6	7	8
T	0	1	2	3	4	5	6	7	8
A	0	1	2	3	4	5	6	7	8
X	0	1	2	3	4	5	6	7	8

V	0	1	2	3	4	5	6	7	8
M	0	1	2	3	4	5	6	7	8
Q	0	1	2	3	4	5	6	7	8
E	0	1	2	3	4	5	6	7	8
Y	0	1	2	3	4	5	6	7	8
H	0	1	2	3	4	5	6	7	8
O	0	1	2	3	4	5	6	7	8
W	0	1	2	3	4	5	6	7	8
D	0	1	2	3	4	5	6	7	8
U	0	1	2	3	4	5	6	7	8
J	0	1	2	3	4	5	6	7	8

After completing the above task, please circle the letters of the alphabet that are included in your FULL NAME (first name and surname):

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Appendix E

Obsessive Sensitive Self Inventory (Doron, Moulding, Nedeljkovic, & Kyrios, 2008)

When answering these questions please think to what extent these statements describe you as a person. There are no right or wrong answers since people differ markedly. Please circle the number that corresponds to how you are, from “not at all true for me” to “really true for me”

Not at all true for me					Really true for me				
1	2	3	4	5	6				
1.	Some people often get very distressed when thinking about their ability to meet their own moral standards.				1	2	3	4	5 6
2.	Some people think that behaving ethically is very important.				1	2	3	4	5 6
3.	For some people, considering how moral they are is very distressing.				1	2	3	4	5 6
4.	Some people feel acting morally is extremely important.				1	2	3	4	5 6
5.	Some people greatly value living up to their moral standards.				1	2	3	4	5 6
6.	Some people often become very uneasy when thinking about their ability to act morally.				1	2	3	4	5 6
7.	For some people, thinking about their ability to act morally provokes feelings of anxiety.				1	2	3	4	5 6
8.	Some people think that behaving ethically is fundamentally important.				1	2	3	4	5 6
9.	Some people often become concerned when considering their ability to act morally.				1	2	3	4	5 6
10.	Some people believe that always acting morally is crucial.				1	2	3	4	5 6

Appendix F

Self-Ambivalence Measure (Bhar & Kyrios, 2007)

Please rate the extent to which you agree with the following statements. Indicate your answer by circling the appropriate number on the scale beside each statement.

	Not at all	Agree a little	Agree moderately	Agree a lot	Agree totally
	0	1	2	3	4
1. I doubt whether others really like me	0	1	2	3	4
2. I am mindful about how I come across to others	0	1	2	3	4
3. I feel torn between different parts of my personality	0	1	2	3	4
4. I fear that I am capable of doing something terrible	0	1	2	3	4
5. I think about my worth as a person	0	1	2	3	4
6. I am constantly aware of how others perceive me	0	1	2	3	4
7. I feel that I am full of contradictions	0	1	2	3	4
8. I question the extent to which others want to be close to me	0	1	2	3	4
9. I tend to think of myself in terms of categories such as “good” or “bad”	0	1	2	3	4
10. I have mixed feelings about my self-worth	0	1	2	3	4
11. I question whether I am a moral person	0	1	2	3	4
12. I question whether I am morally a good or bad person	0	1	2	3	4
13. If I inadvertently allow harm to come to others, this proves I am untrustworthy	0	1	2	3	4
14. I tend to move from one extreme to the other in how I think of myself	0	1	2	3	4

- | | | | | | |
|--|---|---|---|---|---|
| 15. I think about how I can improve myself | 0 | 1 | 2 | 3 | 4 |
| 16. I am constantly concerned about whether I am a “decent” human being | 0 | 1 | 2 | 3 | 4 |
| 17. I am constantly worried about whether I am a “decent” human being | 0 | 1 | 2 | 3 | 4 |
| 18. When I am with others, I think about whether I look my best. | 0 | 1 | 2 | 3 | 4 |
| 19. I constantly worry about whether I will make anything of my life | 0 | 1 | 2 | 3 | 4 |
| 20. I am secure in my sense of self-worth | 0 | 1 | 2 | 3 | 4 |
| 21. Essentially people like you or they don’t; there is no middle ground | 0 | 1 | 2 | 3 | 4 |

Appendix G

Rosenberg Self-Esteem Scale (Rosenberg, 1965)

Below is a list of statements dealing with your general feelings about yourself.

