School of Psychology and Speech Pathology

Self-help Therapy for Obsessive-compulsive Disorder

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Declaration Page

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgment has been made. This thesis contains no material that has been accepted for the award of any other degree or diploma in any University.

The research presented and reported in this thesis was conducted in accordance with the National Health and Medical Research Council National Statement on Ethical Conduct in Human Research (2007) – updated March 2014. The proposed research study received human research ethics approval from the Curtin University Human Research Ethics Committee (EC00262), Approval Number # HR151/2011.

Publications

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Abstract

Obsessive-compulsive disorder (OCD) is a debilitating disorder, which can result in a low quality of life with significant and distressing impacts on occupational, social, academic, and other important areas of functioning. Effective and reliable treatment for OCD is not always readily available given the strong demand for psychotherapeutic services. Furthermore, the high costs and time associated with traditional face-to-face treatment methods has led to an increase in the dissemination of self-help treatments for a number of anxiety disorders. A major aim of this project was to explore the relevance, acceptability and effectiveness of self-help therapy for OCD, in particular, exploring metacognitive therapy (MCT) as a potential self-help option for OCD. Four studies were conducted to meet this aim.

The aim of study 1 was to produce an up-to-date synthesis of the literature on self-help treatments for OCD. A meta-analysis was conducted which explored the effectiveness of self-help treatments for OCD, and identified whether differing amounts of therapeutic contact had an impact on treatment outcomes and dropout rates. Eighteen studies met inclusion criteria and the overall effect size (Hedges' g) of self-help interventions was 0.51 (95% CI: 0.41 to 0.61) at post-treatment. Subgroup analyses revealed that outcomes improved when greater therapeutic contact was provided. Large effect sizes were found for minimal-contact self-help (g = 0.91, 95% CI: 0.66 to 1.17), moderate effect sizes for predominantly self-help (g = 0.68, 95% CI: 0.40 to 0.96), and small effect sizes for self-administered self-help (g = 0.33, 95% CI: 0.18 to 0.47). A downward trend in dropout rates (M = 28.70%) was also observed where higher levels of therapeutic contact were provided. As such, a higher average dropout rate was found within self-administered self-help (38.70%),

compared to predominantly self-help (19.65%) and minimal-contact self-help (16.68%). Limitations included a large variety of treatment approaches, therapeutic contact, and risk of bias within each study.

The aim of study 2 was to explore the characteristics of Internet treatment-seeking adults with self-reported clinical levels of OCD. An additional aim was to explore the metacognitions of this sample and to investigate the relationship between obsessive-compulsive symptoms and metacognitions. This was explored to ascertain whether the metacognitive model of OCD may be useful as an alternative Internet self-help treatment for those with clinical and subclinical levels of OCD. One hundred and one Internet self-help seeking adults with OCD completed online self-report questionnaires.

Results of participant characteristics indicated that 67% of the sample experienced clinical levels of OCD with the remaining participants experiencing subclinical levels of OCD. Only 13% of the total sample were receiving some form of additional help (excluding medication) to manage their OCD. High levels of unhelpful metacognitions ($M = 74.33$, $SD = 18.83$) and low levels of quality of life scores ($M = 51.24$, $SD = 11.94$) were observable from participant average scores according to scoring on measures. Average depression, anxiety and stress scores were all found to be in the extremely severe range. Finally, average OCI-R scores were above Foa and colleagues' (2002) clinical cut-off of 21, distinguishing clinical levels from subclinical levels of OCD ($M = 29.18$, $SD = 13.64$).

Positive and medium bivariate correlations were found between unhelpful metacognitions and obsessive-compulsive symptoms. Furthermore, using multiple regression analyses it was found that MCQ-30 subscales accounted for a significant 26% of the variance in OCI-R total scores ($f^2 = .34$) with positive beliefs and

uncontrollability and danger subscales identified as significant predictors. Results indicated that participants with clinical levels of OCD symptoms (according to the OCI-R) experienced greater levels of unhelpful metacognitions compared to participants with sub-clinical levels of OCD. Limitations included a small sample size, which may have resulted in a Type II error.

The aim of study 3 was to develop an online self-help MCT program for OCD. Several steps were taken to develop the program including: a qualitative analysis of factors influencing motivation in Internet-based self-help, the development of the program and website, and the review and modification of the program and website. The online treatment protocol was based on the published protocol: Metacognitive therapy treatment manual: group and individual protocol (Rees & van Koesveld, 2009), which was reviewed and modified for online use. Additional metacognitive strategies were also incorporated within the treatment package based on Well's metacognitive model of OCD (Wells, 1997, 2000, 2006). Guidelines for consumers and designers of multimedia learning (Clark & Mayer, 2003), guidelines for Internet intervention research (Proudfoot et al., 2011), and Ritterband, Thondike, Cox, Kovatchev, and Gonder-Frederick's (2009) model of Internet intervention-based behavioural change, were taken into consideration in the development of the online self-help program.

A qualitative analysis was conducted to further identify motivational and engagement factors for program development in order to reduce overall dropout. The program was modified accordingly following the results of the qualitative analysis and expert review. A number of results were obtained and taken into consideration when developing the program and website, including: Time efficiency, incentives, goal setting and progress reviews, therapeutic contact, evidence-based research,

program features, preferred search engines and search phrases, grammar, spelling and formatting, length and flow of questionnaires, flow and useability of the program and website, graphics, and length and ease of use.

Finally, the aim of Study 4 was to conduct a preliminary investigation of the online self-help MCT program for OCD developed in study 3. Three consecutively referred participants completed the online self-help MCT program at the Curtin University Clinic. Data were collected at baseline, post-treatment and at four-week follow-up. All participants showed reductions in unhelpful metacognitive beliefs and improvements in quality of life, which were maintained at the four-week follow-up. Only one client was identified as 'recovered' on quality of life scores, and 'improved' on metacognition scores. Two of the three participants showed reductions in OCD symptomology, which were further reduced at the four-week follow-up. Only one client was identified as 'recovered' according to the Reliable Change Index and Clinical Significance cut-off score. The results of this preliminary analysis provide evidence supporting the acceptability of an online version of MCT for OCD; however, it was difficult to make generalisations, due to only one client being recovered, about the efficacy of MCT for OCD in a pure self-help context. Limitations included generalizability (limitation of 3 participants), time-related threats to internal validity, and the use of self-report measures.

The findings of this research project provide evidence supporting the use of self-help therapy for OCD at varying levels of therapeutic contact. Results also provided further support for the metacognitive model of OCD, identifying links between unhelpful metacognitions and negative symptoms of OCD. The motivational factors associated with treatment adherence were also explored and described for use in future internet-based interventions. Finally, preliminary evidence

supporting the acceptability of an online self-help MCT program for OCD was also provided, however, results only provided limited support for the effectiveness of MCT for OCD in a pure self-help context. This evidence can assist in the dissemination and availability of additional treatment options for those suffering with OCD by providing a solution to limited-accessibility, high costs, long wait-lists and limited therapist-time. The research project has identified a need for further larger controlled trials and provided future directions for telemental health research.

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Chapter 1. Introduction

Introduction to the Project

The decision to double-check if you have locked your front door is one that is made, on occasion, by most people. For the majority of people, often confidence in their own memory and judgment are enough to make the decision to re-check the door. This may not be the case for those with Obsessive-compulsive disorder (OCD). Clients with OCD may have difficulties making these everyday decisions due to doubts in memory and judgement (Harkin & Mayes, 2008). In this case, a client who is compulsively checking that their front door is locked may argue that it is less stressful to check that the door is locked, than to be robbed, and therefore checking is the better option. Furthermore, if the client is still unsure after this check, it may still be a better option to check again, and this can continue as long as is necessary for the client to feel at ease. These symptoms can become very time consuming and are most often associated with severe emotional distress.

The current gold standard treatments for OCD are Cognitive Behavioural Therapy (CBT) and Exposure and Response Prevention (ERP). Limited availability of trained therapists minimises access to treatments, specifically in remote or rural communities, which has led to an increase in waitlists for services. Furthermore, limitations to CBT and ERP, which include high dropout rates, partial adherence to therapy, and refusal of treatment, have led to the exploration of additional treatments such as metacognitive therapy (MCT). Given the limited availability of services, a stepped care model of treatment has been proposed (Bower & Gilbody, 2005). Stepped care aims to provide the least restrictive and cost-effective treatment based on the symptom severity of individuals. Self-help may be considered a less restrictive

or lower step to treatment. Such treatments may assist in the reduction of long waitlists, cost and therapist time associated with treatment, and provide a level of treatment where it may not otherwise be available.

The use of self-help as a treatment for OCD has grown over the past decade with numerous modes of self-help treatment being explored, such as bibliotherapy, computer-based and Internet-based self-help (Lewis, Pearce, & Bisson, 2012; Mataix-Cols & Marks, 2006; Pearcy, Anderson, Egan, & Rees, 2016; Rosa-Alcázar, Sánchez-Meca, Gómez-Conesa, & Marín-Martínez, 2008; Sarris, Camfield, & Berk, 2012). Internet-based interventions have been further utilised among health professionals due to the recent emphasis on providing services to populations, which are both accessible and cost-effective (such as in rural and remote locations). The use of Internet-based interventions have been found to increase interactivity among self-help programs, which in turn may impact motivation and treatment adherence (Kelders, Kok, Ossebaard, & Van Gemert-Pijnen, 2012).

Research Objectives and Aims

The overarching research objective was to explore the relevance, acceptability and effectiveness of self-help therapy for OCD, in particular, exploring Internet-based MCT for OCD. The current research project consisted of four specific aims:

1. Identify and review self-help therapy for OCD, and in particular, the impact of therapeutic contact on treatment outcomes in self-help therapy.

2. Explore the relationship between unhelpful metacognitions and OCD symptoms among an Internet treatment-seeking sample to ascertain whether the metacognitive model of OCD may be useful in the development of alternative Internet self-help treatment for OCD.

3. Develop an online self-help therapy program for individuals diagnosed with OCD that targets identified metacognitions.

4. Conduct a preliminary evaluation of the effectiveness and acceptability of online self-help MCT for OCD.

Outline of Studies

In order to meet the previously stated research objective and specific aims, four studies were conducted:

Study I – A systematic review and meta-analysis of self-help therapeutic interventions for obsessive-compulsive disorder: Is therapeutic contact key to overall improvement? Randomised controlled trials and quasi-experimental trials of self-help treatment for OCD were reviewed to determine their impact on treatment outcomes. The systematic review and meta-analysis also examined if therapeutic contact had an impact on treatment outcomes and dropout rates.

Study II – Characteristics of Internet self-help seeking individuals with obsessive-compulsive disorder: Exploring the relationship between metacognition and OC symptoms. The demographic and psychological characteristics of Internet self-help seeking individuals with OCD were assessed within this study. Furthermore, Study II evaluated the relationship between metacognition and OCD symptoms in order to determine if MCT may be helpful to reduce symptoms of OCD.

Study III – Development of an online self-help metacognitive program. A qualitative survey was administered in order to collect data on the motivational factors required to complete self-help treatment programs. Based on this information

and previous literature, a metacognitive self-help treatment program was developed (Rees & van Koesveld, 2009; Wells, 2006). A website was then designed in order to make the program available for online use. An expert review of both the website and program was conducted in order to evaluate the flow, quality and comprehensiveness of the treatment package.

Study IV: Online self-help metacognitive therapy for obsessive-compulsive disorder: A preliminary trial. The program developed in study III was implemented and a preliminary evaluation of the effectiveness of the self-help MCT program was conducted. Participants were assessed at pre-treatment, post-treatment and follow-up for OCD symptomatology, depression, anxiety and stress symptomatology, metacognitive beliefs and quality of life.

Chapters one to four provide an overview of the current literature relevant to the studies described above. The remainder of chapter one provides an introduction to OCD, in particular information on diagnosis, prevalence, course, and comorbidity. Furthermore, an overview of current theories and treatment of OCD is provided in chapter two, followed by specific information on metacognitive theories and models for OCD in chapter three, and finally an outline of self-help therapy for OCD in chapter four.

Introduction to Obsessive-compulsive Disorder

Diagnosis.

Until recently, and according to the Diagnostic and Statistical Manual of Mental Disorders IV – Text Revision (DSM-IV-TR: American Psychiatric Association [APA], 2000), OCD was classified as an anxiety disorder. The

Diagnostic and Statistical Manual of Mental Disorders 5 (DSM-5: American Psychiatric Association [APA], 2013) now classifies OCD under the Obsessive-compulsive and related disorders. According to the DSM-5 the diagnostic features of OCD include the presence of obsessions, compulsions, or both. These symptoms can interfere substantially in one's life by either the time they consume, taking more than one hour a day, or by causing marked distress or significant impairment in social, occupational, academic, and other important areas of functioning, often resulting in a low quality of life (APA, 2013; Moritz, Jelinek, Hauschildt, & Naber, 2010). Obsessions are typically described as persistent thoughts or ideas that are experienced as intrusive and senseless (Barlow, 2008). Individuals usually attempt to suppress or ignore the intrusive thought or idea. In order to do this, another action or ritual (compulsion) is often carried out to neutralise the intrusive thought or idea (Barlow, 2008). Compulsions are repetitive and intentional behaviours that are carried out in response to an obsession, or intrusive thought, and often act as a safety behaviour, which reduces anxiety and fear (Brüne, 2006). According to the literature, obsessions and compulsions fall into five different categories: Symmetry, ordering and counting; hoarding and associated collection compulsions; contamination, washing and cleaning; checking and reassurance seeking; and sexual, religious and violent obsessions (Abramowitz, 2006; Abramowitz, Taylor, & McKay, 2009; Pallanti, 2008).

Prevalence and course.

The prevalence of OCD in a 12-month period is approximately 2.7% of the adult population within Australia (McEvoy, Grove, & Slade, 2011) and 1.1%-1.8% internationally (APA, 2013). According to Abramowitz and colleagues (2009), those with OCD are more likely to be unemployed and show difficulties in social

functioning. Consistency has been found in the epidemiology of OCD across different countries and throughout cross-cultural studies (Pallanti, 2008). Fontenelle, Mendlowicz, Marques, and Versiani (2004) suggest that although some features of OCD are independent of culture, the content of obsessions may be influenced by cultural variations. Abramowitz and colleagues (2009) suggested that obsessions and compulsions that are of a religious nature, for example, compulsive praying or cleansing, are more common in ethnic groups in which religion plays a prominent role, compared to other ethnic groups in which it does not.

According to the APA (2013), the mean age at onset of OCD diagnosis is 19.5 years. Hollander, Zohard, Marazziti, and Olivier (1994) noted, however, that the onset of OCD does not usually occur suddenly and most of the time symptoms in adults had already manifest in childhood. In fact, the APA (2013) report that 25% of clients experience symptoms of OCD by 14 years of age. Furthermore, males generally develop symptoms of OCD even earlier when compared to females, with approximately 25% of males experiencing symptoms before the age of 10. Given the gradual development of OCD symptomatology, early treatment is highly important. The disorder can run a chronic course if left untreated (Abramowitz, 2006). In adulthood, OCD is equally common in males and females (APA, 2000).

It is important to note that intrusive thoughts, images, impulses and compulsive actions are present in nearly 90% of the general population and individuals who do not have a diagnosis of OCD may experience intrusive thoughts or engage in neutralizing behaviours as part of their everyday lives (Barlow, 2002). Most individuals, however, do not develop OCD. Rachman and de Silva (1978) conducted a study of subclinical obsessive-compulsive behaviour, which investigated the presence of intrusive thoughts within the general population. A questionnaire was

administered to 124 participants to determine the presence of such intrusive thoughts, as well as their frequency. Eighty percent of the sample reported intrusive thoughts with a slightly higher frequency in women than men. This nonclinical sample was later compared to those with a diagnosis of OCD and the content of the intrusive thoughts was almost identical. Although many similarities existed between these two samples, it was found that clinical obsessions had a longer duration and higher frequency and intensity, and as such resulted in higher discomfort. The clinical population also viewed them as less acceptable, resulting in a high level of resistance to the thoughts. The clinical population also found the obsessions much more difficult to dismiss than the nonclinical sample.

Comorbidity.

According to the DSM-5, OCD may present as comorbid with other psychopathology, including but not limited to; anxiety disorders, depressive or bipolar disorder, other obsessive-compulsive and related disorders (e.g., body dysmorphic disorder, trichotillomania, excoriation disorder), eating disorders (bulimia nervosa and anorexia nervosa), tic disorder and stereotyped movements, psychotic disorders, and some personality disorders (APA, 2013; Nestadt et al., 2009).

Comorbid anxiety disorders including but not limited to panic disorder, generalised anxiety disorder, social anxiety disorder, and specific phobia, are found in approximately 76% of clients with OCD (APA, 2013; Pallanti, Grassi, Sarrecchia, Cantisani, & Pellegrini, 2011). Such anxiety disorders are often seen to precede the onset of OCD (APA, 2013). Depressive disorders, on the other hand, are often diagnosed following OCD, where by approximately 63% experience a comorbid

depressive or bipolar disorder, with 41% experiencing comorbid major depressive disorder (Angst et al., 2005; APA, 2013).

Clients diagnosed with OCD often meet the criteria for at least one diagnosable personality disorder (Steketee, Chambless, & Tran, 2001). Barlow (2002) suggested that avoidant, dependent, and obsessive-compulsive personality disorders (OCPD) are the most common Axis II disorders for OCD as they fall into Cluster C (anxious group). Friborg, Martinussen, Kaiser, Øvergård, and Rosenvinge (2013) conducted a meta-analysis on the comorbidity of personality disorders in anxiety disorders and also found that Cluster C personality disorders had higher comorbidity rates across all anxiety disorders (specifically panic and OCD), compared to Cluster A and B personality disorders. This finding was expected due to the anxious nature of Cluster C (dependent, avoidance and obsessive-compulsive) personality disorders, compared to Cluster A (schizoid, schizotypal and paranoid) and B (borderline, antisocial narcissistic and histrionic) personality disorders (Friborg et al., 2013). According to the DSM-5, approximately 23% to 32% of clients diagnosed with OCD experience comorbid OCPD (APA, 2013). Friborg and colleagues (2013) found, however, that the rates of OCPD and avoidant personality disorder were similar amongst OCD clients. Disorders such as antisocial personality disorder rarely appear in individuals diagnosed with OCD (APA, 2013).

Prior authors (e.g. Belotto-Silva, Diniz, & Shavitt, 2011; Jakubovski et al., 2013; Rector, Cassin, & Richter, 2009) have suggested that comorbidity with OCD results in greater difficulties with treatment, however impacts are varied. A recent review of factors associated with non-treatment found that comorbidity was associated with treatment seeking behaviour (García-Soriano, Rufer, Delsignore, & Weidt, 2014). Torres and colleagues (2007) also found that approximately 55.60% of

OCD clients with comorbid disorders sought and received treatment, whereas only 13.90% of OCD clients without comorbidity sought and received help. This suggests that although comorbidity is high amongst those with OCD, it may actually have a positive impact on treatment seeking behaviours. Self-help treatment may be particularly relevant in this context to provide help to individuals who may not otherwise seek treatment for OCD. Shame and guilt have been identified to reduce treatment-seeking behaviour in OCD, as such self-help treatments may provide an anonymous avenue of treatment to this unique population (García-Soriano et al., 2014).

Numerous studies have explored the effectiveness of treatment for OCD with comorbid disorders. Mixed results have been found regarding the treatment outcomes for OCD alone compared to OCD with other comorbid disorders. Some research suggests that comorbid disorders result in poorer treatment outcomes (Belotto-Silva et al., 2011; Jakubovski et al., 2013; Rector et al., 2009), whereas other research suggests that there are no significant differences in treatment outcomes when comorbid disorders are present compared to when they are not (Farrel, Waters, Milliner, & Ollendick, 2012; Zitterl et al., 2000). Pinto, Liebowitz, Foa, and Simpson (2011) specifically explored OCPD as a predictor of treatment outcomes using ERP. They found that both OCPD diagnosis and OCPD symptom severity were associated with poorer outcomes in treatment. When further examined, they found that only perfectionism predicted poorer outcomes compared to other specific traits of OCPD. Rector et al. (2009) further suggested that high dropout rates have been found with the occurrence of comorbid disorders and as such further treatment methods should be explored to improve treatment adherence (see Chapter 7. Limited findings have been provided on the impact of comorbid disorders on treatment outcomes for OCD

within a self-help context. The assumption that self-help is only appropriate for the treatment of OCD without comorbidity has yet to be explored. Given the mixed findings of the impact of comorbidity in the treatment of OCD from previous literature, further investigation is required and careful consideration of comorbid disorders when conducting research in pure self-help treatment.

Chapter 2. Theories and Treatment of OCD

A wide range of theories and models of OCD have been developed. Cognitive and behavioural models have the most empirical support of developed theories and models and as such will be the focus of this review (Abramowitz et al., 2009). Many cognitive models of OCD have been developed and although they are all focused on cognition and behaviour, they explore a variety of different concepts (Wells, 1997). Cognitive and behavioural models suggest that intrusive thoughts (i.e., thoughts, ideas, or impulses that are unpleasant and intrude into the consciousness) are normal experiences that may occur within a typical day (Abramowitz, 2006). In fact, research has shown that intrusive thoughts (e.g., about sex, violence, germs) occur in both individuals with and without a history of OCD (Rachman, 1997; Rachman & de Silva, 1978). According to Abramowitz (2006) cognitive and behavioural models suggest that intrusive thoughts may develop into obsessions, and often compulsions, when they are:

1. Interpreted as a threat to which the individual is responsible.
2. When they become highly distressing and time-consuming.

The process by which intrusive thoughts develop into obsessions and compulsions is the focus of cognitive theories of OCD (Cohen & Calamari, 2004).

Beck's Cognitive Theory of Emotional Disorders

Cognitive models of OCD originate from Beck's cognitive theory of emotional disorders (Beck, 1976). The basis of this theory is that emotional distress originates from faulty appraisals of events. In other words, the way in which individuals respond (behaviourally, physiologically, and emotionally) to a situation is influenced

by their cognitions. Beck (1976) suggested that all emotional disorders have a specific pattern of irrational or distorted thinking that acts to maintain the disorder. The content of such cognitions are targeted in the treatment of that emotional disorder.

Within this theory, Clark and Beck (2010) describe three levels of underlying cognitions that act to maintain anxiety and depressive disorders. These levels of underlying cognitions include schemas (level 1), which lead to biased information processing (level 2), and negative automatic thoughts (level 3). From a developmental perspective, Beck's cognitive theory of emotional disorders suggests that dysfunctional schemas about the self, world, and future are developed through early life stressors in childhood, such as the loss of a loved one, rejection, and neglect (Beck, 2008). Beck (2008) suggested that such early life stressors promote biased cognitions within the cognitive triad, which lead to the formation of early maladaptive schemas (cognitive frameworks or core beliefs used to assist in the interpretation and organisation of information). Once formed, these schemas may be triggered or activated by similar adverse events occurring later in life. They may then lead to biased information processing. In other words, schemas developed through negative early life experiences influence the way we process, make sense of, and think about information in particular situations. When negative schemas are repeatedly activated, biased information processing is reinforced and can result in the occurrence and development of automatic thoughts. Miller (2012) defined automatic thoughts as "spontaneously occurring verbal or imaginal cognitions" (p. 8). As such, when certain situations occur (which activate such negative schemas), automatic thoughts (usually negative or unhelpful in nature) arise (due to biased information processing) which influence the way we respond to certain situations.

Cognitive models of OCD originate with Beck's cognitive content-specificity hypothesis derived from Beck's cognitive theory of emotional disorders (Beck, 1976). The cognitive content-specificity hypothesis suggests that affective states, for example anxious and depressive affective states, can be categorized based on their unique cognitive content. The cognitive content-specificity hypothesis was originally developed as a way to differentiate diagnoses between anxiety and mood disorders. Given there was such a large overlap between diagnoses of depression and diagnoses of anxiety disorders, cognitive specificity researchers suggested that measures aimed at assessing the cognitive content would aid in discriminating a diagnosis between depression and anxiety (Beck & Perkins, 2001). A meta-analysis conducted by Beck and Perkins (2001) did not show empirical support for this hypothesis in the 13 studies meeting the inclusion criteria. Across the 13 studies, which investigated the cognitive content in self-reported automatic thoughts, the cognitive content was seen to share significant variance in both depressive and anxious affective states, which is inconsistent with Beck's (1976) cognitive content-specificity hypothesis. Beck (1976) focused on the content of cognitions and did not look at the role that metacognition or thinking styles play in the development of psychological disorders. This is where metacognitive theories are distinct (Fisher & Wells, 2009).

Salkovskis' Cognitive Behavioural Approach

Salkovskis expanded on Beck's cognitive theory, as well as earlier work by Rachman (1971, 1976, 1983), and Rachman and de Silva (1978) and developed an appraisal-beliefs model of OCD (Salkovskis, 1985). Salkovskis' cognitive-behavioural approach is the dominant model of OCD and has two main foci:

1. The negative appraisals of intrusive thoughts that in turn are transformed into clinical obsessions.

2. The negative appraisals of intrusive thoughts that are developed by underlying dysfunctional beliefs (Salkovskis, 1985).

First, appraisals refer to an assessment of the worth, value, or quality of a person. Negative appraisals of intrusive thoughts refer to a negative evaluation of the self in relation to the intrusive thought, for example, 'having these thoughts means that I am a bad person'. In relation to Salkovskis' (1985) second focus, he suggested that this underlying dysfunctional belief is concerned with inflated responsibility over an individual's own and others' safety (Cohen & Calamari, 2004). Individuals are therefore at risk of developing OCD when their underlying core beliefs relate to inflated responsibility, as well as making appraisals of personal responsibility when an intrusive thought occurs (Salkovskis, 1985). Salkovskis and colleagues (1996) defined responsibility in relation to obsessional problems as "The belief that one has power which is pivotal to bring about or prevent subjectively crucial negative outcomes. These outcomes are perceived as essential to prevent. They may be actual, that is, having consequences in the real world, and/or at a moral level" (as cited in Salkovskis, 1999, p. S32). Salkovskis (1989) suggested that negative appraisals of intrusive thoughts will often lead to the cognitions of a negative implication or consequence and as such further actions or behavioural reactions will occur in response to the intrusive thought. For example, if the intrusive thought is "This damaged packet of food might have become contaminated by some (unknown) chemical and have become carcinogenic" (Salkovskis, 1985, p. 576) an individual with core beliefs related to inflated responsibility may think "If I don't find a perfect

packet I'll have been responsible for Peter and myself getting Cancer" (Salkovskis, 1985, p. 576).

Salkovskis' cognitive-behavioural approach is concerned with neutralizing behaviours, which are designed to eliminate responsibility when faced with specific appraisals of personal responsibility following intrusions. Neutralising behaviours or compulsions in response to intrusive thoughts are maintained through association to a temporary reduction in anxiety, discomfort, and reduced responsibility when intrusive thoughts occur (Salkovskis, 1989). Salkovskis (1989) suggested that intrusive thoughts, on the other hand, may be maintained by:

1. Faulty attempts to suppress or avoid the thought.

2. When the intrusive thought has direct personal implications related to harm and responsibility, which contradict one's values.

3. When reactions to intrusive thoughts become automatic and as such intrusive thoughts acquire strong importance and priority to process.

Salkovskis, Westbrook, Davis, Jeavons, and Gledhill (1997) conducted a study, which supported Salkovskis cognitive behavioural approach. Twenty-eight non-clinical participants who experienced intrusive thoughts and associated neutralising were randomly allocated to one of two conditions. In the first condition, participants were required to use neutralising behaviours in order to respond to recorded presentations of their intrusive thoughts, and in the second condition participants were required to use distraction (counting backwards). Both groups were then required to listen to recorded presentations of their intrusive thoughts a second time without the use of neutralising behaviours or distraction and distress levels, urge to neutralise and urge to distract were recorded. The results indicated that those in the

neutralising condition showed significantly greater discomfort ratings ($p < 0.01$, $d = 1.06$), urge to neutralise ($p < 0.001$, $d = 1.42$) and urge to distract ($p < 0.05$, $d = .84$) compared to those in the distraction condition. Salkovskis, Thorpe, Wahl, Wroe, and Forrester (2003) replicated the previous study in a clinical sample of 29 participants with a diagnosis of OCD. Results were comparable to Salkovskis and colleagues (1997). Those in the neutralising condition showed significantly greater discomfort rates, urge to neutralise, and urge to distract, when compared to those in the distraction condition on the second recording. A number of reviews have also been conducted that support Salkovkis cognitive-behavioural approach (Berry & Laskey, 2012; Helbig-lang & Petermann, 2010). Helbig-lang and Petermann (2010) conducted a systematic review of 15 studies identifying the effects of safety behaviours across anxiety disorders. Helbig-lang and Petermann (2010) described safety behaviours as "dysfunctional emotion regulation strategies. They can be differentiated from adaptive coping depending both on the situation in which they occur (actual threat versus overrated or not real threat) as well as their function (preventing feared outcomes that are unlikely to happen versus habitual behaviour or behaviour unrelated to the occurrence of anxiety" (p. 219). The results found that safety behaviours (including neutralising) contribute to both the maintenance and exacerbation of anxiety, supporting Salkovskis approach. Berry and Laskey (2012) conducted a review of intrusive thoughts in the general population in order to determine if such thoughts were comparable to obsessive thoughts in a clinical population. They found that research supported the role that negative appraisals play in the maintenance of obsessive-compulsive symptoms. Furthermore, they found that responsibility and control plays a key role in increasing distress and frequency of intrusive thoughts in OCD.

Rachman's Cognitive Theory of Obsessions

Additional cognitive models have focused on the notion that intrusive thoughts are transformed into clinical obsessions when there are dysfunctional appraisals about the significance and importance of intrusive thoughts (Corcoran & Woody, 2008). Rachman (1997) further built on his earlier works (1971, 1976, 1983), Rachman and deSilva's (1978) account of abnormal and normal obsessions, and Salkovskis' appraisal-beliefs model of OCD. Rachman and de Silva (1978) found that obsessions were a common experience within both non-clinical and clinical participants. They also reported some similarities regarding the content of obsessions within these populations. Differences were noted, however, in the frequency, duration, intensity, and discomfort of both normal and abnormal obsessions. Rachman (1997) added to these findings and argued that when the meaning and personal significance of an unwanted or intrusive thought is largely misinterpreted, clinical or abnormal obsessions may develop. Rachman (1997) moved away from the idea of responsibility, and focused on the personal meaning that intrusive thoughts have on the individual. In Rachman's (1997) theory of OCD, metacognitive processes are emphasized by the focus on the meaning of intrusive thoughts to that individual, as opposed to the impact that the content of intrusive thoughts has on that individual (Cohen & Calamari, 2004).

Rachman (1997) suggested that a normal obsession transitions into an abnormal and unhelpful obsession when an individuals misinterprets the intrusion as "very important, personally significant, revealing and threatening or even catastrophic" (p.794). Such misinterpretations often act in response to values or moral systems that one holds (key themes of obsessions surround aggression, sex and

blasphemy). Rachman (1997) provided case examples to further explain such catastrophic misinterpretations of obsessions, for example "an affectionate and attentive grandmother had recurrent images of throwing her beloved grandson over the balcony which caused deep distress that brought her close to suicide; she interpreted the images to mean that she was a dangerous and uncontrollable psychopath and a person incapable of love or concern for other people" (p. 794).

Rachman (1997) suggested several arguments in support of the cognitive theory of obsessions. These included:

1. Cognitions can cause anxiety.

2. The significance given to obsessions.

3. Cognitive biases in obsessions.

4. The lack of success of pre-cognitive treatments for obsessions.

First of all, Rachman provided evidence supporting the notion that *cognitions can cause anxiety*, particularly in relation to catastrophic misinterpretations surrounding bodily sensations in panic disorder. Such statements have provided evidence surrounding the exploration of cognitions as important factors in the treatment of anxiety disorders.

Second, Rachman explored *the significance given to obsessions.* Rachman (1997) suggested that clients who experience recurrent obsessions attach significance or meaning to the obsessions or thoughts. They may also place a label on these thoughts (e.g. threatening, dangerous, horrific), which increases the importance and significance of thoughts. Rachman (1997) also suggested that the interpretation of thoughts as horrific, dangerous, disgusting, for example, may also reveal important hidden characteristics of the individual, as described in the case example above (e.g.,

"I am an evil person, I am dangerous, I am unreliable, I may become totally uncontrollable" (p.794)).

Third, Rachman (1997) described the idea of thought-action fusion in relation to *cognitive biases in obsessions.* Rachman (1997) suggested that thought-action fusion can occur in two forms, firstly, when an individual believes that their thoughts may increase the probability of such actions occurring (thought-likelihood), and secondly, when an individual believes that thoughts surrounding specific actions are morally equivalent to actually carrying out the specific action (thought-moral). Rachman (1997) described this concept as important and relevant to the cognitive theory of obsessions in that thought-action fusion also involved the misinterpretation of thoughts and increases vulnerability to abnormal obsessions.

Fourth, Rachman (1997) described limited success in previously developed treatments. Such treatments included thought suppression techniques and habituation training. Likierman and Rachman (1982) conducted an experiment measuring the effectiveness of four sessions of either thought stopping or habituation training in 12 patients. They found only small or weak changes that were not maintained. Rachman (1997) suggested that although such techniques may be somewhat useful for short-term relief of fear/distress, the underlying symptoms, namely misinterpretations of intrusive thoughts, have not been addressed using these techniques and as such symptoms of OCD remain untreated.

Overall, Rachman (1997, 1998) suggested that obsessions are caused by catastrophic misinterpretations of thoughts. Such catastrophic misinterpretations lead to the persistence and frequency of obsessions, and as such, the maintenance of OCD. Cohen and Calamari (2004) suggested that by integrating appraisal-belief

models (e.g. Rachman, 1997; Salkovskis, 1985) with social information processing

theories (e.g. Wells & Matthews, 1994), they could provide a more comprehensive

understanding of metacognitive processes and OCD (Cohen & Calamari, 2004).

Obsessive Compulsive Cognitive Working Group (OCCWG)

The Obsessive Compulsive Cognition Working Group (OCCWG: 1997) has

emphasized several belief-domains as being important and relevant to OCD. These

domains include:

1. Inflated responsibility (as mentioned previously in Salkovskis' cognitive-
   behavioural approach).
2. Thought-action-fusion and other beliefs concerning the over-importance of
   the consequences of one's thoughts (as emphasized in Rachman's theory of
   OCD (1997, 1998).
3. Excessive concern about the importance of controlling one's thoughts.
4. Overestimation of the probability and severity of threat.
5. Intolerance of uncertainty.

The OCCWG has suggested that the over-importance of thoughts and the

importance and concern about the control of thoughts are dimensions of

dysfunctional metacognition in individuals with OCD (Obsessive Compulsive

Cognitions Working Group, 2003). These two domains will be discussed in *The*

Development of Metacognitive Theories and Models for OCD in Chapter 3.

Salkovskis (1985) supported the fourth domain by suggesting that individuals

diagnosed with OCD tend to overestimate the probability of aversive events.

Furthermore, Foa and Kozak (1986) suggested that individuals diagnosed with OCD

tend to overestimate the danger in certain situations, more so than individuals who do

not meet the diagnostic criteria for OCD. This overestimation of danger may cause individuals diagnosed with OCD to act with more caution, leading into the 5th domain, intolerance of uncertainty. The OCCWG suggest that individuals with OCD have more difficulty in making every day decisions, compared to individuals without OCD. Take for example, the previously described situation of double-checking that your front door is locked. These difficulties arise when individuals have a need for certainty and cannot trust their own judgement. A sixth domain, perfectionism, was also later added, however was not seen to be exclusive to OCD (Obsessive Compulsive Cognitions Working Group, 2003).

Treatment

Exposure and Response Prevention.

OCD was considered treatment resistant with limited successful treatment applications until 1966, when Victor Meyer introduced a behavioural treatment called exposure and response prevention therapy (ERP). ERP is based on learning and fear extinction theory, in that obsessions produce anxiety/fear and compulsions are utilised to provide immediate reductions to anxiety/fear. Given the short-term relief experienced (which furthermore disrupts the process of habituation), compulsions are reinforced and the overall urge to engage in compulsions becomes stronger (Foa, 1996). Meyer (1966) successfully treated two clients with OCD using prolonged exposure to distressing stimuli, whilst simultaneously implementing the prevention of rituals. Meyer, Levy, and Schnurer (1974) further explored the use of ERP in 15 clients with OCD. Of the 15 clients treated with ERP, Meyer and colleagues (1974) found that all clients made at least partial improvements; with 10/15 clients responding extremely well. Furthermore, follow-up analyses conducted

five years later revealed only two clients, who were successfully treated, had relapsed. ERP is currently considered one of the dominant treatments for OCD.

