

School of Psychology

**The Role of Obsessive Compulsive Personality Disorder and
Clinical Perfectionism in Obsessive Compulsive Disorder:
Measurement, Psychological Intervention, and Barriers to
Treatment**

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This thesis is presented for the Degree of
Doctor of Philosophy
of
Curtin University

November 2017

Author's Declaration

To the best of my knowledge and beliefs this thesis contains no material previously published by any other person except where due acknowledgement has been made.

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

The research presented in this thesis was conducted in accordance with the National Health and Medical Research Council (NHMRC) National Statement on Ethical Conduct in Human Research (2007) – updated March 2014. The PhD project received human research ethics clearance from the Curtin University Human Research Ethics Committee (HREC) Approval number: HREC 38/2014. The research trial was enlisted with the Australian and New Zealand Clinical Trials Registry 2007; trial number: ACTRN12614000295640.

[Signature]

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Statement of Contribution

This thesis consists of a collection of papers that have been presented in journal format, supplemented by an introduction, literature review, and general discussion. The following publications have arisen from this thesis:

Sadri, S. K., McEvoy, P. M., Egan, S. J., Kane, R. T., Rees, C. S., & Anderson, A. (2017). The relationship between obsessive compulsive personality and obsessive compulsive disorder treatment outcomes: Predictive utility and clinically significant change. *Behavioural and Cognitive Psychotherapy*, 45, 524-529. doi: 10.1017/S1352465817000194

Sadri, S. K., Anderson, R. A., McEvoy, P. M., Kane, R. T., & Egan, S. J. (2017). A pilot investigation of cognitive behavioural therapy for clinical perfectionism in obsessive compulsive disorder. *Behavioural and Cognitive Psychotherapy*, 45, 312-320. doi: 10.1017/S1352465816000618

Sadri, S. K., McEvoy, P. M., Pinto, A., Anderson, A., & Egan, S. J. (2017). A psychometric examination of the Pathological Obsessive Compulsive Personality Scale (POPS): Initial study in an undergraduate sample. *Journal of Personality Assessment*. (Accepted, December 2017).

I affirm that the order of authorship reflects the relative contribution within each article (see Appendices I, J, K, L). In accordance with Curtin University Doctor of Philosophy copyright guidelines for presenting published papers (section 8.1), I assert the following regarding the contribution made by the candidate to the jointly authored publications: *I warrant that I have obtained, where necessary, permission from the copyright owners to use any third-party copyright material reproduced in the thesis, or to use any of my own published work (e.g. journal articles) in which the copyright is held by another party (e.g. publisher, co-author).*

Acknowledgements

To my supervisors, Dr Sarah Egan, Dr Rebecca Anderson, and Professor Peter McEvoy. Thank you for the time, knowledge, and expertise you put into my supervision. Thank you for modelling such a high quality standard of research and practice in clinical psychology, which has enriched my skill set and drive as a scientist-practitioner. For this I will be forever grateful. Thank you also to my associate supervisor Dr Robert Kane for your input and statistical advice, and to Dr Melissa Davis for conducting the internal review of my thesis.

I would like to acknowledge the participants and clinicians involved in this project. Their time and willingness to participate was critical to the execution of the treatment trials and wider data collection, which has enabled a rich contribution to clinical outcomes and knowledge.

To my family, friends, and postgraduate colleagues. Thank you for being my cheer squad. My heartfelt appreciation is extended to my parents - this would not have been possible without the foundation you laid for me. Thank you for your unwavering support and encouragement of my academic endeavours.

Last but certainly not least, thank you to my partner Craig. Thank you for being a pillar of strength throughout my degree, and for your absolute belief in my ability. You also officially know more about psychology than you ever imagined (or wanted)!

Thank you

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List of Acronyms

| | |
|----------|--------------------------------------------------------|
| APS-R | Almost Perfect Scale-Revised |
| AN | Anorexia Nervosa |
| APA | American Psychological Association |
| ARPB | Average Relative Parameter Bias |
| BIS-11 | Barratt Impulsiveness Scale |
| BDD | Body Dysmorphic Disorder |
| BN | Bulimia Nervosa |
| CBT | Cognitive Behavioural Therapy |
| CBT-P | Cognitive Behavioural Therapy for Perfectionism |
| CFA | Confirmatory Factor Analysis |
| CFI | Comparative Fit Index |
| CLPS | Collaborative Longitudinal Personality Disorders Study |
| CM | Concern Over Mistakes |
| CPQ | Clinical Perfectionism Questionnaire |
| DA | Doubts about Actions |
| DSM | Diagnostic and Statistical Manual of Mental Disorders |
| ECV | Explained Common Variance |
| ERP | Exposure and Response Prevention therapy |
| FFM | Five Factor Model |
| FMPS | Frost Multidimensional Perfectionism Scale |
| GAD | Generalised Anxiety Disorder |
| HMPS | Hewitt and Flett Multidimensional Perfectionism Scale |
| ICD | International Classification of Diseases |
| ICC | Intraclass Correlation Coefficient |
| ICBT | Internet-based Cognitive Behavioural Therapy |
| MOCI | Maudsley Obsessive Compulsive Inventory |
| MDD | Major Depressive Disorder |
| MCLA | Multi-Level Latent Class Analysis |
| MLR | Maximum Likelihood with Robust Standard Errors |
| NEO-PI-R | NEO Personality Inventory Revised |
| NESARC | National Epidemiological Questionnaire on Alcohol |

| | |
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| | and Related Conditions |
| NJRE | Not Just Right Experiences |
| OBQ | Obsessive Beliefs Questionnaire |
| OCCWG | Obsessive Compulsive Cognitions Working Group |
| OCD | Obsessive Compulsive Disorder |
| OCPD | Obsessive Compulsive Personality Disorder |
| OCPDQ | Obsessive Compulsive Personality Disorder Questionnaire |
| OCRD | Obsessive Compulsive and Related Disorders |
| PCA | Principal Components Analysis |
| POPS | Pathological Obsessive Compulsive Personality Scale |
| PS | Personal Standards |
| PUC | Percentage of Uncontaminated Correlations |
| RCT | Randomised Controlled Trial |
| RMSEA | Root Mean Square Error of Approximation |
| SCID | Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders |
| SD | Standard Deviation |
| SSRI | Selective Serotonin Reuptake Inhibitor |
| TLI | Tucker Lewis Index |
| YBOCS | Yale-Brown Obsessive Compulsive Scale |
| WLSMV | Weighted Least Squares Estimation |
| WHO | World Health Organisation |

Abstract

Obsessive compulsive disorder (OCD), obsessive compulsive personality disorder (OCPD), and perfectionism are distinct but highly comorbid clinical issues. The body of evidence regarding their co-occurrence and treatment has been mixed, and further examination is required. Current conceptualisation of obsessive compulsive personality disorder (OCPD) is based on a long history characterised by diagnostic changes that have resulted in inconsistencies in definition and reliable measurement. The Pathological Obsessive Compulsive Personality Scale (POPS) was developed by Pinto, Ansell, and Wright (2011) to measure dimensional OCPD traits, however, there has been limited psychometric examination of this measure. In study 1 (Chapter 2) the factor structure of the scale was assessed in a sample of 571 undergraduates ($M = 22.00$ years, $SD = 7.05$) who completed a series of self-report measures online. Confirmatory factor analysis was used to compare the fit of unidimensional, five factor, and bifactor models of the POPS. A bifactor model provided the best fit to the data and indicated that the POPS comprises a general factor and four group factors, which yield reliable total and subscale scores, respectively. Convergent and divergent validity was supported by a stronger association with a disorder-specific measure of OCPD compared to theoretically disparate personality dimensions of antisocial, borderline, and impulsivity traits. The findings provide support for the POPS as a reliable and valid self-report measure of OCPD traits, but further examination with clinical and community samples is needed.

It is important that OCPD is consistently and accurately measured given that it is highly comorbid with other diagnoses (Diedrich & Voderholzer, 2015). In particular, there is evidence that OCPD is associated with more severe pre and post-

treatment symptoms, trajectory, and poorer outcomes in obsessive compulsive disorder (e.g., Kyrios, Hordern, & Fassnacht, 2015; Pinto, Liebowitz, Foa, & Simpson, 2011). However, recent evidence indicates that OCPD and associated traits may not be associated with OCD outcomes (Gordon, Salkovskis, & Bream, 2016). The occurrence of OCPD in OCD has implications for decisions regarding psychological interventions in the context of comorbidity, and therefore the association between OCD and OCPD needs to be comprehensively assessed. Study 2 (Chapter 3) tested whether OCPD and a related subdomain, conscientiousness, were associated with treatment outcome in a clinical sample ($N=46$; $M=33.43$ years, $SD=12.50$) with a DSM-IV diagnosis of OCD. Conscientiousness as measured by the Five Factor Model (Costa & McCrae, 1990) has close theoretical associations with OCPD and OCD, and three facets in particular; competence, self-discipline, and deliberation, have been associated with OCD outcomes. The results of study 2 indicated that neither OCPD diagnosis nor dimensional facets of conscientiousness were associated with poorer post-treatment severity for OCD as measured by the Yale Brown Obsessive Compulsive Scale (YBOCS; Goodman et al., 1989). However the relative proportion of participants with OCPD was small ($n=11$; 23.9%) and thus generalisability was limited, necessitating further examination with larger clinical samples.

Perfectionism has been proposed to be a transdiagnostic process common to, and that may maintain, both OCPD and OCD (Egan, Wade, & Shafran, 2011). Perfectionism is a key diagnostic criterion for OCPD, and current evidence indicates that perfectionism is elevated in OCD and can negatively influence the outcomes of gold standard OCD interventions including cognitive behavioural therapy (CBT) and exposure and response prevention (ERP; Olatunji, Davis, Powers, & Smits, 2013;

Ponniah, Magiati, & Hollon, 2013). Chapter 4 reviews the literature regarding the role that perfectionism plays in OCD. In study 3 (Chapter 5) it was proposed that a cognitive behavioural approach in the treatment of clinical perfectionism would reduce perfectionism and OCD. A pilot randomised controlled trial was conducted, and was the first to deliver CBT for perfectionism in an OCD population. The intervention was based on a manualised transdiagnostic CBT for perfectionism program (Egan, Wade, Shafran, & Antony, 2014) that has been found efficacious in several mixed clinical samples. The aim of the treatment trial was to assess whether CBT for perfectionism reduced post-treatment perfectionism severity and OCD symptoms. A total of 78 individuals expressed interest in participating in the trial, and those who met criteria ($N=19$) for a diagnosis of OCD and elevated perfectionism based on a pre-determined cut-off (≥ 22 'concern over mistakes') on the Frost Multidimensional Perfectionism Scale (Frost, Marten, Lahart, & Rosenblate, 1990) were randomised to an 8-week group CBT for perfectionism or an 8-week waitlist control. A total of 11 participants ($M=40.00$ years, $SD=10.39$) completed treatment. The treatment produced significant, large effect size reductions in OCD symptoms on the YBOCS ($d=2.46$) and perfectionism severity on the 'concern over mistakes' on the FMPS ($d=1.17$). However, there were a number of challenges in recruitment and dropout was high (42%) relative to previous OCD studies, and perfectionism treatment trials. Further, a number of therapists who delivered treatment expressed difficulties that were encountered and challenges in motivating participants to remain engaged in therapy, which warranted further exploration.

The aim of study 4 (Chapter 6) was to examine the experiences of the therapists who delivered CBT for perfectionism in the trial presented in study 3. In

particular, to identify the potential strengths and challenges associated with delivering perfectionism treatment in an OCD population. Study 4 was the first to explore the process of CBT for perfectionism in OCD from the perspective of the therapists. Individual, semi-structured interviews were conducted with all therapists who provided treatment within the trial ($N=6$), and qualitative methodology was used to analyse themes within the data. Five key themes were identified: the valued nature of perfectionism, promoting insight to enhance motivation, working with perfectionism behaviours in therapy, managing emotionality, and optimising group dynamics. A series of recommendations for therapeutic practice in CBT for perfectionism in individuals with OCD was formulated based on the themes, including an emphasis on therapist supervision, and maximising strengths of the group modality of treatment. The study provides a basis for further research into the role of perfectionism in therapy.

Overall, it was concluded that accurate measurement of OCPD traits will improve consistency in findings regarding the association between OCPD and OCD. Targeting elevated OCPD traits, in particular perfectionism, with the use of a transdiagnostic CBT for perfectionism intervention may provide an alternative to standard disorder-specific treatments for OCD, but further research on larger samples is needed. Therapists have identified a number of strengths and challenges when working with clients who are high in perfectionism, and further research is required to elucidate how to optimise delivery of treatment for these clients.

Introduction

The overall purpose of this thesis is to enhance understanding and treatment of three discrete but co-occurring clinical issues, obsessive compulsive disorder (OCD), obsessive compulsive personality disorder (OCPD), and clinical perfectionism. While OCPD, OCD, and perfectionism have been well-established as comorbid, there are gaps in knowledge regarding their measurement and treatment that are thought to stem from two key limitations. First, OCPD has been a relatively under-recognised and poorly defined construct that has been subject to numerous changes with regards to terminology, classification, and diagnostic criteria. These changes have led to problems in measurement and assessment of the disorder. The clinical implications of the methodological issues in OCPD are extensive given that it is a highly prevalent and comorbid condition, particularly in OCD. Second, despite evidence that OCPD traits, in particular perfectionism, are elevated and influential in OCD treatment, there has been little examination of transdiagnostic interventions that directly target problematic OCPD psychopathology. Given the well-established role of perfectionism in OCD severity and outcomes, one component of this research was to test the efficacy of treatment for perfectionism in OCD.

This project consists of four successive studies that sought to address current limitations in the measurement of OCPD, and the treatment of OCD when OCPD traits are comorbid. One of the key implications of the findings presented in this thesis is the importance of the measurement of OCPD as a dimensional construct. As such, two key OCPD traits, conscientiousness and perfectionism, will be considered in the context of OCD. Both of these OCPD traits have received considerable attention in the literature because they have been found to play a role in OCD

outcomes, however the pattern of findings has been mixed and warrants further exploration.

In chapter one, the relevant literature pertaining to the aetiology, classification and measurement of OCPD, and the association between OCPD and OCD will be reviewed. The first two studies will then be presented. Study one is a psychometric evaluation of a dimensional self-report measure of OCPD. Due to a number of methodological difficulties in the measurement of OCPD over time, research regarding how OCPD affects OCD outcomes has been mixed. Therefore, the findings of study one may help to explain reasons for inconsistencies in previous research regarding the association between OCPD and OCD. Study two provides an examination of OCPD, and a related personality domain, conscientiousness, as predictors of treatment response in OCD.

In addition to the OCPD construct as a whole, perfectionism is a core OCPD trait that has also been found to play a significant role in OCD outcomes. Following the first two studies an adjoining chapter is presented, which reviews key information regarding a core diagnostic feature of OCPD, perfectionism, and its' association with OCD. Theoretical accounts of the role of perfectionism in OCD are well-defined. However, corresponding empirical treatment data has been relatively limited. Study three presents the first pilot randomised controlled trial of CBT for perfectionism in OCD. During the course of the treatment trial, a number of therapeutic challenges emerged in relation to working with clients' perfectionism in treatment. As such, the fourth study provides an in-depth, qualitative examination of therapists' experiences of conducting CBT for perfectionism in OCD, including the challenges and barriers to change in perfectionism. As a result of the findings of the four studies presented, the general discussion chapter reviews implications for the

classification and measurement of OCPD and personality disorders broadly; and implications for the treatment of perfectionism in OCD, as well as clinical considerations and recommendations for transdiagnostic versus disorder specific interventions.

Together, the four studies presented in this thesis provide key information regarding the assessment and treatment of OCPD, OCD, and perfectionism. OCD is a chronic and debilitating condition in itself. For the population of people with OCD who also meet criteria for OCPD and perfectionism, the physical and psychological impacts can be debilitating (Lochner et al., 2011), so further research to understand and treat these conditions is essential. Further, OCD is a heterogeneous disorder. Understanding discrete components and maintaining mechanisms involved in OCD, such as perfectionism, will assist in the development of tailored intervention. It is envisaged that addressing issues regarding the reliability and consistency of OCPD measurement will improve diagnostic accuracy, and in turn, will inform best practice treatment decisions when OCPD traits, such as perfectionism, are elevated in OCD.

Chapter 1 Literature review

1.1 Overview of obsessive compulsive personality disorder

Obsessive compulsive personality disorder (OCPD) is defined as a maladaptive and enduring pattern of perfectionism, inflexibility, and need for control over one's environment that manifests across several life domains such as work and relationships (Costa, Samuels, Bagby, Daffin, & Norton, 2005; Fineberg, Kaur, Kolli, Mpavaenda, & Reghunandanan, 2015; Pinto, Eisen, Mancebo, & Rasmussen, 2008). In the Diagnostic and Statistical Manual of Mental Disorders 5th edition (*DSM-5*; American Psychiatric Association, [APA] 2013) a minimum of four diagnostic criteria must be met: overly concerned with details, rules, lists, order, organisation, or schedules; displays perfectionistic behaviour that interferes with task completion; excessive devotion to work and productivity; thorough, and inflexible about matters of morality or ethics; inability to throw away worthless objects; reluctance to delegate tasks to others; parsimonious spending style; displays rigid and stubborn behaviour.

OCPD is classified within the Cluster C 'anxious and fearful' personality type, together with Dependent, and Avoidant Personality Disorder (APA, 2013). The formation of Cluster C was based upon the prevalence of two psychological components, behavioural inhibition and fear, which are considered to be common across the three disorders (Emmelkamp & Kamphuis, 2007; Villemarette-Pittman, Stanford, Greve, Houston, & Mathias, 2004). The alternate diagnostic system, International Classification of Diseases (ICD-10; World Health Organisation [WHO], 1992), refers in equivalence to OCPD as "Anankastic Personality" (F60.5),

and provides the supplementary interchangeable labels of compulsive personality and obsessional personality.

1.1.1 Aetiology and onset

Current understanding of OCPD is based on the summation of over 100 years of theory and clinical observation of personality. Derivation of the OCPD construct was largely based on the work of Freud (1908) in his description of the anal character as composed of a personality triad, including orderliness (concerns about bodily cleanliness), parsimony (miserliness), and obstinacy (rage and defiance). Janet and Raymond (1903) referred to the psychasthenic state or obsessional neuroses as a cluster of traits, including excessive perfectionism, indecisiveness, orderliness, and emotional restriction. Further, Jones (1918) described a chronic pattern of behavioural avoidance such that individuals with obsessive tendencies typically procrastinate tasks, but once a task is started, display unrelenting persistence, sensitivity to interference, and reluctance to delegate.

In many ways, modern conceptualisation of the OCPD construct resembles early psychoanalytic work (Emmelkamp & Kamphuis, 2007; Fineberg, Sharma, Sivakumaran, Sahakian, & Chamberlain, 2007). According to this view, predisposition to OCPD involves insecure attachment with caregivers, strict parental disciplinary practices, and over-control in the anal phase of psychosexual development (i.e., during toilet training routines). Ultimately, these elements are thought to lead to enduring personality deficiencies, including a pathological need for control that becomes a lifelong but futile pursuit (McCann, 2009). However, evidence to support such propositions has been limited, and somewhat diminished by researchers who have shown that OCPD traits have a strong genetic component. For example, in a twin study, Torgersen et al. (2000) found the heritability estimate for

OCPD to be relatively high (0.78), and second only to the heritability for narcissistic personality disorder (0.79). In a meta-analysis, Light et al. (2006) concluded that individuals with a particular genetic marker (D3 receptor Gly/Gly genotype) are 2.4 times more likely to receive an OCPD diagnosis. However, findings on genetic transmission for OCPD are mixed (de Reus & Emmelkamp, 2012). In particular, Reichborn-Kjennerud et al. (2007) found genetic effects to account for only 27% of the variance in OCPD.