Please circle the attitude that best describes yourself.

Strongly Disagree	Disagree	Agree	Strongly Agree	
SD	D	A	SA	
1. I feel that I am a person of worth, at least on an equal plane with others	SD	D	A	SA
2. I feel that I have a number of good qualities	SD	D	A	SA
3. All in all, I am inclined to feel that I am a failure	SD	D	A	SA
4. I am able to do things as well as most other people	SD	D	A	SA
5. I feel I do not have much to be proud of	SD	D	A	SA
6. I take a positive attitude toward myself	SD	D	A	SA
7. On the whole, I am satisfied with myself	SD	D	A	SA
8. I wish I could have more respect for myself	SD	D	A	SA
9. I certainly feel useless at times	SD	D	A	SA
10. At times I think I am no good at all	SD	D	A	SA

Appendix H

Obsessive Beliefs Questionnaire-44 (OC Cognitions Working Group, 2005).

This inventory lists different attitudes or beliefs that people sometimes hold. Read each statement carefully and decide how much you agree or disagree with it. For each statement, choose the number matching the answer that best describes how you think. Because people are different, there are no right or wrong answers. To decide whether a given statement is typical of your way of looking at things, simply keep in mind what you are like most of the time. Use the following scale.

1	2	3	4	5	6	7
Disagree very much	Disagree moderately	Disagree a little	Neither agree nor disagree	Agree a little	Agree moderately	Agree very much

In making your ratings, try to avoid using the middle point of the scale (4), but rather indicate whether you usually disagree or agree with the statements about your own beliefs and attitudes.

- | | | |
|---|--|---------------|
| 1 | I think things around me are unsafe. | 1 2 3 4 5 6 7 |
| 2 | If I'm not absolutely sure, I'm bound to make a mistake. | 1 2 3 4 5 6 7 |
| 3 | Things should be perfect according to my own standards. | 1 2 3 4 5 6 7 |
| 4 | To be a worthwhile person, I must be perfect at everything I do. | 1 2 3 4 5 6 7 |
| 5 | When I see the opportunity to do so, I must prevent bad things from happening. | 1 2 3 4 5 6 7 |

- | | | | | | | | | |
|----|--|---|---|---|---|---|---|---|
| 6 | Even if harm is very unlikely, I should try and prevent it at any cost. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7 | For me, have bad urges is as bad as actually carrying them out. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8 | If I don't act when I foresee danger, then I am to blame for consequences. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9 | If I can't do something perfectly, I shouldn't do it at all. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10 | I must work to my full potential at all times. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11 | It's essential for me to consider all possible outcomes of a situation. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 12 | Even minor mistakes mean a job is not complete. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13 | If I have aggressive thoughts or impulses about my loved ones, this means I must secretly want to hurt them. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 14 | I must be certain of my decisions. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 15 | In all kinds of daily situations, failing to prevent harm is just as bad as deliberately causing it. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 16 | Avoiding serious problems (for example, illness or accidents) requires constant effort on my part. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 17 | For me, not preventing harm is as bad as causing harm. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 18 | I should be upset if I make a mistake. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 19 | I should make sure others are protected from negative consequences of my decisions or actions. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 20 | For me, things are not right if they are not perfect | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

- | | | | | | | | | |
|----|---|---|---|---|---|---|---|---|
| 21 | Having nasty thoughts means I'm a terrible person. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 22 | If I do not take extra precautions, I am more likely than others to have or cause a serious disaster. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 23 | In order to feel safe, I have to be prepared as possible for anything that could go wrong. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 24 | I should not have bizarre or disgusting thoughts. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 25 | For me, making a mistake is as bad as failing completely. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 26 | It is essential for everything to be clear cut, even minor matters. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 27 | Having a blasphemous thought is as sinful as committing a sacrilegious act. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 28 | I should be able to rid my mind of unwanted thoughts. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 29 | I am more likely than other people to accidentally cause harm to myself or to others. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 30 | Having a bad thought means that I am weird and abnormal. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 31 | I must be the best at things that are important to me. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 32 | Having an unwanted sexual thought or image means that I really want to do it. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 33 | If my actions could have even a small effect on a potential misfortune, I am responsible for the outcome. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 34 | Even when I am careful, I often think bad things will happen. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 35 | Having intrusive thoughts means I'm out of control. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 36 | Harmful events will happen unless I'm careful. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