In ERP therapy, exposure exercises are developed to address the individual content associated with the presentation of obsessions and rituals. These exercises involve prolonged exposure to situations that provoke obsessive fear whilst also blocking rituals. ERP allows the client to habituate to the anxiety that they are experiencing by using symbolic representations of anxiety-inducing stimuli (Anderson & Rees, 2007; Clark, Kirkby, Daniels, & Marks, 1998). Exposure exercises are typically conducted in real-life situations (*in-vivo* exposure), where the client is exposed to a specific place, person, or object that provokes obsessive fear. Imaginal exposure may also be conducted. Repeated exposure to anxiety-provoking stimuli has been found to challenge beliefs and unhelpful associations held by the clients and, as such, promote habituation (Barlow, 2008). Exposure hierarchies are typically developed with the client to determine the highest to lowest anxiety provoking stimuli. Once this is complete, participants are exposed to stimuli on a gradual basis, whilst also being asked to refrain from any rituals (Barlow, 2008). ERP therapy is considered as an efficacious treatment and more than 70% of clients diagnosed with OCD show symptomatic improvement (Abramowitz, 1997). Rosa-Alcázar et al. (2008) conducted a meta-analysis on the treatment of OCD and identified 21 trials utilising ERP therapy and found large effect sizes in support of ERP therapy ($d = 1.127$). Ponniah, Magiati, and Hollon (2013) further supported the efficacious nature of ERP in their review of psychological treatments for OCD. They identified 31 trials that evaluated ERP therapy and found that ERP was superior to wait-list controls, as well as a number of alternative treatments (i.e., anxiety management, progressive muscle relaxation, stress management).

Although clients may show symptomatic improvement, the majority of those treated with ERP are not symptom free and may continue to experience distressing symptoms (Fisher, 2009). Due to the continuation of distressing symptoms, refusal of treatment, early withdrawal from treatment, and partial adherence to treatment are common during ERP therapy (Kozak & Coles, 2005). Whittal, Thordarson, and McLean (2005) reported that although 60-70% of treatment completers are identified as 'much improved', some clients find ERP difficult to tolerate, some clients show no improvements with ERP, and as mentioned previously, the majority of clients are left with residual symptoms. Such limitations have caused few professionals to actually use ERP therapy (Cordioli et al., 2002). Problems in treatment for OCD have led to the investigation of further types of treatment, including Cognitive therapy, CBT, Pharmacotherapy and MCT.

Cognitive Therapy and Cognitive Behavioural Therapy.

The focus of CBT is challenging the meanings, beliefs, and importance attached to unhelpful or intrusive thoughts through various cognitive techniques. An example of an intrusive thought may be 'because I thought about something bad happening, I must want it to happen, and it will be my fault if it happens'. CBT involves psychoeducation surrounding obsessions, compulsions, the CBT model and treatment rationale, self-monitoring, challenging assumptions and beliefs, behavioural experiments to assist with challenging beliefs, and relapse prevention (Whittal & McLean, 1999). Although behavioural experiments may be considered as related to ERP, when utilised in CBT the purpose is to gather evidence to assist with challenging unhelpful cognitions and beliefs, and not for habituation as described above in ERP (Anderson & Rees, 2007).

Treatment approaches utilising cognitive strategies have been explored as a potential alterative to ERP therapy. A meta-analysis conducted by Rosa-Alcázar and colleagues (2008) found large effect sizes for the use of cognitive restructuring for the treatment of OCD ($d = 1.090$). A recent meta-analysis of CBT for OCD indicated large effect sizes at post-treatment (Hedges's $g = 1.39$) and medium effect sizes at follow-up (Hedges's $g = 0.43$) in 16 identified randomised controlled trials (Olatunji, Davis, Powers, & Smits, 2013). Ponniah and colleagues (2013) also supported both CBT and ERP as efficacious in a review of psychological treatments for OCD. Furthermore, they also supported the use of purely cognitive approaches (with no behavioural experiments or exposure). However, due to numerous threats to internal validity of the studies reviewed, they classified pure cognitive therapy as 'possibly efficacious' in the treatment of OCD. Whittal and colleagues (2005) conducted a study comparing CBT to ERP in 59 participants with OCD. They found no significant differences in symptom scores between the CBT and ERP groups at post-treatment or at 3-month follow-up.

A recent and prominent meta-analysis compared 37 RCT's of CBT for OCD that had used the Yale-Brown Obsessive Compulsive Scale to measure outcomes (Öst, Havnen, Hansen, & Kvale, 2015). They found large effect sizes for CBT compared to waitlist-control (Hedges's $g = 1.31$), and placebo conditions (Hedges's $g = 1.33$). When comparing cognitive therapy to ERP, effect sizes were small and non-significant (Hedges's $g = 0.07$). CBT is often also used in conjunction with medication to reduce symptoms of OCD, however, meta-analyses have revealed treatment response to CBT is significantly more effective compared to antidepressant medication (Hedges's $g = 0.55$). Furthermore, no significant differences were identified when comparing CBT in conjunction with medication, to CBT with

Placebo (Hedges's g = 0.25). Öst and colleagues (2015) identified a number of methodological problems within the assessed studies. For example, they described limited reporting of inter-rater reliability of outcome measures in a number of studies, limited ratings of competence and adherence to treatment, limited control of therapist effects (with only one or two therapists providing treatment within 37% of the studies impacting the use of therapy method), and limited use of power-analyses resulting in limited power to detect small and moderate effect sizes. Öst and colleagues (2015) also noted that only 57% of studies used the inclusion criterion of being stable on prescribed psychotropic medication for the same number of weeks as the treatment phase, controlling for the effects of medication. Such methodological issues may have influenced results.

Medications that affect the Serotonin System.

Medications that affect the serotonin system have been identified to reduce symptoms of OCD. Such medications include tricyclic antidepressants such as clomipramine, which has been researched most extensively. Furthermore, selective serotonin reuptake inhibitors (SSRI's) such as fluoxetine, fluvoxamine, sertraline, and paroxetine have also been explored for the treatment for OCD (Barlow, 2008; Kay, Lieberman, First, & Riba, 2015). Both Clomipramine, and SSRI's have been found as effective in the treatment of OCD (Fineberg, Brown, Reghunandanan, & Pampaloni, 2012; Fineberg & Gale, 2005).

Soomro, Altman, Rajagopal, and Oakley Browne (2008) conducted a meta-analysis of SSRI's compared to placebo in 17 studies. They found significant differences between SSRI's and placebo in the treatment of OCD, whereby SSRI's resulted in greater reductions in symptoms compared to placebo. They found that

those receiving SSRI's were nearly twice as likely to experience a clinical reduction in symptoms, compared to those in the placebo group.

Clomipramine has also been explored within a number of controlled trials and meta-analyses. De Veaugh-Geiss, Landau, and Katz (1989) conducted a randomised controlled trial comparing clomipramine to a placebo for the treatment of OCD. De Veaugh-Geiss and colleagues (1989) found clinically significant improvements in OCD symptoms with clomipramine (40-45%) and a statistically significant difference when compared to placebo (4-5%). Fineberg and Gale (2005) conducted a review of evidence-based medications for OCD and found that meta-analyses have reported Clomipramine as superior to other SSRI's. They also acknowledged, however, that due to safety, acceptability and tolerability, SSRI's are often the preferred treatment options.

Overall, many studies support the use of pharmacotherapy in the treatment of OCD; however, the long-term benefits of such treatments are limited. Many studies suggest that relapse is common once pharmacotherapy is discontinued, and as such further treatment may be required in order to maintain reductions in symptoms attained with pharmacotherapy (Barlow, 2008; Dougherty, Rauch, & Jenike, 2002; Fineberg et al., 2015).

Summary

Numerous theories and models for OCD have been developed including Beck's cognitive theory of emotional disorders, Salkovskis' cognitive-behavioural approach, and Rachman's cognitive theory of obsessions. The Obsessive Compulsive Cognition Working Group (1997) has also provided insight into belief-domains that are important and relevant to OCD. These theories and models have formed the basis

for the dominant treatment for OCD, ERP. Treatments such as CBT, cognitive therapy, ERP and medications that affect the serotonin system were also discussed within this chapter. Limitations to treatment for OCD, as previously described, has lead to the exploration of metacognitive theories and treatment models (see Chapter 3).

Chapter 3. The Development of Metacognitive Theories and Therapy for OCD

Self-Regulatory Executive Function (S-REF) Model

Wells and Matthews (1994) developed an information-processing model, which formed the basis of metacognitive theory, known as the self-regulatory executive function (S-REF) model. This model suggests that the style of thinking of a disorder is the key to the treatment of that emotional disorder (Wells & Matthews, 1994). As the name implies, the model focuses on self-regulatory strategies used to relieve emotional distress in psychological disorders. Wells and Matthews (1994) suggested that the information processing capacity of an individual is reduced and internal responses to emotional distress are intensified and maintained when an individual has a high level of self-focus. Self-focus is important to initiate self-regulation in emotionally distressing situations, however, if self-focus is too high, it can impact on self-regulatory abilities by intensifying such situations. If these situations are intensified, information processing capacity will be limited, and furthermore individuals will find 'coping' strategies in these situations highly difficult (Wells & Matthews, 1994). Given that individuals with a high level of self-focus find it more difficult to cope in emotionally distressing situations, they are more likely to develop a certain cognitive-attention syndrome (CAS) when faced with stressful and emotionally distressing situations (Wells & Matthews, 1994).

Wells (2000) described the S-REF model as having three interacting levels of cognition, including automatic processing, controlled processing, and self-beliefs. Wells (2000) suggested that the automatic processing level requires limited attention. Within this level information processing occurs primarily outside of conscious

awareness. The controlled processing level, on the other hand, requires further attention whereby information is processed voluntarily and within conscious awareness. As described above, however, the ability to incorporate helpful emotion-regulation strategies is diminished if a high level of self-focus limits attentional resources. Finally, Wells (2000) described the self-beliefs level as vital to controlled processing, where controlled processing requires access to previous knowledge, memories, and beliefs in order to function and process information.

Cognitive Attentional Syndrome

The S-REF model suggests psychological distress is related to a pattern of cognitive-attentional responses (Wells, 2000). The CAS is a certain style of thinking that has been identified to prolong and intensify negative thinking and emotional distress in psychological disorders such as OCD (Fisher & Wells, 2009). Within the CAS are three key aspects: Worry/rumination, threat monitoring and maladaptive coping. Worry and rumination, as well as covert rituals in OCD are used as a way to avoid threat or danger. Threat monitoring is part of the individuals coping behaviour and can involve monitoring specific situations for signs of threat (Wells, 2009). This can involve monitoring for unwanted sensations and emotions, unwanted conscious thoughts, or for some cases of OCD, monitoring for possible signs of contamination. For example, an individual who had fears of contamination was very aware of stains caused from bodily fluids. Given this individual was monitoring for stains which may be caused from bodily fluids; they became further aware of the amount of staining in public places (Wells, 2008). Maladaptive coping in the CAS includes behaviours such as thought suppression, avoidance, and ritualistic behaviours. These behaviours are problematic as they interfere with normal emotional processing. Thought suppression has not been identified as an effective way to stop unwanted

thoughts. Generally when attempting to suppress a thought, it will come back and this can often be interpreted as a loss of control over one's thinking (Wells, 2009).

Worry and rumination, threat monitoring, and maladaptive coping are problematic in psychological disorders. In order to treat OCD, the CAS and metacognitions (positive beliefs, negative beliefs, and metacognitive strategies) require modification. Positive beliefs are described as beliefs that identify the benefits of engaging in thinking styles central to the CAS in OCD. Negative beliefs on the other hand relate to the importance, meaning, danger and uncontrollability of cognitive events related to OCD. MCT works by adapting this style of thinking (the CAS) to make individuals aware that the unhelpful thoughts are simply just thoughts and will eventually pass. Wells and Matthews (1994) examined how metacognitions play a role in the development and maintenance of psychological disorders through the CAS (Barahmand, 2009).

Wells' Metacognitive Model

As previously mentioned, the S-REF model formed the basis of Wells' more recent Metacognitive model (Wells, 1997, 2000). Cognitive models such as Salkovskis' appraisal-beliefs model, Rachman's model of OCD, and Wells' metacognitive model have made substantial developments to the treatment of OCD (Simons, Schneider, & Herpertz-Dahlmann, 2006). Wells' (1997) metacognitive model has received a great deal of attention in recent literature and research (Fisher & Wells, 2008; Rees & van Koesveld, 2008; Simons et al., 2006). Wells (1997) suggested that it differs from other cognitive behavioural models as it focuses on the appraisals of the meanings of thoughts and meaning ascribed to having intrusive thoughts, as opposed to the content of the thoughts in CBT. Given the metacognitive

model is based on a number of cognitive models, there appears to be some overlap between such models whereby Rachman (1994) also had a strong focus on labelling cognitive distortions, catastrophic misinterpretations of thoughts, and as such a focus on the appraisals of the meaning of thoughts and responses to them. From a treatment perspective, the metacognitive model places greater significance in understanding beliefs and thoughts about intrusions and the experience of having intrusions in OCD.

Metacognition refers to a specific type of thinking and cognition. Essentially, metacognition refers to thinking about thinking (Fisher & Wells, 2009). Metacognitive factors are important because they are required to monitor and control thinking. Metacognitive models have been developed in a wide range of diagnoses, for example, OCD, post-traumatic stress disorder, depression, and many more. In the metacognitive model of OCD (Wells, 1997), it is important to understand the importance, meaning and danger of beliefs and thoughts associated with intrusions (Fisher & Wells, 2009).

According to Wells (2009), metacognitive beliefs occur across two domains in the model and treatment of OCD:

1. Metacognitive beliefs about the significance or importance of thoughts and feelings.
2. Metacognitive beliefs about the need to perform rituals.

When referring to metacognitive beliefs about intrusive thoughts and feelings, the term fusion beliefs has been adapted (Wells, 1997). This term was first introduced by Rachman (1994) as described in the previous chapter as a way to label cognitive distortions in OCD. Fisher and Wells (2005) suggest that these metacognitive beliefs

fall into three categories: thought-action fusion (TAF), thought-event fusion (TEF), and thought-object fusion (TOF). First, TAF refers to an association between ones thoughts and actions, for example, thinking about driving my car off the road will make me do it. Second, TEF refers to the association between ones thoughts and events, and the impact that thinking about an event will have on the likelihood of it happening. Finally, TOF refers to an association between thoughts and objects, in that thoughts, feelings and memories can be passed onto other objects, or other people (Fisher & Wells, 2009).

Metacognitive Therapy Compared to Cognitive Behavioural Therapy for OCD

Over the last 10 years, numerous advances in the treatment of OCD have been developed (Storch, Geffken, & Murphy, 2007). Traditional CBT (Beck, 1976) focuses on irrational beliefs and cognitive distortions. Such distortions include catastrophising, personalisation, and arbitrary inference (jumping to conclusions). OCD clients become distressed with intrusive thoughts when they misinterpret them as warnings for dangerous events. CBT helps clients to identify these irrational thoughts in order to change their interpretations of the meanings of the thoughts. Furthermore, it helps clients to relieve their anxiety and distress. In order to do this, focus is on the content of the thoughts, or obsessions (Fisher, 2009). The focus of cognitive distortions in CBT is different from the thinking styles central to MCT (Wells, 2000). As mentioned previously, maladaptive thinking styles that take the form of worry and rumination, threat monitoring and maladaptive coping are central to MCT (Fisher & Wells, 2009). Unlike CBT, these styles of thinking are not related

to the specific content of cognitions, instead they act as an extended form of dwelling on and analysing information (Fisher & Wells, 2009).

MCT is focused on the meaning and significance of intrusive thoughts and the experience of having these intrusive thoughts, as opposed to CBT, which is focused on the content of intrusive thoughts in the form of irrational beliefs and cognitive distortions. Given that MCT focuses on the meaning and significance of intrusive thoughts and not the actual content, it is applicable to all subtypes of OCD (Rees & van Koesveld, 2008). MCT aims at modifying clients' experience of thoughts and the way that thoughts are regulated. For example, instead of focusing on the evidence and the chance that an event will happen (as in CBT), MCT challenges worrying about the event (i.e., what's the point in worrying?). Individuals with OCD are often well aware of the likelihood of chance that an event may occur; however, they are unwilling to take the risk. This may be why cognitive behavioural models of treatment are not always beneficial. MCT challenges the clients belief that their thoughts are important and powerful (Wells, 2008).

Metacognitive models suggest that it is beneficial to control thinking in therapy. In addition, it is important to note how this control is obtained. Behaviours such as thought suppression are unhelpful in treating OCD because when removing the content of thoughts from consciousness it will usually come back and the cycle continues where people may be thinking 'why do I keep thinking these unwanted thoughts? They must be important' (Wells, 2008). OCD begins when these intrusive thoughts develop into obsessions and furthermore the individual begins to develop compensatory behaviours (compulsions) to try and rid themselves of the thought. These behaviours can take many forms, such as checking and washing. By ignoring the content of these thoughts and looking at the appraisals of the meanings of the

worry, we could expect to see better long-term results, as with MCT (Fisher & Wells, 2009).

Many recent studies have suggested that MCT may be an effective treatment. Simons and colleagues (2006) conducted a study that compared the effectiveness of MCT and ERP for the treatment of children and adolescents with OCD. They developed and evaluated a new MCT for use with children and adolescents. Ten children and adolescents participated in their study and were randomly allocated to either exposure and response prevention, or MCT. The Children's Yale-Brown Obsessive Compulsive Scale (CY-BOCS) was used to assess OCD symptom severity, and post-treatment and follow-up results suggested that both ERP and MCT provided significant improvements in symptom severity. Simons and colleagues (2006) suggested that MCT might be a useful, effective and time-efficient alternative to ERP. However, it must be acknowledged that this study only included a small number of participants.

Fisher and Wells (2008) conducted a case series using an A-B replication across patients design with follow-ups at three and six months, in order to test the effectiveness of MCT for OCD. They assessed four participants who were referred to them and met the DSM-IV diagnostic criteria for OCD. At post-treatment and three-month follow-up, all four participants showed reductions in OCD symptomatology and anxiety compared to pre-treatment. They also met the standardised recovery criteria on the Y-BOCS. Data from one participant was not available at six-month follow-up; however, two out of the three remaining participants maintained recovery. Overall, all three participants continued to show reductions in anxiety and OCD symptomatology (Fisher & Wells, 2008). Although Fisher and Wells' (2008) case series lacks generalisability, given only four participants were treated, this case series

provided preliminary evidence that MCT is a time-efficient, effective, and easily delivered treatment for participants diagnosed with OCD (Fisher & Wells, 2008).

Rees and van Koesveld (2008) conducted an open trial of group MCT for OCD. The treatment they used was based on an original version of a manual for individual and group MCT later revised by Rees and van Koesveld (2009). At three-month follow up, seven out of the eight participants were found to have achieved recovery according to the Yale-Brown Obsessive-Compulsive Scale (Y-BOCS). This preliminary trial showed promising results and as such supports for exploration of the efficacy of group MCT for OCD in randomised controlled trials. Rees and van Koesveld (2008) found that MCT for OCD shows promising results for a group level of therapy and suggested that it will reduce therapist time and cost. Adapting MCT for use in a self-help online format may also further reduce therapist time and cost and as such the examination of the effectiveness of such resources may be useful.

Finally, Fitt and Rees (2012) conducted a preliminary study on the use of MCT for OCD through videoconferencing. They utilised an A-B single case series design with four participants with a primary diagnosis of OCD. Of the four participants, one client dropped out prior to post-test. According to Y-BOCS results, participants experienced significant reductions in obsessive-compulsive symptoms at post-test with two participants identified as recovered, and one as improved at post-test. One participant was identified as recovered at follow-up. Fitt and Rees' (2012) preliminary trial showed promising results for MCT delivered via videoconferencing. These studies suggest that further exploration of the use of videoconferencing for MCT is warranted.

Overall, preliminary evidence has been found supporting the use of metacognitive therapy across numerous modes of treatment, such as videoconferencing, individual and group therapy (Fisher & Wells, 2008; Fitt & Rees, 2012; Rees & van Koesveld, 2008; Simons et al., 2006). It is important to note the preliminary nature of these research designs, with all designs utilising case series or open trials with a small number of participants. Only one study (Simons et al., 2006) utilised a comparison group, where as all other studies were uncontrolled designs, limiting the generalisability and internal validity of each study (Fisher & Wells, 2008; Fitt & Rees, 2012; Rees & van Koesveld, 2008). The promising results found in these studies supports the use of MCT and warrants further large scale controlled trials to investigate the effectiveness of MCT for OCD.

Chapter 4. Self-help Therapy

A Stepped Care Approach to Treatment

In the past decade there have been significant increases in the efficacy of treatments for OCD (McKay et al., 2015; Öst et al., 2015; Sarris et al., 2012) however, access to effective treatment is not always available. There are major issues with costs and limited psychological therapy resources in the public healthcare system (Bower & Gilbody, 2005). There are very limited therapeutic services available to the public in the area of OCD, and the majority of individuals do not have access to evidence-based treatments. According to Shafran and colleagues (2009), evidence suggests that even though a number of evidence-based psychological treatments have been developed, clients are not receiving them within clinical settings. Furthermore, when evidence-based psychological treatments are delivered, they are often not delivered to an optimal standard (Shafran et al., 2009). Shafran and colleagues (2009) provided a number of recommendations to approach this gap in well-delivered evidence-based psychological treatments; however, it may take time to increase awareness and knowledge about evidence-based psychological treatments, as well as the implementation of them. A stepped care approach could provide a solution to the lack of available therapeutic services being provided to the public and the delivery of evidence-based psychological treatments (Gilliam, Diefenbach, Whiting, & Tolin, 2010).

The stepped care approach simply refers to treatments at differing intensities (Bower & Gilbody, 2005; Mataix-Cols & Marks, 2006). Within a stepped care approach, the treatment must be the least restrictive, but still provide significant improvements to health. With this in mind, if a treatment is provided at a lower level

or step, and the client is not improving post-treatment, the client's needs should be evaluated, and an appropriate step to treatment provided. The restrictiveness of a treatment generally refers to the cost and personal inconvenience. When referring to the therapist, it can also refer to the availability of the therapist's time and the amount of time required by a specialist therapist (Bower & Gilbody, 2005; Tolin, Diefenbach, Maltby, & Hannan, 2005). Given the limited number of therapists trained in the area of OCD, a stepped care approach appears to be particularly warranted in the treatment of OCD.

Computer-assisted / Online Self-help

Internet delivered self-help therapy provides clients with treatment in the comfort of their own homes, as well as providing a least restrictive step to treatment, especially when face-to-face specialist treatment for OCD is not more readily available (Salkovskis, 2007). If clients are placed on waitlists, or cannot find any available trained specialist therapists, an online self-help treatment could provide them with a step of therapy that they can do on their own, whilst waiting to see a therapist if needed. Furthermore, it could assist in eliminating long-waitlists as well as save trained therapists time when treating OCD. If this approach is applied to MCT, the online self-help should be a lower intensity treatment option, which is more readily available than a more intensive group or individual therapy session.

Recent advances in the development of online treatments for OCD and other anxiety disorders are increasing as evidenced by hundreds of studies on computer and Internet based mental health interventions (Andersson & Titov, 2014; Marks, Cavanagh, & Gega, 2007). Kendall, Khanna, Edson, Cummings, and Harris (2011) suggested that computer-assisted CBT has been developed for several reasons:

1. Cost-effectiveness.

2. Availability of computers in multiple settings (e.g., homes, schools, remote areas).

3. A therapeutic tool for those who are reluctant to initiate treatment in individual/face-to-face or group formats.

4. To improve standardisation and enhance adherence to treatment.

More specifically, Kendall and colleagues (2011) developed a computer-assisted CBT program to provide a cost-effective and efficient treatment for anxiety in youths who do not have access to other such treatments. They found that their therapist guided computer-assisted CBT program showed significantly greater reductions in anxiety severity and improvements in global functioning compared to a computer-assisted education, support, and attention condition. Differing levels of computer-assisted therapy have been described by Lack and Storch (2008) as:

1. Self-administered with no therapist contact.

2. Predominantly self-administered with limited amount of therapist face-to-face contact.

3. Minimal-contact with therapist with a divide of sessions between computer use and contact with therapists.

Kenwright, Marks, Gega, and Mataix-Cols (2004) conducted an open trial pilot study with a self-administered computer-aided exposure treatment for phobias called *FearFighter*. Participants did not have face-to-face contact with therapists; however, brief therapist support by telephone was available. Kenwright and colleagues (2004) suggested that such treatments are best used when clients are reluctant to attend therapy or have limited or no access to a therapist. Participants improved

significantly at post-treatment and outcome and satisfaction were similar to a previous study where clients with similar disorders used *FearFighter* treatment with brief face-to-face therapist support (Kenwright, Liness, & Marks, 2001). It must be noted however, that a limited number of participants were included in the pilot study with no control group.

An additional computer-assisted self-help treatment, specific to OCD, is called BT Steps. BT Steps is a computer-guided behaviour therapy self-help program that guides the client through a workbook and self-ERP. Kenwright, Marks, Graham, Franses, and Mataix-Cols (2005) demonstrated the implementation of a treatment package within a stepped care framework. Kenwright et al. (2005) evaluated the effectiveness of BT Steps with and without scheduled phone support from a clinician. Thirty-six participants were randomly allocated to receive either nine scheduled clinician-initiated calls ($n = 20$) or only calls requested by the participant ($n = 16$). The primary outcome measure was the Y-BOCS. A medium between group effect size was obtained in favour of the scheduled group, across time compared to the requested group ($d = 0.63$, $p = 0.01$).

Self-help as a Treatment for Anxiety Disorders

Self-help therapy is regarded as one of the lower levels or steps, and is less restrictive and intrusive than individual and group therapy. Although individual therapy may result in superior treatment outcomes compared to self-help, the use of resources such as therapeutic contact time has been identified to be reduced significantly when self-help programs are implemented (Haug, Nordgreen, Göran Öst, & Havik, 2012; Lewis et al., 2012).

Haug and colleagues (2012) reported that self-help should be provided as part of a stepped care treatment model. They conducted a meta-analysis of self-help treatments of anxiety disorders and found moderate to large effect sizes when compared to wait-list of placebo controls ($g = 0.78$). They did suggest, however, that the format of self-help treatment (bibliotherapy, computer software, or Internet) had an impact on treatment outcomes. They found when comparing self-help treatment to wait-list and placebo controls, that Internet/computer self-help interventions were superior to bibliotherapy ($p < 0.05$). It is important to note, however, that when amount of therapeutic contact was controlled for, there were no longer significant differences between bibliotherapy self-help and Internet/computer based self-help (Haug et al., 2012).

Lewis and colleagues (2012) also conducted a systematic review on the efficacy, cost-effectiveness and acceptability of self-help treatments for anxiety disorders. They also supported the overall efficacy of self-help for anxiety disorders, reporting significant symptom reduction compared to wait-list controls. Greater efficacy was also demonstrated in studies restricted to guided self-help, as well as studies considering only Internet/computer self-help interventions. Lewis and colleagues (2012) supported the development and use of self-help for anxiety disorders (particularly social phobia and panic disorder) within a stepped-care framework, however, identified the limited number of high-quality RCT's exploring cost-effectiveness and acceptability, particularly within other anxiety disorders. Few studies were identified that explored the use of self-help for OCD within both of these reviews.

Self-help Therapy for OCD

Until recently, literature exploring the use of self-help therapy for OCD has been limited. Within the last five years the amount of randomised controlled trials published supporting the use of self-help for OCD has increased. Evidence-based treatment approaches such as CBT and ERP have been utilised across numerous self-help treatment modes such as bibliotherapy, computer-based, and Internet-based.

Numerous RCT's have been conducted to assess the effectiveness of Internet CBT (iCBT) and ERP with minimal-therapist support (Herbst et al., 2014; Wootton, Dear, Johnston, Terides, & Titov, 2013), and predominantly self-help (Andersson et al., 2012; Mahoney, Mackenzie, Williams, Smith, & Andrews, 2014; Tolin et al., 2007; Vogel et al., 2014). First, Wootton and colleagues (2013) conducted an 8-week RCT comparing the effectiveness of bibliotherapy CBT (bCBT: n =20, $M(SD)$ = 35.55(9.69)yrs) and iCBT (n = 15, $M(SD)$ = 39.93(12.57)yrs), to a wait-list control group (n = 17, $M(SD)$ = 38.58(10.51)yrs) in reducing symptoms of OCD. Within this RCT, Wootton and colleagues also examined the effect of reduced therapist contact on clinical outcomes of the iCBT group, when contact was provided weekly, instead of biweekly during the treatment period. The primary outcome measure was the Y-BOCS. Reported outcomes found both the iCBT group and bCBT groups had significant reductions on Y-BOCS total score across time, compared to the waitlist control. Large significant between-group effect sizes were obtained for both iCBT group (d = 1.57, p < 0.001) and bCBT group (d = 1.40, p < 0.001), when compared to the waitlist control. No significant differences existed between the iCBT and bCBT groups on the Y-BOCS at post-treatment (p = 0.62). Large within group effect sizes from baseline to post-treatment were also found for the iCBT group with

reduced therapist contact ($d = 1.11$, $p < 0.001$). These effect sizes were somewhat smaller compared to the iCBT group who had greater therapist contact (large between group effect size in favour of iCBT with greater therapist contact: $d = 0.84$).

Herbst and colleagues (2014) conducted an 8-week RCT, comparing iCBT with therapeutic contact ($n = 16$, $M(SD) = 38.19(8.80)$yrs) with a waitlist control group ($n = 18$, $M(SD) = 33.22(9.50)$yrs). The treatment group received instructions and exercises via a secure web-based platform, which were, based on established, evidence-based CBT treatment manuals. Participants in the treatment group were asked to share their experience in written form with a therapist. They would then receive individual feedback, requests for previous tasks, and instructions on new tasks. The treatment program consisted of three phases including (i) psychoeducation and problem identification, (ii) ERP, and (iii) modification of maintaining factors, strategies for relapse prevention, and treatment review. The primary outcome measure was the Y-BOCS. The iCBT group produced significant improvements in OCD symptoms as measured by the Y-BOCS, across time compared to the waitlist control. Large between-group effect sizes were observed on the Y-BOCS from baseline to post-treatment ($d = 0.82$, $p = 0.005$).

Tolin and colleagues (2007) conducted a 6-week RCT comparing self-administered bibliotherapy ERP ($n = 20$, $M(SD) = 40.30(13.25)$ yrs) to therapist-administered ERP ($n = 21$, $M(SD) = 34.10(12.53)$ yrs) in a sample of OCD clients with a history of medication trials. The primary outcome measure was the Y-BOCS. Results indicated that self-administered ERP yielded a medium within groups effect size. Participants' scores on the Y-BOCS were found to improve significantly from baseline to post-treatment ($d = 0.66$, $p < 0.05$). Therapist-administered ERP, however, yielded a large within group effect size ($d = 1.47$, $p < 0.05$) and was

superior to self-administered ERP with a borderline large effect size ($d = .77$, $p < 0.05$).

Vogel and colleagues (2014) conducted a more recent 12 week RCT comparing videoconference-assisted ERP ($n = 10$, *M(SD)* = 28.8(9.2)yrs), self-administered bibliotherapy ERP ($n = 10$, *M(SD)* = 29.8(10.3)yrs), and a wait-list control ($n = 10$, *M(SD)* = 40.7(11.1)yrs). The primary outcome measure was the Y-BOCS. Videoconference-assisted ERP was observed to yield significantly greater reductions in Y-BOCS total score compared to self-help ($d = 2.2$, $p = 0.01$), and waitlist *($d = 2.5$, $p = 0.01$)* with large between-groups effect sizes. Self-help alone did not achieve a statistically significant difference, compared to the waitlist group ($d = .1$, $p > 0.05$).

Andersson and colleagues (2012) conducted a 10-week RCT with 101 participants, which compared Internet-based CBT (iCBT: $n = 50$, *M(SD) = 33(12)yrs*) to an online supportive therapy ($n = 51$, *M(SD)* = 35(14)yrs). The iCBT program contained approximately 100 pages of text material and worksheets, which was also accessible as an audio file. The 10-week 10-module program included psychoeducation, cognitive restructuring, ERP, and relapse prevention. The primary outcome measure was the Y-BOCS. Results indicated that iCBT achieved significantly greater reductions in OCD symptoms across time according to the Y-BOCS total score, compared to the control group, with a large between-group effect size ($d = 1.12$, $p < 0.001$). Within group effect sizes were also significant for the iCBT group who achieved a large effect size ($d = 1.55$, $p < 0.001$), and the control group who achieved a medium effect size ($d = 0.48$, $p < 0.001$).

Mahoney and colleagues (2014) published a more recent 10-week RCT comparing predominantly self-help iCBT (n = 37) to treatment as usual (TAU) as a control (n = 35). The iCBT course was completed online, consisted of six lessons, and was completed over a 10-week period. The course comprised of psychoeducation, cognitive therapy, ERP, and relapse prevention. The primary outcome measure was the Dimensional Obsessive-Compulsive Scale (DOCS: Abramowitz et al., 2010). The iCBT group resulted in statistically significant reductions on OCD symptoms across time as measured by the DOCS, compared to TAU, yielding a large effect size (d = 0.95, p = 0.001). A significant and large within group effect size was also observed within the iCBT group from baseline to post-treatment (d = 1.05, p < 0.05), however this was not observed in the TAU group (d = 0.23, p > 0.05).

The previously described studies support the use of iCBT and bibliotherapy-based ERP in the self-help treatment of OCD. Many RCTs conducted, however, have utilised therapeutic contact within self-help programs. Only two quasi-experimental studies were identified utilising iCBT for OCD with no therapeutic contact, of which the dropout rates were found to be 90% and 86% (Al-Asadi, Klein, & Meyer, 2014; Klein, Meyer, Austin, & Kyrios, 2011). The high dropout rates found in such treatments have led to the exploration of alternative treatment types with no therapeutic contact, such as attention training (ATT), meridian tapping (MT), association splitting (AS), and competitive memory training (CMT: Moritz, Aravena, et al., 2011; Moritz & Rassu, 2013; Moritz, Wess, Trszl, & Jelinek, 2011; Schneider, Wittekind, Talhof, Korrelboom, & Moritz, 2014).

MCT and metacognitive strategies have also received much attention in recent literature for the treatment of OCD. In order to reduce therapist costs and time, such

treatments are now being implemented as self-help treatments. Moritz and colleagues (2010) developed a self-help therapy manual called Metacognitive training for OCD (myMCT). The self-help treatment program had a duration of four weeks and comprised of (i) psychoeducation, (ii) identifying cognitive biases, dysfunctional metacognitive beliefs and coping strategies maintaining OCD, and (iii) strategies to reduce and cope with OCD symptoms. The treatment program encompassed cognitive-behavioural, metacognitive, and psychoanalytic theories and strategies, and as such was not a pure metacognitive treatment program. This trial was completely self-administered with no therapist contact (self-administered self-help). Moritz and colleagues (2010) conducted an RCT ($n = 86$) comparing participants emailed with an e-book of the MCT training program, myMCT ($n = 43$) and participants allocated to a waitlist control ($n = 43$). Their primary outcome measure was the Y-BOCS, which they administered at baseline and post-treatment. A significant difference and medium effect size was found between groups at post-treatment on Y-BOCS ($d = 0.63$, $p < 0.01$) in favour of the myMCT group. As such, the myMCT group led to a significant improvement in OCD symptoms, compared to the waitlist control. Moritz and colleagues (2010) suggest that the use of MCT in an online self-help format could be an effective step in treatment when clients are unable or unwilling to attend individual or group therapy, or when this therapy is not available. Within the 43 participants who completed baseline questionnaires in the MyMCT group, 36 participants provided post-test questionnaires with 27 participants stating they had completed the treatment program (i.e. followed the manual protocol). This shows a true dropout rate of 37% compared previously reported dropout rates of 90% and 86% for iCBT programs (Al-Asadi et al., 2014; Klein et al., 2011).

Moritz and colleagues (2010) recruited participants online, however, their self-help MCT training program was not delivered through the World Wide Web; instead it was emailed to participants as an e-book. Although CBT is widely used in an online format, as described above, not much is known about the Internet delivery of MCT. It is necessary to explore the effectiveness of online self-help MCT for OCD through use of a controlled trial. According to Chambless and Hollon (1998), before a treatment can be considered for efficacy research and trials, research on effectiveness should first be carried out in a clinical setting using cost-effective methods. MCT has not yet been evaluated in an online format. According to Chambless and Hollon (1998), it is important to begin the research process with a preliminary study before conducting efficacy research (randomised controlled trials).