Biological theorists have emphasised neurological components in the development of OCPD. For example, some have hypothesised that the limbic (emotional regulatory) system, which is associated with expressions of fear and anger, underlie the pathological doubt and indecisiveness that is commonly seen in OCPD (Millon & Davis, 1996). Another argument is that OCPD traits arise as an over-compensatory response to neurocognitive executive control deficits (Aycicegi-Dinn, Dinn, & Caldwell-Harris, 2009).

In a comprehensive review of the aetiology of OCPD, Hertler (2014) called into question the purely “psychogenic” or nurture-oriented view of OCPD that has dominated the literature but fails to acknowledge the heritability of OCPD. Overall, attempts to conceptualise the obsessive-compulsive personality character have been inconsistent and have failed to amalgamate biological and environmental vulnerabilities in a comprehensive model. Some attempt has been made to reconcile these limitations from an evolutionary perspective, where the obsessive character is described as a heritable behavioural condition that developed as a result of pressures in ancient human development and migration (Hertler, 2014, 2015b). However, the practical and clinical utility of such a model has not been established.

Alternatively there is an attachment perspective on OCPD, which takes the view that disruptions in early attachment are a significant aetiological factor in the development of the disorder. Researchers have suggested that individuals with OCPD were more likely to have received lower levels of care and more over-involvement during early development, which contributes to subsequent difficulties in the formation of healthy and secure attachments, and with emotional and empathic development in later life (Nordahl & Stiles, 1997; Perry, Bond, & Roy, 2007). Retrospective accounts from individuals who self-reported traits of rigidity and perfectionism in childhood also perceived an inherent lack of parental emotionality, including perceived nurturance, love, and support from their parents (Anderluh, Tchanturia, Rabe-Hesketh, & Treasure, 2003).

OCPD is recognised as an early-onset disorder. In the DSM-I, DSM-II, and DSM-III, the compulsive personality construct was considered to be the “persistence of an adolescent pattern of behaviour” or “regression from more mature functioning as a result of stress” (APA, 1952; 1968, 1980). The DSM-5 defines OCPD as emerging by early adulthood (APA, 2013).

1.1.2 Prevalence and course

A number of epidemiological review studies have identified Cluster C disorders (Lenzenweger, 2008) and OCPD in particular, as one of the most prevalent personality disorders in the general population (see de Reus & Emmelkamp, 2012; Fineberg et al., 2015; Torgersen, 2014). However, as a result of changing diagnostic criteria and different tools used in assessment, findings regarding the precise occurrence and course of OCPD have been inconsistent (Diedrich & Voderholzer, 2015).

In an examination of eight studies, OCPD was found to occur in between 2% and 8% of the general adult population, with the highest median prevalence rate of all personality disorders (Grant, Hasin, Chou, Stinson, & Dawson, 2004; Torgersen, 2005). In the National Epidemiological Questionnaire on Alcohol and Related Conditions (NESARC), conducted on over 43,000 individuals in the United States, OCPD was the most common personality disorder (7.9%; Grant, Mooney, & Kushner, 2012). OCPD was also the most common personality disorder in large community samples in the United Kingdom (1.9%; Coid, Yang, Tyrer, Roberts, & Ullrich, 2006) and Nordic populations (7.3%; Lindal & Stefansson, 2009). These findings are in contrast to other studies with non-clinical samples that did not find OCPD to be the most prevalent personality disorder. In particular, in a series of non-clinical studies, histrionic (2.9%; Lenzenweger, Loranger, Korfine, & Neff, 1997), antisocial (4.5%; Samuels et al., 2002), and avoidant personality disorder (6.4%; Crawford et al., 2005) were the most frequently occurring. Further, in a large epidemiological study on personality disorders in the United States ($N=5692$), Cluster C (9.1%) was the most prevalent group (Cluster A 5.7%, Cluster B 6.0%); but avoidant personality disorder was the most prevalent within Cluster C (Lenzenweger, Lane, Loranger, & Kessler, 2007). It is important to note that different diagnostic assessments were used in each study, which may have contributed to these disparities.

In terms of gender distribution, some studies have found a higher prevalence of OCPD in men than women (Coid et al., 2006; Light et al., 2006), while others have found it to be significantly more common in women than men (Trull, Jahng, Tomko, Wood, & Sher, 2010), and one large study found lifetime prevalence in men and women to be equivalent (7.8%; Grant et al., 2012).

OCPD has also been found to occur in up to 26% of mixed psychiatric outpatients who met criteria for substance abuse disorders (Ansell et al., 2010), and was the second most prevalent personality disorder (23.3%) in a sample of psychiatric inpatients (Rossi, Marinangeli, Butti, & Petruzzi, 2000). Some studies have indicated that a considerable proportion of individuals with OCPD (58%) no longer meet threshold for diagnosis at 12-month follow-up (Shea et al., 2002), which is contrast to findings that OCPD either maintains or increases in severity over time (Devanand et al., 2000; Ullrich & Coid, 2009). These conflicting findings reflect the difficulties in the measurement of OCPD, in particular the heterogeneity of its traits. For example, while some diagnostic criteria (i.e., rigidity, reluctance to delegate, and hoarding) are regarded as stable, other traits (i.e., miserliness and hyper-morality) have been found to change in form and severity over time (see Diedrich & Voderholzer, 2015).

1.1.3 Functional impairment

The Collaborative Longitudinal Personality Disorders Study (CLPS; Gunderson et al., 2000) was a large multi-site study conducted to increase understanding of the nature, course, and impact of personality disorders. A series of studies evolved from the CLPS, including an examination by Skodol et al. (2002) into the functional impairment in four personality disorders. A total of $N=668$ treatment seeking individuals who met criteria for the personality disorders including schizotypal ($n=86$, 12.9%), borderline ($n=175$, 26.2%), avoidant ($n=157$, 23.5%), or OCPD ($n=153$, 22.9%) were compared. These diagnoses were compared to a control group with major depressive disorder (14%) and no personality disorder ($n=95$). Functioning was measured in relation to general life areas of employment, household duties, study, relationships, recreation, and social adjustment according to self-report

and reviewer ratings. Although OCPD was associated with the least relative impairment across these areas of functioning, the overall percentage of reported dysfunction in OCPD was still high. Compared to schizotypal (98.8%), borderline (98.3%), avoidant (96.2%), major depressive disorder (92.8%), 87.6% of OCPD patients reported poorer functioning in at least one area of global functioning. This suggests that while individuals with OCPD may not demonstrate widespread impairment, they may experience more specific difficulty in a nuanced area of functioning that is still worthy of diagnosis and treatment (Skodol et al., 2002). Further, at two year follow-up, patients with OCPD had demonstrated no improvement in functioning (Skodol et al., 2005) which is suggestive of the temporal stability and chronicity of OCPD symptoms.

OCPD can have a significant impact on quality of life. Individuals can suffer from poor interpersonal functioning and high distress (Cain, Ansell, Simpson, & Pinto, 2015), and OCPD can exacerbate psychiatric comorbidity (Mancebo, Eisen, Grant, & Rasmussen, 2005). OCPD can also affect capacity for healthy emotional regulation. In a study comparing patients with OCPD ($n=23$), borderline personality disorder ($n=24$) and healthy controls ($n=28$), individuals with OCPD showed levels of negative affectivity that were higher than controls and comparable to borderline personality disorder. Given that borderline personality traits are characterised by chronic emotional dysregulation (Carpenter & Trull, 2013; Lieb, Zanarini, Schmahl, Linehan, & Bohus, 2004), this finding suggests that individuals with OCPD can experience marked difficulties with anger, and difficulty accepting and managing emotions effectively.

The potential impact of OCPD should not be underestimated given that diagnostic traits, especially perfectionism, tend to be highly valued and as such,

carry risk of being underrecognised in clinical assessment despite their dysfunctional impact (Fineberg et al., 2015; Wenzel, 2017). Perfectionism in particular is a core feature that plays a significant role in overall life impairment in the context of OCPD. The cognitive distortion that “*nothing less than perfection is acceptable*” has been associated with poorer functioning in terms of relationship difficulties (Haring, Hewitt, & Flett, 2003), depression (Aldea & Rice, 2006), and increased risk of suicidality (Diaconu & Turecki, 2009).

1.1.4 Diagnostic classification

Distinct from other personality disorders that have been added or removed over time, the obsessive-compulsive personality type has been included in various forms in all previous editions of the Diagnostic and Statistical Manual of Mental Disorders (DSM; 1952-2013). However, consistent with the debate regarding its aetiological origins, OCPD has been subject to several changes and ongoing deliberation regarding its principal features. The DSM-I (APA, 1952) and DSM-II (APA, 1968) limited its classification to a descriptive category, with a cluster of features labelled “compulsive personality”. While the first and second editions remained relatively consistent, the DSM-III (APA, 1980) resulted in considerable reform, including the use of the label OCPD and a criterion set with a quantitative threshold for diagnosis (Costa et al., 2005). Further, over-conscientiousness, difficulty relaxing, chronic tension, and over-concern with morality were removed in the DSM-III, and the core emphasis of OCPD shifted to difficulty with emotional expression. Four new criteria were added in the revised third edition (DSM-III-R; APA, 1987). The OCPD construct was again altered in the DSM-IV-TR (APA, 2000), such that restricted emotional affect, which had previously been considered a core feature, was removed entirely along with indecisiveness (Samuel & Widiger, 2010).

Overall, the OCPD construct has been inconsistently defined over time, resulting in difficulties in measurement and assessment of the disorder. In particular, there has been a lack of clarity regarding essential features and diagnostic boundaries (Hertler, 2015a).

1.2 Issues in the nosology of OCPD

Ambiguity regarding the diagnostic parameters of OCPD has stemmed from two key issues. First, not all manifestations of OCPD traits are perceived to be problematic or dysfunctional. For example, achievement and work-focused behaviours are commonly regarded as adaptive and desirable (Costa et al., 2005), particularly in situations that value high performance, such as sport or academia. Second, the cluster of traits used to define OCPD are inherently diverse, which has created difficulty in the disorder being recognised as a valid and clinically coherent distinct personality type. A number of features originally included in the definition and diagnostic criteria for OCPD (e.g., chronic tension) have been removed. In contrast, the relative importance of perfectionism as a feature of OCPD has been supported by its retention in diagnostic classification systems over time (APA, 2013). However, the OCPD construct as a whole has been plagued by a number of psychometric issues, which have created difficulties in understanding the disorder. Ultimately, ongoing changes to definition and criteria for OCPD has contributed to difficulties in its measurement, assessment, and diagnosis, and these issues need to be thoroughly investigated. As part of a broader, longstanding issue regarding the taxonomy of personality, there has been ongoing debate regarding the categorical versus dimensional labelling of OCPD (Zachar & First, 2015).

1.2.1 Categorical versus dimensional models

The DSM-5 has retained a categorical model for personality disorders based on a conceptualisation that they are distinct clinical syndromes (APA, 2013). However, researchers have emphasised that a dimensional model is a feasible for the classification of personality disorders in light of several limitations of the categorical approach, including high co-occurrence, insufficient coverage, and ambiguous

diagnostic boundaries (Krueger, Skodol, Livesley, Shrout, & Huang, 2007; Trull & Durrett, 2005). In a review of the OCPD construct, Fineberg et al. (2015) summarised key criticisms of the categorical approach including (1) the assumption that personality is unidimensional and categorically distinct, when theoretical and empirical research has shown that a multifactorial model may be more accurate, and (2) the categorical model inflates intragroup variability in terms of psychopathology, which is problematic for OCPD given the use of polythetic diagnostic criteria. For example, in OCPD, any four out of eight criteria can be met for diagnosis, which results in numerous possible symptoms combinations, and ultimately, two individuals can receive a diagnosis of OCPD without sharing a single trait (Cooper, Balsis, & Zimmerman, 2010; Watson, Ellickson-Larew, Stanton, & Levin-Aspenson, 2016).

In light of these issues, there has been a shift away from the categorical classification system, towards a dimensional model that conceptualises personality along a continuum (Haslam, Holland, & Kuppens, 2012; Krueger & Eaton, 2010). The dimensional approach presents a valid alternative given the practical reality that individuals can be elevated on particular personality traits and suffer from functional impairment without meeting the diagnostic threshold. Consistent with the dimensional model, several researchers have argued that personality disorders are maladaptive manifestations of normal traits rather than qualitatively distinct. (Haslam et al., 2012; Kraepelin, 2014; Mancebo et al., 2005). In order to acknowledge the issues and ongoing uncertainties stemming from categorical personality diagnosis, an alternative hybrid model was proposed in Section III of the DSM-5 (APA, 2013). The alternative model provides an avenue for the dimensional assessment of traits for six major personality disorders: antisocial, avoidant,

borderline, narcissistic, obsessive-compulsive, and schizotypal. Three key criteria are proposed including “general criteria for personality disorder”, overall impairment in personality functioning (Criterion A), specific pathological personality traits (Criterion B), and a set of proposed diagnostic criteria for each personality disorder, including OCPD (APA, 2013).

There is considerable support for the dimensionality of OCPD in existing measures of personality. In particular, there has been growing interest in the measurement of OCPD pathology in relation to the Five Factor Model of Personality (Costa & McCrae, 1992), a comprehensive dimensional measure of personality. OCPD is associated with the ‘big five’ traits, in particular neuroticism, agreeableness, conscientiousness, low extraversion and low openness (Crego, Samuel, & Widiger, 2015; Samuel, Riddell, Lynam, Miller, & Widiger, 2012). Most commonly, OCPD is associated with the maladaptive variant of dimensional conscientiousness, which is defined by six facets including competence, order, dutifulness, achievement striving, self-discipline, and deliberation (Samuel & Widiger, 2011; Widiger, Lynam, Miller, & Oltmanns, 2012). Although the dimensional system can create ambiguity about what precise circumstances and cut-off or level of dysfunction constitutes clinical impairment, personality disorders are not always categorically distinct given conflicting diagnostic boundaries and high rates of comorbidity with other disorders (Clark, 2007; Widiger & Trull, 2007). As such, further research regarding the dimensionality of OCPD is needed.

1.2.2 Heterogeneous and polythetic criteria

Researchers have argued that OCPD lacks specificity, and fails to represent a coherent form of psychopathology (Hertler, 2015a; Reddy, Vijay, & Reddy, 2016). For example, the diagnostic criteria for OCPD cover an array of behaviours ranging

from inflexibility and emotional restriction, to miserliness and hoarding behaviour. The use of a single diagnostic “obsessive-compulsive” label to encapsulate a set of divergent diagnostic traits is also problematic, and contributes to the difficulty in demarcating OCPD from OCD (Samuel et al., 2012).

Inconsistency has been a longstanding issue with the OCPD construct. In the course of the large Collaborative Longitudinal Personality Disorders multi-site personality study discussed above (Gunderson et al., 2000), one key personality disorder from each cluster was included in analysis: schizotypal (Cluster A), borderline (Cluster B), and avoidant (Cluster C). However, OCPD was also included as a fourth personality disorder, because although technically classified under cluster C, factor analytic studies have found that OCPD is in fact separable from the three clusters (see Skodol et al., 2005). In particular, some studies have found OCPD to be highly comorbid and more strongly associated with Cluster A disorders (paranoid, schizoid, and schizotypal), which has raised question as to the diagnostic utility of OCPD within Cluster C (Hummelen, Wilberg, Pedersen, & Karterud, 2008; Rossi et al., 2000).

Grilo et al. (2001) assessed the diagnostic efficiency of the four personality disorders in the CLPS to identify the criteria with the best predictive utility. With regards to OCPD, “preoccupied with details”, “perfectionism”, “reluctance to delegate” and “rigid and stubborn” were found to be useful in diagnosis, whereas “workaholic behaviour” and “miserliness” performed so poorly in factor analysis that they were subsequently recommended for removal (Grilo, 2004). However, these features have been retained, despite researchers continuing to argue that criteria such as miserliness and hoarding are overly concrete (Diedrich & Voderholzer, 2015; Reddy et al., 2016). In the most recent revision, the DSM-5, two sets of

mutually exclusive diagnostic criteria for OCPD (i.e., clinical and research) have been included, meaning that individuals who meet one set of criteria will not necessarily meet the other, exacerbating the problem of inconsistency. Further, OCPD can be diagnosed using a minimum of half of the diagnostic criterion set, resulting in 163 possible symptom combinations. Conceivably, this may create redundancy and imprecision issues in the development of standardised treatments designed to target OCPD as a categorical disorder.

The problem of heterogeneity in OCPD has been highlighted in numerous factor-analytic studies (Grilo, 2004; Hummelen et al., 2008), and provides support for the conceptualisation of the disorder as a dimensional cluster of maladaptive traits, rather than a categorical entity. As a result, some researchers have recommended the use of OCPD subtypes to aid the development of more specific and clinically useful treatment guidelines (Ansell et al., 2010).

1.2.3 Diagnostic co-occurrence in OCPD

Comorbidity (i.e., the co-occurrence of two or more psychiatric conditions) tends to be the norm rather than exception in research and clinical practice (Krueger & Eaton, 2015). However, the accuracy of comorbidity rates have been questioned given changing diagnostic classification systems. The DSM-III (APA, 1987) essentially “split” pathology into operationally defined categories that increased the number of possible diagnoses (McGlashan et al., 2000). The introduction of the categorical system, which stipulated the use of explicit ‘yes or no’ criteria resulted in multiplying and overlapping diagnoses. Further, the introduction of the multi-axial (Axis I/Axis II) structure in the DSM-III encouraged clinicians to screen or look for personality pathology that is typically overlooked in lieu of more acute and episodic Axis I disorders (McGlashan et al., 2000), which may have inflated diagnoses. A

consequence of the categorical system and what some researchers consider to be a low diagnostic threshold, is the risk of over-diagnosis, which can obscure the clinical and aetiological picture of disorders (Trull et al., 2010). Accordingly, the reliability of personality disorder diagnoses tends to be lower compared to anxiety and mood disorders, and as such, the utility continues to be questioned and debated (Tyrer, Reed, & Crawford, 2015). Accuracy in the diagnosis of personality disorders is essential in the development of aetiological theory and the design of treatment that effectively targets relevant underlying traits (Trull et al., 2010).

OCPD has largely been conceptualised based on its co-occurrence with other disorders (Links & Eynan, 2013; Melca, Yücel, Mendlowicz, de Oliveira-Souza, & Fontenelle, 2015). Comorbidity is very common in OCPD as it has been found to co-occur with a plethora of psychological and medical conditions. Rates of OCPD comorbidity from epidemiological data across community and clinical samples is outlined in Table 1. The most prevalent rates of OCPD are within individuals with OCD and body dysmorphic disorder (BDD). OCPD is also highly comorbid with other personality disorders. In a large clinical study, 77% of OCPD patients had concomitant personality disorders (Hummelen et al., 2008). As can be seen in Table 1, there is considerable variation in the reported comorbidity rates of OCPD. For example, 15% of patients with anorexia nervosa met criteria for OCPD in a large study that examined the occurrence of obsessive-compulsive disorders in eating disorders ($N=607$; Halmi et al., 2005) whereas in a narrative review of studies Phillips et al. (2010) reported comorbidity rates for anorexia nervosa and OCPD as high as 61%.

The reported rates of OCD/OCPD comorbidity have fluctuated by $> 24\%$ in clinical populations. These disparities are recognised to be, at least in part, reflective

of the taxometric and diagnostic changes that have created difficulties in consistent measurement of OCPD (Diedrich & Voderholzer, 2015). Diagnostic accuracy of OCPD is particularly important in the context of OCD, which is one of the most complex, prevalent, and frequently discussed comorbidities in the literature (Friborg, Martinussen, Kaiser, Overgard, & Rosenvinge, 2013). The co-occurrence of OCPD in OCD is examined below, with particular reference to recent modifications to the classification of obsessive compulsive and related disorders in the DSM-5 (APA, 2013), and ensuing debate regarding the clinical utility of OCPD being included in this category.