- | | | | | | | | | |
|----|---|---|---|---|---|---|---|---|
| 37 | I must keep working until it's done exactly right. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 38 | Having violent thoughts means I will lose control and become violent. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 39 | To me, failing to prevent disaster is as bad as causing it. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 40 | If I don't do a job perfectly, people won't respect me. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 41 | Even ordinary experiences in my life are full of risk. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 42 | Having a bad thought is morally no different than doing a bad deed. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 43 | No matter what I do, it won't be good enough. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 44 | If I don't control my thoughts, I'll be punished. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Appendix I

Obsessive Compulsive Inventory Revised (Foa et al., 2002)

The following statements refer to experiences that many people have in their everyday lives. Please circle the number that best describes how much that experience has distressed or bothered you during the past month. The numbers refer to the following verbal labels:

	Not at all	A little	Moderately	A lot	Extremely
	0	1	2	3	4
1. I have saved up so many things that they get in the way.	0	1	2	3	4
2. I have checked things more often than necessary.	0	1	2	3	4
3. I get upset if objects are not arranged properly.	0	1	2	3	4
4. I feel compelled to count while I am doing things.	0	1	2	3	4
5. I find it difficult to touch an object when I know it has been touched by strangers.	0	1	2	3	4
6. I find it difficult to control my own thoughts.	0	1	2	3	4
7. I collect things I don't need.	0	1	2	3	4
8. I repeatedly check doors, windows, drawers, etc.	0	1	2	3	4
9. I get upset if others change the way I have arranged things.	0	1	2	3	4
10. I feel I have to repeat certain numbers.	0	1	2	3	4
11. I sometimes have to wash or clean myself simply because I feel contaminated.	0	1	2	3	4

- | | | | | | | |
|-----|--|---|---|---|---|---|
| 12. | I am upset by unpleasant thoughts that come into my mind against my will. | 0 | 1 | 2 | 3 | 4 |
| 13. | I avoid throwing things away because I am afraid I might need them later. | 0 | 1 | 2 | 3 | 4 |
| 14. | I repeatedly check gas and water taps and light switches after turning them off. | 0 | 1 | 2 | 3 | 4 |
| 15. | I need things to be arranged in a particular order. | 0 | 1 | 2 | 3 | 4 |
| 16. | I feel that there are good and bad numbers. | 0 | 1 | 2 | 3 | 4 |
| 17. | I wash my hands more often and longer than necessary. | 0 | 1 | 2 | 3 | 4 |
| 18. | I frequently get nasty thoughts and have difficulty in getting rid of them. | 0 | 1 | 2 | 3 | 4 |

Appendix J

Beck Depression Inventory-II (Beck, Steer, & Brown, 1996)

The BDI-II is a copyrighted instrument published by the Pearson Psych Corp. It cannot be reproduced in this thesis. For a copy of the BDI-II, contact:

Address: Level 6, 287 Elizabeth St, Sydney, NSW, 2000

Phone: 1800 882 385

Website: <http://www.pearsonpsychcorp.com.au/productdetails/39>

Appendix K

Plain Language Statement Non-clinical participants

Self-perceptions and Obsessive Compulsive Disorder

This research is to be undertaken by Claire Ahern (cahern@swin.edu.au) and Leah McMahon (6896030@swin.edu.au), under the supervision of Professor Michael Kyrios (mkyrios@swin.edu.au) and Dr. Maja Nedeljkovic (mnedeljkovic@swin.edu.au).

Obsessive Compulsive Disorder (OCD) is a highly disabling anxiety disorder that is characterised by unwanted intrusive thoughts, images or impulses and/or compulsive behaviour (eg. repetitive cleaning or checking). These unwanted intrusive thoughts come involuntarily to the mind and are experienced as intense, uncontrollable and distressing. Research suggests that the nature of unwanted intrusions is similar in both normal and clinical populations; hence, investigating a non-clinical population may give us an insight into the thought processes of individuals with OCD.