Chapter 5. Study I: A Systematic Review and Meta-analysis of Self-help Therapeutic Interventions for Obsessive-compulsive Disorder: Is Therapeutic Contact Key to Overall Improvement?

Introduction

OCD can result in a low quality of life, with significant impairments in social and occupational functioning (Moritz et al., 2010). The availability of effective treatment is therefore highly important. Cognitive-behavioural therapy (CBT) with exposure and response prevention (ERP) has been recognised as the most effective treatment for OCD (Abramowitz, 2006; Whiteside, Brown, & Abramowitz, 2008). Unfortunately, many barriers exist to the accessibility of ERP, including high cost, restricted access in rural areas, and restricted access to trained clinicians. Consequently, the exploration of alternative treatment methods is essential. Several studies have investigated self-help for OCD (e.g. Herbst et al., 2012; Wootton & Diefenbach, 2015). Self-help is useful for increasing access for those in rural and remote areas, for patients on waitlists and those who cannot afford treatment (Newman, Szkodny, Llera, & Przeworski, 2011). Research has investigated the use of stepped care by first providing clients with lower levels of treatment (i.e., self-help) or in order to reduce subsequent therapist time in face-to-face treatment (Gilliam et al., 2010; Nakagawa et al., 2000; Tolin et al., 2005).

Although self-help treatments may be less time-intensive and more cost-efficient than face to face, guided self-help is a more intensive treatment than pure self-help due to therapist assistance through email or telephone (Coull & Morris,

2011). Unguided pure self-help however utilises no professional guidance, aside from email or SMS reminders (Nordgreen et al., 2012).

Therapeutic contact has been identified as an important factor in self-help that may improve treatment outcome and reduce drop out (Marrs, 1995; Mataix-Cols & Marks, 2006). In a review the NICE Guideline Development Group (2005) found a relationship between number of contact hours and outcome in OCD treatment, with effect sizes of 0.93 for low intensity, 1.44 for medium and 1.65 for high intensity. Given the recent proliferation of self-help programs for OCD there are limited up to date reviews available to determine if different levels of therapist contact (guided vs. unguided) have an impact on treatment outcome and drop out.

A systematic review by Mataix-Cols and Marks (2006) found dropout rates for OCD varied between 17-57%, and self-help for anxiety has a trend towards higher dropout than face to face therapy. Herbst and colleagues (2012) found in a review of telemental interventions for OCD (e.g., computerised and Internet-based) high dropout (59-74%) across studies with no therapeutic contact, however dropout rates reduced significantly when minimal therapeutic contact was provided. Kenwright and colleagues (2005) found in a randomised controlled trial of self-help those who received greater therapeutic assistance in 'scheduled' phone support had higher reductions in OCD symptoms than those who were in a 'requested' phone support group who had no significant improvement (effect size 0.85 compared to 0.30). Dropout rates also differed significantly between groups (14% compared to 59% in the requested group). Dropout rates and treatment outcomes have not been actively assessed across all OCD self-help studies (including bibliotherapy, Internet-based treatment, and computerised treatment) with and without therapeutic contact.

Many systematic reviews exist evaluating Internet-delivered psychological treatments, and self-help treatments for anxiety and depression, however to date few systematic reviews exist that include all self-help treatments with and without therapeutic contact for OCD. Furthermore, many reviews exist which of course include evidence based treatments (Lovell & Bee, 2011; Mataix-Cols & Marks, 2006; Rosa-Alcázar et al., 2008), however only one review currently exists that examines alternative therapies for OCD (Sarris et al., 2012). In order for the current review to be comprehensive, all identified self-help treatment types were included. Barlow, Ellard, Hainsworth, Jones, and Fisher (2005) conducted a review of clinical and cost-effectiveness of self-help in anxiety, however, only one study was in OCD. Herbst and colleagues (2012) reviewed telemental approaches for OCD, however only included articles to 2011. Wootton and Diefenbach (2015) conducted a review on the efficacy of iCBT for OCD reviewing four open trials, and three RCTs for guided interventions, and two open trials for self-guided interventions, however, excluded other self-help treatments. Given the recent numerous studies published there is a need for an up-to-date review, with a particular focus on therapeutic contact in order to inform therapists.

Many different types of self-help treatment for OCD have been investigated throughout the literature. CBT focuses on challenging irrational beliefs and cognitive distortions (catastrophising, personalisation, jumping to conclusions) and as such is focused on the content of intrusive thoughts. The focus of MCT, on the other hand is on the meaning and significance of intrusive thoughts. MCT challenges the client's belief that their thoughts are important or powerful (Wells, 2009). Other alternative treatment methods such as MT, ATT and AS have also been investigated. MT is concerned with releasing energy blockages by using a technique of tapping on

acupuncture points, which are believed to alleviate obsessive thoughts (Moritz, Aravena, et al., 2011). ATT is focused on minimising dysfunctional attention biases by shifting attention from internal to external events, and as such, improving flexibility and control of attention (Moritz, Wess, et al., 2011). AS, on the other hand, is a technique aimed to reduce obsessive thoughts by diffusing associations with obsessions and furthermore, related compulsions (Moritz & Rassu, 2013). Further support has been provided for ERP, which involves exposure to thoughts, images, objects, and situations that are perceived as threats. This exposure results in an increase in anxiety. Ritual prevention is then encouraged where the client does not engage in compulsive rituals to reduce anxiety. Through exposure over time, habituation occurs where anxiety levels naturally reduce, challenging the need for compulsive rituals. An example of the use of self-help ERP has been found in BT Steps, which is a computer-guided behaviour therapy self-help system (Griest et al., 2002; Kenwright et al., 2005; Nakagawa et al., 2000). The system is accessible via a touch-tone telephone and involves an interactive voice response computer system, which guides the client through a workbook and self-ERP. Daily self-exposure and self-imposed ritual prevention are incorporated within the treatment phase to reduce the urge to perform rituals/compulsions, as well as relapse prevention.

This systematic review and meta-analysis will critically evaluate the literature on all self-help treatments for OCD (mainstream and other treatment studies using randomised controlled trials and quasi-experimental designs) to provide an up-to-date synthesis. By not limiting the types of psychological interventions we are able to examine if therapeutic contact has an impact on treatment outcomes and dropout rates, irrespective of intervention content. We aim to expand on existing reviews in order to establish whether self-help treatment is effective in reducing OCD

symptoms in adults. We further aim to examine whether therapeutic contact at differing intensities has an impact on treatment outcome. The results may assist time-poor clinicians in understanding the amount of therapeutic contact required to achieve satisfactory outcomes through self-help treatments as a first step of care.

Method

The meta-analysis was conducted in accordance to the PRISMA statement criteria (Liberati et al., 2009; Moher, Liberati, Tetzlaff, Altman, & the PRISMA Group, 2009). Pre-specified inclusion and exclusion were determined prior to screening.

Eligibility criteria.

Studies included within the meta-analysis were randomised controlled trials and quasi-experimental designs that provided evidence for or against the efficacy of self-help interventions (bibliotherapy, computerised, and Internet-based). Case series, single-case designs, and uncontrolled repeated measures designs (open trials) were excluded. The review included both therapy assisted self-help, and pure self-help. Studies were organised into a framework of differing amounts of therapist contact, as categorised by Newman, Erickson, Przeworski, and Dzus (2003). To be included studies had to provide sample characteristics (age, gender, diagnostic), measurable outcomes using well established OCD scales and target an adult population with a primary diagnosis of OCD. Only studies published in English were included. No publication date or status restrictions were imposed. A number of self-help interventions were identified, none of which were excluded based on the therapy type. Studies that examined computer based support groups, or self-help support groups, however, were excluded, as it may be difficult to compare outcomes across

modalities with variable degrees of interactivity, which have not been explicitly stated. All studies, which did not include an outcome measure of OCD symptomatology, were excluded. This excluded all studies with a focus on 'self-help for anxiety', which did not specifically target OCD (e.g., Andersson, Estling, Jakobsson, Cuijpers, & Carlbring, 2011).

Information sources and search strategy.

Studies were identified by searching electronic databases, contacting relevant experts, and scanning through reference lists. The electronic databases PsycINFO (Ovid), Science Direct, PubMed, and PsycArticles (Ovid) were accessed up to 1st March 2015 (see Figure **1** for flow chart). Contact was made with a number of authors who had recently published materials, in order to identify additional studies that had yet to be published. No further studies were provided.

A number of keywords were used to identify and search for studies. The following search terms fell within four key search strategies: (i) terms related to self-help including "unguid", "bibliotherap", "self-direct", "self-help", "self-manag", "self-act", "self-admin", "e-self-help", or "self-guided"; (ii) terms related to Internet-based including "Internet", "computer", "web", "eTherapy", "e-therap", "e-health", "online", "technol", "Internet-based", "website", or "interactive"; (iii) terms related to intervention including "therap", "intervent", "treatment", "CBT", "MCT", or "mindful"; and (iv) terms related to OCD including "OCD", "obsessive-compulsive disorder", "obsessive compulsive", "obsessive compulsive disorder", "compulsi", "obsessi", or "intrusi". Search terms were identified by the researcher, as well as through literature searches of previous search strategies within self-help reviews (Beatty & Lambert, 2013).

Study selection.

Records identified from search methods were recorded and duplicates were removed prior to initial screening. The title and abstract of each citation were examined and screened against the pre-specified inclusion and exclusion criteria described above. The primary researcher performed eligibility assessment and review. Following initial screening, all full text articles were obtained and further reviewed and assessed in relation to inclusion and exclusion criteria. Full-text articles not meeting inclusion criteria, or meeting exclusion criteria, were discarded and reasons recorded. All remaining articles were further reviewed for data extraction.

Data collection process and data items.

A data extraction sheet was developed (based on the Cochrane Consumers and Communication Review Group's data extraction template) and refined based on any further information required from each study. The primary author conducted all extraction of data. The data extracted from each article included (i) the inclusion and exclusion criteria, (ii) the characteristics of the study participants (including age, and method of diagnosis), (iii) type of intervention (including length of treatment, amount of therapeutic contact, frequency of treatment) and comparison/control group if prevalent, (iv) primary outcome measure/s, (v) drop-out rates, (vi) effect sizes (expressed in Hedges's *g*), (vii) data collection times (e.g., pre, post, follow-up), and (viii) country. Dropout rates were identified within each study as absence of treatment adherence after the treatment phase had begun (i.e., following initial assessment) as defined by Santana and Fontenelle (2011). In order to determine the amount of therapeutic contact provided, the categorical descriptors described by Newman and colleagues (2003) were used. Each article was placed in one of four

levels of contact: self-administered therapy (SA) - contact for the assessment only, or no therapist contact; predominantly self-help (PSH) - minimal contact beyond the assessment to assist with use of self-help materials and to provide a rationale for the treatment; minimal-contact therapy (MC) - therapist may be present and actively involved however, less involved than traditional therapy; predominantly therapist-administered treatments (PTA) - client has regular contact with a therapist; however, a self-help tool is provided in addition to standard therapy.

Summary measures.

The meta-analyses were performed by computing Hedges' *g* using a mixed effects analysis. A random effects model was used to combine studies within each subgroup. Furthermore, a fixed effect model was used to combine subgroups and yield the overall effect of all studies. Hedges' *g* (the primary measure of treatment effect) and 95% confidence intervals were calculated within each study. Subgroups were defined depending on the amount of therapeutic contact (minimal-contact, predominantly self-help, and self-administered), and therapy type (bibliotherapy, Internet-based, computer-based). If the reviewed papers did not report effect sizes (Hedges' *g*), an effect size was calculated through data obtained (means, standard deviations, sample sizes, *F* values, *t* values, *p* values) using Comprehensive Meta-analysis (Borenstein, Hedges, Higgins, & Rothstein, 2005) (see Table 1 for a summary).

Planned methods of analysis.

Variability of the effect sizes between the studies, or statistical heterogeneity, was evaluated using the Cochran's Q test (Cochran, 1954) and I^2 method (Higgins & Thompson, 2002). Higgins and Thompson (2002) suggested that I^2 represents the

percentage of total variation across studies due to heterogeneity (0% = no

heterogeneity, 25% = low heterogeneity, 50% = moderate heterogeneity, 75% - high

heterogeneity).

Risk of bias in individual studies and across studies.

To determine the risk of bias in individual studies, the 'Cochrane

Collaboration's tool for assessing risk of bias' was utilised. This included identifying

appropriate generation of random allocation sequence, allocation concealment,

blinding of participants and personnel, outcome assessment, incomplete outcome

data, selective reporting, whether the analysis followed the intention-to-treat

principle and other sources of bias. The publication bias across studies was assessed

by evaluating a funnel plot of precision by Hedges' g for asymmetry. Egger's

regression intercept test (Egger, Smith, Schneider, & Minder, 1997) was also utilised

to assess publication bias.

Results

Study selection.

A total of 18 studies met final inclusion criteria for review (see Figure **1**).

Search strategies resulted in a total of 1153 citations. After removing duplicates, 640

records remained. Of these, 546 records were excluded based on title and abstract

alone. Four additional studies were discarded because full text of the study was not

available. The remaining 90 full-text articles were assessed and 72 did not meet

eligibility. Studies were eliminated due to methodological weakness (e.g., case

studies, open trials), relevancy (e.g., a focus on general anxiety and not specific to

OCD, group self-help, booster programs, focus on alternative aspects outside of

treatment outcomes [i.e., predictors and moderators, acceptability]), and data used

from previous trials (e.g., Andersson et al., 2015). No unpublished relevant studies were obtained.

Each study was documented into one of four categories of therapeutic assistance. There were eight studies under SA (four x bibliotherapy, three x Internet-based self-help, and one x computer-based), six studies as PSH (two x bibliotherapy, two x Internet-based self-help, and two x computer-based), four studies as MC (one x bibliotherapy, two x Internet-based self-help, and one x computer-based), and no studies as PTA.
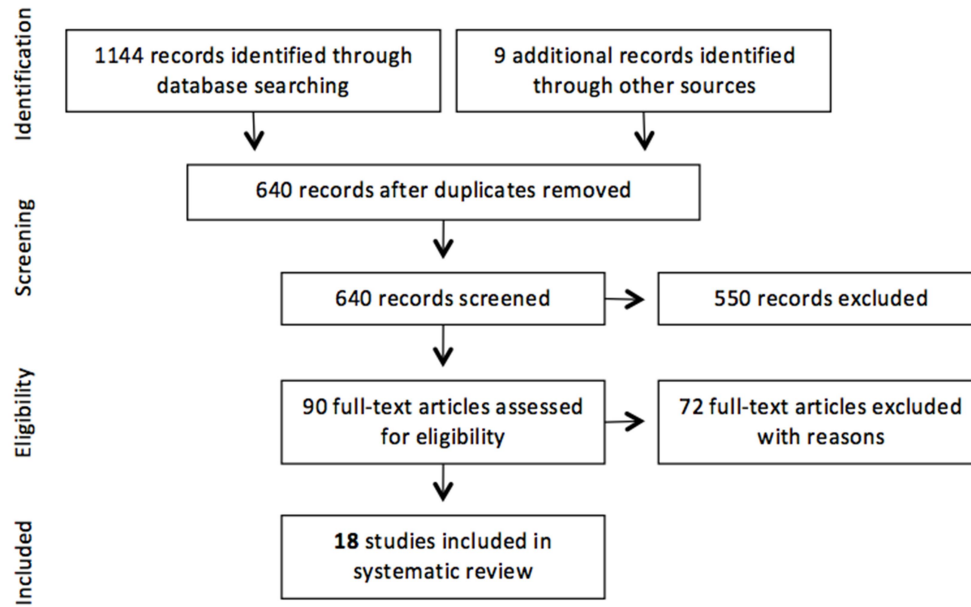
Figure 1. **Flow diagram of information through phases of the systematic review.**

Adapted from "Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement" by D. Moher, A. Liberati, J. Tetzlaff, D. G. Altman, and the PRISMA group, 2009, *Annals of Internal Medicine, 151*, 264-269.

Characteristics of included studies.

Of the 18 eligible records obtained, 14 studies were randomised controlled trials and four studies were quasi-experimental designs, all published in English with a total of 1570 participants. The studies reviewed were conducted in a range of countries (Australia, Sweden, UK, US, Germany and Norway). The main inclusion criteria entailed adults with a diagnosis of or symptoms of OCD. A number of interventions were identified including ERP, CMT, AS, MT, MCT, ATT, and CBT. All interventions were grouped based on amount of therapeutic contact, and were identified as Internet-, computer-, or bibliotherapy- based self-help. The duration of interventions ranged from 3 to 17 weeks, *M(SD)* = 8.52(4.68). The primary outcome

assessed in 14 of the 18 records was the Y-BOCS (Goodman et al., 1989). Two

studies used an OCD clinical disorder severity rating developed within their program

(Al-Asadi et al., 2014; Klein et al., 2011), one study used the DOCS (Abramowitz et

al., 2010), and one study used the Work and Social Adjustment Scale (Clark et al.,

1998; Mundt, Marks, Shear, & Griest, 2002). Of those studies who utilised the Y-

BOCS as the primary outcome measure, overall the average baseline scores ranged

from 18.50 (moderate severity) to 26.50 (severe) with the majority of studies

including participants with moderate severity ratings ($M = 21.62$[moderate severity],

$SD = 2.36$). The reviewed records are described below and grouped on the amount of

therapeutic contact provided.

Risk of bias within studies.

Risk of bias was assessed using the Cochrane Collaboration's tool for assessing

risk of bias (see Figure **2**). All studies were assessed for risk of bias by the primary

researcher (see Table 1). Risk of bias for RCT's are reported in Figure 2. Nine of the

14 RCT's were assessed as low risk on random sequence generation (selection bias),

with five being assessed as unclear risk. Eleven RCT's were assessed as having an

unclear risk on randomisation concealment (selection bias) and blinding of

participants or personnel (performance bias), with only three assessed as low risk.

Ten RCT's were identified as low risk on blinding of outcome assessments

(detection bias) with the remainder unclear risk. Eight, five, and one RCT's were

assessed as low, unclear, and high risk, respectively on incomplete outcome data

(attrition bias). All studies were assessed as low risk on selective reporting (reporting

bias).
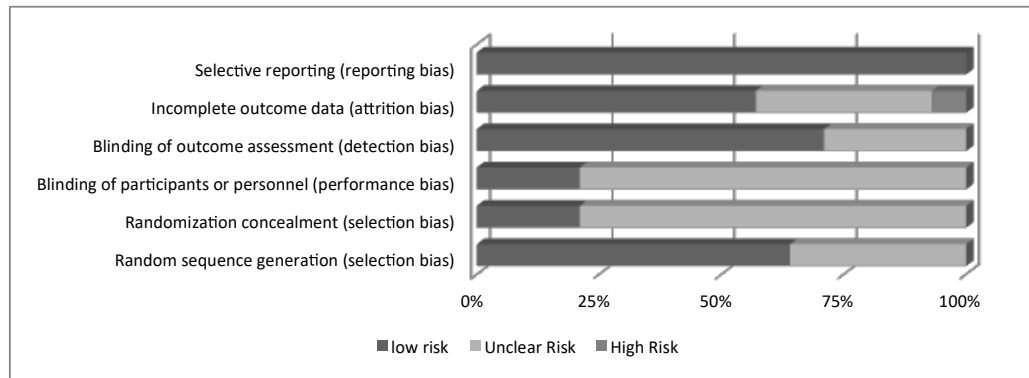
Figure 2. **Estimated risk of bias across all studies.**

Adapted from "Guided Internet-based vs. face-to-face cognitive behaviour therapy for psychiatric and somatic disorders: A systematic review and meta-analysis" by G. Andersson, P. Guijpers, P. Carlbring, H. Riper, and E. Hedman, 2014, World Psychiatry, 13, 288-295.

Results of individual studies.

Self-administered.

Eight studies were identified as self-administered self-help interventions,. These studies included computer-aided exposure, bibliotherapy (CMT, AS, ATT, and MCT), and Internet-based (CBT and MT) treatment approaches. Four studies yielded significant small to medium effects (Al-Asadi et al., 2014; Klein et al., 2011; Moritz et al., 2010; Moritz & Rassu, 2013). The remaining four studies, some of which utilised other treatment approaches (ATT, MT, CMT, and computer-aided exposure), however, did not yield significant treatment effects (see Table 1 for further information on the characteristics of individual studies).

Predominantly self-help.

Six studies fell under the category of predominantly self-help. Of these, three were found to yield significant and large effect sizes, which included one study

utilising computer-based ERP and two studies utilising Internet-based CBT.

Significant treatment effects were not found within the remaining three studies, two

of which utilised bibliotherapy (ERP) and one utilising computer-based ERP (see

Table 1).

Minimal-contact self-help.

Four studies were identified as providing minimal-contact self-help therapy,

which included computer-based ERP, bibliotherapy (ERP) and Internet-based CBT.

Large effect sizes were found in all studies (see Table 1).

Table 1

Characteristics of Included Studies

First author/year	Intervention	Design	n	Primary Outcome/s	Post-treatment Effect size	Overall study Dropout	Risk of Bias
				Self-administered			
Clark et al., 1998	Computer-aided exposure	QuE non-OCD vs. OCD 3 weeks	23	Y-BOCS	.42 (-.11-.96) (W)	7%	High Risk on at least one criterion
Moritz et al., 2010	Bibliotherapy (MCT)	RCT waitlist-control 4 weeks	86	Y-BOCS	.50*(.11-.89) (B)	14%	Unclear Risk on at least one criterion
Klein et al., 2011	Internet-based (CBT)	QuE OCD, GAD, PTSD, SAD, PD/A 12 weeks	225	OCD CDSR[a]	.51*(.02-.99) (W)	90%	High Risk on at least one criterion
Moritz, Wess, et al., 2011	Bibliotherapy (ATT)	RCT waitlist-control 4 weeks	80	Y-BOCS	.04 (-.39-.47) (B)	14%	Unclear Risk on at least one criterion
Moritz et al., 2011	Internet-based (MT)	RCT Comparison-control (PMR) 4 weeks	70	Y-BOCS	.26 (-.13-.64) (B)	14%	Unclear Risk on at least one criterion
Moritz & Rassu, 2013	Bibliotherapy (AS)	RCT waitlist-control 4 weeks	72	Y-BOCS	.40*(.06-.73) (B)	33%	Unclear Risk on at least one criterion
Al-Asadi et al., 2014	Internet-based (CBT)	QuE OCD, GAD, PTSD, SAD, PD/A12 weeks	347	OCD CDSR[a]	.38*(.04-.72) (W)	86%	High Risk on at least one criterion
Schneider et al., 2014	Bibliotherapy (CMT)	RCT waitlist-control 4 weeks	65	Y-BOCS	.03 (-.45-.51) (B)	12%	Unclear Risk on at least one criterion

First author/year	Intervention	Design	n	Primary Outcome/s	Post-treatment Effect size	Overall study Dropout	Risk of Bias
Predominantly Self-help							
Nakagawa et al., 2000	Computer-based ERP (BT Steps)	QuE Comparison (T-guided ERP) 3 weeks	41	Work and social adjustment scale	.50 (-.19-1.19) (W)	52%	High Risk on at least one criterion
Greist et al., 2002	Computer-based ERP (BT Steps)	RCT Computer-based ERP, T-guided ERP, Relaxation 10 weeks	183	Y-BOCS	.73*(.36-1.10) (B)	4%	Unclear Risk on at least one criterion
Tolin et al., 2007	Bibliotherapy (ERP)	RCT Comparison (T-admin ERP) 6 weeks	41	Y-BOCS	.65 (-.01-1.30) (W)	17%	Unclear Risk on at least one criterion
Andersson et al., 2012	Internet-based (CBT)	RCT Comparison-control (OST) 10 weeks	101	Y-BOCS	1.11*(.69-1.53) (B)	1%	Unclear Risk on at least one criterion
Mahoney et al., 2014	Internet-based (CBT)	RCT Comparison (TAU) 10 weeks	86	DOCS	1.05*(.53-1.57) (W)	18%	Unclear Risk on at least one criterion
Vogel et al., 2014	Bibliotherapy (ERP)	RCT Comparison (VC-ERP, wait-list)12 weeks	30	Y-BOCS	.13 (-.71-.97) (B)	10%	Unclear Risk on at least one criterion

First author/year	Intervention	Design	n	Primary Outcome/s	Post-treatment Effect size	Overall study Dropout	Risk of Bias
Minimal-contact Self-help							
Fritzler et al., 1997	Bibliotherapy (ERP)	RCT waitlist-control 12 weeks	12	Y-BOCS	1.25*(.52-1.97) (B)	25%	Unclear Risk on at least one criterion
Kenwright et al., 2005	Computer-based ERP (BT Steps - Scheduled)	RCT Comparison (Requested)17 weeks	36	Y-BOCS	Scheduled (W) .83*(.34-1.33) Requested (W) .22 (-.25-.70) iCBT 1.53*(.76-2.30) (B)	44%	High Risk on at least one criterion
Wootton et al., 2013	Internet-based (CBT) Bibliotherapy	RCT wait-list Control 8 weeks	52	Y-BOCS	Bibliotherapy 1.37*(.66-2.07) (B)	19%	Unclear Risk on at least one criterion
Herbst et al., 2014	Internet-based (CBT)	RCT waitlist-control 8 weeks	34	Y-BOCS	.77*(.09-1.45) (B)	6%	Unclear Risk on at least one criterion

Note. Effect sizes in this table are calculated using Hedges' *g*. Overall study dropout includes dropout rates from all treatment and comparison groups.

QuE: Quasi Experimental Design, RCT: Randomised Controlled Trial, MCT: Metacognitive training, CBT: Cognitive Behavioural Therapy, CDSR: Clinical Disorder Severity Rating, K6: Kessler 6, MT: Meridian Tapping, PMR: Progressive Muscle Relaxation, AS: Association Splitting, CMT: Competitive Memory Training, N/A: Data not available, TAU: Treatment as usual, T-Guided: Therapist Guided, T-Admin: Therapist Administered, OST: Online Supportive Therapy, VC: Videoconferencing, ERP: Exposure and Ritual Prevention, Y-BOCS: Yale-Brown Obsessive Compulsive Scale, SAD: Social Anxiety Disorder, PD/A: Panic Disorder with and without Agoraphobia, PTSD: Post-traumatic Stress Disorder, GAD: Generalised Anxiety Disorder, B: Between, W: Within.
*Significant

Dropout rates.

Dropout rates were examined between the therapeutic contact groups. Average dropout rates within treatment group only that fall under self-administered, predominantly self-help, and minimal-contact self-help are displayed in Figure **3**. A downward trend in dropout rates was observed as therapeutic contact increased. The variability (standard deviation) of dropout rates within the therapeutic groups was also observed to be very large, however, also reducing as therapeutic contact increased. In other words, a downward trend was observed where the self-administered self-help ($M = 38.70\%$, $SD = 32.47\%$) had the highest dropout rate (%) and variability (%), followed by the predominantly self-help ($M = 19.65\%$, $SD = 19.98\%$) and furthermore, the minimal contact self-help ($M = 16.68\%$, $SD = 10.61\%$). To evaluate differences between therapeutic contact and dropout rates, a one-way between groups Analysis of Variance (ANOVA) was conducted. The F test was not significant, $F(2, 16) = 1.59$, $p = 0.235$. It should be noted, however, that $d = 0.78$, which can be characterised as a medium to large effect.
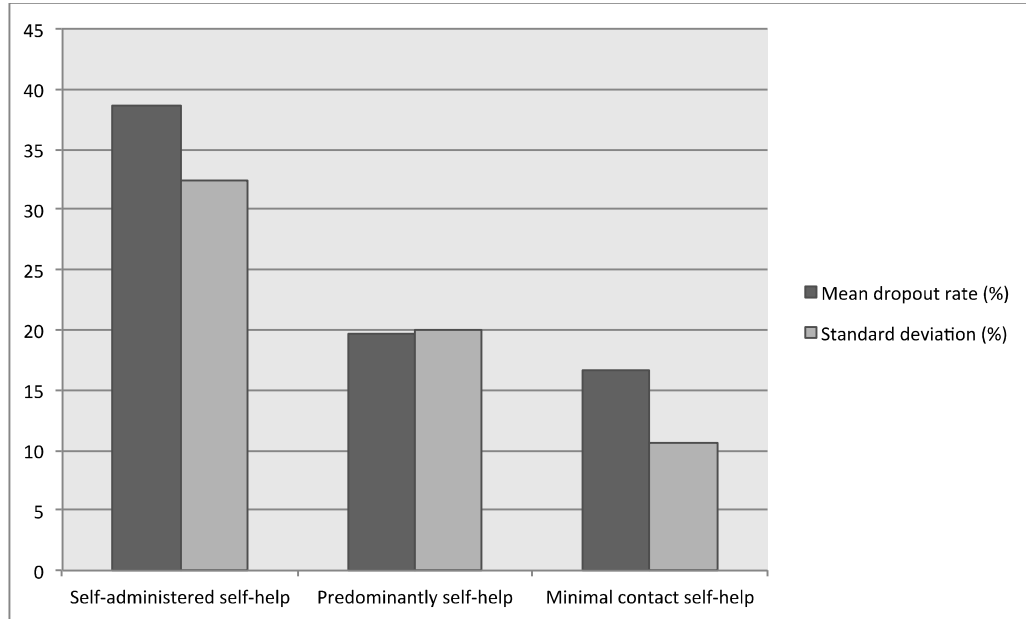
Figure 3. **Dropout rates amongst therapeutic contact groups.**

Syntheses of results.

Figure **4** presents a forest plot displaying effect sizes (*g*) for each study as well as the overall effect size for self-help treatments, effect sizes based on amount of therapeutic contact, and therapy type. The pooled effect size (*g*) at post-treatment across all 18 studies was 0.55 (95% CI: 0.44 to 0.66), showing a medium effect size across self-help treatment for OCD. Eleven out of the 18 studies showed significant results. According to the overall i^2 statistic across studies, the total variation across studies due to heterogeneity was moderate (*Q* = 45.05, *p* = 0.001, *I^2* = 57.82%). As such, interpretation of results should be viewed with caution.

Description	Hedges' *g* (95% CI)
Herbst et al. (2014)	0.770 [0.087, 1.452]
Kenwright et al. (2005 - R)	0.224 [-0.247, 0.696]
Kenwright et al. (2005 - S)	0.834 [0.340, 1.327]
Wootton et al. (2013 - b)	1.370 [0.664, 2.075]
Wootton et al. (2013 - i)	1.531 [0.757, 2.305]
Fitzler et al. (1997)	1.246 [0.521, 1.971]
Andersson et al. (2012)	1.112 [0.693, 1.530]
Greist et al. (2002)	0.731 [0.364, 1.098]
Vogel et al. (2014)	0.129 [-0.712, 0.969]
Nakagawa et al. (2000)	0.502 [-0.189, 1.194]
Tolin et al. (2007)	0.649 [-0.001, 1.229]
Mahoney et al. (2014)	1.049 [0.532, 1.566]
Clark et al. (1998)	0.423 [-0.111, 0.957]
Moritz & Rassu (2013)	0.398 [0.065, 0.730]
Moritz et al. (2011)	0.258 [-0.129, 0.644]
Moritz, Wess et al. (2011)	0.039 [-0.395, 0.473]
Moritz et al. (2010)	0.501 [0.111, 0.891]
Schneider et al. (2014)	0.028 [-0.453, 0.509]
Al-Asadi et al. (2014)	0.380 [0.042, 0.718]
Klein et al. (2011)	0.509 [0.025, 0.992]
Computer-based	0.573 [0.358, 0.788]
Internet-based	0.658 [0.484, 0.832]
Bibliotherapy	0.427 [0.253, 0.601]
Minimal-contact Total	0.843 [0.595, 1.090]
Predominantly Total	0.812 [0.602, 1.002]
Self-admin Total	0.329 [0.185, 0.472]
Total Overall	0.550 [0.443, 0.657]

Figure 4. **Forest plot displaying effect sizes of studies, therapy type, and amount of therapeutic contact.**

Self-administered.

Effect sizes (*g*) for the self-administered subgroup were calculated from 8 trials. There was no evidence of heterogeneity ($Q = 4.99$, $df = 7$, $p = 0.661$, $I^2 = 0\%$). The pooled subgroup effect size at post-treatment across the 8 trials was 0.33 (95% CI: 0.18 to 0.47), indicating a small total effect size.

Predominantly self-help.

Effect sizes (*g*) for predominantly self-help were calculated from seven trials. There was evidence of moderate heterogeneity within the predominantly self-help studies ($Q = 11.50$, $df = 6$, $p = 0.074$, $I^2 = 47.85\%$). Retrospective exploration of the heterogeneity identified two trials, which when excluded, removed the statistical

heterogeneity ($Q = 3.89$, $df = 4$, $p = 0.422$, $I^3 = 0\%$). The pooled subgroup effect size at post-treatment using mixed effects analysis was 0.68 (95% CI: 0.40 to 0.96), indicating a moderate effect.

Minimal-contact self-help.

Results and effect sizes (g) for minimal-contact self-help were available and calculated from four trials. There was no evidence of heterogeneity for the minimal-contact self-help subgroup ($Q = 3.90$, $df = 4$, $p = 0.419$, $I^2 <= 0\%$). The pooled subgroup effect size (g) at post-treatment across the studies was 1.08 (95% CI: 0.79 to 1.37) indicating a large effect size for minimal-contact self-help.

Risk of bias across studies.

Figure **5** presents a funnel plot displaying effect sizes on primary outcome measures. The symmetry of the funnel plot, and thus publication bias, was assessed visually and with Egger's regression intercept test. Heterogeneity across studies identified above could also account for asymmetry. Egger's regression intercept was 2.18 (one-tailed $p = 0.05$, two-tailed $p = 0.09$). Thus, there was some evidence of publication bias. Through use of Duval and Tweedie's (2000) Trim and Fill, the imputed overall effect size (g) was estimated to be 0.51 (95% CI: 0.41 to 0.61). Publication bias was examined within each subcategory (therapeutic contact) and was not evident within the self-administered (Intercept = -1.19, $p = 0.28$ (one-tailed) or predominantly self-help (Intercept = -2.14, $p = 0.17$ (one-tailed) categories. There was, however, some evidence of publication bias in minimal-contact self-help (Intercept = 3.88, $p = 0.07$ (one-tailed). Through Trim and Fill, the imputed effect size (g) was estimated to be 0.91 (95% CI: 0.66 to 1.17).

Funnel Plot of Precision by Hedges's g
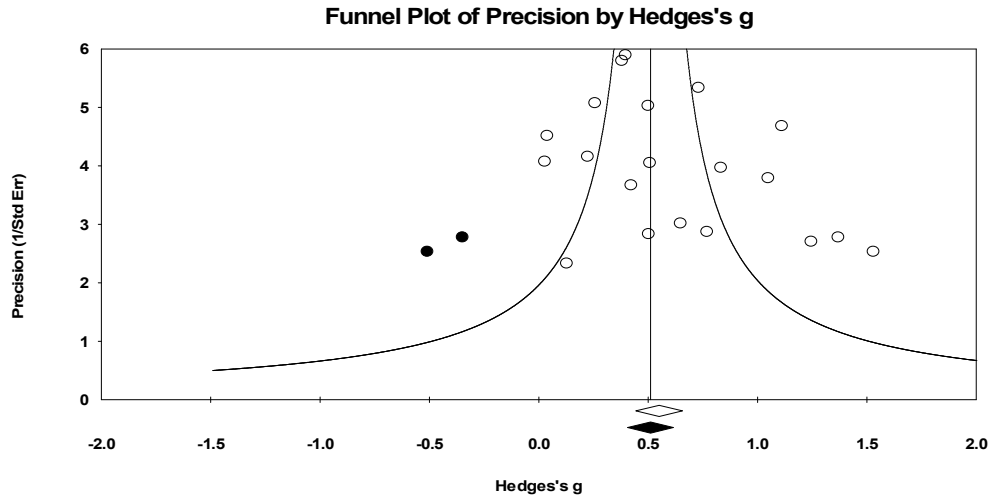
Figure 5. **Funnel plot to assess for publication bias.**

Discussion

The present review aimed to provide a comprehensive review of RCT's and quasi-experimental studies examining self-help treatments for OCD. We examined the effect of self-help programs within the context of a stepped care model (differing amounts of therapeutic contact).

Effects of self-help treatment for OCD.

Interventions targeted mostly adults and were delivered either in a clinical setting or were home-based delivered via bibliotherapy, Internet-based therapy, or computer programs. There were 14 of 18 publications reviewed on self-help treatment for OCD, which reported a significant reduction in OCD symptoms and severity from baseline to post-treatment. The average overall effect size of self-help interventions at post-treatment was 0.51 when accounting for publication bias.