Table 1. *Co-occurrence of OCPD across medical and psychopathology*

| Condition | Community samples | | Clinical samples | |
|---------------------------------------------------|-------------------|----------------------------------|-------------------|----------------------------------------------------------------------|
| Anxiety disorders | | | | |
| GAD | 34% | (Grant et al., 2012) | 29.4% | (McGlashan et al., 2000) |
| Panic disorder | 23-38% | | 17% | (Albert et al., 2004) |
| Social phobia | 33% | | 26% | (McGlashan et al., 2000) |
| Specific phobia | 32% | | - | |
| Hypochondriasis | - | | 15-22% | (Fallon et al., 2012) |
| Eating disorders | - | | 13% | (Halmi et al., 2005) |
| AN | | | 15% | (Halmi et al., 2005) |
| | - | | 20-61% | (Phillips et al., 2010) |
| BN | | | 12% | (Halmi et al., 2005) |
| Obsessive Compulsive and Related Disorders | | | | |
| OCD | - | | 22.9-32% 47.3% | (Coles et al., 2008; Pinto et al., 2006) (Starcevic et al., 2012) |
| BDD | - | | 14-28% | (Phillips & McElroy, 2000) |
| Trichotillomania | - | | 13.3% | (Lochner et al., 2005) |
| Hoarding | 29.5% | (Frost, Steketee, & Tolin, 2011) | | |
| Affective disorders | 24% | (Grant et al., 2004) | 10% | (Diaconu & Turecki, 2009) |
| MDD | 23-28% | (Grant et al., 2004) | 31% | (Phillips et al., 2010) |

Table 1. *Continued*

| Condition | Community samples | | Clinical samples | |
|------------------------------------|-------------------|----------------------|------------------|-------------------------------------------|
| Affective disorders | | | | (George et al., 2003; Rossi et al., 2001) |
| cont. | 26-39% | | 27-32% | |
| Bipolar disorder | | | | |
| Personality Disorders | 34% | | | |
| Cluster A | 42% | | 23% | (Hummelen et al., 2008) |
| Paranoid | 44% | | 25% | |
| Schizoid | 44% | | 6% | |
| Cluster B | 32% | | | |
| Antisocial | 27% | | 11% | |
| Borderline | - | | 11% | |
| Histrionic | 47% | | 10% | |
| Narcissistic | - | | 25% | |
| Cluster C | 43% | | | |
| Avoidant | 43% | | 10% | |
| Dependent | 51% | | 12% | |
| Substance-related disorders | | | | |
| Alcohol or drug dependence | 15-29% | (Grant et al., 2004) | 31% | (Preuss et al., 2009) |
| Alcohol or drug abuse | 9-13% | (Grant et al., 2004) | - | |

Note. OCPD=obsessive compulsive personality disorder; GAD= generalised anxiety disorder; AN=Anorexia Nervosa; BN=Bulimia Nervosa;; OCD=obsessive-compulsive disorder; Body Dysmorphic Disorder; MDD=major depressive disorder; – = not reported

1.3 Obsessive compulsive and related disorders

The development of the DSM-5 (APA, 2013) involved a considerable restructure of formerly classified anxiety disorders into three separate categories. Obsessive compulsive spectrum disorders refer to a group of disorders that are considered to be distinct from but related to OCD, a concept that has long been deliberated in the literature (e.g., Castle & Phillips, 2006; Ravindran, da Silva, Ravindran, Richter, & Rector, 2009). Accordingly, one of the most significant changes in the DSM-5 (APA, 2013) was the removal of OCD from anxiety disorders into obsessive-compulsive and related disorders.

Obsessive-compulsive and related disorders (OCD) are composed of OCD, body dysmorphic disorder (BDD), hoarding disorder, trichotillomania (hair-pulling disorder), and excoriation (skin-picking disorder). The inclusion of the new category was designed to reflect increasing evidence of the relatedness of the disorders within this group in terms of clinical features, and due to the diagnostic efficiency of their integration into one category (APA, 2013). In addition to the common psychopathology of obsessive and repetitive behaviour that distinguishes this category, the OCDs “differ from developmentally normative preoccupations and rituals by being excessive or persisting beyond developmentally appropriate periods” (APA, 2013, p. 235). Arguably, the reclassification of OCD out of the anxiety disorders category for the purposes of diagnostic efficiency does not diminish that anxiety is an important psychological component of OCD. In fact, anxiety is a key feature across the obsessive-compulsive and related disorders (Kendler, 2017; Stein et al., 2010).

1.3.1 Development of the obsessive-compulsive and related disorders category

Formation of the obsessive-compulsive disorders category was based on four key lines of argument which centred on the association between OCD and the putative spectrum, including: (1) common core psychopathology of repetitive distressing thoughts, behavioural inhibition, and neutralising compulsions (2) overlap in aetiology and trajectory including onset, biomarkers, familial linkage, and cognitive-emotional processing (3) shared neuro-circuitry and neurotransmitter abnormalities, and (4) common pharmacotherapy and psychological treatment response (Fineberg, Saxena, Zohar, & Craig, 2011; Stein et al., 2010).

Empirical review has found high rates of comorbidity between OCD and the obsessive-compulsive spectrum (Lochner & Stein, 2010; Phillips et al., 2010). In particular, approximately one-third (32-33%) of BDD patients meet criteria for OCD (Simberlund & Hollander, 2017), and 18% of hoarding patients meet criteria for OCD (Frost et al., 2011). The classification of hoarding as a specific OCD sub-type has also been considered (Burton et al., 2016; Fontenelle, Mendlowicz, Soares, & Versiani, 2004; Samuels et al., 2007). Hoarding Disorder is a new diagnosis in the DSM-5 (APA, 2013). Based on current classification in the DSM-5, hoarding behaviour overlaps with OCD, OCPD, and OCRD. Hoarding has also been found to be correlated with perfectionism, a trait that is commonly associated with OCD and OCPD (Mataix-Cols et al., 2010; Pertusa et al., 2010).

Some researchers have called for the reclassification of OCPD either within obsessive-compulsive and related disorders, or under a hybrid classification system with both obsessive-compulsive and related disorders and personality disorders (Fineberg et al., 2007). This suggestion is based on elevated comorbidity between OCD and personality disorders; shared endophenotypes between OCPD and BDD,

and schizo-obsessive disorder (Zhou, Baytunca, Yu, & Öngür, 2016); and common pharmacological and psychological treatment modalities in OCPD, OCD, and personality disorders (Fineberg, Reghunandanan, Kolli, & Atmaca, 2014). However, some have argued that although OCRD symptoms appear similar (e.g., repetitive behaviours), not all psychopathologies assumed to be common across the OCRD category share the same underlying function (Abramowitz, 2017). For example, compulsions in OCD are typically performed to neutralise anxiety and distress, whereas the urges for hair pulling or skin picking can be precipitated by general tension, depression, boredom, fatigue, or even to elicit pleasurable feelings (Abramowitz, 2017). Following from the lack of consensus regarding this argument, there continues to be uncertainty regarding the classification of OCPD, which has contributed to ongoing difficulties in measurement and classification of the disorder. To understand the recent re-classification of obsessive-compulsive disorders, and ultimately, the association between OCD and OCPD, it is important to consider the aetiology of OCD.

1.4 Obsessive compulsive disorder (OCD)

Hettema (2008) argued that OCD is essentially the core of obsessive compulsive and related disorders, with the other disorders within this category being epiphenomena of the same condition, only with diverse expression. It is rarely the case that individuals with OCD are monosymptomatic, and, as such, clinical presentations of OCD are usually characterised by common or overlapping symptom clusters and associations with obsessive-compulsive spectrum disorders (Bragdon & Coles, 2017; Raines, Allan, Oglesby, Short, & Schmidt, 2015).

1.4.1 Definition and prevalence of OCD

OCD is chronic and debilitating (Markarian et al., 2010), and has been consistently shown to affect between 1% and 3% of the general population (Maina, Albert, Salvi, Pessina, & Bogetto, 2008; Torres et al., 2006). Lifetime prevalence estimates of OCD range from 1.6 to 2.3% (Calamari, Chik, Pontarelli, & DeJong, 2012; Kessler, Berglund, Borges, Nock, & Wang, 2005), and have been identified in up to 3.8% of the general Australian population, with a median age of onset at 19 years of age (McEvoy, Grove, & Slade, 2011). OCD has widespread comorbidity including in major depressive disorder (32%; Quarantini et al., 2011), bipolar disorder (12.4%; Magalhães, Kapczinski, & Kapczinski, 2010), across eating disorders categories (20%), and specifically anorexia nervosa (15%) and bulimia nervosa (21%; Halmi et al., 2005). In a meta-analytic review, OCD was found to be the most frequently occurring comorbid anxiety disorder across the spectrum of personality disorders with a comorbidity rate of .52 (Friborg et al., 2013).

According to DSM-5 criteria, a diagnosis of OCD is warranted in the presence of recurrent obsessions and/or compulsions, which take more than one hour per day, or cause significant impairment or marked distress (APA, 2013). Given the overlap in terminology with OCPD, it is important to distinguish the conceptual meaning of the terms obsessions and compulsions in OCD. *Obsessions* are intrusive thoughts or ideas that evoke anxiety. For example, obsessions can often involve thoughts about contamination or germs, a need for symmetry, doubts about events, or unwanted thoughts about hurting loved ones. Researchers have suggested that most of the general population will experience transient cognitive intrusions or unwanted thoughts over the course of their lives. Study estimates have indicated that the vast majority of people in non-clinical samples (79-99%) experience cognitive

intrusions (Freeston, Ladouceur, Thibodeau, & Gagnon, 1991; Julien, O'Connor, & Aardema, 2009; Rachman & de Silva, 1978; Salkovskis & Harrison, 1984). The clinical markers of obsessions and distinguishing features of OCD are the frequency, persistence and enduring nature of obsessive thoughts, the significant interference in functioning, and their subjective interpretation as threatening or beyond control. *Compulsions* serve to neutralise the distress and anxiety that is typically evoked by obsessions. For example, repetitive behaviours such as checking, handwashing, ordering and seeking reassurance; or mental acts such as prayers (Abramowitz, Taylor, & McKay, 2009). Intrusive thoughts develop into clinical obsessions when individuals interpret that they will be personally responsible for harm caused to themselves or others unless they perform some behaviour to prevent the harm.

OCD can be associated with poor insight (Catapano et al., 2010), social and occupational interference (Torres et al., 2006), and functional and quality of life impairment (Fontenelle et al., 2010; Huppert, Simpson, Nissenson, Liebowitz, & Foa, 2009; Markarian et al., 2010). OCD has also been shown to result in elevated rates of hospitalisation compared to anxiety disorders (Barlow, Durand, & Hoffman 2015), and is associated with high suicidality (Torres et al., 2011).

1.4.2 Aetiology and maintenance models of obsessive compulsive disorder

An extensive body of literature has formulated OCD discretely according to biological (e.g., Gatt, Burton, & Williams, 2015), genetic (e.g., Hetttema, Neale, & Kendler, 2001), and psychological frameworks (e.g., Rachman & Hodgson, 1980).

Indeed, psychological conceptualisations of OCD have been widely accepted.

Several early studies showed that intrusive thoughts are common, but the majority of individuals do not interpret these thoughts as being problematic (Freeston et al.,

1991; Rachman & de Silva, 1978; Salkovskis & Harrison, 1984). Based on this proposition, Salkovskis (1985, 1989) offered one of the most influential cognitive behavioural theories on obsessions that explicitly defined cognitive components involved in the development and maintenance of obsessions. According to Salkovskis, two critical processes delineate typical intrusions from obsessions. The first process is catastrophic misappraisal of the thought as dangerous or as indicating that harm will result to oneself or others, which then leads to negative automatic thoughts and subsequent mood disturbance, including feelings of anxiety and intolerance of uncertainty. Individuals can also experience a sense of over-responsibility to prevent harm coming to themselves and others. The second process is a compulsive drive to perform fear-neutralising behaviours and provide temporary relief of anxious discomfort (Salkovskis, 1985, 1989). This cognitive-behavioural conceptualisation has been widely supported in theoretical reviews (Clark & Purdon, 1993; Wheaton, Abramowitz, Berman, Riemann, & Hale, 2010). Barrera and Norton (2011) tested the utility of Salkovskis' cognitive theory of OCD in a sample of 326 undergraduates. The relationship between intrusions and OCD symptoms were examined by testing moderating effects of key cognitive biases proposed in the model (i.e., responsibility, thought control and thought-action fusion). A significant interaction effect of intrusion frequency and distress of intrusive thoughts; and a significant three way interaction (Frequency x Distress x Responsibility), indicated that the responsibility appraisals of thoughts are important in predicting OCD symptoms, providing support for Salkovskis' model, and in particular the distinction between normal and abnormal intrusions.

Steketee and Barlow (2002) proposed a stress-diathesis perspective on OCD, which has also been influential in conceptualising the disorder. The stress-diathesis

model (Steketee & Barlow, 2002) incorporates essential features of biological, genetic, and psychological frameworks in the overall understanding of OCD. According to the model, the development of OCD is influenced by an interaction between three diatheses or a “triple vulnerability”. These include (1) biological factors: heritable diathesis [e.g., genes] or dimensions of temperament [e.g., neuroticism] (2) disorder-specific psychological factors: early vicarious and anxiety-oriented learning experiences, and anxiety sensitivity for OCD, and (3) a generalised psychological vulnerability: typically develops in childhood and promotes the development of a neurotic temperament thereby increasing risk of developing an anxiety-based disorder and the perception of impending uncontrollable threat or danger across situations (Steketee & Barlow, 2002). This theoretical model can be adapted across anxiety and emotional disorders, and is referred to as Barlow’s Triple Vulnerability Model of psychopathology (Barlow, 2000, 2002), which has received support in empirical studies (Brown & Naragon-Gainey, 2013) and meta-analytic reviews (Gallagher, Bentley, & Barlow, 2014).

Behavioural and cognitive theories have been predominant in shaping understanding of the development and maintenance of OCD. According to learning theory, obsessions develop from previously neutral stimuli that come to elicit distress-responses through classical conditioning (Eysenck & Rachman, 1965; Rachman, 1971). It is proposed that these learned associations are strengthened over time by compulsions, which are negatively reinforced by reductions in anxiety, and become mechanisms for escape or avoidance, and removal of the individual from the perceived threat before habituation occurs (Eysenck & Rachman, 1965; Rachman, 1971). However, some aspects of the behavioural theory have not been supported. For example, it is suggested that obsessions can develop in the absence of a traumatic

event, and compulsions can, in some circumstances, exacerbate anxiety, which is inconsistent with behavioural suppositions (Clark, 2004).

Influential cognitive perspectives on OCD sought to address these limitations by hypothesising that obsessions develop when typical intrusive thoughts or images are misinterpreted as fundamental character flaws or predictive of catastrophes that dictate the need for increased responsibility in order to prevent harm (Salkovskis, 1985, 1989). The Obsessive Compulsive Cognitions Working Group (1997) recognised perfectionism as one of the most important elements of OCD, in addition to intolerance of uncertainty, thought-action fusion, the over-importance of thoughts and need to control them, and inflated responsibility. Numerous studies have demonstrated associations between OCD and the role of these cognitive elements in the maintenance of the pathological obsessive-compulsive cycle (e.g., Moore & Abramowitz, 2007; Rassin, Diepstraten, Merckelbach, & Muris, 2001; Wheaton et al., 2010).

1.4.3 Does OCPD belong in obsessive-compulsive and related disorders?

The case for including OCPD in OCRDs stems from the argument that OCPD resembles OCD and other spectrum disorders in terms of phenomenology, comorbidity, neurocognition, and treatment response (Fineberg et al., 2007). Early studies identified obsessive or ‘anankastic’ traits as common in patients with obsessional neurosis (Kringlen, 1965). The association between OCPD and OCD is grounded in broader empirical findings, including meta-analytic review, showing that the presence of a personality disorder can influence the trajectory and treatment outcome of Axis I disorders (Dreessen & Arntz, 1998). OCD and OCPD continues to be one of the most widely studied comorbidities in current literature (Starcevic &

Brakoulias, 2017). While there are similarities between OCD and OCPD, the common assumption is that they are analogous, or different facets of the same psychopathology, which has contributed to longstanding disagreement about the nature of their co-occurrence.

Perfectionism, a core OCPD trait, is a common feature across OCRDs. Studies have found that perfectionism is elevated in OCD and related disorders (Bose, Burns, Garretson, & Judith, 2013; Buhlmann, Etcoff, & Wilhelm, 2008; Halmi et al., 2005; Maia et al., 2009; Sassaroli et al., 2008; Wu & Cortesi, 2009). In particular, there is evidence that perfectionism is predictive of BDD (Bartsch, 2007; Schieber, Kollei, de Zwaan, Müller, & Martin, 2013); associated with hoarding behaviours (Bose et al., 2013), and trichotillomania (Noble, 2013). There is also considerable evidence for the role of OCPD, and in particular perfectionism, in the aetiology, maintenance, and trajectory of OCD (Wu & Cortesi, 2009).

1.5 The association between OCD and OCPD

The constructs of OCD and OCPD are often confused. Originating from Freudian theory, some researchers have asserted that either the obsessive-compulsive (anal) personality type creates an inherent predisposition to OCD, or that they are in fact variations of the same psychopathology (de Reus & Emmelkamp, 2012). There is also support for the idea that OCD and OCPD share a bi-directional pathoplastic relationship (Palardy, El-Baalbaki, Belanger, & Fredette, 2013; Widiger, 2011). According to the pathoplastic model of personality and psychopathology, the presence of one influences the presentation and course of the other (Klein, Kotov, & Bufferd, 2011). For example, it has been argued that OCPD may be a pervasive and chronic variant of OCD (Widiger, 2011). In terms of symptom similarity, abnormal

cognitive patterns that underpin OCD and that may form the focus of interventions such as cognitive behavioural therapy (e.g., preoccupation with orderliness, perfectionism, and scrupulosity) also overlap with OCPD criteria (Chamberlain, Blackwell, Fineberg, Robbins, & Sahakian, 2005; Nelson, Abramowitz, Whiteside, & Deacon, 2006). As a result the disorders may be confused (APA, 2013). In contrast, others argue that there is no definitive link between OCD and OCPD (Taylor, Asmundson, & Jang, 2011; Wu, Clark, & Watson, 2006).

Factor analytic studies that have systematically compared the OCD and OCPD constructs have found a number of similarities and differences. Pure obsessions, fears of contamination, and cleaning-related symptoms have been found to be specific to OCD; control, and rigidity, excessive capacity to delay reward are particular to OCPD; and symmetry, hoarding, and compulsive behaviours have been associated with both disorders (Pinto, Steinglass, Greene, Weber, & Simpson, 2014). Researchers have questioned whether overlapping and categorical criteria have artificially inflated the association between OCD and OCPD (Starcevic & Brakoulias, 2014; Wetterneck et al., 2011).

OCPD is typically considered to be ego-syntonic, and highly valued, whereas OCD is thought to be ego-dystonic, that is, unwanted and distressing for the individual (Mancebo et al., 2005; Marchesi, Ampollini, DePanfilis, & Maggini, 2008; Pinto & Eisen, 2011). However, researchers note that this dichotomous distinction between OCD and OCPD may be overly simplistic given that the clinical manifestation of OCD behaviour (e.g., contamination pre-occupation) may not always be interpreted by the individual as intrusive, and OCPD traits (e.g., perfectionism) are not always highly valued (Diedrich & Voderholzer, 2015; Wenzel, 2017). Using exploratory factor analysis of a self-report measure of

perfectionism, the Measure of Constructs Underlying Perfectionism, one study ($N=1,465$ undergraduates) found evidence for two higher order factors, ego-dystonic perfectionism traits and ego-syntonic perfectionism traits, with items distinguished based on whether or not perfectionism behaviours caused subjective distress (Stairs, Smith, Zapsolski, Combs, & Settles, 2012). The absence of strictly defined obsessions and compulsions in OCPD is a key point of distinction from OCD (Phillips et al., 2010). However, this is not a definitive clinical marker given that some behavioural manifestations of OCPD are compulsive in nature (e.g., intentional, repetitive, and time-consuming; APA, 2013).