This research is important because it may further clarify those thinking processes that make an individual vulnerable to developing OCD, helping us better understand this disabling disorder, and leading to improved treatments and early identification. It is anticipated that the entire process will take approximately 120 minutes to complete.

This study seeks to examine the processes that may make an individual vulnerable to noticing unwanted intrusions. In order to do this, individuals will be invited to complete a pen and paper questionnaire (30 minutes) and 3 computer tasks (90 minutes):

- ◇ In two of the computer tasks, participants will be asked to group words into categories on either the left or right of the computer screen. These are fairly quick computer tasks that are not expected to be associated with any distress.
- ◇ For the third computer task, participants will be asked to voice record an unwanted intrusive thought that is mildly distressing. This voice recording will be played back to participants once every minute for the duration of this task (around 65 minutes). Throughout different stages of this task, the computer will instruct participants to respond to their voice recording (eg., by counting backwards) or will be instructed just to listen to the recording. The computer will also periodically ask participants to rate their experience. This computer task will be completed in a private room so that the recording of the intrusion will remain private for each participant.

Individuals that agree to participate must be 18 years or over. Participants will benefit in learning more about the nature of unwanted intrusions and the process of psychological research. Participation in this study is voluntary and you are free to withdraw consent and to discontinue participation at any time. Withdrawal will NOT compromise your personal/professional relationship with researchers or academic evaluation. Should you feel uncomfortable at any stage of this study, please let the interviewer know. You are free to refuse to respond to any questions you feel uncomfortable answering.

Confidentiality of the data and identity of the participants will be maintained at all times. It is likely that we will publish the studies findings from this research, however, all results will be kept anonymous, as only group data will be analysed. No individual identifiable details will be used. All care will be taken to ensure that privacy is protected. Only the researchers and the Senior Investigator will have access to the data.

Any questions regarding the project entitled ‘Self-perceptions and Obsessive Compulsive Disorder’ can be directed to:

The Senior Investigator

Michael Kyrios (03) 9214 4886

Faculty of Life and Social Sciences

mkyrios@swin.edu.au

If you feel any concern or personal distress resulting from the study that is not dealt with by the interviewer, you can discuss matters with the Senior Investigator, or other counsellors at the Swinburne Psychology Clinic 34 Wakefield Street, Hawthorn (03) 9214 8653. Alternatively, should you become distressed after-hours you can contact the 24-hour emergency crisis help-line Life Line on 13 11 14.

Thank you for your time.

Claire Ahern

Michael Kyrios

Leah McMahon

Maja Nedeljkovic

This project has been approved by or on behalf of Swinburne’s Human Research Ethics Committee (SUHREC) in line with the *National Statement on Ethical Conduct in Research Involving Humans*.

If you have any concerns or complaints about the conduct of this project, you can contact:

Research Ethics Officer, Swinburne Research (H68),
Swinburne University of Technology, P O Box 218, HAWTHORN VIC 3122.
Tel (03) 9214 5218 or +61 3 9214 5218 or resethics@swin.edu.au

Appendix L

Plain Language Statement Clinical participants

Self-perceptions and Obsessive Compulsive Disorder

This research is to be undertaken by Claire Ahern (cahern@swin.edu.au) and Leah McMahon (lmcmahon@swin.edu.au), under the supervision of Professor Michael Kyrios (mkyrios@swin.edu.au) and Dr. Maja Nedeljkovic (mnedeljkovic@swin.edu.au).

Obsessive Compulsive Disorder (OCD) is a highly disabling anxiety disorder that is characterised by obsessions (unwanted intrusive thoughts, images or impulses) and/or compulsive behaviour (eg. repetitive cleaning or checking). These obsessions come involuntarily to the mind and are experienced as intense, uncontrollable and distressing. Although individuals with OCD use compulsive behaviour to alleviate the distress associated with obsessions, research suggests that compulsive strategies significantly increase the intensity, frequency and duration of obsessions. This way compulsive strategies are responsible for increasing the severity of OCD for sufferers.