Therapeutic contact and clinical outcomes.

Effect sizes were grouped based on the amount of therapeutic contact. A trend was identified where therapeutic contact increased, effect size increased. The effect sizes were small for self-administered (g = 0.33), moderate for predominantly self-help (g = 0.68) and large for minimal-contact self-help (g = 1.08).

These results are comparable to the NICE Guideline Development Group review who found a positive relationship between OCD outcomes and the number of therapeutic hours. Two large scale randomised controlled trials are currently underway examining the efficacy of iCBT with minimal therapist contact, which will add significantly to the body of literature (Gellatly et al., 2014; Kyrios et al., 2014). Wootton, Dear, Johnston, Terides, and Titov (2014) conducted two open trials investigating self-administered iCBT for OCD and found promising results with moderate to large effect sizes. Wootton and Diefenbach (2015) reviewed the literature on both guided self-help iCBT interventions and self-guided iCBT interventions and found large within group effect sizes. This may warrant the investigation of further RCTs using iCBT with no therapeutic assistance to determine between-group effect sizes controlling for time-related threats. Trends in effect size between therapeutic contact groups in bibliotherapy were not evident. There are important differences in treatment approaches for OCD compared to other anxiety disorders and furthermore greater motivational work from a therapist may be required. The use of greater therapeutic contact has been supported through the current review.

Therapeutic contact and dropout rates.

Obstacles arise within self-help treatments where no therapeutic contact is provided including high dropout and low motivation. Barlow and colleagues (2005) suggested that goal setting and minimal feedback is essential to maintain motivation. High dropout rates were identified in many studies within this review, with an average of 28.7%, depending on the amount of therapeutic contact provided. Higher dropout rates were evident where no therapeutic contact was provided (self-administered [$M = 38.70\%$, $SD = 32.47$]), compared to predominantly self-help ($M = 19.65$, $SD = 19.98$) and minimal-contact self-help ($M = 16.68$, $SD = 10.61$). Kenwright and colleagues (2005) found that there were lower dropout rates when patients had more therapist contact through scheduled phone calls compared to requested phone calls, which is consistent with our results.

Towards a stepped care model for the treatment of OCD.

A number of studies have reported the importance of a stepped care model for OCD (Gilliam et al., 2010; Nakagawa et al., 2000; Tolin et al., 2005). This involves the use of less intensive steps to therapy for clients with lower severity, on waiting lists, or prior to therapeutic contact. As such, it may save associated financial costs, therapist time, and provide treatments to those who otherwise would not seek treatment. For example, in one study (Nakagawa et al., 2000) providing computer-based ERP (BT Steps) prior to therapist guided ERP resulted in an 83% saving of the clinician's time per patient. A number of more recent open trials have also investigated a stepped care approach to ERP, providing bibliotherapy or self-directed ERP as a first step, followed by therapist-directed ERP (Gilliam et al., 2010; Tolin et al., 2005). Further investigations in larger scale trials are warranted. Stepped care

models may be particularly useful given the growing need for therapeutic services. By reducing the amount of therapeutic time required, associated costs with treatment will be reduced, and the availability of therapist time will increase, reducing wait-lists and allowing a larger amount of people to receive treatment more readily.

Barlow and colleagues (2005) suggested that stepped care may help to overcome the shortage of trained CBT therapists. A stepped care approach may also increase availability and accessibility to evidence-based treatments. As reviewed here, a number of Internet-based, bibliotherapy, and computerised self-help approaches exist using evidence-based treatments (CBT and ERP) for OCD. These approaches could be implemented with or without the assistance of a therapist, or for clients who are on waitlists. García-Soriano et al. (2014) suggested that common barriers to seeking treatment include shame or stigma associated with symptoms, or inconveniences associated with treatment. As such, an anonymous self-help treatment process may improve treatment-seeking rates where users can progress through self-help treatments at their chosen pace, and in the comfort of their own home, prior to accessing more intense therapeutic services if required.

Limitations and quality of studies.

Of the 18 published RCTs and quasi-experimental studies, nine different approaches were identified in the self-help treatment of OCD with varying degrees of therapeutic contact. The large variability in treatment types limits the ability to make comparisons between studies (e.g., MCT, ATT, AS, CMT, and ERP). Finally, computer-aided exposure was only examined in one study, and computer-based ERP using the BT Steps program was examined in only three studies. It would have been preferable to compare many studies with the same program; however, the decision to

include all studies (multiple treatments) within the meta-analysis was made due to the limited research available within this novel area. Furthermore, by including all types of psychological treatment, the review provides a more comprehensive indication of the impact of therapist contact. Due to the preliminary nature of this research, an additional limitation is that no RCT's using evidence-based self-help treatments (CBT and ERP) were conducted within the self-administered self-help category. This acts to limit the comparisons made between the amounts of therapeutic contact, particularly as the majority of 'alternative treatments' are located within the self-administered self-help category.

There was strong variability of bias within the studies with the majority of studies remaining with an unclear risk of bias. This large variation in treatment approaches, therapeutic contact, as well as limitations and risk of bias within each study, may account for the large magnitude and variation in effect sizes across studies. Publication bias is a limitation within the meta-analysis although the combined effect and publication bias evident within the subcategories were corrected.

An additional limitation is that the long-term effects of the treatment approaches were not analysed. Of the 18 studies reviewed, only seven included a follow-up assessment (Andersson et al., 2012; Griest et al., 2002; Herbst et al., 2014; Mahoney et al., 2014; Tolin et al., 2007; Vogel et al., 2014; Wootton et al., 2013). Follow-up periods varied from one month to six months, with the most common follow-up being three months. This is an important area for future meta-analyses, particularly when further research has been conducted examining the long-term effectiveness of treatments.

The current review identified studies of varying amounts of therapeutic contact, however, no studies were identified as PTA, where a self-help tool is utilised in addition to standard therapy. This may be an important area for future research to determine if such tools can aid in the delivery of face-to-face treatment, and furthermore identify if any significant differences exist between PTA and other levels of therapeutic contact.

Future directions and conclusions.

In summary, the results from this meta-analysis found evidence supporting the efficacy of self-help treatments, including iCBT, for OCD. A downward trend in dropout rates, as well as an improvement in clinical outcomes, was observed with increased therapeutic contact. The importance of providing effective support within self-help treatment is evident; however, research for self-help treatment for OCD still appears to be underrepresented, particularly self-administered, self-help with no therapist contact. No randomised controlled trials (RCT) currently exist for the treatment of OCD using evidence-based treatments (CBT and ERP) through self-administered self-help (where no therapeutic contact is provided). In order to provide a comprehensive overview of varying levels of therapeutic contact across evidence-based treatments only, it would be useful for future RCT's to be conducted using self-administered evidence-based self-help treatments, such as CBT and ERP. Given long waitlists and limited therapists trained in evidence-based treatments, a stepped care approach could provide a solution to reduce therapist time and associated costs of face-to-face treatments. A growing body of literature supporting the use of self-help treatments for OCD is evident, however, further efficacy through use of RCT's is required, as well as the development and exploration of additional self-help resources.

Chapter 6. Study II: Characteristics of Internet Self-help Seeking Individuals with Obsessive-compulsive Disorder: Exploring the Relationship between Metacognition and Obsessive-compulsive Symptoms

Introduction

OCD is a debilitating disorder that has a 12-month (lifetime) prevalence of approximately 2.7% (3.8%) in the adult population within Australia (McEvoy et al., 2011). The World Health Organization (2005) has reported OCD as one of the 10 leading causes of disability in the world. OCD can cause significant impairments in social, occupational, and other important areas of functioning, often resulting in a low quality of life (APA, 2013). Access and adherence to effective treatment are therefore highly important.

The current gold standard treatment for OCD is Cognitive-behavioural therapy (CBT) with exposure and response prevention (ERP) (Abramowitz, 2006; Whiteside et al., 2008). This treatment involves the exposure to feared stimuli while concurrently ceasing engagement in compulsions. Podea, Suciu, Suciu, and Ardelean (2009) reported that although high response rates have been found with the use of CBT and ERP (between 63-90%), drop out (approximately 28%) and refusal of ERP (25-30%) are common amongst clients, reducing the effectiveness of treatment. Additional barriers to the accessibility of ERP have also been found; including lack of access to treatment in rural areas, high cost, and lack of evidence based trained clinicians (Wootton & Diefenbach, 2015). This has promoted the exploration of additional and more accessible treatments.

Metacognition has been identified as an important factor in both the development and maintenance of OCD (Wells & Papageorgiou, 1998). Wells' (2000) Metacognitive model for OCD has received a great deal of attention in previous literature and research (Fisher & Wells, 2008; Rees & van Koesveld, 2008; Simons et al., 2006). It differs from other cognitive behavioural models as it focuses on the appraisals of the meanings of thoughts, as opposed to the content of the thoughts in traditional CBT. The metacognitive model places significance in understanding beliefs and thoughts about intrusions, which drive OCD symptoms. In other words, the model suggests that the style of thinking associated with a disorder is the key to the treatment of that emotional disorder.

Previous literature has supported the link between unhelpful metacognitions and symptoms of OCD. For example, Clark and Purdon (1993, 1995) suggested that obsessional individuals hold dysfunctional beliefs concerning the need to control thoughts. Wells (2000) further supported this notion by suggesting that an increase in cognitive self-consciousness (a shift of attention and focus to internal processes or thoughts), which is present in OCD, has been found to increase dysfunctional metacognitive beliefs surrounding danger of thoughts and the need to control thoughts. This association between unhelpful metacognitions and symptoms of OCD has been further demonstrated in various research studies, strengthening the metacognitive model for OCD (Hermans, Martens, De Cort, Pieters, & Eelen, 2003; Irak & Tosun, 2008; Janeck, Calamari, Riemann, & Heffelfinger, 2003; Myers & Wells, 2005; Timpano, Rasmussen, Exner, Rief, & Wihelm, 2014; Wells & Papageorgiou, 1998).

Wells and Papageorgiou (1998) conducted a correlational study that explored the relationships between meta-cognitive beliefs, pathological worry and obsessive-

compulsive symptoms in 105 undergraduate students. They identified a link between measures of worry and measures of obsessive-compulsive symptoms, and therefore controlled for this relationship in their analyses. They found through multiple regression analyses that specific sets of meta-cognitive beliefs were associated with pathological worry with a large significant effect size ($f^2 = .66$, $p < 0.001$), as measured by the Penn State Worry Questionnaire. Large significant effect sizes were also found between meta-cognitive beliefs and checking ($f^2 = .56$, $p < 0.001$), obsessional thoughts ($f^2 = .1.08$, $p < 0.001$), washing ($f^2 = .53$, $p = 0.003$), and dressing and grooming ($f^2 = .33$, $p = 0.001$) subscales of the Padua Inventory (excluding the obsessional impulses subscale, $f^2 = .28$, $p = .20$), measuring obsessive-compulsive symptoms. The positive beliefs about worry subscale was found to be a significant predictor for checking and obsessional thoughts subscales. The negative beliefs about danger/uncontrollability subscale was also found to be a significant predictor of the obsessional thoughts as well as washing subscales. Finally, the cognitive self-consciousness subscale was found to be a significant predictor of the dressing and grooming subscale of the Padua Inventory (Wells & Papageorgiou, 1998).

Cartwright-Hatton and Wells (1997) evaluated the strength and types of meta-cognitive beliefs prominent in individuals diagnosed with OCD ($n = 17$), Generalised anxiety disorder (GAD: $n = 32$), a non-clinical control group ($n = 30$), and a clinical control group ($n = 14$). They found that clients with OCD scored significantly higher on the cognitive self-consciousness scale of metacognitive beliefs than all other groups, suggesting that those with OCD attend more to their own thinking processes than those with GAD, other emotional disorders, or healthy controls, $F(3, 89) = 8.20$, $p < 0.0001$. Janeck and colleagues (2003) built on these findings by further exploring

the cognitive profile of OCD clients (n = 30), compared to anxious clients without OCD (n = 25) and non-anxious controls (n =25). Janeck and colleagues (2003) supported the findings by Cartwright-Hatton and Wells (1997), finding higher scores on the cognitive self-consciousness subscale in the OCD group, when compared to the anxious clients (d = .94, p < 0.001) and non-anxious controls (d = 2.58, p < 0.001).

Myers and Wells (2005) provided further support for the use of the metacognitive model in OCD. They explored the relationships between responsibility, metacognitive beliefs, and obsessive-compulsive symptoms in 104 participants who were sampled via convenience methods (comprising students and non students). They found a strong link between metacognitive beliefs and obsessive-compulsive symptoms, with metacognitive beliefs adding a marginally significant amount of variance to obsessive-compulsive symptoms, when worry and responsibility were controlled for (f^2 = 1.33, p = .057). No relationship was evident between responsibility and obsessive-compulsive symptoms, however, when metacognitive beliefs and worry were controlled.

Irak and Tosun (2008) conducted a similar study, which explored the relationships between metacognitive beliefs, obsessive-compulsive and anxiety symptoms in a non-clinical sample of 850 students. They found a significant and medium correlation between metacognitive beliefs and OCD (r = .46, p < 0.01). Multiple regression analyses (MRA's) also indicated large significant effect sizes between obsessive-compulsive symptoms and metacognitive beliefs when trait anxiety was controlled (f^2 = .48, p = 0.001). Irak and Tosun (2008) further added to Myers and Wells' (2005) study by reporting a difference between the specific metacognitive predictors of anxiety and obsessive-compulsive symptoms. They

found within the Metacognitions questionnaire, cognitive confidence ($\beta = 0.13$) and uncontrollability and danger ($\beta = 0.52$) subscales were significant predictors of trait-anxiety, and furthermore, need to control thoughts ($\beta = 0.19$), uncontrollability and danger ($\beta = 0.14$), positive beliefs ($\beta = 0.10$), and cognitive self-consciousness ($\beta = 0.07$) subscales were significant predictors of obsessive-compulsive symptoms.

Finally, Timpano and colleagues (2014) provided further support of the relationship between obsessive-compulsive symptoms and unhelpful metacognitions while focusing primarily on the relationship between the specific domains of obsessive-compulsive symptoms (as measured by the Obsessive-Compulsive Inventory - Revised [OCI-R: Foa et al., 2002]) and metacognition. Timpano and colleagues (2014) reported that the obsessions subscale of the OCI-R is the strongest indicator of clinical levels for OCD. Additionally, Timpano and colleagues (2014) found the obsessions subscale to have the strongest relationship with metacognitions suggesting a link between clinical levels of OCD and unhelpful metacognitions.

The previously described studies have provided evidence of the relationship between unhelpful metacognitions and OCD symptoms and as such provided further support for the metacognitive model for OCD. Such support has created opportunities for novel treatment approaches due to the limitations of current evidence based treatments (high cost, lack of evidence based trained clinicians, and regional access to treatment). MCT, CBT, and ERP have previously been utilised across a wide variety of self-help contexts, including bibliotherapy, Internet-based and computerised interventions as a solution to current limitations (Al-Asadi et al., 2014; Herbst et al., 2014; Mahoney et al., 2014; Moritz et al., 2010; Vogel et al., 2014; Wootton & Diefenbach, 2015). Although previous research has explored the

effectiveness of such treatments, limited research is available on the demographic and psychological characteristics of those who seek Internet treatment.

A number of important communities have generated interest in the psychological and demographic characteristics of adults interested in self-help programs. Such communities include clinicians, mental health workers, researchers, medical practitioners, and the general public. Limited information is available surrounding the characteristics of those who make use of available services within the OCD population. Unfortunately, the majority of clients with OCD do not seek help and as such remain untreated (Levy, McLean, Yadin, & Foa, 2013). Although evidence-based treatments are available, it appears as though only 35-40% of individuals with OCD receive some form of psychological treatment, with a small 10% receiving evidence-based treatments (Levy et al., 2013; Torres et al., 2007).

Information on the demographic and psychological characteristics of those self-help seeking individuals may be useful in order to tailor treatment packages to suit this unique population. Furthermore, no studies to date have explored the link between unhelpful metacognitions and obsessive-compulsive symptoms in a unique sample of those seeking Internet or self-help treatment with clinical levels of obsessive-compulsive symptoms. This information will help to further strengthen the use of the metacognitive model in Internet-based and self-help treatment for OCD.

Study Aims and Hypotheses

The present study aimed to replicate aspects of Irak and Tosun's (2008) study using an Internet treatment-seeking sample with clinical and subclinical levels of obsessions and compulsions. The overall aims of the current research were to:

1. Assess of the demographic and psychological characteristics of a sample of Internet OCD self-help treatment seekers

2. Identify if a relationship exists between unhelpful metacognitions, and symptoms of OCD in a sample of Internet OCD self-help treatment seekers.

3. Identify if a relationship exists between unhelpful metacognitions, and quality of life, and depression, anxiety and stress scores in in a sample of Internet OCD self-help treatment seekers.

The following specific hypotheses will be tested:

H1:   There will be a significant positive and large correlation between unhelpful metacognitions (as measured by the MCQ-30 total score), and obsessive-compulsive symptoms (as measured by the OCI-R total score), a significant positive and large correlation between metacognitions and depression, anxiety and stress scores (as measured by the DASS-21), and a significant negative and large correlation between metacognitions and quality of life (as measured by the Q-LES-Q).

H2:   There will be significant positive and large correlations between the obsessions subscale of the OCI-R, specifically, and subscales of the MCQ-30.

H3:   Need to control thoughts, uncontrollability and danger, positive beliefs, and cognitive self-consciousness subscales of the MCQ-30 will be significant predictors of obsessive-compulsive symptoms, as measured by the OCI-R total score.

Method

Research Design.

The study used a cross sectional correlation design to determine if a relationship exists between unhelpful metacognitions (as measured by the MCQ-30

total score), and symptoms of OCD, quality of life, and depression, anxiety and stress scores.

Participants.

Participants were 101 adults seeking help for OCD ranging in age from 18 to 60 ($M = 31.21$, $SD = 9.73$) who were directed to the survey through a self-help website for OCD. It was inferred that participants were seeking treatment by their presence on the self-help treatment website for OCD. Within this sample 94 participants provided at least some demographic information, 67 provided complete responses on the OCI-R, 52 completed the MCQ-30 and the DASS-21, and 51 completed the Q-LES-Q. The sample was primarily female (64%) and largely Caucasian (83%), with 13% characterising themselves as Asian and 4% unspecified. The majority of the sample was based in Australia (42%) and the United States of America (28%). Most of the sample reported being single (48%), 28% were married, 19% were in a defacto relationship, 4% were divorced, and 1% were separated. Sixty one percent of the sample were currently working, 7% reported that they were unable to work, 21% reported that they were studying, 4% reported being out of work for more than one year, and 8% of the sample reported being out of work for less than one year. Half of the sample (55%) reported having completed at least an undergraduate degree, 10% reported completing a technical/non-university degree, 29% reported graduating from high school only, and 7% of the sample did not complete their final year of high school. An a priori power analysis was conducted in order to determine the total sample size required for each analysis using a power of 0.80 and an alpha level of 0.05. For the independent samples t-tests a total sample of 42 participants was required (based on a large effect size), for the correlational analyses a total sample size of 64 was required based on a medium effect size, and a

total sample size between 49-53 was required for the MRA (based on a large effect size). Effect sizes were determined based on previous literature (Irak & Tosun, 2008; Myers & Wells, 2005).

Measures.

The Psychiatric Diagnostic Screening Questionnaire (PDSQ: Zimmerman, 2002).

In order to determine if participants met the diagnostic criteria for OCD a self-report diagnostic assessment was carried out online using the PDSQ. The PDSQ is a self-report scale consisting of 126 items that are designed to screen for symptoms of 13 different DSM-IV-TR (2000) Axis I disorders. Previous literature has supported the high reliability and validity of the PDSQ (Zimmerman & Chelminski, 2006; Zimmerman & Mattia, 2001a; Zimmerman & Mattia, 2001b). A large validation study has also found the questionnaire to show strong sensitivity for detecting clinical cases (87%), and high negative predictive value (97%) which indicates that most non-cases are detected as non-cases, and vice versa (Zimmerman & Chelminski, 2006). The internal consistency of the PDSQ was .86 based on previous research (Zimmerman & Mattia, 2001a).

Obsessive Compulsive Inventory – Revised (OCI-R: Foa et al., 2002)

The OCI-R was developed as a shorter version of the original 42-item Obsessive-Compulsive Inventory (Foa, Kozak, Salkovskis, Coles, & Amir, 1998). The 18-item self-report questionnaire assesses several symptoms of OCD and includes six subscales: washing, checking, ordering, obsessing, hoarding and neutralising (Foa et al., 2002). The items in the scale refer to experiences that many people may have in their everyday lives. The scale assesses how much each of these

items have distressed or bothered the participant in the past month. Participants were required to rate each item on a 5-point scale (0 – not at all to 4 – extremely). Following completion of the inventory, the scores are summed and range from 0 to 72. A higher score on the OCI-R suggests a greater experience of distress in the past month. Both the OCI and the OCI-R have been found to show high reliability and validity across a number of studies (Foa et al., 2002; Foa et al., 1998; Huppert et al., 2007; Simonds, Thorpe, & Elliott, 2000). The internal consistency of the OCI-R total scale was found to be high (0.85) according to a reliability analysis using Chronbach's Alpha. The analysis was based on participants' responses in the current study to the 18-items of the OCI-R.

Depression Anxiety Stress Scales-21 (DASS-21: Lovibond & Lovibond, 1995).

The DASS-21 was developed as a short version of the original 42-item scale. The 21-item self-report questionnaire is used as a quantitative measure of symptoms relevant to depression, anxiety and stress. Participants were asked to rate 21-items on a 4-point scale (0 – Did not apply to me at all… 3 – applied to me very much, or most of the time). A higher summed score on the DASS-21 indicates a higher level of symptoms in depression, anxiety, or stress. Scores range from 0-21 on each of the scales. Many studies have shown that the DASS shows high reliability and validity as a measure of depression, anxiety and stress (Antony, Bieling, Cox, Enns, & Swinson, 1998; Henry & Crawford, 2005; Lovibond & Lovibond, 1995; Szabó, 2010; Taylor, Lovibond, Nicholas, Crayley, & Wilson, 2005). The internal consistency following reliability analyses using Chronbach's Alpha for the DASS-21 was .89, .83, and .85 for the depression, anxiety, and stress scales respectively, and

.93 for the total scale. The analysis was based on participants' responses in the current study to the 21 items of the DASS-21.

Metacognitions Questionnaire – Short Form (MCQ-30: Wells & Cartwright-Hatton, 2004).

The original Metacognitions Questionnaire (MCQ: Cartwright-Hatton & Wells, 1997) consisted of 65 items. More recently, the MCQ-30 was developed as a short form of the original instrument and showed similar psychometric properties. The assessment tool was developed in order to evaluate the role that metacognitions play in clinical diagnoses. The MCQ-30 (Wells & Cartwright-Hatton, 2004) uses the same four-point Likert response scale as the original MCQ (1 – do not agree to 4 – agree very much). It consists of five separate subscales including positive beliefs about worry, negative beliefs about worry concerning uncontrollability and danger, low cognitive confidence, need to control thoughts and cognitive self-consciousness.

In order to obtain a total MCQ score, the subscale totals are summed. A high score on the MCQ-30 indicates that the participant has a stronger belief about the importance of control, as well as the negative consequences associated with intrusive or unwanted thoughts. The total score ranges from 30 to 120. Overall, the MCQ-30 was shown to have similar psychometric properties to the original MCQ, and shows good reliability and convergent, construct, and discriminative validity (Wells, 2009). The internal consistency across individual subscales on the MCQ-30 was .88, .89, .75, .94, and .90 for the uncontrollability and danger, cognitive self-consciousness, negative beliefs and worry concerning uncontrollability and danger, positive beliefs about worry, and cognitive confidence respectively. The internal consistency of the total score was .94. The reliability analysis using Chronbach's Alpha was based on

participant's responses in the current study to the 30 items of the MCQ-30 and the 6 items from each of the subscales.

Quality of Life Enjoyment and Satisfaction Questionnaire – 18 (Q-LES-Q-18; (Q-LES-Q-18: Ritsner, Kurs, Gibel, Ratner, & Endicott, 2005)

The Q-LES-Q-18 is a short 18-item version of the original 93-item scale (Endicott, Nee, Harrison, & Blumenthal, 1993). The self-report scale measures general quality of life and specific life domain levels of enjoyment and satisfaction. The specific life domains include: physical health, subjective feelings, leisure time activity, social relationships, and satisfaction with medication. Responses to items are scored on a 5-point scale ('not at all or never' to 'frequently or all the time') and a general quality of life index is found by averaging the scores on all 18 items (giving a range of 1 to 5 average score and 18 to 90 total summed score). A higher score indicates better enjoyment and satisfaction across specific life domains. Ritsner and colleagues (2005) suggest that the Q-LES-Q-18 has good construct and concurrent validity and test-retest reliability; similar to the original 93-item scale. The internal consistency was .88 based on participants' responses in the current study to the 18 items of the scale. Internal consistency was calculated following reliability analysis using Chronbach's Alpha.

Procedure.

Participants were recruited through an online self-help website for OCD for participation in a questionnaire. Advertising via web forums, blogs, facebook, and other available avenues directed participants to the website. Participants were asked to complete an online questionnaire, which was developed through Qualtrics Survey Software. The following data were gathered, including: demographic characteristics

(e.g., age, gender, ethnicity, marital status etc.), OCI-R, DASS-21, MCQ-30, Q-LES-Q, and PDSQ.

Results

Participant characteristics.

Sixty five percent of the participants reported experiencing OCD symptoms for more than five years, while only 13% reported experiencing symptoms for less than one year. Thirteen percent of the sample reported that they were currently seeking additional services to manage their OCD, while the majority (87%) reported currently seeking no additional help. Furthermore, 62% of the sample reported not taking any medication. Of the 48 participants who completed the diagnostic questions (due to attrition within the survey), 34 participants (71%) endorsed diagnostic features of OCD as measured by the PDSQ. Of the 67 participants who completed the OCI-R, 45 (67%) participants received a score above 21, the clinical cut-off reported by Foa and colleagues (2002).

Descriptive statistics.

Participants received a total mean score on the OCI-R above the clinical cut-off of 21, which was derived by Foa and colleagues (2002) ($M = 29.18$, $SD = 13.64$). Participants experienced moderate to elevated levels of unhelpful metacognitions ($M = 74.33$, $SD = 18.83$) according to the MCQ-30 total score. Table 2 provides a breakdown of the means and standard deviations of the OCI-R and MCQ-30 subscales. According to the DASS-21, participants received an average depression ($M = 17.15$, $SD = 11.34$), anxiety ($M = 14.08$, $SD = 10.00$), and stress scores ($M = 23.62$, $SD = 10.64$) in the extremely severe range. Finally, quality of life scores ranged from 25 to 78 ($M = 51.24$, $SD = 11.94$).

Table 2

Means and Standard Deviations for OCI-R and MCQ-30 Subscales and Total

Scores

OCI-R	*M* (*SD*)	MCQ-30	*M* (*SD*)
Checking	4.97 (4.09)	Positive Beliefs	12.10 (5.33)
Ordering	5.03 (3.88)	Cognitive Confidence	12.73 (5.42)
Neutralising	3.33 (3.36)	Need to Control Thoughts	14.13 (4.32)
Hoarding	3.34 (3.39)	Uncontrollability and Danger	17.87 (4.70)
Washing	3.79 (4.04)	Cognitive Self-consciousness	17.50 (4.64)
Obsessing	8.73 (3.31)		
OCI-R Total	29.18 (13.64)	MCQ-30 Total	74.33 18.83)

Correlational analyses.

In order to assess the size and direction of the linear relationships between unhelpful metacognitions as measured by the MCQ-30, and symptoms of OCD, quality of life, depression, anxiety and stress, multiple bivariate Pearson's correlation analyses were conducted. According to Cohen's (1988) conventions, an *r* of .1, .3 and .5 can be considered as small, medium, and large respectively. Prior to calculating and assessing *r*, the assumptions of normality, linearity and homoscedasticity were assessed via visual inspection of the normal Q-Q and detrended Q-Q Plots for each variable, as well as scatter plots between variables. These assumptions were not violated. Bonferroni correction was not conducted due

to risk of Type II error as well as independent correlations. As such, results should be viewed with caution. MRA's were conducted in addition to correlational analyses to provide further information on the proportion of variance accounted for by MCQ-30 subscales and OCI-R subscales.

The bivariate correlation between unhelpful metacognitions and OCD symptoms was positive and medium, $r(49) = .40$, $p = 0.002$. The bivariate correlations between unhelpful metacognitions and depression, anxiety, and stress were positive and large, $r(50) = .657$, $p < 0.001$, $r(50) = .594$, $p < 0.001$, and $r(50) = .537$, $p < 0.001$, respectively. A negative and medium to large relationship was found between unhelpful metacognitions and quality of life, $r(49) = -.468$, $p < 0.001$ (see Table 3). The bivariate correlations between OCD symptoms and depression, anxiety, and stress scores were positive and medium to large, $r(49) = .416$, $p = 0.001$, $r(49) = .487$, $p < 0.001$, $r(49) = .453$, $p < 0.001$, respectively. A negative and medium relationship was found between OCD symptoms and quality of life, $r(49) = -.319$, $p = 0.011$. A breakdown of bivariate correlations between the MCQ-30 total score and the OCI-R total score, DASS-21 scores, and Q-LES-Q are provided in Table 3. A positive and large bivariate correlation, and a positive and medium bivariate correlation, respectively, were found between the MCQ-30 total score, and the Obsessing subscale of the OCI-R, $r(49) = .627$, $p < 0.001$, and the neutralising subscale of the OCI-R, $r(49) = .251$, $p = 0.038$. Furthermore, positive and medium bivariate correlations were found between the OCI-R total score, and Positive Beliefs, Uncontrollability and Danger, and Cognitive self-consciousness subscales of the MCQ-30, $r(49) = .359$, $p = 0.005$, $r(49) = .408$, $p = 0.001$, $r(49) = .339$, $p = 0.007$, respectively (see Table 3).

Table 3

Pearson Correlations for Measures of Obsessive-compulsive Symptoms, Depression Anxiety and Stress, Quality of Life, and Meta-cognitive Beliefs

	OCI-R							Q-LES-Q	DASS-21		
	Checking	Ordering	Neutralising	Hoarding	Washing	Obsessing	Total		Depression	Anxiety	Stress
Q-LES-Q	-.08	-.25*	-.24*	-.31*	-.07	-.22	-.32*	-	-	-	-
DASS-21:											
Depression	.27*	.37**	.16	.29*	.12	.28*	.42**	-	-	-	-
Anxiety	.29*	.37**	.31*	.24*	.11	.44**	.49**	-	-	-	-
Stress	.26*	.46**	.11	.33**	.12	.32*	.45**	-	-	-	-
MCQ-30:											
Positive beliefs	.15	.25*	.24*	.04	.30*	.28*	.36*	-.37**	.44**	.36**	.39**
Cognitive confidence	.14	.13	.01	.17	.03	.25*	.20	-.37**	.58**	.45**	.36**
Uncontrollability and danger	.19	.12	.32*	.15	.07	.65**	.41**	-.31*	.49**	.52**	.40**
Cognitive self-consciousness	.14	.09	.23	.14	-.04	.71**	.34**	-.31*	.43**	.52**	.56**
Need to control thoughts	-.03	.11	.19	-.07	.05	.60**	.22	-.44**	.58**	.45**	.37**
Total	.15	.19	.25*	.12	.11	.63**	.40**	-.47*	.66*	.59*	.54*

** Correlation is significant at the 0.01 level (1-tailed). * Correlation is significant at the 0.05 level (1-tailed).
Note. OCI-R, Obsessive-compulsive Inventory - Revised; Depression, anxiety and stress as measured by the DASS-21; Q-LES-Q, Quality of Life Enjoyment and Satisfaction Questionnaire

Multiple regression.

A standard MRA was performed to estimate the proportion of variance in obsessive-compulsive symptoms (as measured by the OCI-R total score) that can be accounted for by the MCQ-30 subscales. Prior to interpreting the results of the MRA, the assumptions of normality, outliers, multicollinearity, and normality, linearity and homoscedasticity of residuals, were assessed. Stem-and-leaf plots and boxplots indicated that the assumptions of normality and univariate outliers were not violated. Mahalanobis distance was inspected and did not exceed the critical chi-square for *df* = 5 (at α = 0.001) of 20.515, for any cases in the data file. This suggests that multivariate outliers were not of concern. Inspection of the normal probability plot of standardised residuals as well as the scatter plot of standardised residuals against standardised predicted values indicated that the assumptions of normality, linearity and homoscedasticity of residuals were met. Finally, relatively high tolerances and relatively low variance inflation factor of all predictors in the regression models indicated that the assumption of multicollinearity was not violated.

In the standard MRA, the predicted variable was the OCI-R total score, and the predictor variables were the MCQ-30 subscales (see Table 4). In combination, the MCQ-30 subscales accounted for a significant 26% of variance in OCI-R total scores, R^2 = .26, Adjusted R^2 = .17, $F(5, 45)$ = 3.10, p = 0.017. Follow-up analyses revealed a large effect as per Cohen's (1988) conventions (f^2 = .34). Both the positive beliefs and uncontrollability and danger subscales of the MCQ-30 were identified as significant predictors. They accounted for 7.6% and 8.2% of unique variance in OCI-R total scores, respectively.

Table 4

Standard MRA with OCI-R Total Score as the Predicted Variable and MCQ-30

Subscales as Predictor Variables within the Total Sample

Block of predictors	R	Adj. R^2	Change R^2	F change	df1	df2	Sig. F change
MCQ-30 subscales	.51	.17	.26	3.10	5	45	.017*

Individual predictors	B[95% CI]		β	sr^2			
Positive beliefs	.88[.06, 1.70]*		.37	.08			
Cognitive confidence	-.01[-.73, .70]		-.01	.01			
Need to control thoughts	-.89[-2.07, .29]		-.30	.04			
Uncontrollability and danger	1.17[.12 2.23]*		.43	.08			
Cognitive self-consciousness	.14[-.87, 1.14]		.05	.01			

Note. N = 50. CI = confidence interval.

* $p < 0.05$.

Discussion

The present study aimed to examine the relationships between unhelpful

metacognitions, OCD symptoms, quality of life, depression, anxiety and stress. The

demographic and psychological characteristics of an online OCD self-help seeking sample were also explored.

Hypothesis one predicted a significant positive and large relationship between unhelpful metacognitions and obsessive-compulsive symptoms, however a positive and medium relationship was found. Hypothesis one also predicted a negative and large relationship between unhelpful metacognitions and quality of life, which was supported by the results. Furthermore, hypothesis one predicted a positive and large relationship between unhelpful metacognitions and Depression, Anxiety, and Stress scores, which was supported by the results. Results of the bivariate correlations are consistent with and support previous literature (Irak & Tosun, 2008).

Our results support Wells' (2000) metacognitive model for OCD as meta-cognitive beliefs were positively correlated with obsessive-compulsive symptoms. However, OCI-R total scores were not significantly correlated with all subscales on the MCQ-30, namely cognitive confidence and need to control thoughts. When examining the subscales of the OCI-R, significant correlations between the obsessing subscale and all subscales of the MCQ-30 were found. This supports the use of this model in participants who receive high scores on the obsessing subscale of the OCI-R.

Hypothesis two predicted that there would be significant positive correlations between the obsessions subscale of the OCI-R, specifically, and subscales of the MCQ-30. This hypothesis was supported, and is consistent with previous literature (Timpano et al., 2014). Timpano and colleagues (2014) suggested that the obsessions subscale of the OCI-R (Foa et al., 2002) may be the best indicator of clinical levels for individuals with OCD. Given that the obsessions subscale was found to have

significant correlations amongst subscales of the MCQ-30 (Wells & Cartwright-Hatton, 2004), this may suggest that clinical levels of OCD are more likely when unhelpful metacognitions are present, as per Timpano and colleagues' (2014) findings. As such, the obsessive subscale may have an important relationship with metacognition whereby unhelpful metacognitions are seen to have a greater influence on obsession symptoms compared to other symptoms of OCD such as washing or checking.