1.5.1 Evidence for the association between OCD and OCPD

The studies that have examined the association between OCD and OCPD have failed to reach a clear consensus regarding how the disorders are related. Predominantly, findings support the high prevalence of OCPD (i.e., in at least one-third) of individuals with OCD (Starcevic & Brakoulias, 2017). In a comparison of rates of personality disorders in OCD ($n=41$ OCD, $n=40$ mixed anxiety disorders; 41 controls), it was shown that Cluster C, and OCPD specifically (24.5%) was the most common comorbidity in individuals diagnosed with OCD (Pena-Garijo, Edo Villamón, Meliá de Alba, & Ruipérez, 2013). However, OCPD was also the most prevalent comorbidity in the anxiety disorders group (17.5%). As such, OCPD was not significantly more prevalent in OCD when compared to other anxiety disorders and a unique association between OCD and OCPD was not supported.

1.5.1.1 Conceptual overlap between OCD subtypes and OCPD

The association between OCD and OCPD may be explained by a phenomenological and conceptual overlap between subtypes of OCD that are

strongly associated with OCPD. For example, symmetry and ordering in OCD conceivably shares stronger conceptual overlap with OCPD relative to subtypes such as doubts about home security and safety. This has been supported in findings by Lochner et al (2011) who observed that, relative to those without OCPD, individuals with OCD and OCPD reported more frequent OCD symptoms of symmetry, completeness, and exactness. One reason for the conceptual overlap between these particular OCD symptom dimensions and OCPD could be perfectionism and the phenomenon of Not Just Right Experiences (NJRE). Within the OCD population, perfectionism appears to be a central component of NJREs, where an individual will persist with performing subjectively defined rituals in a specific manner until a subjective feeling of exactness or “just right” is achieved (Moretz & McKay, 2009). Some studies have also found that feelings of incompleteness, a phenomenon related to NJRE, is significantly associated with perfectionism and OCD (Ecker & Gönner, 2008; Pietrefesa & Coles, 2008), and uniquely associated with OCPD traits (i.e., perfectionism) and OCD (Ecker, Kupfer, & Gönner, 2014). Further, in a clinical sample of 159 OCD patients, Bulli et al. (2015) examined comorbidity between OCD subtypes and comorbid personality clusters. Cluster C (11.3%) and specifically OCPD (9.4%) was the most frequently occurring in the sample. The strongest association was observed for the OCD subtypes of responsibility for harm, injury, or bad luck ($p < .005$) and cluster C disorders, however the associations for discrete disorders (e.g., OCPD) were not reported. As noted by Bulli et al. (2015), the observed association could be explained given the conceptual overlap between a strong moral compass and standards of right and wrong seen in OCPD, together with the core OCD psychopathology of inflated responsibility.

1.5.1.2 Is OCPD a subtype of OCD?

Some researchers have argued that OCPD may in fact be a distinct clinical OCD subtype (Coles et al., 2008; Garyfallos et al., 2010), or a marker of OCD severity (Lochner et al., 2011). Analogous to OCPD, OCD is regarded as a heterogeneous condition and researchers have increasingly focused on the efficacy of subtyping symptoms according to prominent themes relating to the obsessions and compulsions (Abramowitz, McKay, & Taylor, 2008; Bragdon & Coles, 2017; Leckman et al., 2010; Schwartzman et al., 2017).

The argument that OCPD may be a distinct OCD subtype is based on findings that comorbid OCPD is associated with more severe compulsions (Albert et al., 2004; Coles et al., 2008); more frequent obsessions, hoarding, checking and ordering (Garyfallos et al., 2010); psychosocial impairment (Lochner et al., 2011); and a significantly earlier age of OCD onset (Maina et al., 2008; Taylor, 2011). Coles et al. (2008) found that early onset OCD was related to higher OCD/OCPD comorbidity estimates. In a sample of 91 individuals with OCD, those who met criteria for comorbid OCPD at intake were also more likely to have a new episode onset of OCD compared to those without OCPD (Ansell et al., 2011). Starcevic et al. (2012) compared clinical characteristics based on OCPD comorbidity in a clinical sample of OCD ($N=148$; OCD only 52.7%; OCD/OCPD 47.3%). According to self-report ratings, individuals with both OCD and OCPD were found to have greater severity of OCD symptoms and dimensions of psychopathology. In comparison, the groups of individuals with and without OCPD did not differ significantly with regards to clinician rated OCD severity (Starcevic et al., 2012). In another study Gordon, Salkovskis, Oldfield, and Carter (2013) compared a sample of individuals with OCD ($n=189$) and panic disorder ($n=170$). OCPD was found to be more prevalent in the

OCD group (45%) compared to panic disorder (14.7%). Further, individuals with OCD and OCPD had greater self-reported OCD severity, pathological doubting, ordering, hoarding symptoms, and alcohol use. One study also found lower rates of remission for OCD/OCPD compared to pure OCD at two year follow-up (Pinto, 2009). Melca and colleagues (2015) examined clinical correlates of schizotypal, borderline, and OCPD in 110 OCD patients. Patients with comorbid OCPD (20.9%) displayed more frequent hoarding and bipolar disorder comorbidity, and increased severity of hoarding and symmetry symptoms (Melca et al., 2015).

The disparity in findings across OCD/OCPD studies may be a reflection of methodological inconsistencies. For example, while some studies have found individuals with OCD and OCPD to have greater self-reported OCD severity (Gordon et al., 2013; Wetterneck et al., 2011), other studies have found that OCPD is not associated with greater clinician rated OCD severity (Coles et al., 2008; Garyfallos et al., 2010; Lochner et al., 2011; Starcevic et al., 2012). The clinician administered measures of OCD in these studies such as the Yale Brown Obsessive Compulsive Scale (YBOCS Goodman et al., 1989) are thought to be more sensitive compared to self-report measures used (Gordon et al., 2013). Consistency in the use of measures would, conceivably, serve to mitigate disparity in the reporting of OCD/OCPD prevalence and severity across studies. A comparable pattern of inconsistency has also emanated from OCD treatment outcome studies, where OCPD pathology has been associated with both poorer and more favourable treatment outcomes for OCD, which will be further explored below.

Although the dispersed and ego-syntonic nature of OCPD across life domains may be perceived as less intrusive when compared to OCD, the full impact of OCPD is not well understood and researchers have argued that OCPD has not received

sufficient attention (Phillips et al., 2010). Overall, the body of evidence regarding the association between OCD and OCPD psychopathology is mixed. There are underlying similarities and differences between the two disorders that may be a reflection of methodological inconsistencies, such as the heterogeneity of the OCPD construct and overlapping diagnostic criteria (Diedrich & Voderholzer, 2015), which warrant further exploration. Two prominent personality traits, conscientiousness and perfectionism, are important to consider in examination of the association between OCD and OCPD and will be explored further in this thesis. Conscientiousness will be examined in the following section, and perfectionism will be explored following the presentation of studies one and two.

1.5.1.3 Conscientiousness in OCPD and OCD

Conscientiousness is a personality trait that has been associated with both OCD and OCPD, and is therefore important to consider when examining their association. Typically, conscientiousness is defined by goal-directed behaviour, planning, ability to delay gratification, and a propensity to follow socially-prescribed norms for impulse control (Roberts, Jackson, Fayard, Edmonds, & Meints, 2009). According to the Five Factor Model (McCrae & Costa, 1990) conscientiousness is comprised of six facets: competence, order, dutifulness, achievement-striving, self-discipline, and deliberation (Costa & McCrae, 1992). Conscientiousness has predominantly been conceptualised based on the Five Factor Model of personality (John, Naumann, & Soto, 2008; McCrae & Costa, 2008), and some researchers have argued that personality disorders, such as OCPD, are maladaptive variants of the personality characteristics referred to in the Five Factor Model (Clark, 2007; Samuel & Widiger, 2008).

OCPD shares a close theoretical and conceptual relationship with conscientiousness. Derivation of the conscientiousness domain within the Five Factor Model was based on the traits of strict adherence to principles and desire to achieve goals (Costa & McCrae, 1992), which are also central to OCPD psychopathology. Further, the Five Factor Model conscientiousness domain includes features that characterise OCPD behaviour such as a need for planning, forethought, and goal-orientation. Overconscientious is a core diagnostic feature of OCPD (APA, 2013). The concept of “over” conscientiousness in OCPD is consistent with the dimensional continuum of personality. In theoretical reviews, researchers have associated “normal” levels of conscientiousness with positive outcomes such as reliability and organisation (Roberts et al., 2009), and physical and psychological health (Bogg & Roberts, 2013). In empirical studies, normal conscientiousness as indicated by dimensional measures of personality have been associated with better health outcomes (Kotov, Gamez, Schmidt, & Watson, 2010), proactive health behaviour (Takahashi, Edmonds, Jackson, & Roberts, 2013), academic success (Corker, Oswald, & Donnellan, 2012), and emotional coping (Javaras et al., 2012). In contrast, excessive or over-conscientiousness that is typically seen in OCPD is associated with undesirable outcomes, including excessive work devotion at the exclusion of leisure and perfectionism to the point of inefficiency (Widiger, Trull, Clarkin, Sanderson, & Costa, 2002). More broadly, conscientiousness and obsessive-compulsive tendencies have been associated with lower general well-being (Carter, Guan, Maples, Williamson, & Miller, 2016).

In a meta-analysis of 16 studies examining the relationships between the Five Factor Model domains and personality disorders, Samuel and Widiger (2008) found that high levels of conscientiousness were associated with OCPD tendencies, as

indicated by moderate to strong associations (i.e., r 's > .38) across measures of OCPD. Further, in a sample of 536 undergraduates, Samuel and Widiger (2011) found significant associations between OCPD and conscientiousness as indicated by moderate to strong correlations (r 's = .39 to .63) between measures of conscientiousness and specific components of OCPD (i.e., workaholism, propriety, and compulsivity), providing support for the view that OCPD represents a maladaptive variant of the normal range of conscientiousness (Samuel & Widiger, 2011).

Given the longstanding association between obsessive-compulsive pathology and conscientiousness, and the role of OCPD in OCD treatment outcomes, conscientiousness in OCD is worthy of further investigation. Theoretical models (Roberts et al., 2009) would suggest that the typical 'compulsive' individual may score high on conscientiousness, and by extension, OCD. Empirical findings have indicated a strong relationship between conscientiousness and OCD, but the nature of the association has been mixed. In an investigation of the prevalence of personality disorders and Five Factor Model domains in a clinical sample of OCD patients ($N=72$), Samuels et al. (2000) found that OCPD was the most frequently diagnosed personality disorder (32.4%), but conscientiousness had the lowest mean frequency (10.5%) of the Five Factor Model domains. However, the sample size of OCD in this study was relatively small compared to other studies. In a larger clinical sample ($N=346$; OCD $n=100$; other anxiety disorders $n=246$) Inchausti, Delgado, and Prieto (2015) compared personality traits across groups. The conscientiousness domain was significantly higher in OCD patients relative to the other anxiety disorders. Further, in an investigation as part of the OCD Collaborative Genetics Study, Nestadt et al. (2009) examined the association between Five Factor Model

traits and OCD subtypes in a clinical sample of 706 individuals with OCD. The subtypes were derived using multi-level latent class analysis (MCLA): class 1 (major depressive disorders), class 2 (tic-related disorders) and class 3 (affective-related disorders). While the OCD tic-related subgroup was characterised by high Five Factor Model conscientiousness, the OCD affective related subgroup was characterised by prominent OCPD features, but low conscientiousness. The results suggested that high conscientiousness scores increase risk for class 2 (tic-related) comorbidity in OCD, whereas lower conscientiousness scores increase risk for type 3 (affective-related) comorbidity in OCD (Nestadt et al., 2009).

Overall, the body of findings suggest that conscientiousness may be significantly related to OCD, and this relationship is worthy of further investigation. This is important to investigate given that Five Factor Model personality traits have been found to be a key mediator in the utilisation, trajectory of engagement, and overall effectiveness of various interventions in mental health settings (Hopwood et al., 2008). As such, establishing whether personality traits such as conscientiousness are related to OCD could be important in terms of further understanding and directing best-practice interventions for OCD.

In addition to conscientiousness, perfectionism is a core OCPD trait that is fundamental in explaining the OCD/OCPD comorbidity, and has been found to play a significant role in OCD treatment outcomes. Perfectionism in OCD and OCPD will be explored further following presentation of the first two studies.

1.6 Aims and significance of the current project

The overall aim of the research presented in this thesis is to increase understanding of issues in the measurement and treatment of OCD, OCPD, and

perfectionism. A history of taxometric and methodological inconsistencies has diminished the consistent and valid assessment of OCPD. Ultimately, poor assessment of OCPD has created difficulties in determining best practice treatment for OCD, in the context of perfectionism. This thesis consists of four successive studies. The research was conducted with a cross-sectional population comprised of undergraduates, expert clinicians working with OCPD, individuals with OCD, and clinicians who administered CBT for perfectionism.

Study one examines the reliability and validity of a measure OCPD, which was used as the primary measure of this pathology in this thesis. The study aims to improve the availability of reliable clinical measures of OCPD, a complex area of personality that has undergone substantial modification over time, resulting in inconsistencies in assessment of the construct. Further, this study aims to elucidate the most pertinent underlying dimensions of OCPD in order to best direct treatment when OCPD pathology, particularly perfectionism, is elevated in OCD.

Study two presents an investigation of the role of OCPD in treatment outcomes for OCD. In particular, the study examines whether a comorbid OCPD diagnosis, and an important associated dimension, conscientiousness, is predictive of treatment outcomes. To date, the field of research that has explored the impact of OCPD and conscientiousness in OCD has been mixed, resulting in a lack of comprehensive understanding of the most effective psychological intervention for individuals with OCD who present with comorbid OCPD traits.

Perfectionism is another dimension that is fundamental in understanding the association between OCD and OCPD. Given the centrality of perfectionism in the diagnosis of OCPD, and the well-established relationship between perfectionism and OCD, the thesis then shifts focus on to the role that perfectionism may play in

maintaining OCD symptoms. An adjoining chapter follows the first two studies, which reviews key literature regarding the aetiology of perfectionism, the association between perfectionism and OCD, and the implication of this association on treatment. Study three presents a pilot randomised controlled trial of group CBT for perfectionism in OCD. Perfectionism, which is arguably the key diagnostic feature of OCPD, has been associated with OCD in research and practice for decades. While there have been numerous studies that have found CBT for perfectionism to be efficacious in the treatment of mixed anxiety disorders, depression, and eating disorders, no studies to date have specifically examined this treatment in an OCD sample. As a result, research into the efficacy of directly targeting perfectionism in the OCD population has been limited. The purpose of study three is to evaluate the efficacy of CBT for perfectionism in individuals with OCD.

Study four uses a qualitative design to explore the perspectives of the therapists who delivered the intervention to the OCD participants with elevated perfectionism. Despite a wealth of empirical evidence that shows that the underlying pathology of perfectionism can interfere with treatment outcomes, there has been little investigation of how perfectionism behaviour manifests in treatment and impacts the therapeutic process. As such, study four provides important directions and considerations for clinicians in the treatment of perfectionism.

Chapter 2 A psychometric examination of the Pathological Obsessive-Compulsive Personality Scale (POPS): Initial study in an undergraduate sample

2.1 Chapter overview

The following chapter presents a paper that has been accepted at the *Journal of Personality Assessment*. The paper addresses a number of issues regarding the measurement of OCPD, and provides a psychometric examination of a dimensional self-report measure of obsessive compulsive personality traits. Associated recruitment information used in the study is provided in Appendices A and B. Confirmation of order of authorship by the co-authors is provided in Appendix I.

This chapter is derived in part from an article published in *Journal of Personality Assessment*, 2018, Copyright of Taylor & Francis Group, available online doi: 10.1080/00223891.2018.1428983.

Running Head: Obsessive compulsive personality measurement

A Psychometric Examination of the Pathological Obsessive Compulsive
Personality Scale (POPS): Initial study in an undergraduate sample

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2.1.1 Abstract

Obsessive-compulsive personality disorder (OCPD) has been subject to numerous definition and classification changes, which has contributed to difficulties in reliable measurement of the disorder. Consequently, OCPD measures have yielded poor validity and inconsistent prevalence estimates. Reliable and valid measures of OCPD are needed. The aim of the current study was to examine the factor structure and psychometric properties of the Pathological Obsessive Compulsive Personality Scale (POPS). Participants ($N = 571$ undergraduates) completed a series of self-report measures online, including the POPS. Confirmatory factor analysis was used to compare the fit of unidimensional, five factor, and bifactor models of the POPS. Convergent and divergent validity were assessed in relation to other personality dimensions. A bifactor model provided the best fit to the data, indicating that the total POPS scale and four subscales can be scored to obtain reliable indicators of OCPD. The POPS was most strongly associated with a disorder-specific measure of OCPD, however there were also positive associations with theoretically disparate constructs, thus further research is needed to clarify validity of the scale.

Keywords: obsessive-compulsive personality, psychometrics, bifactor

2.2 Introduction

Obsessive compulsive personality disorder (OCPD) is a common personality disorder (7.8%; Grant et al., 2012), with a complex aetiology and considerable psychosocial impairment (Diedrich & Voderholzer, 2015). However, understanding of the OCPD construct has been hindered by multiple revisions to core features and ongoing debate regarding the categorical versus dimensional conceptualisations of personality disorders (Rojas & Widiger, 2017; Zachar & First, 2015). For example, it has been argued that heterogeneity and the retention of polythetic criteria such as miserliness and hoarding have perpetuated diagnostic ambiguity, resulting in OCPD being poorly measured and misdiagnosed (Reddy et al., 2016; Watson et al., 2016).

As a result of these inconsistencies in the literature, instruments developed to measure OCPD have yielded poor reliability and convergent validity (e.g., $\alpha < .50$, Samuel & Widiger, 2010; Starcevic & Brakoulias, 2014). While low Cronbach's alpha values may not necessarily limit validity or correlations with other measures (Peters, 2014; Sijtsma, 2009) OCPD prevalence estimates have varied considerably across clinical samples (5.1% to 16.4%, see Hertler, 2015a) as have rates of comorbidity between OCPD and OCD (22.9% to 47.3%, Albert et al., 2004; Coles et al., 2008; Friberg et al., 2013; Starcevic & Brakoulias, 2014). The discrepancy in prevalence and comorbidity rates could be due to the divergence in instruments used to measure OCPD, making it difficult to obtain accurate estimates (Starcevic & Brakoulias, 2017).

Widiger and Boyd (2009) compared the psychometric properties of personality disorder scales across studies, including 38 correlations reported between at least two OCPD inventories. Convergent correlations across the studies varied from $-.50$ to $.70$, suggesting that there are considerable discrepancies between OCPD instruments.

The overall median convergent value for OCPD across measures ($r = -.07$, *ns*) was the lowest of all personality disorders, and is indicative of inconsistencies in the measurement of OCPD (Widiger & Boyd, 2009). Further, Samuel and Widiger (2010) compared eight self-report measures that contain OCPD subscales. Despite sufficient divergence from disparate measures (median $r = .26$), the moderate convergence (median $r = .49$, reflecting only 25% of shared variance) was sub-optimal relative to expectations for scales that purport to measure the same personality construct (Samuel & Widiger, 2010). Internal consistency of the measures also varied considerably (α 's = .44–.90), which is suggestive of the heterogeneous nature of OCPD traits and thus the inherent difficulty in establishing a uniform measure.