This study seeks to examine the motivation to use these compulsive strategies in individuals with OCD to gain further understanding of reasons for use of compulsive strategies. This research is important because it will clarify those thinking processes that make an individual vulnerable to developing OCD, helping us better understand this disabling disorder, and leading to improved treatments and early identification. It is anticipated that the entire process will take approximately 90 minutes to complete.

In order to do this, individuals will be invited to complete a pen and paper questionnaire (25 minutes) and 3 computer tasks (65 minutes):

- ◇ In two of the computer tasks, participants will be asked to group words into categories on either the left or right of the computer screen. These are fairly quick computer tasks that are not expected to be associated with any distress.
- ◇ For the third computer task, participants will be asked to voice record an obsession that is mildly distressing. This voice recording will be played back to participants once every minute for the duration of this task (around 50 minutes). Throughout different stages of this task, the computer will instruct participants to respond to their voice recording (eg., by counting backwards) or will be instructed just to listen to the recording. The computer will also periodically ask participants to rate their experience. This computer task will be completed in a private room so that the recording of the obsession will remain private for each participant.

Individuals that agree to participate must be 18 years or over. Participants will benefit in learning more about the nature of unwanted intrusions and the process of psychological research. Participation in this study is voluntary and you are free to withdraw consent

and to discontinue participation at any time. Withdrawal will NOT compromise your personal or professional relationship with researchers. Should you feel uncomfortable at any stage of this study, please let the interviewer know. You are free to refuse to respond to any questions you feel uncomfortable answering.

Confidentiality of the data and identity of the participants will be maintained at all times. It is likely that we will publish the studies findings from this research, however, all results will be kept anonymous, as only group data will be analysed. No individual identifiable details will be used. All care will be taken to ensure that privacy is protected. Only the researchers and the Senior Investigator will have access to the data.

Any questions regarding the project entitled ‘Self-perceptions and Obsessive Compulsive Disorder’ can be directed to:

The Senior Investigator

Michael Kyrios (03) 9214 4886

Faculty of Life and Social Sciences

mkyrios@swin.edu.au

If you feel any concern or personal distress resulting from the study that is not dealt with by the interviewer, you can discuss matters with the Senior Investigator, or other counsellors at the Swinburne Psychology Clinic 34 Wakefield Street, Hawthorn (03) 9214 8653. Alternatively, should you become distressed after-hours you can contact the 24-hour emergency crisis help-line Life Line on 13 11 14.

Thank you for your time.

Claire Ahern

Michael Kyrios

Leah McMahon

Maja Nedeljkovic

This project has been approved by or on behalf of Swinburne’s Human Research Ethics Committee (SUHREC) in line with the *National Statement on Ethical Conduct in Research Involving Humans*.

If you have any concerns or complaints about the conduct of this project, you can contact:

Research Ethics Officer, Swinburne Research (H68),
Swinburne University of Technology, P O Box 218, HAWTHORN VIC 3122.
Tel (03) 9214 5218 or +61 3 9214 5218 or resethics@swin.edu.au

Appendix M

Participant Consent Form

I

.....

am 18 years or over, and have read and understood the information in the document titled 'Self-Perceptions and Obsessive Compulsive Disorder'. Any questions I have asked have been answered to my satisfaction.

I agree to participate in this activity, realising that I may withdraw at any time.

I agree that research data collected for the study may be published or provided to other researchers on the condition that anonymity is preserved and I cannot be identified.

NAME OF PARTICIPANT

SIGNATURE DATE

NAMES OF INVESTIGATORS

Claire Ahern

SIGNATURE DATE

Michael Kyrios

SIGNATURE DATE

Appendix N

Debriefing Statement and Debriefing Check

Thank you for your participation in this study. This sheet contains more detailed information about the purpose of the study and what we hope to achieve.

We are looking at what may help to distinguish those individuals who are experiencing obsessions and the reasons that they feel compelled to respond. Obsessive Compulsive Disorder (OCD) is an anxiety disorder that often involves extreme reactions to specific intrusive thoughts, images, or urges, resulting in obsessive and compulsive symptoms. In this study, we wish to examine the specific factors that may contribute to the sensitivity of intrusions. Specifically, we are interested in examining how one's self-perceptions, the way one describes oneself, may be related to obsessive compulsive phenomena.