Previous literature has demonstrated the relationship between dimensions of the MCQ and measures of obsessions and compulsions, thus showing support for the Metacognitive model for OCD (e.g. Cartwright-Hatton & Wells, 1997; Hermans et al., 2003; Janeck et al., 2003; Wells & Papageorgiou, 1998). The present study added to this body of literature, however, the findings were within a clinical and subclinical sample of OCD self-help treatment seekers, unlike previous literature using student samples (Irak & Tosun, 2008; Myers & Wells, 2005). The OCI-R was also used to investigate the above correlations following recommendations for future research by Irak and Tosun (2008), as well as to differentiate between participants with clinical and sub-clinical OCD as determine using the clinical cut-off of the OCI-R. The OCI-R, which has been found to have a strong correlation with the MOCI ($r = .85$) according to Foa and colleagues (2002), was used in order to compare findings to Irak and Tosun (2008) who used the MOCI.

Hypothesis three predicted that the need to control thoughts, uncontrollability and danger, positive beliefs, and cognitive self-consciousness subscales of the MCQ-30 would be significant predictors of obsessive-compulsive symptoms. This hypothesis was only partially supported by the results. Positive beliefs and uncontrollability and danger subscales of the MCQ-30 were identified as significant

unique metacognitive predictors for obsessive-compulsive symptoms. Irak and Tosun (2008) found that the need to control thoughts, uncontrollability and danger, positive beliefs, and cognitive self-consciousness subscales were all significant predictors of obsessive-compulsive symptoms. Although some consistencies were found here in the magnitude of associations, limitations to our study sample size may have impacted the power of our study and as such inflated the likelihood of type II error. Furthermore, the use of an Internet treatment-seeking sample, as well as the use of an alternative measure of OCD symptoms (OCI-R as oppose to the MOCI) may have resulted in variations in results compared to Irak and Tosun (2008). The findings of the current study may be unique to this specific population of self-help treatment-seeking individuals with clinical and subclinical levels of OCD. Additional research into the relevance of challenging positive beliefs and uncontrollability and danger specifically in the treatment of OCD within an Internet-based context may be useful to provide further evidence for the treatment of this unique population.

An area of future research would be to expand on Irak and Tosun's (2008) study and add to Timpano and colleagues' (2014) study to identify if different OCI-R subscales predict different MCQ-30 subscales. Bivariate correlation analyses conducted in the present study revealed that those clients who received higher scores on the obsessing subscale of the OCI-R also received higher scores on the MCQ-30, or higher levels of unhelpful metacognitions. This suggests another area for future research that is, identifying if those clients who receive higher scores on the obsessing subscale of the OCI-R would obtain greater benefits from therapy aimed at identifying and reducing unhelpful metacognitions, compared to those who receive higher scores on other subscales of the OCI-R.

As described previously, many clients with OCD often do not seek help, despite the availability of evidence-based treatments. The results of this study support previous literature finding that only 13% of the sample was currently seeking additional psychological services to manage their OCD, and 38% of the sample was currently taking medication for their OCD. Previous literature has explored the idea of limited access to treatment (time-related, environmental, and cost-efficiency) to understand the large percentage of clients not seeking help. Cost-efficiency can take the form of both travel expenses and therapeutic expenses as described by Ström (2003) that can act as a barrier to accessing treatment. Furthermore, environmental factors such as limited access to services in regional and rural areas can also link in to cost-efficiency and time-related access where one may be quite far from services and as such travelling time and cost is an added burden (Richards, Klein, & Austin, 2006). Another important point that relates to both cost-efficiency, and time-related access is the idea of waiting for treatment or being placed on a wait-list at a psychological clinic. If appropriately implemented, Internet-based self-help programs could provide a solution to limited access to treatment and can furthermore reduce or shorten waitlists and provide services to those where services may not be readily available elsewhere. Another important factor to consider is the demographic and psychological characteristics of the population currently seeking access to such services. It is important to develop treatment programs that are consistent with such characteristics in order to tailor programs to suit this unique population. Future research could compare the characteristics of individuals with OCD seeking self-help online to those who seek treatment for face-to-face therapy to see if any differences are present, and as such tailor online self-help treatment programs to suit these

differences. One such limitation to this study is that no comparison / control group was implemented.

A number of additional limitations have been identified within the present study. First, the sample size was reduced due to all participants not completing the entire survey. This may have had a significant impact on the findings resulting in a potential Type II error where the null hypothesis is accepted when it should be rejected. It should be noted, however, that the present study aimed to recruit a clinical sample that has not yet been utilised in such studies, and as such improves generalisability of the findings. Second, the use of the PDSQ as a diagnostic screening tool was a limitation within this study. Individuals were screened on symptoms of OCD to determine the likelihood of a diagnosis of OCD; however, follow-up interviews using the PDSQ were not carried out to confirm the diagnosis. Given this limitation, as well as the small number of participants that completed the PDSQ, the clinical cut-off score of the OCI-R, established by Foa and colleagues (2002) to distinguish clinical levels of OCD from subclinical, was used to identify such participants. Additionally, due to the limited sample size of those who received OCI-R scores above the clinical cut-off, the MRA on those participants only could not be completed. As such; the entire sample was used in the MRA analyses, which included subclinical cases.

Third, given the use of correlation, we cannot imply causation. As such, the study does not provide a causal link between unhelpful metacognitions and obsessive-compulsive symptoms. A control group or comparison group with GAD or no clinical symptoms may be useful in order to determine the specific nature of metacognitions in relation to obsessive-compulsive symptoms. Furthermore, it would be useful to include measures of worry, trait anxiety, and depression and control for

the relationship between these measures and our obsessive-compulsive symptom measures within the analyses, as utilised in previous studies (Irak & Tosun, 2008; Myers & Wells, 2005).

The relationship between unhelpful metacognitions and OCD symptoms found in this study has strengthened the metacognitive model for OCD and indicate that MCT may be applicable to the treatment of OCD in a sample seeking self-help. This link has warranted the exploration of new treatments for OCD aimed at targeting unhelpful metacognitions. Given that a large percentage of individuals with OCD do not seek help, the dissemination of easily accessible self-help programs (bibliotherapy, Internet-based and computerised) tailored to the characteristics of those self-help seeking individuals may provide one solution to this problem.

Chapter 7. Study III: Development of an Online Self-help Metacognitive Program

Introduction

A number of meta-analyses and systematic reviews have provided evidence supporting the use of self-help programs (computerised, Internet-based, and bibliotherapy) for a variety of anxiety disorders, including specific phobias, social anxiety, panic disorder, OCD, GAD and PTSD (Barlow et al., 2005; Grist & Cavanagh, 2013; Hirai & Clum, 2006). Until recently, the use of self-help for OCD has been sparse. An essential need for self-help programs for OCD has been recognised in recent years due to an increase in demand of services outweighing the availability of services, including evidence based practitioners (Lovell & Bee, 2011). Lovell and Bee (2011) reported that almost 90% of individuals referred for the psychological treatment of OCD remain symptomatic or inadequately treated, which has lead to the exploration of alternative treatment modes.

Many variations of the use of self-help programs exist, including the use of self-administered self-help, self-help with the assistance of a therapist, or self-help as a tool in addition to face-to-face therapeutic services. An large advantage to utilising a self-help approach includes assistance with bridging the gap between needing help and receiving help, particularly for those on long wait-lists for healthcare services, those in remote or rural populations where evidence-based services may not be readily available, and those who cannot afford face-to-face or group therapy (Newman et al., 2011; Salkovskis, 2007). Due to the overwhelming need of psychological interventions, particularly in rural and remote locations, Internet-based

self-help is now being widely implemented for the treatment of OCD (Herbst et al., 2012).

Self-administered self-help programs have utilised a wide variety of evidence-based and alternative treatment approaches, including CBT, exposure and response prevention, MCT, MT, AS, CMT, and ATT (see Chapter 5. for further description of treatment approaches). The use of Internet-based CBT for OCD was found to produce large effect sizes according to a recent review by Wootton and Diefenbach (2015). The meta-analysis and systematic review conducted in chapter 5 also found an overall moderate effect size for self-help treatments for OCD, with large effect sizes found when further therapeutic contact was provided (Pearcy et al., 2016). Unfortunately, the use of CBT and ERP for OCD continue to produce high drop out rates, in both face-to-face contexts and self-help therapy. Abramowitz (2006) and Fisher (2009) reported that over 50% of clients treated with ERP continue to experience distressing symptoms and as such many clients withdraw from ERP, give up, or simply refuse ERP. This has led to the exploration of other treatment approaches.

MCT may act as a suitable alternative to CBT and ERP treatment approaches as shown in numerous studies utilising face-to-face, self-help, and group therapy for anxiety disorders, and more specifically, OCD (Fisher & Wells, 2008; Moritz et al., 2010; Rees & van Koesveld, 2008). Fisher and Wells (2008) and Rees and van Koesveld (2008) found promising results of MCT for OCD in their preliminary trials of individual and group therapy protocols, suggesting further exploration in larger randomised controlled trials. Moritz and colleagues (2010) explored the use of MCT utilised in a self-help approach for OCD. They found significant reductions in OCD symptoms from baseline to post-treatment when compared to participants on a

waitlist. Numerous treatment approaches were encompassed within their program including the use of CBT, MCT, and psychoanalytic theories and strategies. Further exploration of the use of pure MCT in a self-help context is warranted.

A review of self-help programs for the treatment of OCD was conducted in Chapter 5. and found an average overall effect size of 0.51 (g) (Pearcy et al., 2016). Self-help programs, unfortunately, are not without limitations, however. According to previous literature, dropout rates for OCD vary between 17-57%, with higher dropout rates identified for self-help specifically compared to face-to-face (Mataix-Cols & Marks, 2006). Similar results have been found for telemental health interventions for OCD with high dropout rates between 59-74% (Herbst et al., 2012). Furthermore, the review of self-help treatments for OCD (see Chapter 5. found a large variation in dropout rates ($SD = 25.58$) with an average dropout rate of 27% where dropout rates increased when therapeutic contact was reduced with the highest drop out rate reported at 90% (see Chapter 5. Limited data is available on the reasons behind high drop out rates for OCD, as such the current study aimed to explore strategies to reduce participant attrition within the development of a self-help program for OCD. Kelders et al. (2012) suggested that gaining an understanding of the factors that influence motivation and treatment adherence should be an important focus of Internet and web-based treatment interventions.

The objective of the current study was to develop an online self-help MCT program. Given the limitations to current self-help research, the following aims were identified in order to reduce participant attrition within a self-help research context:

1. Determine the essential features required within a self-help program to improve motivation, engagement, and program completion.

2. Incorporate factors used to increase motivation within the development of the program.

3. Conduct an expert review of the self-help program.

Motivational Factors Influencing Program Completion

Method

Design.

The design was qualitative in nature based on a structured open-ended online survey provided to members of the general public. This studied aimed to collect preliminary qualitative feedback on the motivational factors influencing program completion. A secondary aim was to use this data to inform the development of a self-help program for OCD. The final aim was to develop an online self-help program that is acceptable to participants, with reduced attrition rates, and improved motivation for completion.

Participants.

Sixty-four participants from the general community took part in the online survey. Participants were recruited from the general community rather than an OCD specific population to receive comprehensive information to assist in the development of self-help programs for a broad range of populations. Furthermore, given self-help programs are often aimed at individuals with subclinical levels of a disorder (i.e. lower level within a stepped care model) the general community may better represent this population, rather than a clinical population. Participants were aged 19 to 57 years of age ($M = 35.94$, $SD = 12.94$). 64% of participants were female and 36% were male (see Appendix A. for a breakdown of missing survey data). The

majority of participants were currently residing within Australia (96.9%) with 3.1% of participants in Indonesia. A review of missing data from non-demographic survey questions suggested that of the 64 participants recruited, 43 participants completed the entire survey with some survey data missing from 21 participants.

Measures.

The Motivation and Self-help Client Survey (MSCS) is a brief open-ended questionnaire developed by the principal researcher concerning participants' perception of the usefulness of, and motivational aspects required to complete self-help programs. The questionnaire was completed via an online survey and contained 16-18 open-ended questions (depending on answers provided) and five closed questions. The questions related to the advantages and disadvantages of self-help therapy, the motivational aspects required to complete self-help programs (e.g., "What would help to motivate you to complete an Internet-based therapy program for 6 weeks?"), gaining initial interest in a self-help program (e.g., "If you were to complete a self-help program, what would you find most helpful to gain your interest?"), and increasing the popularity and chance of finding Internet based self-help programs on the World Wide Web (e.g., "If you were interested in searching for information on psychological therapies through the Internet, what would you type into your search engine?"). See Table 5 for an overview of the full Online Survey Questionnaire.

Procedure.

Following approval from the Human Research Ethics Committee at Curtin University participants were recruited via snowballing throughout the World Wide Web (utilising email and Facebook). Participants were presented with an information sheet (outlining the purpose of the study, what participation involves, as well as

ethical considerations) and a consent form prior to completing the online survey (Appendix B.). The survey was designed and administered to participants using Qualtrics Survey Software (http://www.qualtrics.com). The time taken to complete the online survey ranged from 4.48 to 36.17 minutes ($M = 13$ min, $SD = 14$ min).

Analysis.

Data was entered and analysed using SPSS (IMB SPSS Statistics 20). Frequencies and descriptive statistics were calculated for age, gender, diagnosis, country and state of residence. Thematic analysis was incorporated to analyse the data, using methods described by Braun and Clark (2006). Braun and Clark (2006) described a 6-step process in conducting thematic analysis (p. 87):

1. "Familiarizing yourself with your data"

2. "Generating initial codes"

3. "Searching for themes"

4. "Reviewing themes"

5. "Defining and naming themes"

6. "Producing the report"

Table 5

Online Survey Questions

Questions (follow-up questions in italics)

1. How attractive would you find self-help therapy over the Internet in comparison to individual/face-to-face therapy? Why?
2. What major advantages can you think of for using an Internet-based therapy?
3. What major disadvantages can you think of for using an Internet-based therapy?
4. Can you think of any disadvantages for self-help therapy?
5. Can you think of any advantages of self-help therapy?
6. Have you tried any form of self-help therapy in the past?
   What did you find helpful about this type of self-help therapy?
   Were there any unhelpful aspects or areas that you would improve in this type of self-help therapy? If so, please describe here.
7. With regards to improving motivation to continue, would it help to receive regular email contact from a therapist?
   How much email contact from the therapist would be helpful (e.g., once a week, once a fortnight, etc.)?
8. A number of new modules will be released each week as part of the 6-week program. Would it be helpful to receive a reminder email each week throughout this time?
9. What would help to motivate you to complete an Internet-based therapy program for 6 weeks?
10. Would it be helpful for all participants to receive a voucher mid-way through the program, as well as at completion of the program?
    Why do you think it would not be helpful for the participants to receive vouchers?
    And can you think of anything else that would be helpful?
    Why do you think it would be helpful for participants to receive vouchers?
    How much (minimum amount) per voucher would it take to motivate you to continue?
    a) $5.00 b) $10.00 c) $20.00 d) $30.00 e) $50.00
11. If you were to receive vouchers at these times, what is your preferred voucher

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type? (e.g., Coles / Myer, Itunes, etc.)

12. If you were interested in searching for information on psychological therapies, where would you look? (e.g., Internet, phone, word of mouth, shopping malls, radio advertisements, universities etc.)

13. If you were interested in searching for information on psychological therapies through the Internet, what would you type into your search engine?

14. What is your preferred search engine? (e.g., Google, Yahoo, Bing etc.)

15. If you were interested in searching for information of psychological treatment for Obsessive-Compulsive Disorder, what would you type into your search engine?

16. If you were to complete a self-help program, what would you find most helpful to gain your interest? (e.g., information, colours and graphics, information on those involved in developing the program, anything else you can think of).

17. What information is important to you when deciding whether or not a self-help program is worth trying?

18. If you can think of any other relevant information that would be helpful, please include it here.

Results.

The themes and subthemes as described in Braun and Clark's (2006) method of thematic analysis are presented within two major domains. Five themes were classified within the 'motivational aspects and gaining interest to engage' domain, and three themes were classified into the 'Search improvements for web-based programs' domain.

Motivational aspects and gaining interest to engage.

Limited motivation appears to be a major disadvantage when considering adherence to self-help treatment programs, particularly for OCD. As such, ways to improve motivation and gain interest within an Internet-based self-help program were explored. The major themes identified within this domain included: time-efficiency, incentives, goal setting and progress reviews, therapeutic contact,

research, and program features. Table 6 provides supporting quotes for each

identified theme and subtheme within this domain.

Table 6

Themes, Subthemes, and Supporting Quotes for the Motivational Aspects and

Gaining Interest to Engage Domains

Theme	Subtheme	Supporting Quotations
Time efficiency	Time taken to complete and expectations of engagement	"Having the program in small, able-to-complete-in-short-time bits"
		"Detailed information about what would be required of me to complete the program"
	Effort and ease of access to program	"Allow it to be completed any time that week"
		"It would have to be something that I can do fairly quickly and easily, that isn't much of an effort to keep on track".
Incentives, goal setting and progress reviews	Incentives	"After reaching a certain mile stone they will receive some reward"
		"Small rewards… to help an individual understand and appreciate the progress they are making"
		"To show that you are continuously improving"
	Incentive types	"Token"
		"Voucher"
		"Celebration with other people who had completed"
		"Monetary reward"
	Goal setting	"Goal setting / action plans"
		"Reference to patients goals"
		"Having a clear goal to achieve at the end"
		"Some kind of goal … would give a sense of accomplishment along the way"
	Progress reviews	"Assessment to verify that you are gaining improvement would be motivating"

Theme	Subtheme	Supporting Quotations
		"Seeing progress"
		"Feedback / enquiry on progress"
		"A progress report and encouragement would be helpful"
Therapeutic contact	Email contact	"Depends… and possibly should be negotiated"
		"I would want to determine that depending on my needs"
		"The level of contact might vary as therapy progresses"
		"It would depend on the individuals level of neediness"
		"A case by case determination would be needed"
	Telephone contact	"Phone calls to answer any problems or questions"
		"A phone call from the therapist at the start to give an overview of what to expect and to ask any questions, as well as another part way through just to check in with how things are going"
		"Contact via the phone could also help motivate people to complete"
	Reminders	"Reminders that include reference to patients goals"
		"Reminders at the start and completion of each module"
		"Regular contact from the therapist".
	Therapeutic contact to provide guidance	"Someone I could check in with … either at the end of once or twice throughout the program"
		"Knowing that a person could contact someone if the process wasn't working particularly well for them … May also keep me committed"
		"Praise and encouragement while completing the modules".

Theme	Subtheme	Supporting Quotations
	Support from other clients	"Perhaps a support group"
		"Internet chat forum with other users"
		"… would help to normalise experiences, learn from others".
	Information on researchers and therapists	"Information on people who have developed the program and why they felt the need to develop such a program"
		"Information on those involved in developing the program (e.g., qualifications, experience, success in treating people with OCD)"
Research	Evidence-based literature	"Research proving that these forms of therapy have been successful in the past to give me the confidence that they may work for me"
		"Information on evidence-base used to develop intervention"
		"Making a product sound reputable and proving that it works to get people's trust"
	Program information, outcomes, and endorsements	"Reminders of positive outcomes"
		"Positive outcomes that can be achieved by adhering to the program"
		"Endorsement by reliable source (e.g., university logo)"
		"Advertisement of past successes"
Program features	Ease of learning	"Easy to navigate home page"
		"Easy to understand definitions"
		"Easy to navigate, simple and fast interface"
		"Easy access and variety of choices or ideas"
		"Limited information on screen"
		"Uncluttered pages"
	Graphics and content	"Lots of graphics or video's from the therapist"
		"A fun activity or Internet game attached to the

Theme	Subtheme	Supporting Quotations
		end of the task"
		"Surveys, graphics, videos, games even would be good"
		"Make the course fun"
		"Having little fun facts about the world or about people with OCD (that this is common in X% of people)"
		"Colours and graphics would get me interested to start with"
		"Engaging and attractive website".
		"Definitely visuals - it is harder to take the time to read …"

Time efficiency.

Many participants described time efficiency and length of the program as strong factors in driving motivation to continue with self-help programs. Many participants reported that the time taken to complete modules as well as understanding how much they were expected to engage in the program was related to how much motivation and initial interest participants had. Most participants identified favourably with less effort, less time-consuming and easy access as ways to motivate them to continue with the program.

Incentives, goal setting and progress reviews.

Incentives were a sub-theme that was identified by numerous participants throughout the survey as an external motivator, as well as a way to assess initial interest in Internet-based or self-help programs. Participants reported that some form of incentive would help them to reach their goals, continue with the program, provide a reward for taking a step to recovery, and recognize the progress they have made.

Incentives may also relate to setting and achieving certain goals. Many participants suggested that creating and setting your own goals assisted a great deal with improving motivation to continue. They also stated that goal setting could aid in the self-monitoring of one's own progress. Another external motivator that was identified by many participants was the notion of an external progress report, aside from reviewing one's own goals. Progress reports may take the form off pre-post assessments, or assessments conducted throughout the program to track progress along the way. A number of participants reported that being able to visually and externally see improvements, may help to motivate them to continue with therapy.

Therapeutic contact.

Therapeutic contact is also a strong motivational factor to consider when conducting Internet-based and self-help research. Analysis of participant's responses suggested that 95.7% of participants reported that regular email contact from a therapist would be helpful to encourage and motivate clients to continue. Sixty percent of those participants reported that email contact provided once a week would be sufficient, while 14% of participants stated that the amount of email contact is dependent on the needs of the client and should be discussed prior to beginning the self-help program.

The notion of reminder emails at the beginning of each week was also discussed with participants. Ninety one percent of participants reported that this is something they would find helpful. Of these participants, some alternative suggestions were made regarding the content (e.g. referencing client goals and praise) and timing (e.g. beginning of each module) of reminders. Participants identified the need for some form of therapeutic contact throughout the program as a way to motivate them to continue, or provide guidance.

Therapeutic contact was explored in the form of emails, as discussed above, and phone calls. Many participants reported that regular phone calls may be helpful to motivate commitment to therapy, as well as help to guide clients through the program. Many participants also suggested that having contact information for researchers and therapists, as well as information on therapists and researchers might help with motivation to continue, and developing initial interest. Aside from therapeutic contact, some participants also identified the notion of contact with other clients as a way to normalise experiences.

Research.

In order to gain initial interest in self-help or Internet-based programs, participants indicated the need for evidence-based literature in order to present the program as an effective therapy. Participants suggested that providing information on previous research may help to bolster clients' confidence that the self-help program may be useful. Participants also stated that it would be useful, if possible, to provide information on past successes, information on where the program is endorsed, and information on the potential positive outcomes of treatment programs.

Program features.

A number of areas are important to look at when developing an Internet-based self-help program. Most importantly are aspects within the website and program itself. A number of sub-themes were identified, including: Ease of learning, graphics, and content. Many participants identified the need for a website and program that was easy to use. This ease of use included aspects of the website, such as easy navigation throughout the website, and aspects of the program, such as ease of reading materials, use of non-jargon language, limited reading, and simplicity. Many

participants reported that if a program is easy to complete from a technical perspective, then levels of motivation might increase.

Consistent findings amongst a number of participants indicated the appeal of Internet-based self-help programs, which are fun and engaging. Information on how to make such programs fun and engaging included the use of: videos, audio, colours and graphics, fun facts, animations, games and quizzes. Some participants reported that colours, graphics, videos and audio can be very helpful when used throughout the program to improve ease and increase understanding on certain topics. Although the use of colours, graphics, video and audio may be helpful throughout the program, some participants indicated the necessity of the use of such features to gain initial interest.

Search improvements for web based programs.

In order to improve website 'hits' and search improvements, participants were asked to describe how they would search for self-help programs, Internet-based programs, and OCD specific programs. The major themes identified within this domain include: finding information on psychological therapies, preferred search engines, and search phrases.

Finding information on psychological therapies.

Participants were asked to report where/who they would go to, to search for information on psychological therapies. Participants were able to provide multiple options as answers. Ninety percent of participants reported that they would use the Internet to search for information, 45% of participants reported that they would ask friends, family, or others by word of mouth, 14% of participants stated that they would ask their doctor for advice, 6% of participants reported that they would search

within their university, 6% described the use of books, flyers or adverts to engage them in therapy, and 2% of participants stated that they would look either in the phone book, or go to professional associations.

Preferred search engines.

Given the focus of this research is Internet-based self-help therapy, participants were asked to provide information on their preferred search engines to aid in amplification of the website throughout the World Wide Web. Findings indicated that 98% of participants first preference for search engines was Google.

Search phrases.

In order to identify words/phrases to embed within the website and increase website 'hits' within popular search engines, participants were asked to describe what they would type into their search engines when looking for psychological therapies. A number of common key words were identified amongst participants, which are listed in Table 7.

Table 7

Common Search Words

Psychological	Coping	Assistance
Therapy	Services	'name of therapy' (e.g., CBT)
Self-help	'geographic location'	
Mental health	programs	help
'symptom description'	'name of disorder'	departments
'name of condition'	treatment	online
psychotherapy	stop	'abbreviations for disorders'

(e.g., OCD)

Development of an Online Metacognitive Self-help Program

Program development.

Treatment manuals.

Treatment is based on the Metacognitive therapy treatment manual: group and individual protocol (Rees & van Koesveld, 2009) as well as the metacognitive model of OCD (Wells, 1997, 2000). The original version of this manual was used by Rees and van Koesveld (2008) in an open trial of group MCT for OCD and was found to have large effect sizes. This manual was reviewed, updated and modified for use as a pure MCT online self-help program. Furthermore, MCT strategies identified by Wells (2006) were also incorporated in the treatment program. These strategies included attention training and detached mindfulness (Wells, 2006). Detached mindfulness involves increasing awareness of cognitive events in a detached way (i.e. reducing attachment and thus reactivity to cognitive events). In other words, observing cognitive events in your mind without the need to interact with such events. Attention training involves training the mind to become more flexible in regards to where attention is focused. In this case, attention may be focused on the top priority rather than unhelpful cognitive events that do not require an immediate response (Wells, 2009). The original treatment manual contained three distinct phases: engagement in therapy, MCT, and maintenance (Rees & van Koesveld, 2009). These three phases accumulate a total of 10 modules. Each module of the manual was reviewed and modified by the primary researcher in conjunction with Associate Professor Clare Rees, Dr Rebecca Anderson and Dr Sarah Egan, to produce a self-help MCT program for online use (see *Expert Review and Feedback*

below). Further information on the modification of this treatment manual can be found below as well as a comparison of the Rees and van Koesveld's (2009) treatment manual, and the online MCT program (see Table 8 and Table 9).

Program content.

The online self-help MCT program contains eight modules, which were developed to be completed over a 4-week period, which is significantly shorter than previously implemented individual and group MCT treatment programs (Rees & van Koesveld, 2009). The program was developed with the following aims in mind:

1. Ease of participant use.
2. Time-efficiency.
3. Self-engagement, motivation and enjoyment.

An outline of the eight modules provided in the online self-help metacognitive program is displayed in Table 9. The program was separated into two different parts for the purpose of addressing separate aims within the program outlined below.

Part I of the program consisted of week one and week two of the online MCT program with the overall aim of easing the client into the therapeutic process. Part I was noted to be one of the most critical phases with the aims of:

1. Engaging the client.
2. Easing the client into the therapeutic process.

Within pure self-help research, a therapeutic alliance cannot be developed, and as such, it is critical to develop a sense of trust and belief from the client that this treatment program may provide them with the necessary skills to improve their symptoms. If this is not portrayed at the beginning of a self-help treatment program,

dropout rates may significantly increase. Week one of the online MCT program aims to:

1. Provide psychoeducation on obsessions and compulsions, metacognitions and MCT.

2. Provide a rationale behind the treatment being offered.

3. Increase motivation to change.

Modules on goal setting and motivation were included in order to boost motivation to work hard in therapy when clients may be experiencing a sense of ambivalence about changing their behaviour. Week two of the online MCT program was designed to increase client awareness surrounding their own metacognitions, as well as introduce the client to the use of MCT skills (detached mindfulness).

Part II of the program made up the final two weeks of the Online MCT program and aimed to assist the client to further develop and implement metacognitive skills within their own life. Week three of the online MCT program consisted of a number of aspects, which are vital to MCT, and as such was designed as a longer module. Information was provided to aid in understanding the power and importance given to one's own thoughts. Experiments were also utilised to test out beliefs surrounding the importance of thoughts. Week three also involved the continued practice of detached mindfulness and the introduction of ATT techniques. Week four provided the opportunity to continue using and applying previously implemented skills found in prior modules to the clients' day-to-day lives, as well as provided strategies to maintain changes that had already been made.

Table 8

Outline of the Original Treatment Manual (Rees & van Koesveld, 2009)

Phase 1: Engagement in Therapy (Individual session 1-4, Group sessions 1-2)	
Module 1:	Psychoeducation and normalisation
Module 2:	Motivation to change
Module 3:	Explanation of treatment / beginning of shift to metacognitive mode
Phase 2: Metacognitive Therapy (Individual sessions 5-14, Group sessions 3-8)	
Module 4:	Establishing the connection between cognition, emotion and behaviour
Module 5:	Establishing a metacognitive mode
Module 6:	Problem with trying to control thoughts
Module 7:	Modifying attentional strategies
Module 8:	Restructuring metacognitive beliefs regarding thought-fusion
Phase 3: Maintenance (Individual sessions 15-20, Group sessions 10-12)	
Module 9:	Ongoing exposure experiments
Module 10:	Detailed relapse prevention plan

Table 9

Outline of the Online Self-help Metacognitive Program Modules

Part I: Engagement in Therapy and Introduction to MCT (Week 1-2)	
Week 1	Module 1: The Nature of Obsessions and Compulsions
	Module 2: Are you Ready to Change?
	Module 3: What are Metacognitions and What is Metacognitive

	Therapy?
Week 2	Module 4: Becoming more Familiar with Thoughts about Thoughts
	Module 5: Examples of Metacognitions and Introducing Detached Mindfulness

Part II: Development and Implementation of Metacognitive Skills, and Maintenance (week 3-4)

Week 3	Module 6: Over Importance of Thoughts
	Module 7: Attention Training and Starting to Experiment
Week 4	Module 8: Continuing to Experiment and Staying on top of it

Website development.

Clark and Mayer (2003) developed a set of guidelines for consumers and designers of multimedia learning. They argued that it is important to include both text (printed and/or spoken) and graphics (e.g., illustrations, drawings, charts, photographs, animation, etc.) within multimedia learning. The reasoning behind this is that people are more likely to understand and focus on the material presented when they engage in active learning (Clark & Mayer, 2003). They suggested not only adding illustrations that decorate the page, but to add pictures that help to engage the participant in understanding the material presented. Clark and Mayer (2003) also make suggestions for effective types of language, sounds and design in e-learning.

In addition to the guidelines set by Clark and Mayer (2003), Ritterband, Thorndike, Cox, Kovatchev, and Gonder-Frederick's (2009) model of Internet intervention-based behavioural change was also taken into consideration. Within Ritterband and colleagues' (2009) model, eight main factors were taken into

consideration in the development and design of the online MCT program, website, and treatment package:

1. Appearance.

2. Behavioural prescriptions.

3. Burdens.

4. Content.

5. Delivery.

6. Message.

7. Participation.

8. Assessment.

Finally, Proudfood and colleagues (2011) developed a set of guidelines for Internet intervention research which were also considered within the development of the online self-help program. The guidelines suggested the following areas as important within Internet intervention research: "focus and target population, authorship details, model of change, type and dose of intervention, ethical issues, professional support, other support, program interactivity, multimedia channel of delivery, degree of synchronicity, audience reach, and program evaluation" (Proudfoot et al., 2011, p. 85). The website was developed and designed in correspondence with the guidelines described above and with the help of Squarespace and Qualtrics survey software. Within the website a number of images, multimedia (video and audio), interactive activities, and forms were developed in correspondence with the guidelines set by Clark and Mayer (2003).

Squarespace and Qualtrics Survey Software.

Corresponding with the modification of the manual, a website was also developed for the metacognitive self-help program. The website was developed, designed and hosted through Squarespace (http://www.squarespace.com), a web-hosting platform used for creating and maintaining websites (see Figure **6**).

Qualtrics Survey Software (http://www.qualtrics.com) was used for survey design and administration of measures in correspondence with the website. Further discussion of specific surveys and questionnaires used within this research project can be found in Chapter 8. Qualtrics Survey Software was also used within the development of specific modules within the online self-help MCT program (See Appendix C. for further information on specific modules).
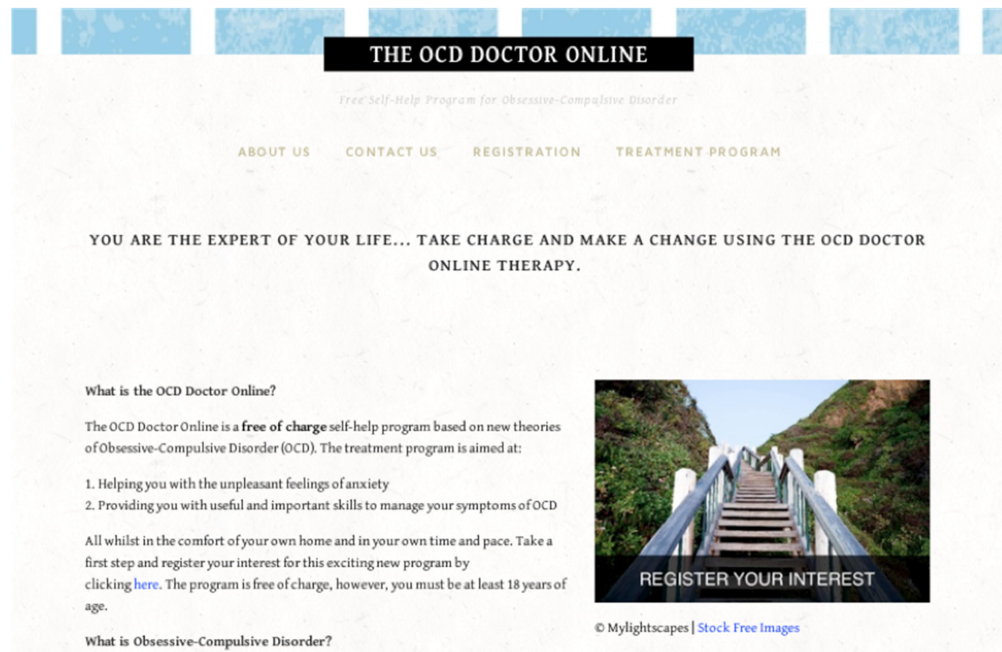
Figure 6. **Homepage developed through Squarespace.**

Web pages.

The structure of the website was developed for easy navigation. The top of every page contained navigation links to the following pages: home page, about us, contact us, registration, and treatment program. This was to ensure easy navigation for participants (see Figure **6** above). A total of 71 web pages were designed and developed by the researcher within Squarespace. Fifteen of these pages were used for registration and links to post-test and follow-up questionnaires and included the following: an information sheet, consent form, links to baseline questionnaires, password for access to the treatment package, multiple ineligibility to treatment pages following baseline questionnaires, links to post-test and follow-up questionnaires and other navigation pages (see Figure **7**). Excluding the registration link, four pages were used for the navigation links described above (home page, about us, contact us, and treatment program (explanation of the treatment program). A total of 43 pages were used for the eight treatment modules, two pages were used for worksheet quick links and the remaining pages (7) were used for navigational purposes (e.g., Metacognitive treatment home page, Part I navigational page, Part II navigational page, Week 1-4 navigational pages, etc.).
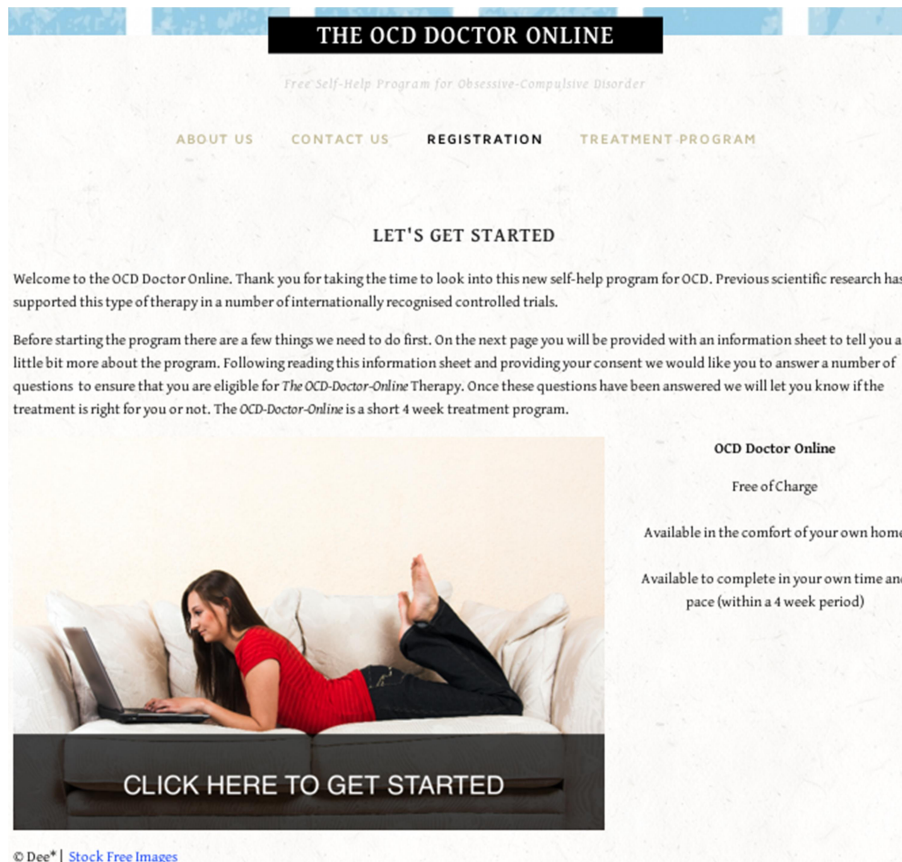
Figure 7. **Registration page developed through Squarespace.**

Images and multimedia.