Given the noteworthy measurement issues in OCPD to date, including heterogeneity and poor psychometrics, factor analytic studies are needed to clarify which diagnostic features are relevant and how OCPD can be reliably measured. However, to date, relatively few studies have examined the factor structure of OCPD measures. Two studies examined the OCPD construct with binge eating disorder samples (Ansell, Pinto, Edelen, & Grilo, 2008; 18.0% OCPD; Grilo, 2004; 15.2% OCPD). Both studies yielded three factor solutions (i.e., perfectionism, rigidity/reluctance to delegate, and miserliness), however the miserliness factor was underspecified with poor reliability in both studies, providing support for the argument that the miserliness criterion is polythetic (Reddy et al., 2016). Other studies have provided support for OCPD as a multidimensional construct that should be measured as a set of maladaptive traits, rather than as a categorically distinct entity (e.g., Ansell et al., 2010; Pinto, Ansell, Grilo, & Shea, 2007). In particular, factor analyses of OCPD symptom dimensions have found that core features of the

disorder, including perfectionism and rigidity, are associated with interpersonal aggression (e.g., Hummelen, Wilberg, Pedersen, & Karterud, 2008; Villemarette-Pittman, Stanford, Greve, Houston, & Mathias, 2004). In the Hummelen et al. (2008) study, a principal components analysis (PCA) of all personality disorder criteria found that most of the OCPD criteria loaded onto a perfectionism dimension, while the rigidity dimension loaded with three other criteria including aggressiveness from antisocial personality disorder, intense anger from borderline personality disorder, and counter attacks from paranoid personality disorder. This pattern of findings highlights the heterogeneity of the OCPD construct. As such, Samuel and Widiger (2012) suggested that OCPD may be more effectively conceptualised as a collection of maladaptive personality traits. It is important to note however that predominantly, theoretical and empirical evidence indicates a negative association between OCPD and antisocial and borderline traits, including impulsive phenomena (e.g., Perry & Korner, 2011; Samuel & Widiger, 2008), and behavioural disinhibition (e.g., Anderson, Snider, Sellbom, Krueger, & Hopwood, 2014).

One potential explanation for the heterogeneity and multidimensionality of obsessive compulsive personality traits established in previous studies (e.g., Ansell et al., 2010; Pinto et al., 2007) is that OCPD consists of a combination of a common OCPD construct, which increases vulnerability for all individuals with the disorder, plus subfactors (or group factors) that distinguish between different presentations of the disorder. Bifactor modelling is a statistical technique that can be used to determine the plausibility of measuring the OCPD construct with a general factor that encapsulates overall OCPD severity and dysfunction in addition to subfactors that capture unique domains or traits of OCPD psychopathology (Jennrich & Bentler, 2011; Reise, 2012).

The Pathological Obsessive Compulsive Personality Scale (POPS) is a self-report dimensional measure of maladaptive obsessive-compulsive personality traits and severity with a bifactor structure (Pinto, Ansell, & Wright, 2011), but data examining the psychometrics of the POPS are limited. Using a large online sample, a principal components analysis (PCA) of the POPS items yielded five factors (difficulty with change, emotional over-control, maladaptive perfectionism, rigidity, and reluctance to delegate; Pinto et al., 2011; Wheaton & Pinto, 2017). Next, a bifactor model was specified and retained as best fit, with a general OCPD factor on which each item freely loaded, and five specific trait factors corresponding to those identified in the PCA. Higher total POPS scores were associated with greater psychosocial impairment and poorer quality of life across clinical OCPD and community samples. The POPS scale and subscales also had high internal consistency (subscales $\alpha = .89$ to $.93$; total scale $\alpha = .97$; Pinto et al., 2011), and discriminant and convergent validity based on comparisons with other personality measures. Although these initial findings are promising, further psychometric analysis of the POPS is required in an independent sample.

2.2.1 The Current Study

No study has employed confirmatory bifactor analysis to independently verify the POPS structure identified by Pinto et al. (2011), how much reliable and unique variance in the measure is explained by the general and trait factors, and how the scale should be scored (Rodriguez, Reise, & Haviland, 2016). Bifactor modelling allows for quantification of what is common versus what is heterogeneous across the subfactors. By comparison, unidimensional modelling does not yield information regarding the proportion of variance across items that is common versus unique. As such, bifactor modelling provides an important avenue to bridge the gap in terms of

research that has examined OCPD categorically versus research that has found OCPD to be heterogeneous. The aims of the current study were to evaluate the POPS with respect to: (1) the factor structure, (2) internal consistency and coverage of current Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5; American Psychiatric Association [APA] 2013) diagnostic criteria, and (3) convergent and divergent validity with other personality disorder measures in a structural model. It was hypothesised that the POPS would (a) have a bifactor structure, consistent with previous research (Pinto et al., 2011); (b) demonstrate satisfactory internal consistency and interrater reliability; and (c) convergent and divergent validity would be demonstrated by the POPS yielding a strong positive association with another OCPD measure, negative associations with antisocial and borderline trait measures and a strong negative association with impulsiveness.

We also recruited a sample of six expert clinicians familiar with the OCPD construct to rate the POPS coverage of current DSM-5 (APA, 2013) OCPD criteria using a ratings questionnaire. Given the heterogeneity of OCPD and debate regarding core features, the use of clinician ratings provided a reference point to evaluate the degree to which POPS items are reflective of current diagnostic criteria and thus the utility of the POPS in clinical practice, a method that has previously been used in psychometric OCPD research (Samuel & Widiger, 2010).

2.3 Method

2.3.1 Participants

Based on guidelines regarding minimum sample size for structural equation modelling (≥ 5 participants per parameter; Brown, 2015; Worthington & Whittaker, 2006) and moderate correlations found in previous studies examining OCPD psychometrics (Samuel & Widiger, 2010; Widiger & Boyd, 2009) a minimum of

565 participants were required. A total of 642 undergraduate students at an Australian university were recruited via a research participant pool. Participants who provided incomplete responses (i.e., did not complete all questionnaires) were excluded from the final analyses ($n = 71$; 11%). The final sample was 571 participants (74.4% female), aged between 18 and 64 years ($M = 22.00$, $SD = 7.05$). The eligibility criterion stipulated that participants be ≥ 18 years of age. We recruited an unselected sample based on taxometric evidence that supports the dimensionality of personality disorder symptoms (Samuel et al., 2012; Zachar & First, 2015) including OCPD (Riddle et al., 2016; Skodol et al., 2011). Theoretical and empirical research has also indicated that measurement of OCPD traits (e.g., perfectionism) can be effectively studied in undergraduate student samples given the tendency for these behaviours to be prevailing in academic populations (Grant et al., 2004; Samuel & Widiger, 2010).

Purposive sampling was used to recruit a sample of clinicians with research and clinical expertise in OCPD. First, we conducted an online search in PsychInfo and Google Scholar between “1985 to current” with the terms “obsessive-compulsive personality”, “obsessive-compulsive” and “OCPD”, which provided an indication of researchers who had published on OCPD. We also used convenience sampling to recruit practicing clinicians who identified as having extensive clinical experience (i.e., 20+ years) working with OCPD to rate the scale. Clinicians (17) were contacted via email until the target sample ($N = 6$) was reached and agreed to participate. All clinicians (OCPD researchers $n = 4$; OCPD practicing clinicians $n = 2$) provided informed consent.

2.3.2 Measures

Pathological Obsessive Compulsive Personality Scale (POPS; Pinto, Ansell et al., 2011). The POPS is a 49-item, self-report measure of maladaptive obsessive-compulsive personality traits and severity. Items are rated on a six-point Likert scale ranging from 1 '*strongly disagree*' to 6 '*strongly agree*', with higher scores indicative of greater OCPD symptomology. The general OCPD factor (total scores) is comprised of all items (*score range*: 49-294), and there are five sub-scales: difficulty with change (*score range*: 8-48), emotional over-control (*score range*: 7-42), rigidity (*score range*: 15-90), maladaptive perfectionism (*score range*: 12-72), and reluctance to delegate (*score range*: 8-48; Pinto et al., 2011). Item 19 ("I trust others to carry out tasks competently") and item 25 ("I am happy to let others help me in my work") are reverse scored.

OMNI Personality Inventory (Loranger, 2001). The OMNI is a 375-item self-report measure consisting of 35 scales that assess the dimensional continuum of personality, of which 10 scales correspond to personality disorders listed in the DSM-IV (APA, 2000). Items are scored on Likert scales ranging from 1 '*definitely agree*' or '*always*' to 7 '*definitely disagree*' or '*never*'. We administered the obsessive-compulsive personality subscale "OC" (18 items) as a measure of convergent validity, and the antisocial personality subscale (14 items), and borderline personality subscale (32 items) as measures of discriminant validity. The OMNI yielded good internal consistency in the current study (OC $\alpha = .86$; antisocial $\alpha = .77$; borderline $\alpha = .94$), has been shown to differentiate between non-clinical and psychiatric samples, and has good test-retest reliability over a two month period (OC $r = .80$, antisocial $r = .81$, borderline $r = .86$; Loranger, 2001). The OMNI has

been used in clinical and non-clinical psychometric personality research (see Samuel & Widiger, 2010; Wetterneck et al., 2011).

Barratt Impulsiveness Scale (BIS-11; Patton, Stanford, & Barratt, 1995). The BIS-11 is a widely used, 30-item self-report instrument that measures impulsive behaviours with responses given on a four-point Likert-type scale ranging from 1 (*rarely/never*) to 4 (*almost always/always*). The scale provides a total BIS-11 score comprised of three higher order factors (i.e., attentional, motor, and non-planning), each with two lower order factors subsumed within them. The BIS-11 is considered a gold-standard measure of impulsive behaviour (Forbush et al., 2008). The BIS-11 has good psychometric properties, including test re-test reliability ($r_s = .83$; Stanford et al., 2009) and internal consistency, which in the current study was high ($\alpha = .83$). We were interested in the relationships between overall impulsivity and OCPD, and we had no specific hypotheses relating to the subfactors. Therefore, consistent with previous research (e.g., Rawlings, Shevlin, Corcoran, Morriss, & Taylor, 2015) we modelled a single impulsivity latent variable, based on aggregated subscale scores of the three higher order factors.

2.3.3 Procedure

The study was approved by the University's Human Research Ethics Committee (HR38/2014). Undergraduate participants were recruited from a participant pool using an online platform. After reading an information statement and providing informed consent, interested individuals provided their contact details, and were invited to participate via an email that contained a password and link to the study. Participants completed the measures as described in the order above, followed by demographic details. Participants were debriefed and granted coursework credit for participation.

For the clinician ratings, clinicians were supplied with the POPS scale, DSM-5 OCPD (APA, 2013) criteria, and a questionnaire in which the clinicians were asked to rate each of the 49 POPS items against each of the eight diagnostic criteria using a five-point Likert scale, from 0 = not representative of the given criteria to 4 = fully representative (see Samuel & Widiger, 2010)

2.3.4 Data Analysis

Analyses for normality, outliers, descriptive means, and internal consistency were conducted using SPSS 24.0. The POPS measurement model was evaluated using confirmatory factor analysis (CFA) with weighted least squares (WLSMV) estimation. The structural model was explored using structural equation modelling (SEM) using maximum likelihood with robust standard errors (MLR) in MPlus 7.4 (Muthén & Muthén, 1998-2015).

We evaluated the fit of three POPS models: (1) a unidimensional model, (2) a correlated five-factor model, and (3) a bifactor model with the general factor and subfactors specified according to that previously identified for the POPS (Pinto et al., 2011). In accordance with recent factor-analytic literature (Rodriguez et al., 2016) bifactor modelling was used to examine the factor structure of the POPS given that (1) each item is designed to measure dimensional OCPD behaviour and thus there should be a general factor on which each item loads; and (2) where the general factor does not adequately model POPS responses, use of the subfactors is justified. Fit statistics, standardized factor loadings, and modification indices were used to identify sources of model strain (Schmitt, 2011). Excellent fit was indexed by well-established cut-offs for the Comparative Fit Index (CFI; $\geq .95$), Tucker-Lewis Index (TLI; $\geq .95$), and Root Mean Square Error of Approximation (RMSEA $\leq .08$ acceptable fit; $\leq .06$ close fit; 90% confidence interval [CI]; Hu & Bentler, 1999;

Marsh, Hau, & Wen, 2004). Bifactor statistical indices were used to assess factor strength: omega reliability coefficients provide a model based estimate of internal reliability for the general factor (coefficient omega [ω]; proportion of variance in total raw scores) and the subfactors (omega subscale [ω_s]); omega hierarchical (ω_{H}/ω_H) indicates the proportion of variance in total scores that is explained by the general factor, and omega hierarchical subscale (ω_{HS}/ω_{HS}) indicates subscale reliability, or unique variance of each subfactor, after controlling for general factor variance. Established conventions for explained common variance (ECV; proportion of all common variance explained by the general factor [$>.70$]); alongside the percentage of uncontaminated correlations (PUC; variance from the general dimension [$>.70$]) indicate where relative bias is slight and therefore common variance can be considered unidimensional (Reise, Scheines, Widaman, & Haviland, 2013); average relative parameter bias (ARPB) indicates the difference between item loadings in the unidimensional versus (general factor) bifactor solution, $>10\%$ to 15% is considered acceptable; (Muthén, Kaplan, & Hollis, 1987). The chi-square difference test was used to compare nested models using the DIFFTEST function in MPlus for nested models. Finally, a structural model was used to estimate partial correlations between the POPS, OMNI, and BIS-11 latent variables. The *obsessive-compulsive*, *borderline*, and *antisocial* latent variables were specified using items found to load on these factors in previous research (Guess, 2006) and scores on the three BIS subscales were used as indicators of the *impulsivity* latent variable (Patton, Stanford, & Barratt, 1995; Stanford et al., 2009).

2.4 Results

2.4.1 Preliminary Analyses

Levels of skewness (i.e., <2) and kurtosis (i.e., <7) were acceptable, and there was a normal distribution. There were no missing values. Four multivariate outliers were identified (Mahalanobis $D^2 p < 0.001$). All models were run with and without these outliers, but the parameters and fit statistics were virtually identical so results using all data are reported (Flora, LaBrish, & Chalmers, 2012). Descriptive means, internal consistency reliability, and Pearson's bivariate correlations for all measurement variables are reported in Table 2.

Table 2. *Descriptive Statistics, Cronbach's Alpha, and Bivariate Correlations between measurement variables*

| | | <i>M</i> | <i>SD</i> | Scale Range | Average inter- item | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|----|-------------------------|----------|-----------|----------------|---------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 1 | POPS-total | 163.13 | 36.60 | 49–294 | .29 | 95 ^a | | | | | | | | | |
| 2 | POPS-rigidity | 43.14 | 13.48 | 15–90 | .42 | 84* | 91 ^a | | | | | | | | |
| 3 | POPS-emotional | 23.06 | 7.93 | 7–42 | .53 | 63* | 42* | 88 ^a | | | | | | | |
| 4 | POPS-perfection | 43.80 | 11.35 | 12–72 | .41 | 81* | 51* | 38* | 89 ^a | | | | | | |
| 5 | POPS-reluct delegate | 26.73 | 7.43 | 8–48 | .46 | 78* | 57* | .32* | 57* | 87 ^a | | | | | |
| 6 | POPS-diff change | 29.51 | 8.25 | 8–48 | .51 | 77* | 53* | 41* | 59* | 49* | 89 ^a | | | | |
| 7 | OMNI-OC | 29.32 | 7.21 | 8–56 | .27 | 63* | 53* | 25* | 55* | 59* | 47* | 86 ^a | | | |
| 8 | OMNI-borderline | 23.31 | 8.54 | 9–63 | .33 | 46* | 45* | 28* | 35* | 32* | 33* | 55* | 94 ^a | | |
| 9 | OMNI-antisocial | 16.61 | 5.36 | 7–49 | .20 | 14* | 34* | 14* | .00 | .04 | .09 | 26* | 54* | 77 ^a | |
| 10 | BIS-11 | 63.55 | 10.47 | 30–120 | .14 | 19* | 32* | 15* | 11* | .01 | .03 | .08 | 43* | 49* | 83 ^a |

Note. *M* = mean; *SD* = standard deviation; Average inter-item = average inter-item correlation; ^a = Cronbach's alpha; emotional = emotional over-control; perfection = maladaptive perfectionism; reluct delegate = reluctance to delegate; diff change = difficulty with change; **p* < .01

2.4.2 Measurement Models

Fit statistics for the three POPS measurement models are presented in Table 3. Where models revealed poor fit, modification indices were examined and error covariances were freed when it was theoretically defensible (e.g., similar wording or overlapping item content). The unidimensional model revealed poor fit across all indices, indicating that the POPS was not well defined by a general factor alone. The DIFFTEST indicated that the five-factor model yielded a significant improvement in model fit compared to the unidimensional model ($\Delta\chi^2 = 1895.553$, $df = 11$, $p < .001$), but the fit statistics still did not meet criteria for good fit. The DIFFTEST indicated that the bifactor model yielded a significant improvement in model fit compared to the five-factor model ($\Delta\chi^2 = 2585.770$, $df = 49$, $p < .001$), however the negative and varying range of rigidity subfactor loadings ($-.44-.17$, $p < .001$) suggested that whilst rigidity items may be a reliable function of the general latent factor, they may not have utility as a specific OCPD subdomain. The Omega reliability coefficient for the POPS total score was very high ($\omega > .90$) and the specific factors (ω_s) varied between .87 and .92. OmegaH was modest ($\omega_H = .76$) and OmegaHS (ω_{HS}) varied between .65 and .72, except for rigidity, which was very low (.03). The ECV indicated that the POPS general factor accounted for 42% of common variance, and PUC (.79) was acceptable. The pattern of ECV and PUC findings (including EVC $< .70$; PUC $> .70$), and the high ARPB (.72) suggest that the POPS scale should not be regarded as unidimensional (Rodriguez et al., 2016). Bifactor indices are presented in Table 4.

Due to the rigidity subfactor explaining a negligible proportion of unique reliable variance and the inconsistent subfactor loadings after accounting for the

general factor, a bifactor model with the rigidity items freed to load on the general factor (but with loadings on the rigidity subfactor fixed to zero) was run.

Table 3. *Fit Statistics for POPS Measurement Model*

| Model | χ^2 | <i>df</i> | CFI | TLI | RMSEA | 90% CI | |
|---------------------|----------|-----------|------|------|-------|--------|------|
| | | | | | | LB | UB |
| Unidimensional | 13298.35 | 1127 | .540 | .520 | .138 | .135 | .140 |
| 5-Factor Model | 4805.52 | 1116 | .861 | .853 | .076 | .074 | .078 |
| Bifactor Model | 3315.95 | 1067 | .915 | .906 | .061 | .058 | .063 |
| Bifactor (modified) | 3121.20 | 1077 | .923 | .916 | .058 | .055 | .060 |

Note. *df* = degrees of freedom; CFI = Comparative Fit Index; TLI = Tucker Lewis Index; RMSEA = Root Mean Square Error of

Approximation; LB and UB = Lower Bound and Upper Bound Limits of 90% Confidence Interval; modified = rigidity subfactor

removed; Good Fit Guidelines as per Hu & Bentler (1999); *p* values for Chi-Square tests were <.001

Table 4. *Bifactor Indices*

| Index | POPS-general | POPS-rigidity | POPS-emotional | POPS-perfection | POPS-reluct delegate | POPS-diff change |
|----------------------------|--------------|---------------|----------------|-----------------|----------------------|------------------|
| Omega (ω) | .96 | .92 | .90 | .89 | .87 | .89 |
| Omega HS (ω_{HS}) | .76 | .03 | .72 | .71 | .65 | .68 |
| ECV | .42 | .14 | .78 | .78 | .71 | .75 |
| PUC | .79 | | | | | |
| ARPB | .72 | | | | | |
| H | .95 | .55 | .92 | .91 | .84 | .90 |

Note. POPS = Pathological Obsessive Compulsive Personality Scale; general = general factor; emotional = emotional over-control; perfection = maladaptive perfectionism; reluct delegate = reluctance to delegate; diff change = difficulty with change; Omega = Omega Reliability Coefficient; Omega H/S = Omega Hierarchical Subscale; ECV = Explained Common Variance; PUC = Percentage of Uncontaminated Correlations; ARPB = Average Relative Parameter Bias; H = Coefficient H Construct Reliability.

This model provided the best fit (i.e., all items loading on a general OCPD factor plus four subfactors). The DIFFTEST indicated that the modified bifactor model was significantly improved $\Delta\chi^2 = 150.045$, $df = 14$, $p < .001$. Standardized factor loadings for the modified bifactor model were all significant and ranged from .11–.90 ($ps < .001$; see Table 5).