The first two computer tasks were designed to measure implicit self-concept, the way that people see themselves unconsciously. It is thought that people who unconsciously see themselves as an immoral person are more likely to be vulnerable to OCD.

The third computer task was designed to recreate an OCD-like experience for each individual. This experience was monitored through the rating scales. It is thought that using the neutralising strategy or counting backwards will help participants feel less discomfort. It is also thought that discomfort will increase when you are instructed to only listen and not to use the strategy or count. When instructed only listen, it is predicted that discomfort will be higher after using the neutralising strategy than after counting backwards. This computer task replicates what it is like to have OCD and is designed to demonstrate that "doing something" when you have an obsession may help you to feel better in the short term but more distressed in the long term.

The questionnaires were designed to assess your self-concept, your mood and your vulnerability to OCD symptoms.

The overall aim of this study is to investigate these issues and determine whether they are important to OCD. If we have a clearer idea of how OCD is developed and is maintained, we can improve treatment programs and the quality of life of sufferers, and perhaps helps to prevent such problems from developing.

We would like to thank you again for your participation in this study. If you have any questions or concerns about this study, feel free to contact the investigators listed below. If you feel distressed either now or later on, as a result of the study, please don't hesitate to contact any one of the investigators listed below or consult the list of support services on the other side of this page. If you are interested in hearing the results of the study, do not hesitate to contact us.

Professor Michael Kyrios
Clinical Psychologist
mkyrios@swin.edu.au

Ms Claire Ahern
DPsych (Clinical) Researcher
cahern@swin.edu.au

Faculty Life & Social Sciences
Swinburne University of Technology
Ph: 9214 4886

Who can I contact if I would like help?

In the event that you feel distressed or upset following your participation in our study, or if you otherwise feel you need support, we recommend that you consider seeking professional assistance.

If you are not currently receiving treatment, or wish to seek additional sources of professional assistance, we suggest that you contact the Royal Australian and New Zealand College of Psychiatrists (RANZCP), the Psychologists Registration Board of Victoria (PRBV) or the Australian Psychological Society (APS). These all provide psychological or psychiatric referral services. You can also contact clinicians through the Swinburne University Psychology Clinic.

Royal Australian & New Zealand College of Psychiatrists: (03) 9640 0646

Psychologists Registration Board of Victoria: (03) 9629 8722

Australian Psychological Society: (03) 8662 3300.

Swinburne University Psychology Clinic: (03) 9214 8653.

There are also numerous 24-hour emergency crisis help-lines that you may wish to contact should you become distressed after-hours. These include Lifeline (13 11 14).

Some support groups and web-sites that may also be of help include:

The Obsessive Compulsive & Anxiety Disorders Foundation: www.arcvic.com.au

The Panic Anxiety Disorders Association (PADA): www.pada.org.au

Beyondblue, The national Depression Initiative: www.beyondblue.org.au

OCD online: www.ocdonline.com

You may also wish to consult “A Guide to your Local Health Services”, a comprehensive directory produced by the Department of Human Services. This provides an easy reference to specific services, including counselling and support in your local area. A copy may be requested by calling (03) 9280 0777.

Debriefing Check

Please rate your level of distress at this moment, by placing a circle around the number that best describes how you are feeling.

If you circle numbers 4 or 5, you are encouraged to consult one of our clinical supervisors who are currently on-call. The clinical supervisors are clinical psychologists, and will be able to provide you with immediate support, or advise you about support options. I can escort you to their room immediately.

1	2	3	4	5
Not at all distressed	A little distressed	Moderately distressed	Very distressed	Very distressed & in need of immediate attention

Appendix O

Definition and Examples of Unwanted Intrusions

Research suggests that the vast majority of people (over 80%) have many different types of unwanted intrusions. Although these intrusions are normal and so common, they can be quite distressing at times and can form the basis of obsessions in obsessive-compulsive disorder (OCD). So by learning more about normal unwanted intrusions we can also increase our understanding of obsessions and OCD.