Within the website, a number of images were required for website presentation and to increase visual engagement. Images were either purchased or permissions granted by authors from Stock Free Images (http://www.stockfreeimages.com/), Dreamstime Stock Photos (http://www.dreamstime.com/), IstockPhoto (www.istockphoto.com), or created via Microsoft ® Word for Mac 2011 (Copyright © Microsoft Corporation. All Rights Reserved) or Paintbrush (Copyright © 2007-2010 Soggy Waffles). Photographer Dr Derek Scales also provided a number of images for use within the website. Images were used within most web pages in the treatment package, as well as a banner image for every page.

Two Videos were created using iMovie (Copyright © 1999-2001, 2003-2011 Apple Inc. All Rights Reserved) and uploaded to the website using Vimeo (http://vimeo.com/), a creative work sharing website. The first video was developed under the 'treatment program' page in order to provide an explanation of and introduction to the treatment program to those interested in engaging in the online self-help MCT program. A second video was developed for use in module one as a way to provide participants with psychoeducation on the notion of obsessions and compulsions.
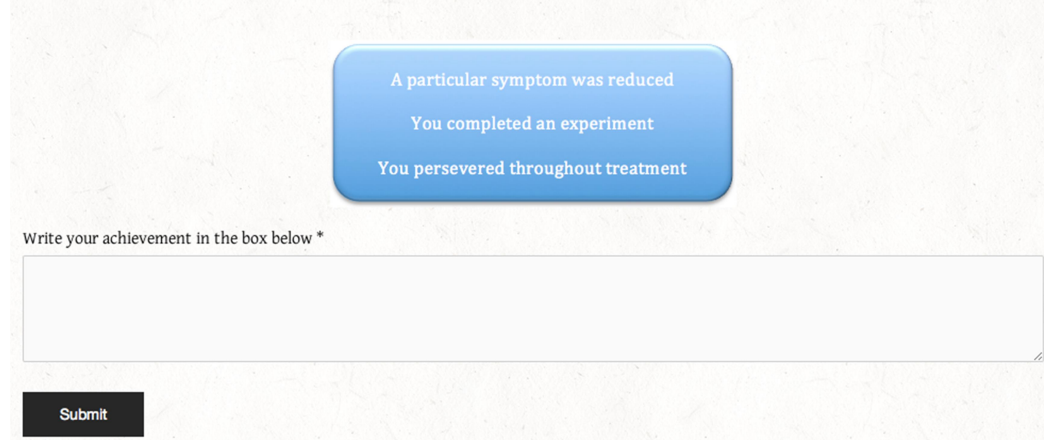
Audio files were created using GarageBand 6.0.5(Copyright© 2012 by Apple Inc.) and uploaded to the website via the audio upload feature in Squarespace. A total of nine audio files were used within the online self-help MCT program including detached mindfulness and ATT techniques (for scripts, see Wells, 2006).

Interactive and forms.

Several features within Squarespace were used to increase the interactivity of the website and treatment program. First, a number of forms (created by the form-building feature within Squarespace) were used for contact purposes, and program engagement. The 'contact us' page contained a form including name, email address, subject and message. In module three of the online MCT program, the form-building feature within Squarespace was utilised to create a 'quick quiz' to reinforce concepts learned from psychoeducation throughout module one-three. The form-building feature was also utilised in module eight to acknowledge achievements made (see Figure 8 below). Furthermore, to provide further interactivity within the psychoeducation modules of the program, a drag and drop game was included. Within this game definitions (e.g., an anxiety disorder characterised by the

occurrence of obsessions and compulsions) were connected with the corresponding words (e.g., obsessive-compulsive disorder).

Figure 8. **Screen shot of form used in module eight of the online self-help metacognitive program.**

Areas for consideration as identified by motivational factors influencing program completion.

A number of important areas were identified when considering motivation and compliance in online self-help programs. They were identified with the thought of incorporating such areas into the development of an online self-help program for OCD to increase participant motivation and enjoyment, and reduce dropout rates in such research studies. The following areas were incorporated into the online self-help MCT program: Time efficiency, Incentives, Goal Setting and Progress Reviews, Therapeutic Contact, Program Features, Search hits.

Time efficiency.

To increase time efficiency for participants, the amount of written materials on each web page were minimised. This was done by including only essential

information, and by providing interactive activities such as quiz's and games, videos, audio materials, and worksheets in place of text. The use of passwords (released each week) was removed in order to allow participants the freedom to complete each module in their own time and pace, as such the entire program was provided at once with a guide for completion in four weeks. Worksheets and information sheets were also provided in a single location within the website to allow participants with easy access to print materials without having to search through the website to print each worksheet and information sheet individually.

Incentives, goal setting and progress reviews.

The use of vouchers and progress reviews as incentives were incorporated into the questionnaire component of the website and program. Goal setting was also introduced within the program in Module 2, which had not originally been included within the program. Goal setting was included to provide participants with an intrinsic motivator (sense of accomplishment or self-competence) throughout the program.

Therapeutic contact.

Given the strong amount of favour for regular email contact amongst survey respondents, this form of therapeutic contact was incorporated into the website and program development. Participants would be provided with reminder emails from a therapist once a week to assist in motivating participants to continue with the program. Alongside these findings, participants were also provided with an email address (ocddoctoronline@gmail.com) as well as a 'contact us' page and form within the website to make contact with the research team for further information if required. By including this information, survey respondents reported that this may help with motivation to continue, and developing initial interest.

Program features.

A number of sub-themes identified by survey respondents were incorporated within the website following the review phase (see below), including: easy navigation throughout the website, ease of reading materials, use of non-jargon language, limited reading and simplicity. The use of videos, audio, colours, graphics, quiz's and games were also incorporated into the online self-help MCT program as a way to increase initial engagement with the program and website, and furthermore reduce dropout rates.

Search hits.

Given the majority of survey respondents reported that they would use the Internet to search for psychological therapies, an important area to investigate was how to improve search hits in popular search engines such as 'Google'. A list of common search words was developed, including some that were identified by survey respondents: psychological, therapy, self-help, coping, assistance, online, and OCD. A number of common key words and search phrases were incorporated within the website, site descriptions, and search engine information to boost website hits in common search engines such as Google.

Expert review and feedback.

Following modification of the program and the development of the website, a review of the online self-help MCT program (website and program) was conducted. Three reviewers were recruited to provide feedback on the flow, quality and comprehensiveness of both the program and website. The reviewers were Associate Professor Clare Rees, Dr Rebecca Anderson and Dr Sarah Egan. The reviewers were provided with the website address, passwords for access to the website, and an

electronic copy of the self-help program. They were then asked to thoroughly review the flow, quality and comprehensiveness of the program and website and submit any necessary feedback in written form to the primary researcher. In order to understand the feedback completely, selected individuals were asked to clarify some aspects of the feedback provided. Feedback from the reviewers was then taken into account and both the website and treatment program were modified accordingly.

Results of expert review and modifications of the program.

Expert reviewers provided feedback within the following areas: grammar and spelling; formatting issues; questionnaires; graphics; passwords; content; length of the program; and flow / usability. Modifications of the program and website were made accordingly.

Grammar, spelling and formatting issues.

A number of grammatical and spelling errors were found upon review within the program, website, and questionnaires. These errors were noted and modified accordingly. Some formatting issues were also noted, such as variations in font size, mis-alignments on web pages, and inconsistencies with page headings. These formatting issues were also modified accordingly.

Questionnaires.

Feedback on the flow, length, and number of questionnaires was obtained from the reviewers specified above. Feedback on the specific questionnaires used was also obtained from the reviewers specified above. A common theme noted was the number of times that participants were required to complete questionnaires. A number of questionnaires were removed from the program due to concerns of increased dropout. Both the screening questionnaire and fortnightly questionnaire

were removed with the baseline, post-treatment, and follow-up questionnaires remaining. As noted within the current study, participant's preferences include a program that takes the least amount of time and effort. Given the length of questionnaires, the effort required to complete questionnaires was noted to be greater than the gains provided to the researchers for receiving the extra questionnaires, and as such, they were removed from the program.

A measure of compliance was also suggested within the questionnaires, and as such, this was incorporated within the feedback obtained from participants in Study IV (see Chapter 8. for further details). Within Qualtrics Survey Software, the flow and content of questionnaires were reviewed and the following modifications were made: the inclusion of a progress bar, reminders of time-periods for diagnostic questions at the top of each page, including 'skip logic' to reduce the amount of questions presented to participants, and ensuring 'forced answers' on as many items as possible.

Graphics.

The graphics within the website were also reviewed, including font style and colour, videos, audio, images and colour schemes. A common theme noted was the size, style and colour of the font. Reviewers noted that the font colour (medium grey) could be a little difficult to read, particularly when in Italics. They also reported that size of the font was sometimes a little small, particularly when a lot of text was presented on a page. Therefore, the font colour was darkened, some italics removed, and font size increased. Some images within the website were changed, included the banner image. Reviewers reported that they would like to see less 'flower' images, and more images of people, animals, and other objects. Therefore, the banner image was changed to blue blocks as oppose to a flower, and some images of flowers were

removed and replaced with alternative images. Some images within the program were noted to be 'fuzzy', particularly when slide shows for interactive activities were presented. These images were replaced, and slide shows were changed to 'forms' for clearer text, whilst maintaining interactivity.

Passwords.

Within the original program, participants were to be emailed a password at the beginning of each week in order to gain access to each week of the online MCT program. This was to ensure participants completed the program in at a steady pace. Reviewers reported that password access may interfere with participant's freedom to complete the program at their own time and pace and as such may result in greater dropout rates. As such, the decision to remove passwords from weeks two-four of the program was made with only one password remaining for complete access to the program following baseline questionnaires. Participants would, however, still receive weekly reminder emails.

Length of the program.

The length of the program was initially six weeks to coincide with the 10 modules included within the original program developed by Rees and van Koesveld (2009). The decision to reduce the program from 10 modules to eight modules, and six weeks to four weeks was made prior to the review phase, due to repetitiveness of content, concern over participant dropout and results obtained from the current study. Reviewers agreed that the time period of 4-weeks was suffice to cover materials presented.

Content.

Reviewers provided feedback on each of the eight modules within the program. One reviewer stated that a 'print all option' for worksheets may be helpful for participants, as oppose to printing worksheets and information sheets one at a time. As such, a new web page was set up to provide participants with access to all information sheets and work sheets in one place for ease. Within some modules, reviewers suggested further clarification on some activities, further definitions for new topics, feedback for homework activities, and simplified language (e.g., removing words such as habituation, ritual prevention, and exposure). All content related feedback was incorporated within the website and program.

Flow / usability.

Reviewers were asked to provide comments on the flow / usability of the website and program and a number of suggestions were provided. Within the original program developed by Rees and van Koesveld (2009), three phases were used. These phases were originally used in the new program and website, however, in order to improve flow, a suggestion was made to simply list the modules one-eight due to confusion over which phase to complete in which week of the program. Furthermore, one reviewer made the suggestion to provide participants with a link for each week. The program was modified to contain two separate parts with Part I including materials for Week one and Week two, and Part II including materials for Week three and Week four. Each of the modules was separated into Week one-four to ensure participants understood which modules to complete each week. Other aspects such as incorrect links to web pages, and web pages not being displayed were also modified and corrected to ensure correct flow throughout the website.

Discussion

The objective of the current study was to develop and review an online self-help MCT program. A number of steps were taken in order to meet this objective. First, a qualitative analysis of the motivational aspects of self-help therapies was conducted in order to increase completion rates for future programs. Second, both the program and website were developed based on previous research, manuals, and information found through the qualitative analysis (Rees & van Koesveld, 2009; Wells, 2006). Finally, experts in the field conducted a thorough review. The overall aims of the study were met and a 4-week online self-help program for OCD was developed for use within the general population (see Chapter 8. for a preliminary evaluation of the current program). The current study outlined a number of important areas for consideration for future program developers including motivational factors for program completion and factors for gaining initial interest to engage. The implications from these findings will be discussed in relation to previous and current literature conducted within the area as well as the limitations of the present study.

The purpose of identifying motivational aspects for self-help research was to aid in the development of such programs in a way that may reduce already high dropout rates. The following areas were identified as important to consider when developing, and conducting research in, self-help therapy programs: time-efficiency, incentives, goal setting, progress reviews, therapeutic contact, links to previous research, and program features.

Time efficiency.

Time efficiency was identified by many participants as important in gaining and maintaining interest throughout the duration of the program. It appears as though

participants wish to be provided with accurate and brief information, which is as time-efficient as possible. This information builds on Carlbring and colleagues (2005) who suggested that one of the advantages of internet-based self-help programs is that treatment can be completed at the clients own time and pace. They did suggest, however, that some restrictions are required here so not to have disadvantageous effects from no time limits or deadlines.

Incentives, goal setting, and progress reviews.

Many participants identified incentives, goal setting, and progress reviews as useful at increasing initial interest and motivation to continue with treatment. The use of incentives is popular amongst many studies as a way to improve compliance and engagement in treatment programs, as well as improve motivation to continue. Provitera (2012) suggested that the use of incentives / rewards as a way to produce lasting motivation is a myth. He suggested that rewards can be helpful as a short-term incentive, however, can also have negative impacts when over used. For example, they may "become entitlements, weaken skills, and enslave you" (p. 16). Provitera (2012) reported that other aspects, such as recognition and observing self-improvement may be more helpful to improve self-motivation in the long-term. Self-improvement may be observed through use of progress reports as suggested by many participants. Provitera (2012) reported that feeling a sense of accomplishment may help to improve long-term motivation. Curry, Wagner, and Grothaus (1991) described the idea of making use of intrinsic and extrinsic motivation. They described intrinsic motivation as an internal reward such as a sense of accomplishment or self-competence, where as extrinsic motivation is described as an external reward such as a monetary reward of some form. Curry and colleagues (1991) found that the use of intrinsic motivation (personalised feedback) produced

long-term improvements when compared to the use of extrinsic motivation (monetary rewards).

Many participants identified goal setting as an important factor in improving motivation to engage in self-help programs. Ryan, Lynch, Vansteenkiste, and Deci (2010) identified goal setting as a strategy that is completed towards the beginning of therapy. The reason being that it is a way for the client to accept responsibility for change as well as encourage participation in treatment programs. They reported that by setting goals and identifying strategies to achieve goals, this may contribute to amount of motivation and engagement the client has in therapy. Kobak, Rock, and Griest (1995) identified goal setting as important at improving motivation, however, this study was based on group therapy, whereby the participant was accountable by the group the following session to determine if they had reached their goals or not. This is an important difference to note between these formats of therapy, in that the participant is the one driving the goals and also accountable for following up with their own goals in self-help therapy.

Therapeutic contact.

Therapeutic contact came out as an important factor that participants reported may help to motivate continued engagement in self-help programs. According to the literature, a strong therapeutic relationship has been demonstrated to prevent drop out. Ryan and colleagues (2010) suggested that therapist factors such as empathy, warmth and positive regard have a strong impact on outcomes in therapy. Therapeutic alliance, and minimal therapist support within self-help programs vary quite dramatically, however. According to Melville, Casey, and Kavanagh (2010), a therapeutic alliance occurs when clients feel a collaborative, bonding relationship

with their therapist, a relationship that may be difficult to form with minimal email contact within internet-based self-help programs. Melville and colleagues (2010) reported a number of factors that may decrease the risk of drop out amongst Internet-based programs. These factors relate to increasing the amount and type of therapist contact provided throughout treatment, for example "chat versus email contact; therapist name and photo versus a virtual therapist; personalised content versus impersonal content" (p.14). They suggested that this increased therapist contact may help clients to feel more involved in the treatment package and connected to the therapist. This is consistent with a number of research studies comparing the drop out rates amongst self-help programs; however, research on Internet-based self-help programs is limited. Greater drop out rates have been identified amongst self-help research studies with little or no therapist contact, compared to increased therapist contact (Blanchard, 1992; Mataix-Cols & Marks, 2006). Kenwright and colleagues (2005) also found that brief scheduled phone support improved completion of and effectiveness of an Internet-based self-help program for OCD. Alternatively Lewis and colleagues (2012) found that no significant differences existed in drop out rates between self-help therapy and face-to-face therapy. Additionally, Andersson, Lundström, and Ström (2003) found no significant differences when participants received weekly phone calls, compared to those who did not. These inconsistencies across studies suggest that further investigation is required as to the effectiveness and drop out rates of self-help interventions when therapeutic contact is not provided.

Previous research.

Many participants suggested the importance of promoting Internet-based self-help programs as credible and trustworthy in order to improve motivation to engage and gain initial interest. Liese and Beck (1997) reported that dropout rates are likely

to be reduced if participants have positive beliefs about the treatment's credibility. Ström (2003) also investigated the idea that high attrition could be partially due to negatives beliefs about the trustworthiness and effectiveness of the treatment. Ström (2003) conducted a study investigating such effects in which the treatment offered was rated as credible, however, there appeared to be no association between credibility and dropout rates. Carlbring, Ekselius, and Andersson (2003), and Carlbring, Westling, Ljungstrand, Ekselius, and Andersson (2001) also found no association between credibility and drop out rates when comparing the differences between two groups (those who dropped out and those who completed the internet-based program) on a treatment credibility scale. Melville and colleagues (2010), however, reported a need for further investigation of dropout rates and credibility in internet-based psychological treatments.

Program features.

Participants identified ease of learning, graphics, and content as subthemes that are important to increase engagement within Internet-based self-help programs. Clark and Mayer (2003) developed a set of guidelines for consumers and designers of multimedia learning. They argued that it is important to include both text (printed and/or spoken) and graphics (e.g., illustrations, drawings, charts, photographs, animation, etc.) within multimedia learning. The reasoning behind this is that people are more likely to understand and focus on the material presented when they engage in active learning (Clark & Mayer, 2003). They suggested not only adding illustrations that decorate the page, but to add pictures that help to engage the participant in understanding the material presented. Clark and Mayer (2003) also make suggestions for effective types of language, sounds and design in e-learning. In addition to the guidelines set by Clark and Mayer (2003), Ritterband and colleagues'

(2009) model of internet intervention-based behavioural change also outlines a number of important factors to consider in the development of Internet-based programs. Within Ritterband and colleagues' (2009) model, eight main factors are taken into consideration in the development and design of websites by which a treatment is delivered. These factors include appearance, behavioural prescriptions, burdens, content, delivery, message, participation, and assessment.

Limitations.

A number of limitations were identified within the present research study. First, within the qualitative analysis of data, only the primary researcher generated codes and themes. As such, no consensus was reached with an additional researcher. The methods and stages described by Braun and Clark (2006) in conducting thematic analysis were utilised, however, and these guidelines did not support the need of an additional researcher for consensus. Second, the use of the general population as survey respondents was a limitation within this study. Future researchers may wish to recruit members of the target population in order to provide feedback on factors required to complete self-help programs (e.g., members of the population with a diagnosis of OCD). This would be useful in order to tailor the program and motivational aspects incorporated within the program to a specific clinical population. A final limitation surrounds the review process whereby no individuals with OCD were asked to review the program for ease of use and understanding. Experts within the area were asked to review the program, however, the reviewers were supervisors to the study and as such were internal reviewers. It may have also been useful to gain additional feedback from experts who were external to the study. In addition to feedback from experts within the area, incorporating feedback from

individuals with OCD may have been valuable to the review and development process in order to further tailor the program to this population.

Self-help programs are likely to be associated with symptom improvement amongst a number of psychological difficulties. The information provided within this development study may be useful to aid in the development of Internet-based self-help programs in order to minimize drawbacks such as drop out and non-compliance, optimising advantages, and improving search popularity amongst search engines.

Chapter 8. Study IV: Online Self-help Metacognitive Therapy for Obsessive-compulsive Disorder: A Preliminary Trial

Introduction

OCD causes significant impairements in social and occupational functioning resulting in low quality of life (Moritz et al., 2010). As described previously, gold standard-treatments such as cognitive-behavioural therapy (CBT) and exposure and response prevention (ERP) have signifciant limitations (Whiteside et al., 2008). Clients may show symptomatic improvement, with a response rate of between 63% and 90% according to Podea and colleagues (2009). When drop out rates are considered, however, the majority of those treated with ERP (over 50%) are not symptom free (Podea et al., 2009) and may continue to experience distressing symptoms (Fisher, 2009). Furthermore approximately 25-30% of clients refuse ERP treatment and approximately 28% of clients drop out (Podea et al., 2009). Given that the majority of clients are not symptom free following treatment, and many clients continue to experience distressing symptoms throughout treatment, refusal of treatment, withdrawal from treatment, and partial adherence to treatment are common (Kozak & Coles, 2005). Additional barriers to accessing ERP treatment also exist, such as the high cost of therapy, lack of access to evidence-based treatment in remote locations, and lack of access to evidence based trained clinicians. Consequently there is a need for alternative evidence-based treatments for OCD using a stepped care approach (Bower & Gilbody, 2005).

Although CBT remains the treatment of choice for OCD, and is widely used in an online format, the limitations to CBT and ERP also exist within iCBT. It is

therefore necessary to explore the effectiveness of alternative online self-help treatments. At present, limited evidence exists on the feasibility and effectiveness of Internet delivered MCT.

Moritz and colleagues (2010) have taken a first step and evaluated a pure self-help program for OCD; however, their treatment package was delivered as an e-book, and not via the Internet, and incorporated CBT strategies in addition to MCT strategies. As such, MCT has not yet been evaluated in an online pure self-help and pure MCT format. According to Chambless and Hollon (1998), it is important to begin the research process with a preliminary study before conducting efficacy research. The aim of the present study was to conduct a preliminary investigation into the feasibility and effectiveness of Internet-based pure self-help MCT. It was predicted that Internet-based MCT would lead to clinically significant reductions in symptoms of OCD, clinically significant reductions in unhelpful metacognitive beliefs, and clinically significant improvements in quality of life.

Method

Participants.

Participants with a primary diagnosis of OCD, according to the Mini International Neuropsychiatric Interview (MINI: Sheehan et al., 1998) were included within the study. The intervention was designed for an Internet-treatment seeking sample with varying levels of OCD or those who had not yet achieved recovery from previous interventions. If participants were taking medication such as antidepressants or other mood stabilisers, they were required to be stable on this medication one month prior to their baseline assessment and willing to remain on the same dosage

and medication from baseline to follow-up. Participants were excluded from the study if they were:

1. Experiencing moderate to high suicidal risk (according to the suicidality section of the MINI).

2. Experiencing symptoms of psychosis and/or schizophrenia.

3. Currently undergoing other psychological treatment.

Three clients received the four-week online self-help metacognitive treatment program following an initial screening consultation. According to Rizvi and Nock (2008), three clients are adequate to determine positive effects prior to implementing larger scale designs. A description of each client is provided below.

Client A.

Client A was a 22-year-old, single, Caucasian male who presented due to the ongoing experience of OCD symptoms for the more than five years. Client A made improvements from cognitive behavioural treatments prior to taking part, however, reported that he was still experiencing some symptoms of OCD. Client A reported that he would like assistance with challenging some of his intrusive thoughts and learning more about OCD from a different perspective (MCT). He experienced a range of obsessions including sexual obsessions, symmetry/exactness obsessions, hoarding/saving obsessions, and contamination obsessions (e.g., a fear that he may be contaminated by certain objects). He also engaged in a number of compulsions, including: thought suppression, cleaning/washing compulsions, hoarding/collecting compulsions, avoidance compulsions and checking compulsions. Client A reported that his most prominent compulsions were in relation to cleaning/washing, more specifically, avoiding objects that he finds 'disgusting', in other words, objects that could be contaminated with germs. At the initial assessment, Client A only partially

met the criteria for OCD, reporting that he no longer felt his symptoms significantly interfered with his overall functioning (i.e., taking more than one hour a day), however reported that he still wanted further assistance with his symptoms. A number of symptoms of OCD were still present, however, and as such it was identified that the treatment package could be beneficial.

Client B.

Client B was a 22-year-old, single, Caucasian female who self-referred to the clinic. She had experienced symptoms of OCD since she was 16-years-old. Her obsessions were mostly around responsibility and concern for others safety (often in the form of imagery where she would imagine her workplace burning down, or flooding). She also engaged in a number of checking compulsions, which had become more prominent over the last six months prior to therapy. Compulsions included checking of doors, switches, windows and taps. Client B reported that these compulsions occurred mainly at work, however, had become more prominent at home and when leaving her car. She reported that her obsessions and compulsions took approximately 1.5 hours of her day. At the initial assessment, Client B also met the criteria for Panic Disorder, however OCD was the primary diagnosis.

Client C.

Client C was a 24-year-old, single male of Asian descent who self-referred to the clinic due to a recommendation from a friend. He stated that he had limited knowledge surrounding OCD and had only recently realised that this was what was interfering with his life. As such, he was interested in online self-help metacognitive treatment to improve his quality of life. Client C reported that he experienced a range of obsessions including aggressive obsessions, contamination obsessions, and hoarding/saving obsessions. He also reported engaging in a number of compulsions

such as cleaning/washing compulsions, mental rituals, reassurance seeking, avoidance, and superstitious behaviours. His main obsessions surrounded a fear of contamination (i.e., being contaminated by a needle, specifically when touching objects such as cushioned chairs; as well as interacting with individuals who may be contaminated). Client C reported that his fear of contamination was beginning to interfere significantly within many aspects of his life, including difficulties with sexual intimacy. Client C had a primary diagnosis of OCD, and met additional diagnostic criteria for Major Depressive Disorder, Panic Disorder with Agoraphobia, and Social Phobia.

Measures.

The three clients were initially evaluated in an individual assessment session at the Curtin Psychology Clinic, as well as by an online questionnaire to gather baseline data. The assessment consisted of a structured diagnostic interview conducted by a doctoral level psychologist. Clients were also provided with a feedback questionnaire each week to evaluate the treatment process. Symptoms were measured at three time points (pre-test, post-treatment, and four-week follow-up) using the following measures, although not all measures were administered at each time point (see Table 10 below for a breakdown of measures used at each time point).

Table 10

Breakdown of Measures used at Baseline, Post-treatment and 4-week Follow-up

Measure	Baseline	Post-treatment	4-week follow-up
Demographic Questionnaire	X		
OCI-R	X	X	X
Y-BOCS Symptom Checklist	X	X	X
DASS-21	X	X	X
MCQ-30	X	X	X
Q-LES-Q	X	X	X
MINI (Suicidality)	X	X	X
CEQ		X	

Diagnostic.

MINI (Sheehan et al., 1998).

An initial assessment interview was conducted by the researcher (a provisionally registered clinical psychologist) in which the MINI was utilised. The MINI is a short diagnostic structured interview, which provides a diagnosis of Axis I psychiatric disorders according to the DSM-IV-TR (APA, 2000) criteria. Previous literature has supported the high reliability (inter-rater and test-retest) and validity of

the MINI (Sheehan et al., 1997; Sheehan et al., 1998). Participants completed the MINI as a way to establish psychiatric diagnoses.

Symptom.

See Chapter 6. for an overview of the following symptom measures that were also utilised in the present study: OCI-R (Foa et al., 2002), DASS-21 (Henry & Crawford, 2005), MCQ-30 (Wells & Cartwright-Hatton, 2004), and Q-LES-Q-18 (Ritsner et al., 2005). The Y-BOCS Symptom Checklist (Goodman et al., 1989) and Suicidal Risk and ideation (MINI - Suicidality: Sheehan et al., 1998) were also utilised in the current study as described below.

Y-BOCS Symptom Checklist (Goodman et al., 1989).

The Y-BOCS symptom checklist was used to indicate whether the individual had specific types of obsessions or compulsions. The Y-BOCS symptom checklist was developed by Goodman and colleagues (1989) and is intended for use with people already diagnosed with OCD, and not as a diagnostic tool. Within the symptom checklist, participants are asked to note the presence of 58 obsessions and compulsions. The Y-BOCS symptom checklist was used to determine if particular obsessions or compulsions, or both, have reduced following treatment. A number of studies have supported the strong convergent and divergent validity of the Y-BOCS symptom checklist (Mataix-Cols, Fullana, Alonso, Menchon, & Vallejo, 2004; Sulkowski et al., 2008).

Suicidal Risk and Ideation (MINI - Suicidality: Sheehan et al., 1998).

In order to determine current suicidal risk, questions derived from the suicidality section of the MINI were used. The MINI-Suicidality was included to determine if self-help treatment (provided following the completion of the

questionnaires) was an appropriate level of treatment. The suicidality section of the MINI classifies participants into four groups: no suicidal risk, low suicidal risk, moderate suicidal risk, and high suicidal risk. If participants received moderate to high suicide risk they were directed to alternative treatment options. Previous literature has supported its use in online formats with computerised versions of the MINI (Sheehan et al., 1997; Sheehan et al., 1998). The items have previously been applied in an Internet self-help format to measure for suicidal risk (van Ballegooijen et al., 2011).

Process.

Credibility Expectancy Questionnaire (CEQ: Devilly & Borkovec, 2000).

The CEQ was developed by Devilly and Borkovec (2000) as a measure of treatment credibility and expectancy. Previous research has shown the questionnaire to have high internal consistency within each factor (credibility and expectancy), as well as good test-retest reliability (Devilly & Borkovec, 2000).

Weekly feedback questionnaires.

Participants were provided with a weekly feedback questionnaire developed by the researcher to determine compliance in completing homework and readings, determine satisfaction and usefulness of materials provided each week, and provide qualitative feedback on the helpful and unhelpful aspects of the program. The feedback questionnaire consisted of 16 questions. Some examples include: "How much of the readings did you read"; "How would you rate the overall usefulness of the readings so far?"; "Are there any aspects within week four of the program that you would like to change? Please describe below". A number of questions used within the weekly feedback questionnaire were derived from a compliance measure

used with a self-help book for treating Bulimia Nervosa (Thiels, Schmidt, Troop, Treasure, & Garthe, 2001).

Procedure

Recruitment.

Clients were recruited from referrals made to the specialist OCD outpatient treatment clinic within the Curtin Psychology Clinic at Curtin University in Perth, Western Australia which is staffed by postgraduate clinical psychology students. The program was advertised within Western Australia through Flyers (posted within universities and shopping centres) and online mediums (such as Facebook, and the Curtin University School of Psychology and Speech Pathology Clinic website).

Registration and baseline.

Three participants, who met initial eligibility criteria via a telephone screening, were evaluated in an individual assessment session within the Curtin Psychology Clinic. Participants were mailed a participant information sheet and a consent form to sign prior to any treatment (see Appendix D.). The assessment consisted of a brief structured diagnostic interview (MINI) conducted by a provisionally registered psychologist, the identification of further inclusion and exclusion criteria, and an online computerised questionnaire completed by the client to gather baseline data. The online questionnaire was developed through Qualtrics Survey Software and included: demographic questions (e.g., age, gender, ethnicity, history of OCD etc.), OCI-R, Y-BOCS Symptom Checklist, DASS-21, MCQ-30, Q-LES-Q and MINI (suicidality section).

Intervention.

Treatment was based on the manual *Individual and Group Metacognitive Therapy for Obsessive Compulsive Disorder* (Rees & van Koesveld, 2009) as well as the metacognitive model for OCD (Wells, 1997; 2000). The treatment program also incorporated MCT strategies based on Wells (2006). The manual was reviewed and modified for use as an online self-help program. The self-help Internet-based MCT program contains eight modules completed over a four-week period (see Chapter 7.). The content of the treatment program is summarised in Table 11. The treatment has three goals:

1. Educate the client on the conceptualisation of OCD, its maintenance, and treatment through MCT.
2. Provide the client with initial symptom reduction through the completion of metacognitive strategies.
3. Build the client's confidence in their ability to continue to challenge their metacognitive beliefs, upon completion of the program.

Participants were required to attend a weekly session at the clinic, at which time they completed the self-help program online. WebPages contained audio materials, videos, interactive games, written material, and worksheets, in order to make the program interactive and engaging for the client. In each weekly session, participants were seated on their own in a room with computer access to the online self-help program. No therapeutic contact was provided during this time; however, participants were able to ask a clinician for assistance if they were experiencing any technical difficulties with the program. Within each session participants were provided with hard copies of worksheets and extra readings provided during the

program. They were also presented with a feedback questionnaire on completion of each session to evaluate the treatment process.

Table 11

Session Content for the Online Metacognitive Treatment Program

Part I: Engagement in Therapy and Introduction to MCT (Week 1-2)

Week 1	Module 1: The Nature of Obsessions and Compulsions
	Module 2: Are you Ready to Change?
	Module 3: What are Metacognitions and What is Metacognitive Therapy?
Week 2	Module 4: Becoming more Familiar with Thoughts about Thoughts
	Module 5: Examples of Metacognitions and Introducing Detached Mindfulness

Part II: Development and Implementation of Metacognitive Skills, and Maintenance (week 3-4)

Week 3	Module 6: Over Importance of Thoughts
	Module 7: Attention Training and Starting to Experiment
Week 4	Module 8: Continuing to Experiment and Staying on top of it

Post-test and follow-up.

On completion of the treatment program participants completed the following measures online at post-test and four-week-follow-up: DASS-21; Y-BOCS Symptom

Checklist; MCQ-30; Q-LES-Q; OCI-R; MINI (Suicidality section). Participants were also administered the CEQ at post-test.

Data analysis.

Jacobson and Truax (1991) described a method of analysing response to treatment by calculating clinical significance and a Reliable Change Index (RCI). Standardised criteria (cut-off point and RCI) were identified for each outcome measure and were used to allocate each client to one of the following treatment outcomes: recovered, improved, unchanged, or deteriorated. This method was used as the prominent form of data analysis within this study to determine if clinically significant and reliable change had occurred amongst each participant on treatment outcomes. Criterion c, as defined by Jacobson and Truax (1991) was utilised in the present study in order to determine cut-off scores for clinical significance. Jacobson and Truax (1991) define criterion c as "the level of functioning subsequent to therapy places that client closer to the mean of the functional population than it does to the mean of the dysfunctional population" (p. 13). Descriptive statistics were also used to analyse the data provided from the weekly feedback questionnaires.

Results

All clients completed each session within the four-week treatment program. The results of treatment on symptom measures and treatment credibility will be presented through use of clinical significance, RCI, descriptive statistics, and graphical representation.

Clinical significance and reliable change index.

OCI-R.

The cut-off score for clinical significance was calculated using Jacobson and Truax (1991) methods, using means and standard deviations from non-anxious controls ($M = 18.82$, $SD = 11.10$) and patients with OCD ($M = 28.01$, $SD = 13.53$) from Foa and colleagues (2002). OCI-R scores on all three clients were identified as below the calculated cut-off score of 22.96 at follow-up. According to the RCI and Clinically Significant Change, however, only Client C was identified as 'recovered' having made reliable changes. Client A was classified as 'unchanged' despite an increase in scores which was not a significant or reliable change, and Client B was classified as 'unchanged', despite a reduction in scores on visual inspection of graphs of outcome data. Jacobson and Truax (1991) stated that a RCI greater than "1.96 would be unlikely to occur ($p < 0.05$) without actual change" (p. 14). See Table 12 for a breakdown of individual scores. Figure **9** illustrates participant's scores on the OCI-R at baseline, post-treatment, and follow-up.