Examination of the measurement model for the OMNI indicated borderline fit: CFI = .90, TLI = .88, SRMR = .06, and RMSEA = .07 (90% CI [.07-.08]); $\chi^2(243) = 1008.70$, $p < .001$. Factor loadings were all significant (OMNI-OC .42–.79, $p < .001$; OMNI-borderline .32–.79, $p < .001$; OMNI-antisocial .41–.67 $p < .001$). The BIS-11 measurement model was just-identified, so model fit could not be assessed. BIS-11 factor loadings were moderate and significant (attentional .62; motor .76; non-planning .56; $ps < .001$).

2.4.3 Unique associations between POPS, OMNI, and BIS-11 factors

The structural model of OMNI and BIS-11 factors regressed on the POPS general and group factors suggested that the association between the POPS general OCPD latent variable was most strongly associated with the OMNI-OC latent variable, followed by OMNI-borderline, BIS-11 impulsivity, and OMNI-antisocial, respectively. The OMNI-OC factor was also negatively and uniquely associated with the emotional over-control group factor, and positively associated with maladaptive perfectionism and reluctance to delegate group factors. OMNI-antisocial was negatively associated with the difficulty with change group factor, and BIS-11 impulsivity was negatively associated with the difficulty with change and reluctance to delegate group factors. All other associations with the POPS group factors were weak and non-significant (see Table 6).

Table 5. *Standardized Factor Loadings of the POPS Modified Bifactor Model*

| POPS item | POPS latent factor and subfactors | | | | | |
|-----------|-----------------------------------|------|-----|----|------|----|
| | Gen | F1 | F2 | F3 | F4 | F5 |
| 5 | .32 | .59 | | | | |
| 6 | .36 | .70 | | | | |
| 15 | .48 | .73 | | | | |
| 16 | .46 | .69 | | | | |
| 17 | .43 | .77 | | | | |
| 23 | .54 | .48 | | | | |
| 39 | .51* | .11* | | | .30* | |
| 43 | .51 | .51 | | | | |
| 3 | .19 | | .79 | | | |
| 14 | .51 | | .52 | | | |
| 28 | .41 | | .63 | | | |
| 29 | .27 | | .90 | | | |
| 30 | .30 | | .87 | | | |
| 36 | .40 | | .72 | | | |
| 48 | .51 | | .23 | | | |
| 4 | .58 | | | - | | |
| 10 | .60 | | | - | | |
| 11 | .69 | | | - | | |
| 12 | .64 | | | - | | |
| 13 | .54 | | | - | | |
| 21 | .66 | | | - | | |
| 22 | .74 | | | - | | |
| 24 | .68 | | | - | | |
| 26 | .51 | | | - | | |
| 31 | .72 | | | - | | |
| 32 | .81 | | | - | | |
| 33 | .77 | | | - | | |
| 34 | .74 | | | - | | |
| 38 | .82 | | | - | | |
| 41 | .73 | | | - | | |
| 1 | .34 | | | | .43 | |
| 7 | .45 | | | | .66 | |
| 9 | .38 | | | | .73 | |
| 18 | .31 | | | | .22 | |
| 27 | .30 | | | | .57 | |
| 37 | .49 | | | | .54 | |
| 44 | .44 | | | | .19 | |
| 45 | .43 | | | | .69 | |
| 46 | .44 | | | | .67 | |

Table 5. *Continued*

| POPS item | POPS latent factor and subfactors | | | | | |
|-----------|-----------------------------------|----|----|----|-----|-------|
| | Gen | F1 | F2 | F3 | F4 | F5 |
| 47 | .27 | | | | .73 | |
| 49 | .36 | | | | .62 | |
| 2 | .51 | | | | | .55 |
| 8 | .45 | | | | | .63 |
| 19 | .27** | | | | | .49** |
| 20 | .52 | | | | | .63 |
| 25 | .28** | | | | | .37** |
| 35 | .31 | | | | | .64 |
| 40 | .60 | | | | | .65 |
| 42 | .63 | | | | | .40 |

Note. Modified bifactor model with rigidity subfactor removed; Gen = general factor; F1 = Difficulty with Change; F2 = Emotional Over-control; F3 = Rigidity; F4 = Maladaptive Perfectionism; F5 = Reluctance to Delegate; dashes represent (rigidity subfactor) items set to zero; *cross loading item; **reverse scored item

Table 6. *Correlations (95% CIs) between POPS general and group factors, and OMNI and BIS-11 latent variables*

| <i>Scale</i> | OMNI-OC | OMNI-Bord | OMNI-Antis | BIS-11 |
|---------------------------|--------------------------|-----------------------|--------------------------|-------------------------|
| POPS general factor | .64 (.58; .70) | .51 (.45; .58) | .37 (.28; .46) | .44 (.34; .53) |
| Difficulty with change | .07 (-.01; .15) | .02 (-.08; .11) | -.33 (-.43; -.23) | -.19 (-.30; .53) |
| Emotional over-control | -.12 (-.19; -.06) | .04 (-.04; .12) | .03 (-.06; .12) | .03 (-.07; .13) |
| Maladaptive perfectionism | .19 (.10; .29) | .05 (-.06; .16) | -.05 (-.17; .07) | <-.01 (.13; .13) |
| Reluctance to delegate | .35 (.26; .44) | -.04 (-.15; .06) | -.14 (-.25; -.02) | -.24 (-.36; .12) |
| OMNI-OC | - | - | - | - |
| OMNI-Bord | .55 (.46; .65) | - | - | - |
| OMNI-Antis | .47 (.36; .60) | .82 (.77; .88) | - | - |
| BIS-11 | -.05 (-.19; .08) | .55 (.46; .65) | .60 (.48; .70) | - |

Note. POPS = Pathological Obsessive Compulsive Scale; OMNI-OC=obsessive compulsive personality scale; OMNI-Bord= borderline; OMNI-Antis = antisocial; BIS-11 = Barratt Impulsiveness Scale. Coefficients are standardized, values in parentheses are the lower and upper limits of the 95% confidence intervals; bolded values = $p < .001$

2.4.4 Coverage of the DSM-5 OCPD Construct

The degree to which the POPS is reflective of DSM-5 OCPD criteria was assessed using the clinician ratings (Likert questionnaire scores). Standardized cut-offs for Pearson's Intraclass Correlation Coefficient (ICC) can be used as a measure of the reliability of measures or ratings, with positive and significant correlations ($>.74$, $p<.001$) indicative of good inter-rater agreement (Smith & Archer, 2014). Aggregated clinician ratings for each of the eight diagnostic criteria were used to compute ICC's for the composite of the six clinicians, with items treated as 'cases' and raters as 'variables'. ICC's indicated that the POPS demonstrated excellent coverage of the following DSM-5 OCPD criteria: reluctance to delegate (.97, $p<.001$); perfectionism (.93 $p<.001$); preoccupation with detail (.89 $p<.001$); rigidity and stubbornness (.89 $p<.001$) and over-conscientiousness (.76 $p<.001$). In contrast, ICC's were poor for miserliness (.20, *ns*), inability to discard/hoarding ($<.01$, *ns*), and excessive devotion to work (-.08, *ns*).

2.5 Discussion

The aim of this study was to independently evaluate the factor structure and psychometric properties of the POPS as a measure of OCPD. As predicted, a bifactor structure provided the best fit, which is consistent with a previous bifactor analysis (Pinto, Ansell, et al., 2011). However, inconsistent with previous research (Pinto, Ansell, et al., 2011) the rigidity group factor yielded weak, non-significant factor loadings and explained a negligible percentage of true variance. Removal of the rigidity group factor provided significant improvement in model fit. Our findings suggest that the rigidity items may be important in providing a comprehensive assessment of general OCPD pathology and thus should be retained to compute the total POPS score, but they have relatively little utility as a separate subscale.

However, it is important to also consider that our sample was comprised of undergraduates, who may potentially be less rigid and more open to experience than other groups. Future studies should compare undergraduate, community and clinical samples to determine whether the rigidity group factor still yields weak associations with the POPS, or whether this may be unique to the undergraduate demographic.

We observed the strongest, positive and significant association between the POPS general factor and OMNI-OC, relative to moderate and significant positive associations between the POPS general factor and OMNI-borderline, OMNI-antisocial, and impulsivity latent variables. Our findings of positive associations between the POPS and borderline, antisocial, and impulsivity phenomena did not support our hypotheses. This pattern of findings is consistent with previous studies that have yielded varying and convergent and divergent correlations between OCPD measures (e.g., Widiger & Boyd, 2009). Given the significant association between the POPS and borderline, antisocial, and impulsivity scales, further research is required to determine the validity of the scale given that theoretically one would not expect these constructs to be related to OCPD. It is important to recognise that the majority of theoretical and empirical evidence indicates OCPD traits to be aligned with conscientiousness (e.g., Samuel & Widiger, 2011), and thus entirely disparate from behavioural disinhibition. It is unclear why there was a significant association between the POPS general factor and theoretically disparate constructs (e.g., impulsivity). A question for further research is whether the POPS general factor may be assessing severity of psychopathology in general (i.e., detecting that individuals are elevated on a range of difficulties including impulsivity in addition to OCPD). Future research should also examine the discriminant validity of the POPS more comprehensively to determine whether the association we found with

constructs such as impulsivity was constrained to this particular sample or whether this is also found in other samples, which will have implications for the discriminant validity of the scale. A future study could examine the POPS in relation to a structured personality interview such as the SCID-II (First, Gibbon, Spitzer, Williams, & Benjamin, 1997) to determine whether any elevations on theoretically disparate constructs such as impulsivity are aligned with other personality disorder traits and dimensions that participants are meeting in addition to OCPD, as this question was not able to be answered in this study.

Whilst we do not propose that borderline, antisocial or impulsive behaviours are core features of OCPD, these associations may be of relevance within particular clinical presentations or OCPD subtypes that are worthy of further investigation. For example, OCPD has been identified as a comorbidity in disorders typified by impulsivity such as pathological gambling (Durdle, Gorey, & Stewart, 2008; Odlaug, Schreiber, & Grant, 2012). Research has also indicated that both over-controlled traits (e.g., perfectionism) and under-controlled traits (e.g., impulsivity) are present in eating disorder populations (Boone, Claes, & Luyten, 2014). As such, more inclusive, transdiagnostic treatment approaches that target shared underlying pathology (e.g., cognitive behavioural therapy for perfectionism; Egan, Wade, Shafran, & Antony, 2014), which have evidence of efficacy in reducing perfectionism and a range of psychological disorders (see Lloyd, Schmidt, Khondoker, & Tchanturia, 2015), may be warranted in these cases. Further studies are needed to confirm associations between OCPD and impulsive traits.

Empirical findings from studies examining personality nosology indicate substantial correlations between psychopathology phenotypes (Angold & Costello, 2009), which may be suggestive of a general factor of psychopathology rather than discrete mental disorders (Hopwood, Thomas, Markon, Wright, & Krueger, 2012; Krueger, Derringer, Markon, Watson, & Skodol, 2012; Lahey et al., 2012). An integrated model of personality may therefore provide a more accurate reflection of psychopathology. Factor analyses on large epidemiological twin studies have demonstrated that correlations among a range of personality disorders are predominantly due to shared aetiology and common genetic influences (Kendler et al., 2011). The implication, as suggested by Kendler et al. (2011), is that current conceptualisation of discrete psychiatric disorders share a coherent underlying structure that is broader than suggested by categorical classification systems, and reflective of two major dimensions: internalising and externalising, and “axis I” versus “axis II”. Internalising and externalising disorders are typically characterised by negative affectivity and disinhibition, respectively (Hink et al., 2013). Although OCPD psychopathology is typically associated with a restricted negative affect and considered to be the opposite of behavioural disinhibition, in their study, OCPD had the strongest loading on axis II externalising disorders, together with borderline, histrionic, and narcissistic traits (Kendler et al., 2011). The pattern of associations we observed between the POPS general factor, and borderline, antisocial, and impulsivity traits provide some support for this theory. Further research is required to support the proposition that the POPS general factor is more accurately conceptualised as a measure of general personality psychopathology. If this is the case, the POPS may provide a comprehensive clinical tool to measure overall

personality traits on the general factor, and specific OCPD domains according to the subfactors.

The POPS demonstrated good coverage of current (DSM-5) OCPD criteria as indicated by robust ICC's, providing support for clinical utility of the POPS. Whilst ICC's were poor for the miserliness and hoarding criteria, our findings are consistent with research demonstrating that these features are polythetic and manifestations of broader dispositions not well accounted for by OCPD alone (Hertler, 2015; Riddle et al., 2016). For example, according to the DSM-5 (APA, 2013), hoarding behaviour overlaps with OCD, OCPD, and Hoarding Disorder. Further, miserliness and hoarding have often been shown to be the weakest performing criteria of OCPD with regard to diagnostic efficiency (Grilo et al., 2001; Grilo et al., 2004; Hummelen et al., 2008). We also identified a low ICC for the excessive devotion to work criterion. An examination of the pattern of clinician responses suggested considerable variability and disagreement in the interpretation of item content in relation to the workaholism criterion. For example, clinician ratings for the item "*I am hard on myself when I am unable to complete a task to my high standards*" ranged from 0 ('not representative of the given criteria') to 4 ('fully representative'). This finding was surprising given the theoretical association between excessive devotion to work and OCPD, and it highlights the difficulty in developing a uniform measure that sufficiently captures the heterogeneity of OCPD criteria. Arguably, several POPS items reflect workaholism behaviour as a by-product of rigid perfectionism and reluctance to delegate (e.g., *When working in a group, I find that I end up doing most of the work; I am happy to let others help me in my work; it takes longer for me to complete a task to my high standards*). Another possibility and question for future research is that devotion to work may be more adaptive relative to other obsessive-

compulsive personality domains. The alternate DSM-5 model includes emotional over-control but deemphasises miserliness, hoarding, and work devotion.

Importantly, the alternative (Section III) DSM-5 model has been found to be comprehensive, descriptive, and have good clinical utility (Morey, Skodol, & Oldham, 2014).

Section III of the DSM-5, which reports on emerging measures and alternate models that require further study, proposes a radical reconceptualisation of personality disorders broadly and in relation to OCPD specifically. The pathological trait of rigid perfectionism is a requirement for an OCPD diagnosis according to the alternate model. In addition, patients must also meet criteria for at least one other characteristic OCPD pathological personality trait: perseveration (persistence at the same behaviour despite repeated failures), intimacy avoidance (difficulty with close relationships, interpersonal attachments, and sexual relationships), and restricted affectivity (constricted emotional experience and expression).

Another direction for future research is to consider whether the interpersonal features that are associated with OCPD (Villemarette-Pittman et al., 2004) but are not included in current DSM criteria that have been incorporated in the POPS measure, including difficulty relating to and expressing emotions (e.g., *It is difficult for me to relate to other people's emotions*) and anger outbursts when autonomy is threatened (e.g., *I get angry when others try to change my mind*) should be included in future revisions of the OCPD criteria in the DSM. While the POPS does not contain a separate subfactor measuring interpersonal behaviour or items that refer explicitly to intimacy avoidance, several POPS items do measure aspects of OCPD behaviour in a relational context that are indicative of interpersonal consequences and difficulties in relationships as a result of rigidity (e.g., *others have told me I am*

demanding in my relationships, there are few people who can meet my expectations) and emotional over-control (e.g., *I rarely feel comfortable showing affection to others, people have described me as being closed with my feelings, I hold back my feelings*). Given the inclusion of intimacy avoidance in the new conceptualisation of OCPD in Section-III of the DSM-5, it may be useful for research to directly compare the POPS to a validated measure of intimacy avoidance to see how well the POPS covers this domain and to determine whether the addition of items that even more specifically target intimacy avoidance should be considered in a future revision of the POPS.

There were a number of limitations that need to be considered. First, the undergraduate sample was non-clinical and therefore our results may not generalise to clinical populations. We used an unselected sample to include a large range of scores on the dimensions of interest, rather than an attenuated range within a clinical sample. Nonetheless, future studies should examine the psychometric properties of the POPS in clinical samples along with its capacity to discriminate between clinical populations and healthy controls. Second, as this was the first study to independently evaluate convergent and divergent validity of the POPS, outside of its initial development, we were interested in establishing associations between the POPS and other overarching personality constructs only, such as OCPD and impulsivity. Future studies should compare underlying subdomain personality traits between measures to investigate convergent and divergent associations that may implicate certain populations. For example, the association between maladaptive perfectionism in OCPD and self-control in impulsiveness may be of particular relevance in eating disorders. The sample of clinicians ($N=6$) is relatively small, and thus generalisability is limited. Future studies should seek to adopt larger clinician

samples to assess interrater reliability. Further, due to time and resource constraints, we only compared the POPS to other self-report measures of personality. Future studies should assess the utility of the POPS compared to structured, clinician administered measures of OCPD traits, such as the SCID-I (First, Spitzer, Gibbon, & Williams 1997).

In summary, a modified version of the POPS that includes a general OCPD factor plus four group factors, including difficulty with change, emotional over-control, maladaptive perfectionism, and reluctance to delegate, provided the best fit to the data. Our findings suggest that the rigidity group factor is not separable from the general OCPD factor, and thus while rigidity is an important component of OCPD, the subscale should not be scored separately from the POPS total score. Further research is needed to determine whether the rigidity group factor yields the same associations with community and clinical samples. The POPS general factor had acceptable convergence with an alternative measure of OCPD. The positive and significant associations between the POPS general factor and borderline, antisocial, and impulsivity variables suggest further research is needed to improve divergent validity of the POPS and the measurement of the broader OCPD construct.

Chapter 3 The role of obsessive-compulsive personality and conscientiousness in treatment outcomes for obsessive compulsive disorder

3.1 Chapter overview

The following chapter presents a study that is published in *Behavioural and Cognitive Psychotherapy*. The study examines the role of categorical OCPD and dimensional conscientiousness in treatment outcomes for OCD. The chapter presents a modified version of the published paper, the supplementary material that is published as an addendum to the journal article is integrated within the substantive body of the chapter. A copy of the publication is attached in Appendix G. Confirmation of order of authorship by the co-authors is provided in Appendix J. Copyright permission from Cambridge University Press is provided in Appendix N.

Sadri, S. K., McEvoy, P. M., Egan, S. J., Kane, R. T., Rees, C. S., & Anderson, A. (2017). The relationship between obsessive compulsive personality and obsessive compulsive disorder treatment outcomes: Predictive utility and clinically significant change. *Behavioural and Cognitive Psychotherapy*, 45, 524-529.

doi: 10.1017/S1352465817000194

Running head: The role of OCPD traits in OCD

The relationship between obsessive compulsive personality and obsessive compulsive disorder treatment outcomes: Predictive utility and clinically significant change

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3.2 Abstract

Background: The evidence regarding whether comorbid obsessive compulsive personality disorder (OCPD) is associated with treatment outcomes in obsessive compulsive disorder (OCD) is mixed, with some research indicating OCPD is associated with poorer response and some showing that it is associated with improved response. **Aims:** We sought to explore the role of OCPD diagnosis and the personality domain of conscientiousness on treatment outcomes for exposure and response prevention for OCD. **Method:** The impact of comorbid OCPD and conscientiousness on treatment outcomes was examined in a clinical sample of 46 participants with OCD. **Results:** OCPD diagnosis and scores on conscientiousness were not associated with poorer post-treatment OCD severity, as indexed by Yale Brown Obsessive Compulsive Scale (YBOCS) scores, although the relative sample size of OCPD was small and thus generalisability is limited. **Conclusion:** This study found no evidence that OCPD or conscientiousness were associated with treatment outcomes for OCD. Further research with larger clinical samples is required.