Now I would like you to think about the negative unwanted intrusions that have been bothering you recently. These intrusions may be any thoughts, images or urges that are not wanted by you, cause you distress and are difficult to control. These unwanted intrusions will pop into your mind without too much effort on your part and immediately grab your attention. You will not really want to have these intrusions and you may try hard to ignore them, but they will keep coming back and can be quite distressing at times.

The following are some examples of unwanted intrusions by student samples:

- The image of something terrible happening to a loved one
- A thought or image that is contrary to your religious or moral beliefs
- The idea that something terrible will occur because you weren't careful enough
- the thought of whether you might have become contaminated after touching an object
- doubts about whether or not you locked the door when you left your apartment (house)
- an impulse to suddenly say something rude or embarrassing that would draw attention to yourself
- thoughts of suddenly verbally or physically attacking someone for no good reason
- the thought that you might have been careless or made a mistake that would cause terrible things to happen to you or to other people
- thoughts of engaging in sex that is against your morals or might even disgust you

- thoughts of causing an accident or injury to someone like running over them with a car
- the urge to arrange items belongs in a certain manner until you feel “just right”

Can you think of some of your own intrusions which have bothered you recently? The researcher can help you identify your own unwanted intrusions.

Think about one of the more distressing and frequent intrusions and rate the amount of distress associated with this intrusion:

0	10	20	30	40	50	60	70	80	90	100
<hr/>										
No									The most	
discomfort									discomfort	
at all									I have	
									ever felt	

Please stop here and show this paper to the researcher.

Now write down the intrusion that has bothered you most recently, in the spaces provided below. We will be recording this intrusion for you to listen to, for approximately 20 seconds, so when you write it down elaborate as much as you wish so that it will take about 20 seconds when spoken. When writing you need to paint a picture of what happens when you have this intrusion, as though it is happening right now. So, write in the 1st and present tense, consider a situation where it is likely you would have this intrusion and the negative outcomes of the situation.

Appendix P

Definition and Examples of Neutralising Responses

As mentioned previously, these unwanted intrusions can often involve a level of distress (e.g., stress, anxiety, discomfort, disgust etc.). It is also common for people to DO something to try and help alleviate this distress or prevent the negative outcomes from happening. This action in response to an unwanted intrusion is called neutralizing and is part of the compulsions in OCD. Neutralizing can involve observable behaviours or mental strategies.

Some examples of mental neutralising strategies include:

- Repeating a “safe” numbers or counting
- Praying
- Replacing or canceling out the unwanted intrusion with a “good” or “safe” thought
- Mentally checking

Some examples of behavioural neutralising strategies include:

- Repeated checking
- Tapping your fingers to a particular number
- Re-walking over particular areas and avoiding others (e.g., cracks in the pavement)
- Arrange items in a room until you feel ‘just right’

Now considering the unwanted intrusion that you have written about above, what neutralising strategies would you use to make you feel better or to prevent the outcome of happening? You do not have to use the examples above. I am going to be asking you to use your chosen strategy as part of this research. Please think of a strategy that is suitable to use while sitting on a chair and facing a computer.

Before you write it down in the space below, please speak to the researcher about your chosen strategy.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Appendix Q

Copy of Ethics Approval

Swinburne University of Technology
Human Research Ethics Committee (SUHREC)
Certificate of Ethics Clearance

SUHREC Project 0708/100

Self-perceptions and Obsessive-Compulsive Disorder

Chief Investigator/Supervisor:	Prof Michael Kyrios	
Co-Investigator(s):	Ms Claire Ahern Dr Maja Nedeljkovic Ms Leah McMahon	
Duration Approved:	14/02/2008 To 31/07/2009	Extended To 31/12/2010

This is to certify that the above project has been given ethics clearance in accordance with the current *National Statement on Ethical Conduct in Human Research*. The standard conditions and any special conditions for on-going ethics clearance are here printed.

All human research activity undertaken under Swinburne auspices must conform to Swinburne and external regulatory standards, including the above-mentioned *National Statement* 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 to date 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.

Modifications Approved:
 29 August 2008; 25 May 2009; 28 April 2010

The SUHREC project number and title should be cited in any communication.

Keith Wilkins
 Secretary, SUHREC and Research Ethics Officer
 07/12/2011