Table 12

OCI-R Total Scores by Client

Client	A	B	C
Baseline	16	24	58
Post-treatment (Recovered*)	22 (N)	10 (N)	28 (N)
Follow-up (Recovered*)	21 (N)	9 (N)	9 (Y)
Reliable Change Index (Post-treatment)	0.425	-0.993	-2.127**
Reliable Change Index (Follow-up)	0.354	-1.063	-3.474**

*According to a score of less than 22.96 and achieving reliable change.
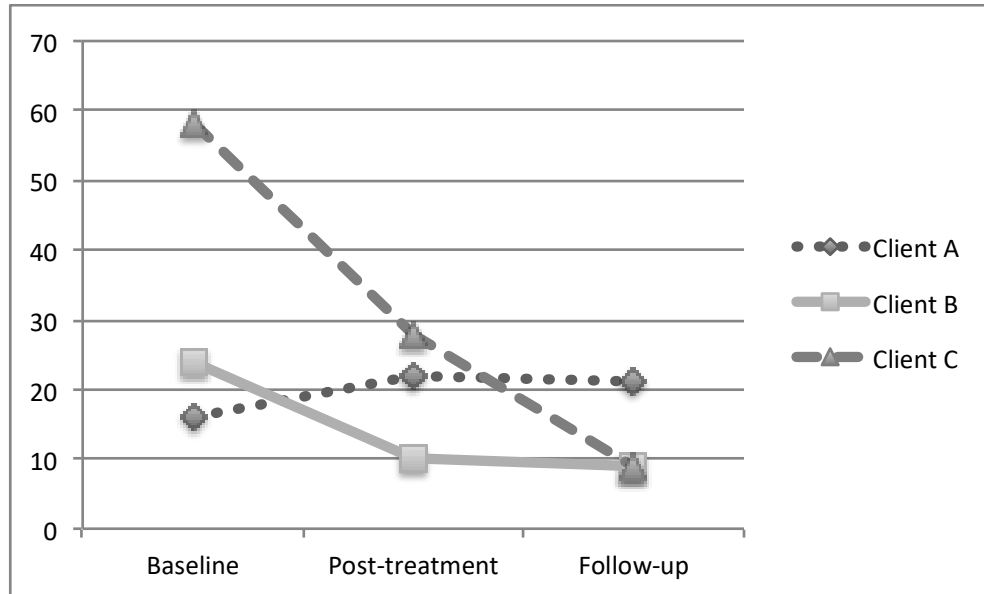** Reliable Change.

***Figure 9.* OCI-R scores at baseline, post-treatment, and follow-up.**

MCQ-30.

The cut-off score for clinical significance was calculated using means and standard deviations of non-anxious controls ($M = 48.41$, $SD = 13.31$) from Wells and Cartwright-Hatton (2004) and patients with OCD ($M = 80.30$, $SD = 16.75$) from Önena, Uğurlub, and Çayköylü (2013). MCQ-30 scores on Client A, B and C were observed to be below the calculated cut-off score of 73.70 at follow-up. According to RCI, however, Client A and B were both classified as 'unchanged', despite a slight reduction in scores. Client C was identified as making reliable improvements at follow-up and therefore classified as 'recovered'. See Table 13 for a breakdown of individual scores. Figure **10** illustrates participant's scores on the MCQ-30 at baseline, post-treatment, and follow-up.

Table 13

MCQ-30 Total Scores by Client

Client	A	B	C
Baseline	45	60	86
Post-treatment (Recovered*)	37 (N)	58(N)	66 (N)
Follow-up (Recovered*)	32 (N)	49 (N)	55 (Y)
Reliable Change Index (Post-treatment)	-0.61	-0.15	-1.53
Reliable Change Index (Follow-up)	-0.99	-0.84	-2.37*

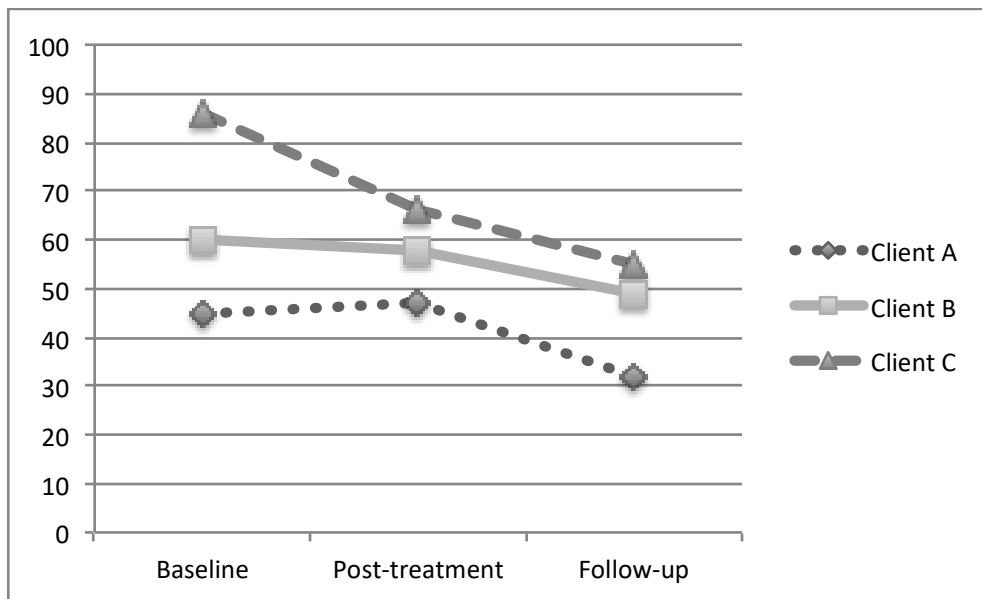*According to a score of less than 73.70.

** Reliable Change.

Figure 10. **MCQ-30 scores at baseline, post-treatment, and follow-up.**

Q-LES-Q.

The cut-off score for clinical significance was calculated using means and standard deviations of healthy controls ($M = 69.70$, $SD = 6.80$) and psychiatric patients ($M = 57.80$, $SD = 13.60$) from Ritsner and colleagues (2005). Client C was

classified as 'recovered' at follow-up according to the calculated cut-off score for

clinical significance of 65.73, and RCI. Client A and B were classified as

'unchanged'. See Table 14 for a breakdown of individual scores. Figure **11** illustrates

participant's scores on the Q-LES-Q at baseline, post-treatment, and follow-up.

Table 14

Q-LES-Q Total Scores by Client

Client	A	B	C
Baseline	57	57	43
Post-treatment (Recovered*)	60 (N)	65 (N)	68 (Y)
Follow-up (Recovered*)	60 (N)	58 (N)	67 (Y)
Reliable Change Index (Post-treatment)	0.60	1.57	4.92**
Reliable Change Index (Follow-up)	0.60	0.20	4.72**

*According to a score greater than 65.73 and reliable change.
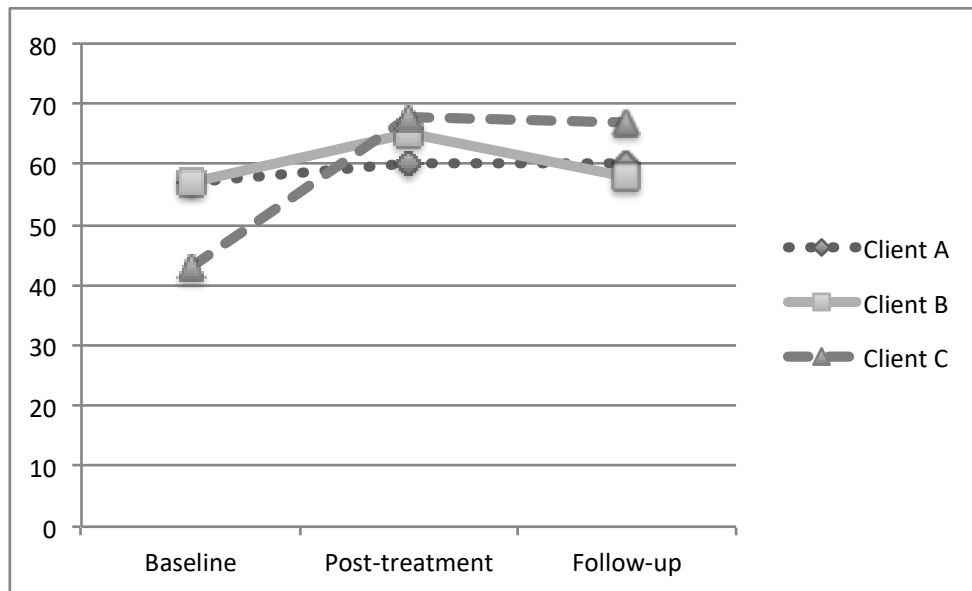** Reliable Change.

Figure 11. Q-LES-Q scores at baseline, post-treatment, and follow-up.

DASS-21.

The cut-off scores for clinical significance were calculated using means and

standard deviations of healthy controls (Depression: *M(SD)* = 2.83(3.87), Anxiety:

M(SD) = 1.88(2.95), Stress: *M(SD)* = 4.73(4.20)) from Henry and Crawford (2005),

and a clinical sample (Depression: *M(SD)* = 22.73(11.25), Anxiety: *M(SD)* =

16.27(10.29), Stress: *M(SD)* = 22.70(10.22)) from Ronk, Korman, Hooke, and Page

(2013). Data obtained from Client A on the DASS-21 was deemed as invalid due to

repeat scores, and as such only scores from Client B and C are reported. Client C was

observed to show reductions across depression, anxiety and stress scores at post-

treatment and follow-up, however, these reductions were not clinically significant

according to the calculated cut-off scores for depression (7.92), anxiety (5.08) and

stress (9.96). No improvements in DASS-21 scores were observed for Client B; in

fact, anxiety scores were shown to increase above the cut-off score. According to the

RCI, Client B and C did not make any reliable changes on scores at post-treatment or

follow-up, and were both classified as 'unchanged', despite slight improvements in Client C, and slight increases in scores in Client B.

Treatment compliance and feedback.

Throughout the four-week treatment program, participants reported that, on average, they had read 75-100% of the reading materials, and spent between approximately 15-30 minutes each week on the readings. Overall, participants rated the readings as easy to very easy. Homework completion varied amongst the participants with Client A completing an average of 92% of the homework ($M =$ 92.67, $SD = 14.43$), Client B completing approximately 42% of the homework ($M =$ 41.67, $SD = 14.43$), and Client C completing approximately 67% of the homework ($M = 66.67$, $SD = 38.19$).

Participants reported no technical difficulties with the website throughout the entire four-week program. Overall, participants rated the materials from week two to be the most helpful and week four to be the least helpful. Following the four-week treatment program, participants were asked to rate the strength of their motivation to continue with the treatment strategies provided. Client B and C both reported their motivation was very strong, however, Client A reported that his motivation to continue was very weak.

Treatment credibility and satisfaction.

Participants had mixed levels of satisfaction with the overall program however no participants dropped out of the treatment. When asked to provide a rating from one (low agreement) to nine (high agreement), participants rated the treatment as logical ($M = 8.33$ [93%], $SD = 1.15$), and reported that the program was successful

in reducing their symptoms (M = 6.33 [70%], SD = 2.89). Self-report symptom improvement across participants ranged from 10% for client A, 60% for client B, and 90% for client C. Overall, participants reported that they would be confident to recommend the program to a friend (M = 7.0 [78%], SD = 3.5). Overall, participants with the highest symptom reduction (client B and C) reported the highest satisfaction with the program.

Discussion

The current study investigated the feasibility and efficacy of an Internet-based self-help MCT program for OCD. The results of this study show preliminary evidence supporting the acceptability of MCT in an online self-help format; however, results provide mixed support of the efficacy of MCT in this trial. Two of the three clients showed reductions in OCD symptom severity at post-treatment and 4- week follow-up. One client was identified as 'recovered' according to the criteria for clinical significance on the OCI-R, while the other two clients remained 'unchanged'. A significant reduction in scores observed one of the clients as 'recovered' despite matching scores at follow-up to one of the 'unchanged' clients, who also appeared in the non-clinical range at post-treatment. Despite remaining 'unchanged', a smaller reduction in symptom severity may be due to their relatively moderate pre-treatment scores in comparison to the 'recovered' client. Further investigation of MCT for OCD in a self-help format may be required to determine efficacy in reducing symptoms of OCD, given favourable results from previous trials in group and individual MCT for OCD, and mixed results of this trial (Fisher & Wells, 2008; Rees & van Koesveld, 2008).

Upon visual inspection, reductions in unhelpful metacognitions were observed in all participants at post-treatment and follow-up. According to RCI indices, however, two clients were identified as 'unchanged', and only one was identified as 'recovered'. Reductions in measures of metacognition suggest that improvements in OCD symptomatology may have been due to the metacognitive strategies provided within this treatment program, however, this was only observable in one out of three clients. The reductions in scores on the MCQ-30 may suggest that the program assisted in modifying unhelpful metacognitive beliefs in one out of three clients. Further investigation, however, is required to investigate if this treatment can result in changes in metacognitive beliefs in a larger sample. Additional measures such as the Obsessive-Compulsive Beliefs Questionnaire (Wells & Carter, 1999) and the Thought Fusion Instrument (Wells, Gwilliam, & Cartwright-Hatton, 2001) may assist in further identifying the impact of modifying dysfunctional metacognitive beliefs on symptoms specific to OCD, instead of the use of the MCQ-30 as a measure of metacognition with greater focus on worry symptoms. All participants showed improvements in quality of life (Q-LES-Q) at post-treatment and four-week follow-up. Only one of the clients, however, was identified as 'recovered', while two were identified as 'unchanged'.

A number of limitations exist within this study. First, the generalisability is limited due to the small sample size of three participants. Although small samples are typical of single case experimental design series, it would have been useful to have several more participants and multiple time point measurements in order to make stronger conclusions regarding the efficacy of treatment using this methodology. An additional limitation to the generalisability of this study was the nature in which participants received the treatment package. Participants were asked

to attend a clinical setting each week to complete the online treatment package. This was due to participant attrition rates in previous online studies. This is not representative of typical self-help online treatment programs being conducted at the client's own time and pace and is a threat to the external validity of the study. According to Curry, Wagner, and Grothaus (1990), extrinsic motivational factors (such as making an appointment and attending treatment in a clinical setting) may improve short-term outcomes (attendance) in self-help programs. Given the preliminary nature of the study, the study was conducted within a controlled setting in order to reduce dropout rates amongst clients, however, this weakens the main benefits of online treatment packages (no travel time or therapeutic assistance). As such, research trials incorporating anonymity and a true online self-help nature may be further representative of the effectiveness of this treatment package. A third limitation is the use of self-report measures. Baseline, post-treatment and follow-up outcomes relied on self-report measures. A structured clinical interview at baseline (MINI) was utilised in order to provide an initial diagnosis for each participant. Many measures used have been previously trialed in online settings and as such, have been found as acceptable measures for use in online self-report questionnaires. It may be useful to conduct future research trials with both clinically administered measures for OCD (Y-BOCS), as well as self-report measures (OCI-R) in order to determine any inconsistencies present. Furthermore, further large-scale research designs should be conducted utilising measures such as the Y-BOCS (Goodman et al., 1989), in order to determine if significant clinical change has occurred. Finally, time-related threats to internal validity are potentially an issue in within subjects designs. The observed outcomes may be a result of extraneous variables, regression to the mean, placebo, demand characteristics and spontaneous recovery as opposed to

the treatment at hand. Although not all extraneous variables could be controlled for in the specific study design, exclusion criteria prevented participation from those who were currently engaged in additional treatment or unstable on medication. Furthermore, Rasmussen and Tsuang (1986) found that spontaneous recovery is rare in those with OCD. Research trials incorporating a between-subjects design and credible comparison or control group may assist in reducing the time-related threats existing in the current study, as well as placebo effects and demand characteristics. Furthermore, session-by-session data, as well as a baseline phase within data collection would be useful to incorporate in future studies if small case series designs are employed.

While it is important to note the preliminary nature of the research, there were some promising results found in terms of reductions in symptoms for Client C. Unfortunately, less favourable results were found on most outcome measures for Clients A and B. However given the very small sample size, even for a single case experimental design series, further research needs to be conducted as it is difficult to make generalisations on efficacy based on three participants. The study is unique in that no previous online treatment trials have been conducted using MCT for OCD and as such it is important to gather preliminary data prior to implementing large-scale randomised controlled trials.

This study provided preliminary evidence for the acceptability of online self-help MCT for OCD, a treatment that has not previously been trialled in an online self-help format using pure MCT. Furthermore, the results of this trial provide mixed support of the efficacy of MCT for OCD in a self-help format, however, given the limitations of this study, further trials may be warranted. MCT appears to be a time efficient treatment, which is easily incorporated into an online self-help format.

Fisher and Wells (2008) found positive treatment outcomes in as little as 12 hours of MCT therapy, delivered in a face-to-face format. In the present study, preliminary results demonstrated symptom recovery for one out of three participants in only four sessions. An increase in time utilising online self-help materials may improve results for participants, or this may indicate a basis for participants' learning and reduce additional face-to-face therapy sessions. The results of this preliminary study suggest that further evaluation of the efficacy of online self-help MCT for OCD in larger controlled trials is required.

Chapter 9. Conclusion

Introduction

The current research aimed to investigate the use of self-help therapy in the treatment of OCD. In order to reach this overall aim, four studies were conducted where the specific goals were to:

1. Conduct a systematic review and meta-analysis investigating the impact of therapeutic contact within self-help programs for OCD.

2. Investigate the characteristics of Internet self-help seeking individuals with OCD and determine if a relationship exists between metacognition and obsessive-compulsive symptoms.

3. Develop and review an online self-help MCT program.

4. Conduct a preliminary evaluation of online self-help MCT for OCD.

This chapter will draw together the main findings and contributions of the four studies contained within this thesis. This chapter will also discuss the practical implications of these findings in relation to the treatment of OCD, and furthermore provide recommendations for future research.

Summary of Studies And Major Findings

Study I: A systematic review and meta-analysis of self-help therapeutic interventions for obsessive-compulsive disorder: Is therapeutic contact key to overall improvement.

Study I provided an up-to-date synthesis of the literature on the efficacy of self-help treatments for OCD at varying levels of therapeutic contact. A total of 18

studies were included, 14 of which reported a significant reduction in OCD symptom severity from baseline to post-treatment with an average overall effect size of 0.51 (*g*). A trend was also identified where as therapeutic contact increased, higher therapeutic outcomes were identified, and dropout rates were reduced. The effect sizes were small (*g* = 0.33), moderate (*g* = 0.68), and large (*g* = 1.08) for self-administered, predominantly self-help, and minimal contact self-help, respectively. Average dropout rates were identified as 28.70% across studies, with higher dropout rates found in self-administered self-help (38.70%), compared to predominantly self-help (19.65%) and minimal-contact self-help (16.68%). Findings from the systematic review and meta-analysis have provided a clear contribution to the understanding of the effectiveness of self-help treatments and the impact of therapeutic contact on both outcomes and dropout rates. No previous meta-analyses and systematic reviews have been conducted within this area.

Study II: Characteristics of Internet self-help seeking individuals with obsessive-compulsive disorder: Exploring the relationship between metacognition and obsessive-compulsive symptoms.

Study II explored the relationship between unhelpful metacognitions and symptoms of OCD in a sample of Internet self-help seeking adults with OCD symptomology. The demographic and psychological characteristics of the sample were also assessed to tailor treatment packages to suit this unique population.

Results from an independent samples t-test indicated that participants with clinical levels of OCD symptoms experienced greater unhelpful metacognitions compared to those participants with sub-clinical levels of OCD. Furthermore, a positive and medium bivariate correlation was found between the MCQ-30 total

score and OCI-R total score. The MCQ-30 subscales accounted for a significant 26% of the variance in OCI-R total scores, with a large effect ($f^2 = .34$). Positive beliefs and uncontrollability and danger subscales were identified as significant predictors of OCI-R total scores. Study II added to our understanding of the relationship between unhelpful metacognitions and obsessive-compulsive symptoms, and provided further support for Wells' (2000) metacognitive model for OCD.

Study III: Development of an online self-help metacognitive program.

Study III aimed to develop an online self-help metacognitive program. Three stages occurred within the development including: a qualitative analysis of the motivational factors impacting treatment adherence, development of the program and website, and an expert review to provide feedback on the flow, quality and comprehensiveness of the website and program.

Results from the qualitative analysis and expert review indicated a number of important areas for consideration for future program developers. Time efficiency, incentives, goal setting and progress reviews, therapeutic contact, evidence-based research, and program features were identified to assist with improving motivation and gaining initial interest to engage. Study III also identified preferred search engines and search phrases to bolster search improvements for new websites. Overall, the initial aim was met and an online self-help MCT program for OCD was developed for use in Study IV.

Study IV: Evaluation of an online self-help metacognitive therapy program for OCD: A preliminary trial.

Study IV was conducted in order to provide a preliminary evaluation of the online self-help MCT program for OCD developed in Study III. The study aimed to

determine if online self-help MCT for OCD would lead to clinically significant reductions in symptoms of OCD and unhelpful metacognitions, and clinically significant improvements in quality of life, in three consecutively referred individuals with OCD.

Participants showed reductions in unhelpful metacognitive beliefs and improvements in quality of life, which were maintained at four-week follow-up. Only one client, however, was identified as 'recovered' on quality of life scores, and 'improved' on metacognition scores. Two of the three participants showed reductions in OCD symptomology, which were further reduced at four-week follow-up, however; only one client was identified as 'recovered' according to the Clinically Significant Change and RCI. Study IV suggested that Internet-based self-help metacognitive treatment for OCD may be an acceptable treatment, however further investigation in larger scale trials are warranted to determine its effectiveness, given the limitations of this study.

Overview of Contributions and Practical Implications

Therapeutic contact in the context of self-help and a stepped care model.

Self-help therapy has been identified as effective at reducing symptoms of anxiety whilst also maintaining a low-cost, from both a financial and time-efficiency perspective, for both therapists and clients. Numerous reviews have identified the effectiveness of such therapies for anxiety disorders and more specifically, for OCD (Mataix-Cols & Marks, 2006; Newman et al., 2003; Newman et al., 2011). No reviews to date, however, have explored the effectiveness of self-help therapy (both evidence-based and alternative) within varying levels of therapeutic contact. The

review and meta-analysis conducted in Study I has contributed to the body of literature to provide an up to date comprehensive review of all RCT's and quasi-experimental designs utilising self-help therapy at differing levels of therapeutic contact. The review also provides insight into the current gaps in the literature and how future researchers may fill such gaps.

Research has suggested that therapeutic contact is key to therapeutic outcomes. No recent reviews have been conducted on therapeutic contact and OCD specifically. Newman and colleagues (2003) conducted a review of self-help therapies for anxiety disorders across varying levels of therapeutic contact. Their aim was to identify the amount of therapeutic contact required to provide symptom reduction across self-help interventions for anxiety disorders. This study reviewed self-help treatments for specific phobia, panic disorder, OCD, social phobia, generalised anxiety disorder, and mixed anxiety disorder. Newman and colleagues (2003) found a small number of research trials for OCD using various amounts of therapeutic contact, however, many studies were uncontrolled trials. The results of their review provided preliminary evidence for the use of self-help for OCD across all levels of therapeutic contact. Given the preliminary nature of the research reviewed, no firm conclusions were made surrounding the amount of therapeutic contact for OCD.

The NICE Guideline Development Group (2005) identified a relationship between the amount of therapeutic contact and treatment outcomes for OCD. It suggested that as therapeutic contact increases, treatment outcomes improve. Given the increase in self-help programs from 2005 to the present, no up to date reviews were available to determine if therapeutic contact does in fact currently influence treatment outcomes and dropout rates. An up to date review conducted in Study I provided further evidence of the effect of therapeutic contact on treatment outcomes

and in addition, to dropout rates for OCD, where it had not previously been provided. The results indicated that when therapeutic contact is increased, greater symptom reduction occurs. They also note that when therapeutic contact is increased, a trend in reduced dropout rates occur.

Overall, although greater symptom reduction was apparent where greater therapeutic contact was provided, self-help therapy was identified in Study I as effective for OCD across all levels of therapeutic contact. A need for further RCT's using evidence based treatments (i.e., iCBT), however, was identified within the self-administered self-help category. Stepped care has been explored as a way to provide treatment to clients on a scale of need, where clients with lower symptom severity are provided lower levels or steps to treatment (i.e., self-help), while clients with higher symptom severity are provided higher levels or steps to treatment (i.e., individual treatment). The implementation of a stepped care model in the treatment of OCD may also be useful to provide a step to treatment where it may not otherwise be available. This can occur when clients are found on long waitlists for individual services, residing in rural locations, or where limited access is available to evidence-based therapists.

Self-help may also be used as an initial step to therapy. Varying degrees of therapeutic contact may be implemented within self-help therapy (e.g., self-administered, predominantly self-administered, minimal contact, and predominantly therapist-administered) to provide an appropriate amount of intensity to the first level of treatment. Study I has supported the use of self-help therapy for OCD within all levels of therapeutic contact. The use of self-help as a first line of treatment was also supported within Study IV. When self-help therapy was provided to clients of varying degrees of symptom severity, it was observed that the client with the highest

symptom severity had the greatest reduction in symptoms, compared to clients with moderate and low symptom severity. While this may provide symptom recovery in some clients and eliminate long waitlists, it may also be used to provide some symptom reduction and relief while waiting for additional services. This may furthermore reduce therapist time, and financial costs associated with individual therapy (Gilliam et al., 2010; Nakagawa et al., 2000; Tolin et al., 2005).

An additional important concept regarding stepped care is the notion of stigma and mental illness, and more specifically, fear of judgement and shame associated with intrusive thoughts. Leahy (2007) suggested that a sense of humiliation accompanies many anxiety disorders, making it difficult for some clients to pursue treatment. This is particularly evident in OCD, whereby participants may feel a sense of shame and guilt in relation to intrusive thoughts, and as such may inhibit the client from engaging in treatment, disclosing intrusive thoughts, or continuing with treatment (Gilbert & Andrews, 1998). Leahy (2007) discussed the importance of psychoeducation and normalisation in treatment as a way to reduce this sense of shame. He reported that shame is a common feature of OCD and often adds to the disturbing nature, personal significance, and attention given to intrusive thoughts. This suggests that in this instance therapeutic contact may be seen as a hindrance to engagement in treatment for OCD due to a fear of judgement. By implementing aspects such as psychoeducation and normalisation in self-help treatment, this shame and fear of judgement may be reduced and as such may assist participants in moving throughout a stepped care model to face-to-face treatment. Although further research is required within this area, particularly within self-administered self-help, such treatments may provide a step of care for clients who would otherwise remain untreated.

Self-help providing greater access to services.

Using the Internet as a form of treatment for psychological illness comes with many benefits. One of the main purposes for its use is improved access to services, both time-related and environmental, coupled with a reduction in costs associated with such services. Research suggests that, when implemented appropriately, self-help programs can obtain similar results to 'treatment per usual' with a large reduction in costs (Ström, 2003). Cost-efficiency does, however, relate to the ability to access such services appropriately. For example, if one had difficulties with the use of computers or technology, the use of an internet-based self-help program may not be as considerably cost-efficient as other more appropriate forms of treatment if the individual was required to seek additional help. Melville and colleagues (2010) suggested that clients may be more likely to remain in treatment if they are comfortable, familiar, experienced and enjoy the use of computers and the internet. A study by Lange and colleagues (2003) however, suggested that those with greater experience with the use of computers and Internet were more likely to drop out. This may be related to the ability to search for alternative treatment options if dissatisfied with current treatments.

Ström (2003) also discussed the idea of cost-efficiency in the form of travel expenses. Often Internet-based self-help programs can be completed in the comfort of your own home (environmental access) and as such travel expenses to and from appointments are not required. This also relates to access to services in regional and rural areas where one may be quite far from services and as such travelling time and cost is an added burden (Richards, Klein, & Carlbring, 2003). Another important point that relates to both cost-efficiency and time-related access is the idea of waiting for treatment or being placed on a wait-list at a psychological clinic. If appropriately

implemented, Internet-based self-help programs can reduce or shorten waitlists and provide services to those where services may not be readily available elsewhere. A benefit which may not be available in face-to-face or group treatment programs is the ability to access materials and services 24 hours a day. Given that access may be available 24 hours a day, an advantage of Internet-based self-help programs is that treatment can be completed at your own time and pace, and advice can be automated. The use of self-help treatments may have a positive impact for treatment fidelity in a research and treatment context, where information developed and provided using self-help programs is accurate, consistent and comparable amongst participants. Furthermore, Ström (2003) identified the ability to automatically present clients with recommendations based on data they had inputted into the Internet-based self-help program. The interactivity of Internet-based self-help programs is something that may help to improve both drop out rates and access to services (Kelders et al., 2012).

Motivation and adherence to treatment.

Low treatment adherence and high attrition rates are often found with the delivery and evaluation of online self-help interventions (Kelders et al., 2012). This is particularly relevant for OCD, where further therapeutic contact and motivation are required (Newman et al., 2003). Developing programs that improve motivation and compliance is key to minimising dropout rates. Previous literature has identified motivation as a significant factor in influencing adherence to treatment.

Within Study IV, no participants were found to drop out. This may be a consequence of extrinsic motivation, whereby clients were required to attend a clinic each week which included the presence of a therapist. Study III identified numerous additional factors that can improve motivation and consequently adherence to

treatment from a community perspective. The specific aspects identified within Study III to improve motivation and interest to engage included time efficiency (e.g., ease of use, shorter length of program, observable initial gains), incentives (e.g., monetary, voucher, symptom reduction), goal setting and progress reviews, greater therapeutic contact, endorsement and evidence-based research to support the program, and program features (e.g., graphics, interactivity, ease of learning, enjoyment).

These results have practical implications for future researchers wishing to conduct self-help research or develop self-help programs for groups in need, in a way that may reduce already high dropout rates. High attrition rates amongst self-help research make it difficult to generalise findings to the wider population (Kohlenberg & Cahn, 1981; Moritz et al., 2010). According to Melville and colleagues (2010), who conducted a systematic review on dropout rates from Internet-based treatment programs involving minimal therapist contact, dropout rates ranged from 2% to 83%. Melville and colleagues (2010) also suggested that the most common time for participants to drop out is prior to treatment, suggesting that it is important to understand how to improve on and gain initial interest in such programs, as was explored within Study III.

Melville and colleagues (2010) discussed the idea that insufficient motivation may be correlated with drop out rates in clients. They suggested that insufficient motivation may result in reduced identification with treatment goals, and reduced compliance with materials and activities presented, impacting on treatment adherence and drop out. A number of studies have collected qualitative data to identify the reasons behind participants dropping out of self-help research (Carlbring, Furmark, Steczko, Ekselius, & Andersson, 2006; Carlbring et al., 2005; Lange et al.,

2003; Richards et al., 2006; Schneider, Mataix-Cols, Marks, & Bachofen, 2005). A central theme to these studies included a lack of motivation. Other factors identified that may increase drop out within self-help studies are related to time (i.e., time-consuming treatment, lack of time, or being too busy), all of which were also identified within Study III.

Reporting and interpretation of dropout is also considered an issue within research, particularly within self-help programs (Kelders et al., 2012). Kelders and colleagues (2012) reported some confusion surrounding the terminology used for dropout attrition and adherence attrition. They defined 'dropout' as "participants in a study who do not fulfill the research protocol (eg, filling out questionnaires)" (p.2). Alternatively, 'adherence' was defined as "the extent to which individuals experience the content of an intervention" (Kelders et al., 2012, p. 2). Dropout is often presumed to be due to the maintenance of negative symptoms as opposed to recovery. In order to avoid bias in research studies and over-reporting of symptom improvements, missing data is often accounted for in intention-to-treat analyses (Bell, Fiero, Horton, & Hsu, 2014). Although maintenance of negative symptoms is a very possible and probable explanation to dropout, alternative explanations may include spontaneous recovery, improvements due to certain aspects of the program (e.g., psychoeducation), general symptom improvement, comfort in labelling symptoms, and normalisation of symptoms. Interpretation of dropout can be very difficult when participants do not provide a follow-up and explanations are often not identified, particularly when participation is anonymous in some self-help programs. The focus of research studies has therefore been on identifying ways to improve adherence to treatment, as opposed to reducing dropout from treatment. Kelders and colleagues (2012) conducted a systematic review identifying factors within web-based program

development that influence adherence to treatment. They found that dialogue support (praising messages in response to completion of an activity), greater therapeutic contact, higher intended usage, and frequency of program/website updates predicted adherence to treatment (Kelders et al., 2012). Therapeutic contact was also identified as important to treatment adherence from qualitative results obtained in Study III.

Although lack of motivation may be strongly related to the high drop out rates seen amongst self-help research, participants in study III also identified a lack of accountability within self-help research. Ström (2003) stated that the "disinhibition effect" (p.41) could account for high dropout rates amongst self-help programs. This effect is described as resulting from the effort required to respond to an email being much less than responding to an advertisement via phone or letter. As such, more participants may join the study due to the ease of joining, however, may also dropout just as easily when confronted with demands from the program, or confronted with their own difficulties. The information gathered within Study III (identifying how to improve motivation in self-help programs [externally or internally] and gaining interest to engage) has the practical implication to reduce attrition rates amongst OCD clients completing self-help programs.

Alternative treatment programs.

Although motivation has been identified as a strong factor in reducing attrition rates amongst OCD clients, limitations to evidence-based treatments also have an impact on adherence to treatment. CBT and ERP are currently the gold standard treatments for OCD and although these treatments produce significant reductions in OCD symptoms, such treatments are not without limitations. Eddy, Dutra, Bradley, and Westen (2004) conducted a review of treatments for OCD and found that

moderate levels of symptoms often persist following CBT and ERP treatments. They found that although many clients improved on symptom outcomes (approximately two-thirds), only one-third of clients met recovery criteria. This further reduced when non-completers were included within the analysis, with only one half identified as improved, and one fourth identified as meeting recovery. Fisher and Wells (2005) provided further evidence supporting the idea that clients often remain symptomatic following ERP and CBT treatment. Furthermore, Clark (2004) suggested that many clients simply dropout or refuse ERP treatment. Study I provided further support of the high dropout rates for CBT and ERP treatments for OCD, specifically for self-help treatment. Refusal of treatment, high dropout rates, and many clients remaining symptomatic has led to the exploration of alternative treatment approaches.

Previous literature has supported the relationship between metacognition and OCD symptoms, strengthening the metacognitive model for OCD (Hermans et al., 2003; Irak & Tosun, 2008; Janeck et al., 2003; Myers & Wells, 2005; Wells & Papageorgiou, 1998). Study II provided additional evidence to support the metacognitive model. This study was unique in that the participants included an Internet treatment-seeking sample with clinical levels of obsessions and compulsions. Participants with clinical levels of OCD were found to have significantly higher levels of unhelpful metacognitions compared to participants with sub-clinical levels of OCD. Furthermore, significant positive correlations were found between unhelpful metacognitions and OCD symptoms. Such results suggest that treatments aimed at reducing unhelpful metacognitions (MCT) may be applicable to the treatment of OCD in a self-help seeking sample.

Within the literature review a number of studies were identified utilising MCT in the treatment of OCD. These studies found preliminary evidence supporting the

use of MCT for OCD in a variety of treatment formats, including self-help, group, videoconferencing, and individual therapy (Fisher & Wells, 2008; Fitt & Rees, 2012; Moritz et al., 2010; Rees & van Koesveld, 2008). As previously discussed, Moritz and colleagues (2010) provided a program called myMCT, an e-book self-help MCT program. This program utilised strategies and theories including cognitive-behavioural, metacognitive, and psychoanalytic, and as such a pure metacognitive treatment program was not implemented. Study IV implemented an online pure metacognitive self-help treatment program, which was found to provide preliminary evidence supporting the acceptability of MCT within an online self-help context, however, recovery was only found in one of three clients. This treatment program may provide alternative treatment for those participants where treatment may not otherwise be accessible. The nature of MCT and the potential difficulties associated with grasping the concept of MCT, however, may present some challenges when utilised within a self-help context with no therapeutic support. Further literature surrounding the use of MCT in a self-help therapy context across varying levels of therapeutic contact is required to determine if MCT can be used as a viable alternative to CBT and ERP treatments. It will also be useful to determine if dropout rates are reduced and outcomes improved in comparison.

Implications for telemental health.

Telemental health for the treatment of OCD and other mental health difficulties is a relatively new and growing area as described in Chapter 5. Recent evaluations into the current mental health demand suggest that telemental health interventions are an important step to provide access to services where they may not otherwise be available. Services that offer cost-effectiveness, accessibility (particularly to rural and remote communities), and flexibility are vital to meeting the mental health

demand (Christensen & Hickie, 2010). The Australian Health Ministers (2009) have also expressed the need for novel technologies in the development of mental health services in the Fourth National Mental Health Plan. Furthermore, the Department of Health within the Australian Government (2015) has suggested a move towards the use of digital mental health services within a stepped care framework in primary mental health care programs. They suggested that depending on the level of clinical care required, literacy skills and accessibility issues, individuals should first be offered a lower level of care such as digital mental health services. Furthermore, those individuals who do not respond to digital mental health or lower levels of service should then be offered face-to-face therapy. Other suggestions include promoting the use of self-help resources and digital mental health services adjunct to face-to-face services (Australian Government, 2015).