Keywords: Obsessive Compulsive Disorder; Obsessive Compulsive Personality Disorder; conscientiousness

3.3 Introduction

Obsessive compulsive personality disorder (OCPD) is the most common personality condition in obsessive compulsive disorder (OCD). Up to 47.3% of the OCD population have been reported to meet criteria for OCPD, and comorbid OCPD has been associated with an earlier age of onset, increased severity, and poorer outcomes for OCD (Starcevic et al., 2012). It is therefore important to determine whether comorbid OCPD may adversely impact on treatment outcome for people with OCD. Whilst OCD is argued to be ego-dystonic, which denotes the distressing and unwanted nature of symptoms, OCPD traits tend to be ego-syntonic, rigid and highly valued by the individual (Gordon et al., 2013). More recently however, researchers have noted that this distinction is not exhaustive as OCD psychopathology (e.g., preoccupation with contamination) may not be experienced as intrusive and further, OCPD psychopathology such as perfectionism may not always be subjectively interpreted as desirable (Diedrich & Voderholzer, 2015). Individuals with OCD and comorbid OCPD may be at risk of poorer outcomes as a result of ambivalence or resistance to treatment if their obsessions align with their personal values, which can reduce motivation to change (Starcevic & Brakoulias, 2014). The number of studies that have found OCPD to be associated with poorer outcomes in OCD raises the question as to whether particular dimensional aspects of OCPD also play a role in OCD treatment response.

Whilst several studies have found that OCPD traits are predictive of worse treatment outcomes (see Wetterneck et al., 2011) Gordon et al. (2016) found that those with a comorbid OCPD diagnosis demonstrated greater treatment gains in relation to OCD severity than those without OCPD. The studies that have found OCPD to be associated with poorer outcomes raises the question as to whether

dimensional aspects of OCPD also play a role in treatment response.

Conscientiousness has been of interest in OCD research given its' alignment with OCPD pathology, such as order, achievement-oriented behaviours, and perfectionism. Studies that have examined conscientiousness as a predictor of OCD have measured personality according to the Five Factor Model via the Revised NEO Personality Inventory (NEO PI-R; Costa & McCrae, 1992). The NEO-PI-R measures conscientiousness with six subscales; competence, order, dutifulness, achievement-striving, self-discipline, and deliberation. Studies that have examined conscientiousness among OCD samples have yielded mixed findings.

Rector, Hood, Richter, and Bagby (2002) examined the impact of dimensional conscientiousness in a sample of psychiatric outpatients ($N=196$) in order to determine personality differences between OCD ($n=98$) and major depression ($n=98$). The OCD sample scored low on conscientiousness compared to population norms (Costa & McCrae, 1992) and conscientiousness scores were higher only when compared to the depressed sample. Rector, Richter and Bagby (2005) further examined the impact of personality on a sample of OCD patients ($N=56$), and found that conscientiousness was higher in OCD when not controlling for depression, however scores on conscientiousness were not significantly different when depression was controlled for. This finding suggests that conscientiousness may be, at least in part, a function of comorbid depression rather than only OCD. Further, only one facet of conscientiousness, deliberation, was predictive of OCD severity (Costa & McCrae, 1992). It was suggested that whilst individuals with OCD may desire the order and organisation associated with conscientiousness, their own high standards may compromise the achievement of such outcomes (Rector et al., 2005). However, it should be noted that statistical analyses in this study were only

conducted in comparison to a depressed group; as such the low conscientiousness scores identified in OCD are as a result of personality profile interpretation, rather than statistical analyses which confirm OCD-specific associations.

Rees, Egan, and Anderson (2005) examined conscientiousness in an OCD group compared with an anxious and depressed non-OCD group. There was no significant difference between groups on the overall conscientiousness domain. However, the competence and self-discipline facets were significantly lower in patients with OCD compared to the anxious and depressed non-OCD patients. In contrast to Rector et al. (2005), this finding suggests that these specific facets traits could be a function of obsessive compulsive symptomology (e.g. high expectations of task performance together with reduced self-perceived competence) as opposed to an association with comorbid anxiety and depressive symptoms (Rees et al., 2005). Other studies employing the NEO-PI-R or Big Five Inventory measures have found that conscientiousness shows no statistically significant relationship with OCD, suggesting that this personality domain may not be critical to OCD (see Wetterneck et al., 2011).

There is a relative dearth of research that has examined OCPD and personality (e.g. conscientiousness) in relation to OCD outcomes, and further, the evidence regarding these relationships is mixed. Although studies have identified low scores on conscientiousness in OCD (Rector et al., 2005; Rees et al., 2005), facets of conscientiousness have been found to be predictive of post-treatment severity, and thus further research is required to clarify the impact of these associations on treatment outcome. Studies that have examined conscientiousness in OCD have only made comparisons with anxious or depressed populations, as opposed to OCPD. Examining OCD treatment outcomes based on OCPD and conscientiousness is

important given the comorbidity between OCPD and OCD, the association between conscientiousness and OCPD, and the conflicting evidence regarding the role of OCPD in OCD outcomes.

The aim of the current study was to determine whether OCPD diagnosis and the personality domain of conscientiousness were predictive of post-treatment OCD severity. Based on previous findings it was predicted that comorbid OCPD and the conscientiousness facets of competence, self-discipline, and deliberation would be (negatively) associated with poorer treatment outcomes. Given the limitations associated with categorical diagnoses alone and the dimensional continuum on which personality traits occur, to strengthen our investigation, we considered the impact of both categorical (OCPD diagnosis) and dimensional (conscientiousness) aspects of personality.

3.4 Method

3.4.1 Participants

Data for this study came from a published trial of Exposure and Response Prevention (ERP) therapy for OCD (Anderson & Rees, 2007). In the original study the impact of ERP was indicated by a large magnitude of effect and clinically significant improvements in OCD symptoms in both active treatment conditions relative to waitlist controls (Anderson & Rees, 2007). In the current study, all participants ($N=46$) met criteria for a primary diagnosis of OCD and a total of 11 participants (23.9%) met criteria for a comorbid diagnosis of OCPD. Treatment outcomes were compared for participants with and without OCPD; with analyses based on this comorbidity, herein referred to as the “OCD only” ($n=35$) and “OCD/OCPD” group ($n=11$).

3.4.2 Materials

Structured Clinical Interview for DSM-IV (SCID-IV; First, Spitzer, Gibbon & Williams, 1997). The SCID-IV was the primary diagnostic tool for OCD and OCPD.

Yale Brown Obsessive Compulsive Scale (YBOCS; Goodman et al., 1989).

The clinician administered YBOCS was used to measure the severity of obsessions and compulsions across a total of ten items on a 4-point Likert-type scale ranging from 0 (no symptoms) to 4 (severe symptoms). The scale is a commonly used measure in OCD research and has demonstrated adequate validity and inter-rater reliability; and good internal consistency, ($\alpha=.89$; Goodman et al., 1989).

Revised NEO Personality Inventory (NEO PI-R; Costa & McCrae, 1992). The NEO-PI-R is a self-report tool that measures the ‘big five’ domains of personality. Conscientiousness consists of six facet scales pertaining to ‘competence’, ‘order’, ‘dutifulness’, ‘achievement’, ‘self-discipline’ and ‘deliberation’, which are used as a dimensional measure of this domain. Based on previous evidence of associations with OCD treatment outcome (Rector et al., 2005; Rees et al., 2005), only the competence, self-discipline and deliberation facets were examined in this study. The NEO-PI-R is a widely used measure and the conscientiousness domain has demonstrated good psychometric properties, including excellent internal consistency ($\alpha=.92$, competence $\alpha=.73$, self-discipline $\alpha=.82$, deliberation $\alpha=.73$; Costa & McCrae, 1992).

3.4.3 Procedure

Participants were randomised to 10-week individual or group ERP therapy for OCD. All treatment and assessment procedures were conducted at the Curtin University Psychology Clinic. Diagnostic interviews were recorded and 25% reviewed for reliability. All measures were completed prior to the first treatment

session, and the YBOCS was readministered at the final treatment session (see Anderson & Rees, 2007)

3.5 Results

3.5.1 Descriptive clinical and demographic data

There were no significant differences on any sociodemographic variables between the OCD only and OCD/OCPD groups: OCD only [age: $M=32.20$, $SD=12.08$], OCD/OCPD [age: $M=37.36$, $SD=13.6$], $t(44)=-1.2$, $p=.84$, 95% confidence interval of the mean difference [CI; -13.83 to 3.51] $d=-.40$; OCD only [gender: female 68.6%], OCD/OCPD [gender: female 72.7%] $\chi^2(1)=0.68$, $p=.80$, $w=.04$; OCD only [medication: 68.6%], OCD/OCPD [medication: 63.6%], $\chi^2(1)=.09$, $p=.76$, $w=-.04$; OCD only [group arm: 51.4%, individual arm: 48.6%]; OCD/OCPD [group arm: 63.6%, individual arm: 36.4%], $\chi^2(1)=.50$, $p=.48$, $w=-.11$.

3.5.2 Assumption Testing

Assumption testing and analyses were conducted using the Statistical Package for the Social Sciences (SPSS) version 22.0. The assumptions of normality were tested by examining standardised skewness and the Shapiro-Wilks test, which indicated that the data was statistically normal for YBOCS scores. Levene's test for homogeneity of variance failed to reject the null hypothesis, supporting the assumption of equal variances across the two subsamples, *Levene's F* (44)= .221, $p=.641$. Regarding conscientiousness, the Shapiro-Wilks test indicated that data was approximately normally distributed, with the exception of the competence and self-discipline facet scales, which had a slight positive skew upon visual inspection. A Mann-Whitney U-test indicated that competence scores of the OCD/OCPD

participants (*mean rank*=21.90, *n*=10) were not significantly higher than the OCD only group (*mean rank*=20.71, *n*=31), $U=146.00$, $z=-.27$, $p=.78$, $r=-.04$; and the self-discipline scores of the OCD/OCPD participants (*mean rank*=19.30, *n*=10) were not significantly different to the OCD only group (*mean rank*=21.55, *n*=31), $U=138.00$, $z=-.52$, $p=.60$, $r=-.08$.

3.5.3 Pre-treatment means

YBOCS scores for the OCD/OCPD group were as follows: obsessions ($M=11.82$, $SD=4.90$), compulsions: ($M=13.09$, $SD=3.51$); and for OCD only: obsessions ($M=12.11$, $SD=3.88$), compulsions ($M=12.26$; $SD=3.55$). The mean pre-treatment total YBOCS score for the OCD/OCPD group indicated ‘severe’ symptoms ($M=24.91$, $SD=7.76$), which was comparable with ‘severe’ symptoms in the OCD only group ($M=24.40$, $SD=6.54$). An independent samples t-test indicated that the difference was not statistically significant and the effect size was small, $t(44)=-.22$, $p=.83$; 95% confidence interval of the mean difference [CI; -5.28 to 4.26], $d=-.07$. The OCD/OCPD group reported higher total NEO-PI-R conscientiousness scores ($M=42.90$, $SD=11.27$) compared to OCD only ($M=38.32$, $SD=11.91$). An independent samples t-test indicated that this difference was not statistically significant and the effect size was small to medium, $t(39)=-1.12$, $p=.27$, [95% CI; -12.82 to 3.67], $d=-.39$.

3.5.4 Bivariate correlations

Pearson’s bivariate correlation coefficients were calculated to assess covariation between categorical OCPD diagnosis (minimum of four out of eight DSM-IV OCPD symptoms coded as present and clinically significant at baseline) and dimensional NEO-PI-R conscientiousness scores at pre-treatment, with OCD

severity (YBOCS scores) at post-treatment. Partial correlation analyses were used to explore the association between post-treatment OCD severity with OCPD diagnosis and the facets of conscientiousness, after controlling for pre-treatment YBOCS scores.

Bivariate correlations revealed that only total pre-test YBOCS symptoms were significantly correlated with total post-test YBOCS severity, which demonstrated a moderate, positive relationship $r(46)=.61, p<.001$. The associations between post-test YBOCS severity and the remaining variables were weak: OCPD diagnosis [$r(46)=.08, p=.62$]; competence [$r(41)=-.041, p=.80$]; self-discipline [$r(41)=.06, p=.70$]; deliberation [$r(41)=-.20, p=.22$]. The associations between OCPD diagnosis and YBOCS obsessions pre [$r(46)=-.03, p=.84$], YBOCS compulsions pre [$r(46)=.10, p=.50$], YBOCS obsessions post [$r(46)=.06, p=.70$], YBOCS compulsions post [$r(46)=.09, p=.55$], were small and non-significant.

3.5.5 Partial correlations

The trends in the partial correlations, controlling for pre-treatment YBOCS scores, were consistent with bivariate correlations, weak and statistically non-significant; OCPD diagnosis [$r(38)=.10, p=.54$]; competence [$r(38)=.10, p=.55$]; self-discipline [$r(38)=.24, p=.15$]; deliberation [$r(38)=-.08, p=.62$]. Furthermore, the associations between OCPD diagnosis and post-treatment discrete YBOCS scores, controlling for YBOCS pre-treatment scores, were weak and statistically non-significant; YBOCS obsessions post [$r(38)=.09, p=.60$]; YBOCS compulsions post [$r(38)=.11, p=.52$]. A power analysis conducted using G*Power 3.1.9.2 indicated that the study was underpowered to detect a statistically significant, medium sized (.30) association between OCPD and conscientiousness with OCD outcome; a sample size

of 82 ($\alpha=.05$, two-tailed, 80% power) would have been required to detect these effects.

3.5.6 Reliable and clinically significant change

The proportion of patients achieving reliable and clinically significant change was then calculated to determine if post-treatment YBOCS outcome differed based on OCPD comorbidity. Pre-post reliable change index (RCI) scores were computed in accordance with conventions determined by Jacobson and Truax (1991) such that an absolute value of 1.96 or greater was defined as reflecting a real and reliable change, which corresponded to a 10-point change on the YBOCS (see Fisher and Wells, 2005). In the OCD only group ($n=35$), 16 participants (45.7%) experienced a reliable change (improvement) in YBOCS severity at post-treatment. In the OCD/OCPD group ($n=11$), four participants (36.4%) experienced reliable change (improvement) in YBOCS severity. No reliable deterioration in YBOCS severity was observed in either group.

A Fisher's exact test of the difference between independent proportions, with OCPD diagnosis and statistically reliable change dummy coded as either present or absent for each participant, was then used to evaluate whether or not treatment outcome differed based on the presence of OCPD. The differences in the proportion of participants achieving reliable change between those with and without OCPD was not statistically significant [$p=.73$, two-tailed test]. Due to a lack of appropriate non-clinical, normative reference data for the YBOCS, Fisher and Wells (2005) reviewed a large sample of OCD cases ($n=300$) and applied Jacobson and Truax (1991) methodology to define reliable change as a 10-point YBOCS change, whereby a 10 or more point decrease indicates reliable *improvement*, 10 or more point increase indicates reliable *deterioration*, and variation by less than 9 indicates that an

individual has remained *unchanged*. Clinically significant change, which indicates a change from the dysfunctional to the functional range, was defined as a shift from a pre-test YBOCS score above 14 to a post-test score below 14 (Fisher & Wells, 2005). Only individuals meeting both the criteria for reliable and clinically significant change are defined as *recovered*. According to these criteria, 27% ($n=3$) of the OCD/OC PD group and 23% ($n=8$) of the OCD only group were ‘recovered’; 0% ($n=0$) of the OCD/OC PD group and 8% ($n=23$) of the OCD only group were ‘improved’; 73% of the OCD/OC PD group ($n=8$) and 54% ($n=19$) of the OCD only group were ‘unchanged’. No clinically significant deterioration was observed.

3.6 Discussion

It was predicted that comorbid OC PD and the conscientiousness facets of competence, self-discipline and deliberation would be associated with poorer treatment outcomes, but our results indicated that treatment outcome was not impacted by the presence of OC PD or conscientiousness. Neither OC PD diagnosis nor pre-treatment conscientiousness facets of competence, self-discipline, and deliberation, were predictive of post-treatment OCD symptom severity. Further, rates of recovery between the OCD/OC PD and OCD only group were comparable based on relative proportions in each group.

Our findings are in contrast to previous studies that have found OC PD traits, such as perfectionism, to be associated with poorer outcomes in OCD (see Wetterneck et al., 2011). Our results align with a recent investigation indicating that comorbid OC PD diagnosis is not associated with poorer OCD outcomes (Gordon, et al., 2016). However, in contrast to the findings by Gordon and colleagues (2016), our results did not indicate that OC PD was associated with greater improvement.

Whilst earlier studies (Rector et al., 2005; Rees et al., 2005) found conscientiousness to differ between OCD and non-OCD clinical samples, in the current study, conscientiousness scores per se, was not found to have an impact on treatment outcome.

It is acknowledged that there were methodological constraints within the current study. Whilst the comorbidity rate of OCPD in our sample (23.9%) was consistent with previous OCD studies, the number of participants with comorbid OCPD was relatively small, which limited the degree to which we were able to detect OCPD and conscientiousness as predictors of outcome; thus caution is warranted in generalising these results. Further examination with larger samples with adequate statistical power to detect smaller effects is required. The original trial from which the current data was derived was designed to examine differences between individual versus group ERP for OCD and not OCPD, and the SCID-IV skip-criteria were used in diagnosis, which meant that subsequent questions were omitted when insufficient criteria were endorsed to warrant further questioning (Anderson & Rees, 2007). As such, comprehensive dimensional data for OCPD were not collected and thus our analyses were limited to categorical examination. Given the evidence that particular traits of OCPD, such as perfectionism, are predictive of OCD outcomes, our research would have been strengthened by a broader examination of the predictive utility of individual OCPD traits.

Overall, the body of empirical findings regarding the role of OCPD and conscientiousness has been mixed, but our study failed to find any evidence that comorbid OCPD or conscientiousness impacted on treatment outcomes for OCD. It is essential that future studies with larger clinical samples seek to augment this

developing body of research to inform clinicians as to best practice treatment decisions for patients with OCD and concomitant OCPD traits.

Conflict of Interest. Shalane K Sadri, Peter M McEvoy, Sarah J Egan, Robert T Kane, Clare S Rees, Rebecca A Anderson have no conflict of interest with respect to this publication.

Ethics. This study has been approved by the Curtin University Human Research Ethics Committee (Approval No. HR38/2014). The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, and its most recent revision.

Financial Support. This research received no specific grant from any funding agency, commercial or not-for-profit sectors.

Chapter 4 Perfectionism in OCD

As highlighted in the preceding chapters, it is important to assess and conceptualise OCPD as a dimensional rather than categorical construct given the heterogeneous and varied nature of diagnostic features used to define the disorder (Reddy et al., 2016; Zachar & First, 2015). In addition to conscientiousness, perfectionism is an OCPD dimension that has been widely examined in the context of understanding the association between OCD and OCPD. Indeed, perfectionism is the trait that is most commonly associated with the obsessive-compulsive domain (de Reus & Emmelkamp, 2012; Wu & Cortesi, 2009). As discussed earlier, OCD is a heterogeneous disorder and thus “dissecting the heterogeneous phenotype into less complex, more homogenous components could lead to the identification of discrete mechanisms and the development of tailored treatment strategies” (Pinto et al., 2017, p. 102). To understand the role of perfectionism in OCD and OCPD, it is important to consider the aetiology of perfectionism. This chapter will provide a background to perfectionism, including conceptualisation of perfectionism in the severity, trajectory, and treatment of OCD, followed by presentation of a pilot randomised controlled trial, and a qualitative perfectionism study.

4.1 Defining perfectionism

Perfectionism is a core diagnostic feature, and arguably, typifies the psychopathology of OCPD. Indeed, some authors have referred to OCPD as a chronic and maladaptive pattern of perfectionistic behaviour (de Reus & Emmelkamp, 2012). The term ‘perfectionist’ is common in everyday vernacular and often assumed to be a desirable aspect of the self. For example, being perfectionistic is associated with high achievement and academic giftedness (e.g., Margot & Rinn,

2016). However, an unhealthy pursuit of perfectionism can contribute to the development of psychopathology (e.g., depression), poor quality of life, and burnout, particularly in performance-focused populations such as students and elite athletes (e.g., Chang, Lee, Byeon, Seong, & Lee, 2016; Nixdorf, Frank, & Beckmann, 2016). Perfectionism has received considerable attention in the literature and been defined in several different ways over time. Arguably, the most important components in understanding the concept of perfectionism are recognition of its multidimensional nature (Stoeber, 2014, 2017; Stoeber & Gaudreau, 2017), and its distinction as a clinical construct (Ashby, Slaney, Noble, Cnilka, & Rice, 2012).