Numerous avenues of telemental health exist including the use of internet and web-based interventions, mobile phone applications, computerised interventions, videoconferencing, discussion boards, group based chat systems, and web-based chat systems. Telemental health is defined by Dielman and colleagues (2010) as "the provision of non-face-to-face psychological services by distance communication technology such as telephone, e-mail, chat and videoconferencing" (p. 12). The focus of the current thesis was Internet and web-based interventions, as well as a review of self-help treatments for OCD. It is important to note, however, the interactive nature of all such telemental health applications. For example, mobile phone applications, discussion boards, and chat systems may all be utilised within or alongside Internet and web-based interventions to increase adherence to treatment and normalisation of symptoms as described in Chapter 7.

The use of mobile phones may be a novel area for future research whereby the amount of people utilising mobile phones has grown substantially, providing further opportunities for treatment access through technology (Yuen, Goetter, Herbert, & Forman, 2012). Yuen and colleagues (2012) suggested that mobile phones may be utilised in many ways, such as telephone counseling, mobile applications, and providing opportunities for behavioural experiments and exposure exercises. Due to the portability of mobile phones, exercises may be carried out over multiple locations, which may not be possible with alternative means of treatment such as in the use of videoconferencing via computers, or computer-based interventions (Yuen et al., 2012). Some websites are now mobile-phone-friendly, which may be useful for Internet and web-based treatment programs to improve accessibility over multiple devices (e.g., smart phones, ipads, laptops, computers or other devices where Internet access is available).

Mobile phones currently already offer videoconferencing capabilities, telephone counseling, as well as applications for self-help programs and self-monitoring, all of which may function either alone or alongside Internet and web-based interventions. Telephone-based therapy has been utilised in the treatment of OCD across a number of research studies and found promising results (Lovell et al., 2006; Taylor et al., 2003; Turner, Heyman, Futh, & Lovell, 2009). The use of videoconferencing in the treatment of OCD has also been explored, however, not in detail through telephone-based mediums (Fitt & Rees, 2012; Himle et al., 2006; Stubbings, Rees, & Roberts, 2015; Vogel et al., 2012; Vogel et al., 2014). Anderson and Rainie (2008) predicted mobile phones to be the leading tool for accessing the Internet by 2020. Given the strong use of mobile phones at present, and the predicted future of Internet accessibility via mobile phones, it is evident that telemental health

directions are moving towards utilising such devices for the treatment of numerous mental health difficulties.

Increased accessibility to services is one of the biggest benefits of telemental health applications. Perle, Langsam, and Nierenberg (2011) report that Internet and web-based interventions are useful to improve accessibility to treatment by overcoming obstacles that stand in the way of individuals receiving adequate treatment. They suggested that symptoms of withdrawal, common to many mental health difficulties, often result in refuge within the Internet. They also suggest that Internet and web-based interventions may become useful within such a population. As described within Chapter 6, 87% of the sample of self-help seeking individuals with OCD reported currently seeking no additional help for their symptoms. This figure is consistent with other research within the area, demonstrating that a large portion of individuals with mental health difficulties either do not seek help, or do not have access to such help (Erwin, Turk, Heimberg, Fresco, & Hantula, 2004; Perle et al., 2011). Telemental health applications may provide additional access to services for those in need as described above in *'self-help providing greater access to services'*.

Implications for clinicians.

Telemental health applications may have both positive and negative implications for clinicians. Mixed attitudes towards telemental health applications have been reported by clinicians. Wangberg, Gammon, and Spitznogle (2007) found accepting attitudes towards Internet and web-based interventions in the majority of a sample of Norwegian psychologists, supporting the use of telemental health applications. Perle (2011) also found an acceptance rate of 67% amongst

psychologists. Some clinicians, however, remain reluctant to incorporate such applications within their services. A study on the attitudes of 138 psychologists by Mora, Nevid, and Chaplin (2008) found low levels of satisfaction and endorsement of internet-based treatment, including email, individual and group chat, and videoconferencing. They found that psychologists had reduced interest in utilising such services themselves, however, identified the value of utilising such services within rural and remote locations, and with individuals with disabilities whereby travel and accessibility may be difficult. A number of concerns underlying clinician attitudes have been reported throughout the literature such as therapeutic alliance, lack of nonverbal communication, adequate training, clinical competency and quality of care, and confidentiality and privacy (Mora et al., 2008; Perle, 2011; Perle et al., 2011; Wangberg et al., 2007).

One concern by clinicians of telemental health applications, which is consistently reported within the literature, is the dehuminisation of the therapeutic relationship as well as a lack of therapeutic contact (Perle et al., 2011). As discussed in Chapter 5, self-help treatments were found to be effective across all levels of therapeutic contact, however, a trend was recognised where greater therapeutic contact was associated with greater symptom reduction. Previous research has found that clinicians engaging in telemental health are still able to build effective working alliances with their clients that are adequate for treatment success (Cook & Doyle, 2002; Wade, Wolfe, & Pestian, 2004).

Clinicians have also expressed concerns surrounding adequate training for the delivery of Internet and web-based services. Given the widespread of information available online, considerations of clinical competency and quality of care arise for clinicians where adequate training has not been provided (Perle et al., 2011). The use

of computers and technology has increased over the last decade with ease of use and knowledge surrounding such technologies also increasing. Continued education and personal development is a requirement as a Registered Psychologist within the Australian Health Practitioner Regulation Agency, however, this does not necessarily involve training in Internet and web-based treatments. Perle et al. (2011) reported that numerous organisations within the US have offered trainings surrounding security, groundwork, and implementation of Internet and web-based treatments. Given the fast growing area of telemental health, an increase in the dissemination of training provided within Australia is also warranted. A recent online mental health training has been developed known as E-Mental Health in Practice (eMHPrac), which is an Australian Government initiative (Australian Government, 2016). eMHPrac was developed to provide training in the use of e-mental health resources to primary health care providers. The training includes face-to-face workshops, e-mental health webinars, online discussion forums, and online training modules. In order to provide clinically competent treatment programs online, as was found in Chapter 7, endorsement of treatment programs from known institutions may also assist in gaining initial interest and engagement in effective interventions.

Confidentiality and privacy of online programs is a warranted concern amongst many health professionals engaging in telemental health interventions. Proudfoot and colleagues (2011) discussed the importance of assuring confidentiality, privacy and maintaining site security when developing internet-based programs. They suggested that "the use of unique user names and passwords, encryption methods, firewalls and back-up procedures, secured sites and transfer of confidential information, and verification of the participant's and therapist's identities (where applicable) and the

therapist's credentials are important legal and safety elements" (Proudfoot et al., 2011, p. 88).

A large percentage of psychologists have been found to accept telemental health applications (Perle, 2011). Valid concerns and attitudes from psychologists have lead to the expansion of literature to overcome such obstacles to telemental health interventions. Despite numerous concerns and some mixed attitudes surrounding telemental health services, it is important to understand that it is still a novel and expanding area. As previously discussed, the literature surrounding telemental health services (e.g., smart phone applications, videoconferencing, chat programs, and internet and web-based interventions) is continually growing with new avenues to widely accessible interventions being explored.

Directions for Future Research

The studies included within Chapters 5-8, as well as the conclusions and implementations described within this chapter, suggest a number of key areas for future research. First, following the systematic review and meta-analysis of self-help treatment for OCD in Study I, it was identified that further evaluation of iCBT was required to determine if iCBT was effective across various levels of therapeutic contact. This was particularly important within the self-administered self-help category. At present, only two large-scale quasi-experimental studies have been conducted that explore the use of iCBT within self-administered self-help (Al-Asadi et al., 2014; Klein et al., 2011). These studies have shown preliminary effectiveness for iCBT in the context of self-administered self-help. Large dropout rates, however, were noted within both studies, which reduce the overall effectiveness of such

treatments. Further research in controlled trials is required to determine if iCBT is effective in the delivery of self-administered self-help for OCD.

Second, based on the results from Study I, and Study IV, further evaluation of MCT at differing intensities of therapeutic contact is warranted, as well as further evaluation of online self-help MCT for OCD in RCT designs. Only one RCT was identified that utilised MCT in a self-administered self-help treatment program (Moritz et al., 2010). This program, however, utilised numerous psychological strategies, and as such was not a pure MCT self-help program. Study IV provided preliminary evidence for online self-help MCT for OCD, however, due to the small sample size and other limitations to internal validity, further controlled trials are warranted to determine if online MCT is effective within a self-administered self-help context. To comply with a stepped care model, it would also be useful to identify if self-help MCT for OCD is effective over various levels of therapeutic contact.

Third, CBT and ERP are currently the gold standard treatments for OCD. Limitations to such treatments have led to the exploration of alternative treatments, such as MCT. High dropout rates and low adherence to treatment have been identified in such treatments, particularly for iCBT when provided within a self-administered self-help context. Given these limitations, further research comparing iCBT to online self-help MCT on both outcomes and dropout rates may be useful to identify the best line of treatment for OCD within a self-help treatment context. Furthermore, identifying the level of therapeutic contact required within each of these treatment programs to produce beneficial treatment outcomes whilst also attending to a cost-effective therapist-time-limited approach.

Fourth, Study II identified the need for further large-scale evaluations on the relationships between unhelpful metacognitions and OCD symptoms in a clinical sample of individuals with OCD. Further research providing support and evidence for the metacognitive model of OCD would be useful, particularly within clinical samples. Finally, a limitation to Study II was that no comparison or control group was implemented. Future research could compare the characteristics of online self-help seeking individuals with OCD to those who seek individual therapy to identify if any significant differences are present. Such research will provide further information to tailor online self-help treatment programs to accommodate these differences, and furthermore increase treatment adherence.

Summary and Conclusions

The findings of this research have added to the body of literature pertaining to self-help therapy for OCD, particularly utilising a metacognitive approach. Given the limitations to current evidence-based treatments as well as limited accessibility to such treatments, a stepped care approach to treatment is warranted. Self-help treatment for OCD, specifically, could act as a suitable solution to limited-accessibility issues, particularly when made available online. The results of this thesis provide information supporting the use of self-help treatments for OCD across varying levels of therapeutic contact. Evidence supporting the metacognitive model for OCD, as well as preliminary evidence supporting the acceptability of online self-help MCT for OCD, was also provided. Such evidence has warranted further exploration within larger controlled trials and has provided future directions for telemental health research and interventions.

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APPENDIX A. MISSING SURVEY DATA BREAKDOWN FROM STUDY III

Missing Survey Data from Participants in Study III

	Age	Gender	Country of Residence	State of Residence	Qualitative Survey Data
Valid	33	33	32	30	42
Missing	31	31	32	34	22
Total	64	64	64	64	64

APPENDIX B. PARTICIPANT INFORMATION SHEET AND CONSENT FORM (STUDY III)

PARTICIPANT INFORMATION SHEET

My name is Caitlin Pearcy and I am a Doctor of Philosophy (Clinical Psychology) student at Curtin University of Technology. I would like to take this opportunity to invite you to participate in a short online survey as part of my PhD thesis.

I am looking into what aspects are important to 1) generate interest in taking part in a research project as a participant; and 2) continuing to participate in self-help therapy throughout a 6 week period. As part of this project, I have developed a self-help website for the treatment of OCD. This program runs for 6 weeks in total and participants will be followed up 6 weeks later to see how they are progressing with the skills learned throughout the program. Unfortunately, at times it can be difficult to find the motivation to complete a self-help program. As such I am interested in ways that you think would help to increase the likelihood of program completion.

Participation involves the completion of a short online survey. The questions included within this survey will be asked in order to 1) help to make this 6 week program as interesting as I can; 2) Increase motivation to complete the program; and 3) reduce drop out rates.

All information collected will remain confidential from anyone not directly involved in the study. You will **not** be required to provide your name and other identifiable information to ensure that all data collected and participants are anonymous. The data will be stored electronically in a password-protected file.

Participation in the study is completely voluntary. If you decide to participate and further change your mind, you may withdraw your participation at any time without any negative consequences.

This study is being conducted by Caitlin Pearcy (Caitlin.pearcy@postgrad.curtin.edu.au) and supervised by Associate Professor Clare Rees (c.rees@curtin.edu.au).

This study has been approved by the Curtin University Human Research Ethics Committee (Approval Number HR 151/2011). The Committee is comprised of members of the public, academics, lawyers, doctors and pastoral carers. Its main role is to protect participants. If needed, verification of approval can be obtained either by writing to the Curtin University Human Research Ethics Committee, c/- Office of Research and Development, Curtin University, GPO Box U1987, Perth, 6845 or by telephoning 9266 2784 or by emailing hrec@curtin.edu.au

☐ By checking this box you acknowledge that you have read and understood the information provided and voluntarily give your consent to participate in the following research study.

APPENDIX C. MODULE OVERVIEW FOR THE ONLINE SELF-HELP METACOGNITIVE THERAPY PROGRAM

Eight modules were developed within the online self-help metacognitive therapy program. The modules were developed to provide psychoeducation, increase motivation, introduce and implement metacognitive skills, and maintain symptom and behavioural changes. A description of each individual module is provided below.

Module One: The Nature of Obsessions and Compulsions

Module one was developed to provide clients psychoeducation in order to increase their understanding of obsessions and compulsions. A short video was provided to explain what OCD is, what obsessions and compulsions are, and also to provide examples of obsessions and compulsions. Psychoeducation about OCD and therapy is an important first step (following assessment) in treatment for OCD as outlined throughout the literature (Cordioli, 2008; de Oliveira, 2012). Cordioli (2008) reported that psychoeducation can assist in overcoming non-compliance and dropouts. They reported that by describing the nature of OCD, the specific treatment, how the treatment reduces symptoms, and how it is performed may in fact help to motivate participants to continue with the therapeutic process (Cordioli, 2008). Wells (2009) also suggested that psychoeducation alone can help to normalise experiences of those suffering from OCD and in turn improve symptomology (See Figure **12** for a screen shot of module one).
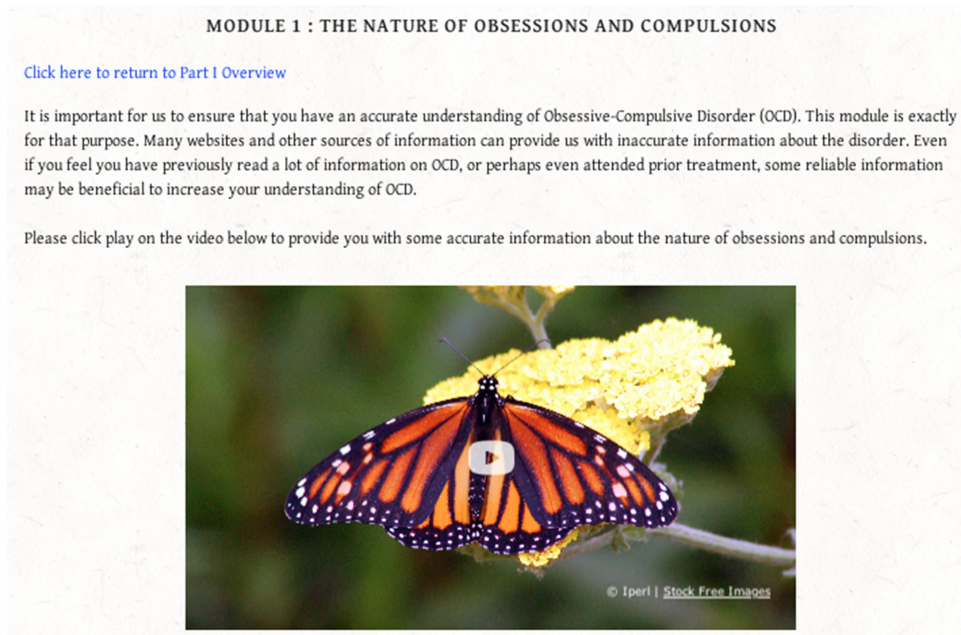
MODULE 1 : THE NATURE OF OBSESSIONS AND COMPULSIONS

Click here to return to Part I Overview

It is important for us to ensure that you have an accurate understanding of Obsessive-Compulsive Disorder (OCD). This module is exactly for that purpose. Many websites and other sources of information can provide us with inaccurate information about the disorder. Even if you feel you have previously read a lot of information on OCD, or perhaps even attended prior treatment, some reliable information may be beneficial to increase your understanding of OCD.

Please click play on the video below to provide you with some accurate information about the nature of obsessions and compulsions.

Figure 12. **Screenshot of module one: Introduction and video.**

Module one also included a drag and drop game where participants were required to match concepts (i.e., define obsessions, define compulsions, provide examples of obsessions and compulsions, and define OCD). This drag and drop game was included in order to provide some interactivity within the module to gain initial interest, as well as to reinforce concepts learned within the video (See Figure **13**). Participants were also provided with a separate information sheet that they could download within module 1. This information sheet provided them with further information and psychoeducation in a written form that they could easily save and print for later viewing (Rees & van Koesveld, 2009).

Now that you have been provided with some accurate information on the nature of obsessions and compulsions, here is a quick exercise. Drag and drop the definitions or examples on the right to match in the correct order of the words on the left. Once you have the correct pairings, i will let you know.

- Obsessions

- Compulsions

- Obsessive-compulsive disorder

- Examples of Compulsions

- Examples of Obsessions

- Checking, counting, reassurance seeking, hand-washing, re-arranging objects to make them 'just right', having to do things a certain number of times or according to certain rules

- Mental or physical behaviour used to reduce anxiety and provide some sense of control in response to upsetting thoughts, images, impulses or ideas

- An anxiety disorder characterised by the occurrence of obsessions and compulsions

- Thoughts that someone they care about might be cursed by the devil, thoughts that the house might burn down or be burgled, thoughts that they might get a serious illness such as HIV or mad cow disease, thoughts or images of stabbing, punching, or running over another person

- Thoughts, images, impulses or ideas that tend to be upsetting in nature and cause a great deal of anxiety

For further information on obsessions, compulsions and the causes of OCD, please download the following information sheet:

Client Information Sheet: Obsessive Compulsive Disorder

CLICK HERE TO CONTINUE TO MODULE 2

Figure 13. **Screenshot of module one: Drag and drop game.**

Module Two: Are you Ready to Change?

Module two was developed in order to target any ambivalence that participants were experiencing about change, and as such improve motivation to continue with treatment (see Figure 14). Within the first part of this module participants were provided with a worksheet alongside some audio explaining how to complete the worksheet and providing some examples. The worksheet was provided to increase the participants awareness of some of the factors that may be contributing towards any ambivalence they may be experiencing about change. Within the worksheet, participants were asked to identify and write down the following: 1) List all the negative aspects of having OCD; 2) List all the positive aspects of having OCD; 3) List all the personal benefits that you expect if you change; 4) List all the personal

costs that you expect if you change (Rees & van Koesveld, 2009). A number have studies have suggested that using motivational interviewing techniques and identifying the client's stage of change in the first stages of therapy can increase positive responses to therapy, and as such reduce dropout rates (Meyer et al., 2010; Rubak, Sandbaek, Lauritzen, & Christensen, 2005). de Oliveira (2012) reported that ambivalence in therapy is a normal experience, however, it is important to resolve any doubts or ambivalence at the beginning stages of therapy. A lack of motivation and difficulties in visualising the possibility of behavioural change is particularly apparent in OCD when clients have had previous unsuccessful treatments (de Oliveira, 2012).

Figure 14. **Screenshot of module two: Are you ready to change?**

The second part of this module was aimed at helping participants to set some realistic and achievable goals to work towards throughout the duration of the program. Participants were provided with a number of examples of helpful and unhelpful goals relating to SMART goals. Smart goals are described as Specific, Measureable, Achievable, Relevant/Realistic and Timely/Time bound (MacLeod, 2012). In order to complete their goals, participants were redirected to Qualtrics Survey Software, at which time they asked to set at least one goal that they would like to achieve by the end of the program (see Figure 15). Goal setting has been found within the literature as an important factor in increasing motivation within treatment as it is a way for the client to accept responsibility for change (Curry et al., 1991; Provitera, 2012; Ryan et al., 2010).

Before starting week 2 of the program it is important to start setting some goals that you would like to achieve by the end of the program. We ask that you set yourself a number of goals, write these down and keep them somewhere safe. By setting some goals it may help to keep you motivated to continue with treatment in order to reduce some of the symptoms that you have been experiencing.

Goal 1 (Write your first goal in the box below)

Why do you want to achieve this goal?

What are some of the tasks you can do to achieve this goal?

How motivated are you to reach this goal? On a scale of 1-10 (1 = not motivated at all, 10 = extremely motivated)

	1	2	3	4	5	6	7	8	9	10
Goal 1										

Figure 15. **Screenshot taken from qualtrics survey software: Goal setting.**

Module Three: What are Metacognitions and what is Metacognitive Therapy?

Module three is developed to provide psychoeducation on metacognitions, as well as provide participants with an explanation of the treatment program that they are engaging in. As explained earlier, this is important to increase motivation to continue if participants trust and believe in the treatment being provided. Within this module, participants are provided with information through the website, as well as a printable information sheet on the treatment program. At the end of module three, participants are provided with a quick quiz. This is to ensure that participants have accurately interpreted the information provided within the first three modules, and if not, correct any misinterpretations (see Figure 16). Although psychoeducation has been determined as a valuable aspect found within psychological treatment, literature

has suggested that it is important that this psychoeducation has been interpreted correctly to have a positive effect. Although module three acts to reinforce psychoeducation, it is also important to provide normalisation and destigmatization. Wells (2009) suggested that the nature of obsessions and compulsions may be embarrassing, shameful and threatening, and may interfere with the treatment process. As such, it is important to decatastrophise and normalise the nature of obsessions and occurrence of compulsions.

A QUICK QUIZ

Read each question, think about, write, or choose your answer, and then click to reveal the correct answer!

1. OCD is caused by a brain disorder. True or False?

☐ True
☐ False

Click here to reveal the correct answer

2. Name two other factors that can contribute to the development of OCD.

Click here to reveal the correct answer

3. "If you really try hard enough, you can control unwanted thoughts and stop them from occurring". True or False?

☐ True
☐ False

Figure 16. **Screenshot from module three: A quick quiz of the online self-help metacognitive therapy program.**

Week One Homework

Upon completion of the first three modules of the online self-help metacognitive therapy program, participants were provided with a worksheet to

complete for homework. In week one, participants were provided with psychoeducation surrounding obsessions and compulsions, and as such can now understand what obsessions and compulsions are. The homework provided was aimed to help participants to begin to tune into their obsessions and compulsions and increase their awareness by labelling and writing down their own intrusive thoughts and compulsions (Rees & van Koesveld, 2009). The worksheet provided participants with some examples of intrusive thoughts, and compulsions in response to intrusive thoughts in order to guide them through it (e.g., I am contaminated with bacteria → Wash and dry hands repeatedly).

Module Four: Becoming more familiar with Thoughts about Thoughts

Module four was developed to assist participants in understanding the notion of thinking about thinking, or metacognition. Within this module participants were provided with some metaphors to aid their understanding, as well as a number of questions (see Table 15) to lead to the determination that it is the way in which one responds to thoughts, rather than the thoughts themselves, that may lead to an increase in anxiety (Rees & van Koesveld, 2009). Participants were also provided with some information on Intrusive thoughts (see Figure 17).

Table 15

Participant Questions to Increase Understanding of the Notion of Metacognition

1. How do you think you would feel if you no longer believed that the thoughts you were having were meaningful or indicative of harm?
2. Would you still need to complete your rituals?

3. What is it that prompts you to engage in your rituals?

4. How does your checking rituals and avoidance affect your confidence in your memory?

5. How do your rituals affect your ability to tell the difference between imagined events and real events?

The final part to module four provided participants with an activity to determine which kinds of thoughts would be more difficult to accept for different people. Participants were first asked a some questions (e.g., 'If you experienced a thought out of the blue such as 'I wonder what it would be like to speak another language', would you find it difficult or easy to accept this thought?', 'If you thought that your 'intrusive thought' was acceptable, do you think you'd be distressed when the thought occurred?'), followed by an activity surrounding personal values. They were asked to think about the kind of person that would find intrusive thoughts on numerous topics difficult to ignore, and then provided with the answers (See Figure 18).

Figure 17. **Screenshot from module four: Different kinds of thoughts from the online self-help metacognitive therapy program.**

Figure 18. **Screen shot of module four: Personal values from the online self-help metacognitive therapy program.**

Module Five: Examples of Metacognitions and Introducing Detached Mindfulness

Module five was developed to provide participants with 1) a list of examples of unhelpful and helpful metacognitions, which can be applied to any thought, and 2) an introduction to detached mindfulness. By providing participants with some examples of helpful and unhelpful metacognitions, this may assist participants 1) to increase their awareness surrounding the types of metacognitions they re experiencing, and 2) when conducting experiments in the week three. The second part of Module five was developed to introduce participants to detached mindfulness. Participants were provided with some information on what mindfulness and detachment are, and then provided with a number of detached mindfulness audio exercises. The first task presented was the 'Tiger task' (for script see Wells, 2006). This task requires participants to visualised and observe the movements of a tiger, without trying move the tiger at all. The second task presented was the 'free association task'. Within this task a number of words are presented and participants are asked to watch or observe the thoughts and memories resulting from the trigger words. Participants were asked to focus on how detached mindfulness can be applied to unexpected occurring negative thoughts (e.g., watching these thoughts in a detached way).

Week Two Homework.

Upon completion of modules four and five of the online self-help metacognitive therapy program, participants were asked to continue to tune into their metacognitions as well as practice their detached mindfulness with the audio

provided in module five. They were also asked to continue to keep filling out their homework worksheet provided in week one.

Module Six: Over Importance of Thoughts

Module six was developed to assist participants in understanding that a major part of OCD is ascribing too much importance to thoughts. Therefore, rather than seeing thoughts as simple random mental activity, significant meaning (often negative) is ascribed to the content of thoughts. This negative meaning may cause feelings of anxiety and furthermore an attempt to reduce the anxiety via rituals, avoidance and other ineffective strategies. Within this module, participants were provided with a client information sheet on the over importance of thoughts (Rees & van Koesveld, 2009). Participants were also introduced to the notion of thought-fusion: thought-event fusion, and thought-action fusion as described by Wells (2006). Participants were provided with an experiment to test the concept of thought-event: Thinking about an event (the computer screen turning purple) means it has happened or will happen. They were also provided with a worksheet to develop some thought fusion experiments of their own to test out in the following week (Rees & van Koesveld, 2009).

The second part of Module six was developed to continue detached mindfulness practice. Participants were provided with an experiment known as the 'white bear experiment' (Rees & van Koesveld, 2009). Within this task they were asked to purposely avoid thinking of a white bear for a period of one minute. Participants were then provided with a number of examples of unhelpful behavioural responses, which are rarely effective and usually contribute to further experience of unwanted thoughts. The task was then presented to participants for a second time at

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which point participants were asked to use detached mindfulness and see what happens.

Module Seven: Attention Training and Starting to Experiment

Module seven was developed in order to introduce participants to the practice of ATT, continue to practice detached mindfulness, and design some experiments to challenge a number of unhelpful metacognitive beliefs. Participants were provided with an ATT audio track in order to help them to observe their thoughts in a detached way without engaging with them.

Participants were then introduced to the idea of using detached mindfulness on both obsessional thoughts and neutral thoughts. Although the practice of detached mindfulness may be helpful to reduce engagement with intrusive thoughts, participants may still be experiencing the use of rituals or compulsions. The next part of Module seven, starting to experiment, was developed to challenge some of the metacognitive thinking, and as such reduce rituals and compulsions. Firstly, participants were provided with an explanation of 'experiments' as well as a worksheet to explore some of their metacognitive beliefs in relation to their intrusive thoughts (Rees & van Koesveld, 2009). Participants were then asked to come back to a worksheet that they were asked to complete over week one and two (exploring compulsions) to help them to develop some experiments surrounding their compulsions. Given drop-out often occurs during this stage of treatment (experiments and challenging compulsions), participants were asked to re-visit their motivation to change worksheet completed in week one, and also complete another worksheet, advantages and disadvantages of stopping my rituals, in order to increase motivation to continue (Rees & van Koesveld, 2009). See Figure **19** for a list of

'advantages and disadvantages of changing my rituals' provided to participants following the completion of their worksheet.

MODULE 7: ATTENTION TRAINING AND STARTING TO EXPERIMENT

Back to Part 2 Overview

Now that you have written out some of your own advantages and disadvantages of changing or postponing your ritual behaviour, see the table below for what we came up with.

What are the disadvantages of changing my rituals	What are the advantages of changing my rituals
It is difficult to accomplish change	I can discover if it really is difficult and make it easier
It will cause me distress	I will discover that the distress is only temporary
It could harm someone if I didn't perform them	I will discover that my beliefs about harm are untrue
I will never get rid of the thoughts	I will discover that I don't need to push thoughts way and they are not permanently distressing
Something bad will happen	I will discover that nothing happens and all thoughts are safe
I will become someone I don't want to be	I will discover that thoughts do not have the power to change me as a person

Figure 19. **Screen shot of module seven: Advantages and disadvantages of changing my rituals.**

Participants were then provided with an experimental record sheet (Rees & van Koesveld, 2009) and a number of examples of experiments such as:

- Contamination-related intrusive thoughts: touch the outside of a rubbish bin without immediate hand-washing

- Aggressive intrusive thoughts: spend two minutes imagining stabbing his/her girlfriend/boyfriend

- Doubting intrusive thoughts: Leave the house after locking the door without checking

- Religious intrusive thoughts: Write down the words 'I will be cursed' repeatedly without neutralising

- Sexual intrusive thoughts: Look at pictures of young children without seeking reassurance

- Doubting intrusive thoughts: Drive car on bumpy road without completing mental or actual checking of the road

Metacognitive experiments are designed to challenge beliefs at a metacognitive level (thoughts about thoughts), for example, Thought-event fusion, and thought-action fusion, and furthermore rituals in response to these metacognitive thoughts are then challenged. Throughout the experiment process participants were asked to rate their level of distress across time and watch what happens to their distress levels. Rees (2009) described the notion of habituation to anxiety, that across time, anxiety and distress will gradually diminish. This concept was described to participants within this module.

Week Three Homework

Upon completion of modules six and seven of the online self-help metacognitive therapy program, participants were provided with a number of worksheets to complete as homework over the next week. Participants were asked to complete some thought-fusion experiments, mindfulness practice, ATT, and detached mindfulness practice.

Module Eight: Continuing to Experiment and Staying on top of it

Module eight was developed in order to encourage participants to continue with their experiments, as well as maintain what participants have learned over the past seven modules and assist them to continue to improve. Participants were provided with a 'maintenance planning' worksheet to complete at the beginning of this module to identify 1) their concerns at the beginning of the program, 2) the areas in which they have noticed improvements, and 3) the areas which still need some

work (Rees & van Koesveld, 2009). Participants were then provided with two

separate maintenance planning worksheets, which they could choose from,

depending on their preference of format. A number of examples were also provided

for participants to assist them in completing the worksheets (see Figure 20).

MODULE 8: CONTINUING TO EXPERIMENT & STAYING ON TOP OF IT

Back to Part 2 Overview

Now that you have come up with one achievement, i would like you to brainstorm a range of possible challenges, stressors, setbacks and maintenance strategies. It may be helpful to write these in a table such as the example shown below:

Major Achievements	Possible Setbacks / Worries	Maintenance Strategies
Reduced Hand-washing	Return to work, added stress	Relaxation activities, sharing other responsibilities
	No regular homework to maintain progress, experiments	Set own homework, set day / time each week to generate experiments
	'Bad Weeks' with unexpected stressors e.g. illness, car broken	Write yourself a list of things to remember at these times, or use mindfulness techniques to step back from worries

A worksheet in the form of this table is available below:

Client Work Sheet: Achievements, Setbacks and Maintenance Strategies

Once you have come up with these strategies, write them down so that you can come to them if these setbacks / worries arise. Another helpful work sheet to guide you through this is 'my personal maintenance plan' below:

Client Work Sheet: My Personal Maintenance Plan

Figure 20. **Screen shot from module eight: Maintenance planning from the**

online self-help metacognitive therapy program.

APPENDIX D. PARTICIPANT INFORMATION SHEET AND CONSENT FORM (STUDY IV)

INFORMATION ABOUT THE PROGRAM

My name is Caitlin Pearcy and I am a Doctor of Philosophy (Clinical Psychology) student from Curtin University of Technology. I would like to take this opportunity to invite you to participate in a research study I am conducting as part of my PhD thesis.

The Purpose of this Research
This research is investigating the effectiveness of a self-help psychological treatment aimed at reducing the symptoms of Obsessive-compulsive disorder (OCD). The specific therapy that we will be investigating is called Metacognitive Therapy. There is an overwhelming need of treatment for OCD as not everyone has access to the treatments that are available. An online self-help treatment program provides treatment for those who do not have access to other services right away.

What Participation Involves
Participation in the research study requires that you are 18+ years of age and currently experience obsessive-compulsive symptoms. We ask that throughout the treatment program that you do not undergo any other forms of psychological treatment. If you are currently taking medication such as antidepressants or other mood stabilisers, we ask that you only participate if you have been stable on this medication one month prior to this treatment and that you do not change your dosage or medication throughout the treatment. Alternatively if you wish to have other treatment, you may withdraw from the study at any point without any negative consequences.

The Research Study
The treatment program will be in an online self-help format and **free of charge**. You will be asked to complete an assessment session with a therapist as well as a number of questionnaires online at the Curtin University Psychology Clinic prior to, following, and 4 weeks after treatment. Each person will receive access to the Metacognitive Therapy treatment program via a computer within the Curtin University Psychology Clinic. At this stage participants will also have access to a

telephone with which they may contact the therapist to ask any technical questions relating to the program. The treatment will consist of 1 session per week for a total of 4 weeks within the Curtin University Psychology Clinic.

Confidentiality and Anonymity

All information collected will remain confidential from anyone not directly involved in the study. Each person involved in the study will be allocated an ID number so that no one is identifiable.

Withdrawal from the Study

Participation in the study is completely voluntary. If you decide to participate and further change your mind, you may withdraw your participation at any time without any negative consequences. If you decide to withdraw from this research you will be provided with referral services that can provide you with other treatment options.

Ethical Considerations

This study has been approved by the Curtin University Human Research Ethics Committee (Approval Number HR151/2011). The Committee is comprised of members of the public, academics, lawyers, doctors and pastoral carers. Its main role is to protect participants. If needed, verification of approval can be obtained either by writing to the Curtin University Human Research Ethics Committee, c/- Office of Research and Development, Curtin University, GPO Box U1987, Perth, 6845 or by telephoning 9266 2784 or by emailing hrec@curtin.edu.au.

Further Information

If you would like to clarify or require any additional information, before, during, or following the study, please do not hesitate to contact the research team by email at ocddoctoronline@gmail.com It is important to note that this email service is not be used for contact with a therapist, instead its use is solely to answer any queries or concerns you have as part of the treatment program.

Next Step

Thank you for taking the time to read the information provided. If you have read and understood all information and agree to participate in the current research study, please read and give your consent on the following page.

CONSENT FORM

- I understand that the purpose of this research is to investigate the effectiveness and trial a treatment for obsessive compulsive disorder and there is a chance that I may not benefit from this treatment

- I understand that this treatment is provided as an online self-help treatment and that no external therapeutic services (including a therapist to guide you through therapy) will be provided.

- I agree that I will not receive any other form of psychological treatment while I am continuing with this online self-help treatment. I also understand that if I wish to engage in other psychological treatments during this time that I can withdraw from the study, without prejudice.

- I understand that any data collected from the present study will remain confidential and participants will remain anonymous. I also acknowledge that data collected may be used in further studies, however, will remain anonymous and will be in no way identifiable.

- I understand that my participation in the present research study is completely voluntary, and that I can withdraw from this study at any time without prejudice. I understand that if I decide to withdraw from this research study I will be provided with a referral service for other treatment options.

- I acknowledge that the email address provided to me is only to be used for queries or concerns raised before, throughout, or following the completion of the treatment study. It is not to be used to seek additional guided therapy.

- If you are currently feeling suicidal, you agree to seek alternative treatment prior to involvement in the current study.

I, (print name in Block Capitals)………………………………………………… have read and understood the above Consent Form. I agree to these conditions for the psychological service provided.

Signature ………………………………………… Date …………………..

Please Note: If, after reading this page you are at all unsure of what is written, please discuss it with your therapist.