4.1.1 Multidimensional perfectionism

One of the most predominant ways that perfectionism has been defined is on the basis of multidimensional measures. Two well-known perfectionism scales are the Frost Multidimensional Perfectionism Scale (FMPS; Frost et al., 1990) and the Hewitt and Flett Multidimensional Perfectionism Scale (HMPS; Hewitt & Flett, 1991b). Frost et al. (1990) developed the 35-item FMPS due to what they described as a lack of clear distinction between those who are competent and successful versus those who are pathologically perfectionistic and overly critical of their performance. The FMPS was the first measure to place emphasis on self-criticism that follows performance as a central component in perfectionism. There are six subscales; *Concern over Mistakes* (excessive worry over mistakes rather than focus on achievement), *Personal Standards* (setting high personal standards), *Parental Expectations* (perceived parental expectations set for the individual), *Parental Criticism* (perceived parental criticism following performance), *Doubts about Actions* (doubting one's own performance), and *Organisation* (emphasis on orderliness and tidiness). During scale development, the Organisation scale

demonstrated the weakest association with remaining FMPS subscales and other measures of perfectionism. As such, Organisation can be calculated as a separate subfactor, but does not contribute to the total FMPS score (Frost et al., 1990).

The 45-item HMPS (Hewitt & Flett, 1991b) measures perfectionism as both an intrapersonal and interpersonal construct using three subscales; *self-oriented perfectionism* (subjective setting of excessive personal standards and strict evaluation of one's own behaviour), *other-oriented perfectionism* (one's expectations of perfectionism for other people), and *socially prescribed perfectionism* (perception that other's expect one to be perfect and failure to achieve this will result in harsh judgement from others). The FMPS has demonstrated good reliability, construct, concurrent, and discriminant validity; and the HMPS has been shown to have good internal consistency, convergent and discriminant validity (see Egan, Wade, et al., 2014; Enns & Cox, 2002; Stoeber, 2017). The Almost Perfect Scale-Revised (APS-R Slaney, Rice, Mobley, Trippi, & Ashby, 2001) is another multidimensional measure comprised of three factors; discrepancy, high standards, and order. The APS-R has good psychometric properties and has been widely used in perfectionism research (e.g., Rice & Ashby, 2007; Sironic & Reeve, 2015).

Based on evidence that supports the multidimensionality of perfectionism, Stoeber and Otto (2006) proposed that perfectionism is best understood according to two higher order factors that are comprised of a constellation of multidimensional subscales, *perfectionistic strivings* (e.g., self-oriented perfectionism [HMPS], personal standards [FMPS], organisation and neatness [APS-R]) and *perfectionistic concerns* (e.g., socially prescribed perfectionism [HMPS], 'concern over mistakes' [FMPS], discrepancy [APS-R]); (see Stoeber & Otto, 2006). However, the two higher-order factors have been found to have a considerable overlap ($r=.58-.72$;

Dunkley, Blankstein, & Burg, 2012) which has raised concerns regarding their differential validity (DeMars, 2013), and questions whether a single general factor may underlie responses to all subscales. As a result, some researchers argue that the shared variance between perfectionistic concerns and perfectionistic strivings should be partialled out (Stoeber & Gaudreau, 2017). Others have questioned whether partialling out the shared variance alters the core meaning of perfectionistic strivings to the extent that partialled perfectionistic strivings becomes akin to the construct of conscientiousness, rather than related to perfectionism (Hill, 2014; Molnar, Sirios, & Methot-Jones, 2016).

Recent evidence supports a bifactor structure of the perfectionism construct. Smith and Saklofske (2017) evaluated the factor structure of the FMPS, HMPS, and APS-R. Across three student samples used in the study ($N=742$) a bifactor model was found to provide the best representation of the structure of perfectionism, comprised of one general factor and two specific factors (perfectionistic strivings and perfectionistic concerns). Gade, Schermelleh-Engel, and Klein (2017) used the same two higher order factors in their evaluation using the 59-item Perfectionism Inventory (Hill et al., 2004), which consists of perfectionistic strivings (high standards for others, organization, planfulness, striving for excellence), and perfectionistic concerns ('concern over mistakes', need for approval, perceived parental pressure, rumination). Confirmatory factor analysis provided support for a bifactor model and a clear distinction between perfectionistic strivings and perfectionistic concerns, with a general factor defined by 'concern over mistakes', four perfectionistic strivings factors, and three perfectionistic concerns factors. The general factor represented 'concern over mistakes', while the perfectionistic strivings

factors each explained a substantial proportion of reliable variance that was independent of the general factor (Gade et al., 2017).

The implication is that perfectionistic strivings and perfectionistic concerns have been associated with a range of clinical psychopathology. A recent meta-analysis found substantial overlap between both dimensions, and significant associations with depression, anxiety, worry, psychological distress, obsessionality, eating disorder symptoms, and suicidal ideation (Limburg, Watson, Hagger, & Egan, 2017). Notably, perfectionistic concerns was more strongly associated with OCD, anxiety disorders, and depressive psychopathology, suggesting that this dimension should be a focus in treatment for these issues.

4.1.2 Clinical perfectionism

Despite widespread acceptance of perfectionism as multidimensional, Shafran, Cooper, and Fairburn (2002) suggested that the concept was becoming overly associated with its method of measurement via the FMPS and HMPS, and argued that the HMPS included features not directly relevant to the core understanding of perfectionism, including *other-oriented perfectionism* and *socially prescribed perfectionism*. Further, they suggested that perfectionism and a healthy pursuit of excellence is of little relevance in clinical settings, but rather it is the dysfunctional over emphasis on self-evaluation that is central to psychopathology (Shafran et al., 2002). As such, Shafran and colleagues coined the term ‘clinical perfectionism’, defined as “the overdependence of self-evaluation on the determined pursuit of personally demanding, self-imposed standards in at least one highly salient domain, despite adverse consequences” (Shafran et al., 2002, p. 778). In this way, clinical perfectionism involves setting and striving towards very demanding self-imposed

standards at all-costs, and the core characteristic of self-esteem being based on achievement.

Accordingly, the cognitive-behavioural model of clinical perfectionism (Shafran et al., 2002) was developed to describe how perfectionism can perpetuate a number of disorders, and how self-esteem becomes overly reliant on performance and achievement of personally demanding goals. The model was revised by Shafran, Egan, and Wade (2010) to account for how clinical perfectionism is maintained by a pathological cycle of performance checking, cognitive bias, avoidance and unhelpful behaviours (see Figure 1). The model describes how overdependence on personal striving and achievement, together with rigid and inflexible standards and performance related behaviour (e.g., unrelenting self-comparison in relation to others), avoidance, procrastination, and checking can perpetuate the cycle of clinical perfectionism.

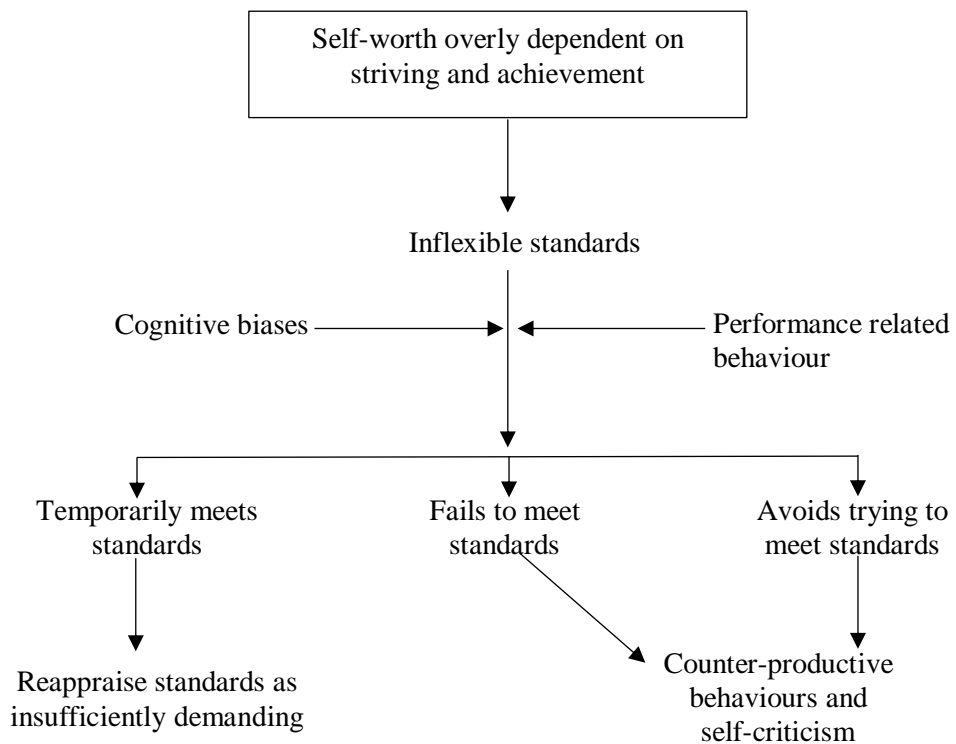


Figure 1. Revised cognitive-behavioural model of clinical perfectionism (Shafran, Egan, & Wade, 2010; reproduced with permission)

A number of findings support the cognitive-behavioural model in the conceptualisation of perfectionism. In particular, Kobori, Hayakawa, and Tanno (2009) found that perfectionistic individuals raise their standards following success, and Riley and Shafran (2005) observed a common theme of rigidity, rules and avoidance behaviour in perfectionistic individuals as well as self-criticism following failure. Further Egan, Piek, Dyck, and Rees (2007) found that dichotomous ‘all or none thinking’ is a significant predictor of perfectionism. Experimental studies regarding the re-setting of standards (Egan, Dick, & Allen, 2012) and selective attention in perfectionism (Howell et al., 2016) have also provided support for the theoretical underpinnings of the model. Typically, problems caused as a result of perfectionism can be emotional such as anxiety and depression (Flett, Hewitt, & Molnar, 2016); social isolation, narrow work-focused interests, physical effects including exhaustion, stress, and chronic health illness (Kempke, Van Houdenhove, Claes, & Luyten, 2016; Molnar et al., 2016); cognitive difficulties such as poor concentration and rumination; and behavioural, including checking, inefficiency, and avoidance of tasks (Shafran et al., 2010).

4.1.3 Perfectionism as a transdiagnostic process

A transdiagnostic process is one that manifests across several clinical diagnoses and either serves to maintain a disorder or is a risk factor that contributes to the development of a disorder (Harvey, Watkins, Mansell, & Shafran, 2004). The consequence of a transdiagnostic process is that it can pervade multiple psychopathologies, maintain diagnoses, and increase likelihood of comorbidity (Krueger & Eaton, 2015; Mansell, Carey, & Tai, 2012). In narrative review, Egan et al. (2011) argued that perfectionism is transdiagnostic based on several lines of evidence that the process is elevated across disorders, and given the transdiagnostic

approach offers a parsimonious explanation for high comorbidity. Some evidence for the transdiagnostic nature of perfectionism has been established. As discussed above, in a recent systematic review of 284 pertinent studies, Limburg et al. (2017) reported strong associations between perfectionistic concerns and perfectionistic strivings, as measured by subscales of the FMPS, HMPS, APS-R, and the Perfectionism Questionnaire (Rheaume et al., 2000), across a range of clinical problems including OCD, anxiety disorders, worry, psychological distress, eating disorders, depression, and suicidal ideation.

Studies examining discrete diagnostic groups have also provided robust evidence of an association between perfectionism (as measured by ‘concern over mistakes’ and personal standards, as well as self-oriented and socially prescribed domains) and a range of psychopathologies. In particular, perfectionism has been identified as a key risk factor in the development of anxiety disorders (Antony, Purdon, Huta, & Swinson, 1998; Wheeler, Blankstein, Antony, McCabe, & Bieling, 2011), and a significant and elevated component in eating disorders (e.g., Bardone-Cone et al., 2007; Halmi et al., 2005; Lilenfeld, Wonderlich, Riso, Crosby, & Mitchell, 2006; Wade, O’Shea, & Shafran, 2016). In a sample of 237 undergraduates, maladaptive perfectionism as measured by ‘concern over mistakes’, and contingent self-worth (i.e., the subjective judgement of self, based entirely upon perceived success or failure) was positively associated with eating disorders and anxiety (Bardone-Cone, Lin, & Butler, 2017). Further, perfectionism (‘concern over mistakes’) and contingent self-worth were found to predict increases in the severity of disordered eating behaviour (Bardone-Cone et al., 2017). Perfectionism is also associated with mood disorders including depression (Bieling, Israeli, & Antony, 2004; Dunkley, Blankstein, Halsall, Williams, & Winkworth, 2000; Dunkley,

Sanislow, Grilo, & McGlashan, 2006; Dunkley, Zuroff, & Blankstein, 2003; Egan, Kane, Winton, Eliot, & McEvoy, 2017; Hewitt & Flett, 1991a), suicidality (Blatt, 1995; Cox, Enns, & Clara, 2004; Flamenbaum & Holden, 2007), and has been found to be predictive of suicidal ideation (Beevers & Miller, 2004). Perfectionism has also been associated with poorer emotion regulation and psychological distress (Richardson, Rice, & Devine, 2014). In an investigation with 258 college graduates, higher perfectionistic concerns were found to significantly predict maladaptive perfectionism cognitions, which was in turn associated with higher levels of catastrophising and rumination, depression, and anxiety (Macedo et al., 2017). There is also some evidence for the association between perfectionism as measured by ‘concern over mistakes’ and ‘personal standards’ of the FMPS, and post-traumatic stress disorder (Egan, Hattaway, & Kane, 2014). Further, specific dimensions of the HMPS (Hewitt & Flett, 1991b), including self-oriented, other-oriented, and socially prescribed perfectionism, have been found to positively predict a range of personality traits including narcissistic, antisocial, and OCPD (Stoeber, 2014).

Despite evidence of perfectionism across disorders, the recently revised DSM-5 (APA, 2013) relegates perfectionism to a lower order facet of compulsivity in OCD and as a possible but not essential diagnostic criterion in OCPD. This definition is inconsistent with theory and empirical evidence that perfectionism is a prominent feature in a number of diagnoses (Ayearst, Flett, & Hewitt, 2012).

4.2 Evidence for the overlap between OCD, OCPD, and perfectionism

A key consideration in understanding the association between OCD and OCPD is perfectionism. Consistent with transdiagnostic theory, (Egan et al., 2011;

Egan, Wade, & Shafran, 2012; Krueger & Eaton, 2015), perfectionism may be an important component that is responsible for the overlap between OCPD and OCD. Further, Mancebo et al. (2005) suggest that OCPD may be representative of a subtype of OCD that is characterized by elevated perfectionism. Ultimately, comorbid OCPD in OCD “may introduce a double burden in terms of intensified needs for order and perfection when performing OCD related checking or rituals in order to reduce anxiety” (Friborg et al., 2013, p. 145).

Perfectionism is increasingly being recognised as a key component across the spectrum of obsessive-compulsive and related disorders (Pinto et al., 2017), and in particular plays a role in the development and maintenance of the comorbidity between OCD and OCPD. Halmi et al. (2005) conducted a study with 667 patients diagnosed with eating disorders. The sample was assessed for OCD, OCPD and a number of diagnostic criteria including perfectionism. Findings indicated that perfectionism was most prevalent in those with OCPD and those with comorbid OCD/OCPD, compared to OCD alone. This finding was supported in a study examining OCD and OCPD symptoms by Gordon et al. (2013) in a sample of OCD/OCPD ($N=359$; OCD principal diagnosis $n=189$). In participants with primary OCD and comorbid OCPD, 84% were assessed as having perfectionism (according to SCID-IV diagnostic criteria for OCPD), making it one of the most frequently endorsed criteria in this population.

In the preceding section, an inconsistent body of findings was presented regarding the association between OCPD and OCD, which needs to be further examined. It should be acknowledged that some studies have found categorical OCPD and specific dimensional traits, especially perfectionism, to be associated with poorer outcomes in OCD (e.g., Pinto, Liebowitz, et al., 2011). Accordingly,

there has been increasing attention on the role perfectionism plays in treatment, and how best practice treatment should be directed for OCD in this context. Therefore, the following sections provide key background literature regarding perfectionism and OCD.

Perfectionism has long been identified as central to the development of OCD, particularly where individuals with OCD were described as seeking to avoid uncertainty and maintain control over perceived threat in the environment by trying to make their behaviour perfect (Mallinger, 1984; Straus, 1948). The maintenance of the obsessive-compulsive cycle typically relies on a perfect and absolute repetition of behaviours. Rees (2009) argued that within the mind of an individual with OCD and perfectionism, the cost of making a mistake is intensified due to a subjective and heightened sense of responsibility. Narrative review of mixed samples has indicated that approximately one-third of the OCD population meets criteria for clinical perfectionism as measured by ‘concern over mistakes’ on the FMPS (Egan et al., 2011). This rate may be even higher given that up to 47.3% of those who meet criteria OCD have been found to meet criteria for OCPD (Starcevic et al., 2012). However, it is acknowledged that perfectionism is not the only diagnostic criteria for OCPD, and Starcevic et al. (2012) did not report rates of perfectionism in OCD, so further assessment is needed.

4.2.1 The relationship between perfectionism and OCD

Perfectionism has played a central role in how OCD is defined and conceptualised (Rhéaume, Freeston, Dugas, Letarte, & Ladouceur, 1995). Some measures of OCD symptoms include perfectionism subscales, which sheds light on relationships between perfectionism and OCD symptoms. Arguably the constructs are interdependent, and OCD patients have been described as tormented by an

intrinsic need for perfection and certainty over their environment (Frost, Steketee, Cohn, & Griess, 1994; Rasmussen & Eisen, 1992). Theoretical links between perfectionism and OCD are underpinned by common themes, namely the idea that perfectionistic behaviour is driven by pathological avoidance (i.e., of uncertainty, criticism, and lack of control); rather than a desire for goal attainment and achievement (Rhéaume et al., 1995). The Obsessive Compulsive Cognitions Working Group (1997) named perfectionism as one of the six core belief domains that is central to the aetiology and maintenance of OCD. Several studies have found that patients with OCD display significantly higher levels of perfectionism when compared to non-clinical controls (Antony, Downie, & Swinson, 1998; Antony, Purdon, et al., 1998; Maia et al., 2009).

It is important to note that measures of symptoms of various disorders, particularly OCD, include perfectionism items. For example the Obsessive Beliefs Questionnaire (OBQ) contains perfectionism subscales. The doubts about actions subscale of the FMPS was largely developed based on the pre-existing 'doubt' subscale of the Maudsley Obsessive Compulsive Inventory (MOCI; Rachman & Hodgson, 1980). As a result, there has been criticism that the doubts about actions subscale of the FMPS bears substantial, nontrivial overlap with OCD symptoms given that a majority of the FMPS items were derived from an OCD measure (Shafran & Mansell, 2001). As such, Shafran and Mansell (2001) argued that the doubts about actions subscale is a more accurate measure of checking symptoms of OCD rather than pathological doubt in perfectionism. A number of studies have observed an association between facets of the FMPS and obsessive-compulsive domains, such as 'concern over mistakes' and 'doubts about actions', which have been correlated with specific features of OCD including compulsive indecisiveness

and checking behaviours (Ferrari, 1995; Frost, Heimberg, Holt, Mattia, & Neubauer, 1993; Gershunsky & Sher, 1995). Researchers have also observed a significant relationship between the ‘concern over mistakes’ and doubts about actions subscales and OCD in non-clinical undergraduate samples (Moretz & McKay, 2009), and elevated ‘concern over mistakes’ and ‘doubts about actions’ in clinical samples compared to non-clinical controls (Antony, Purdon, et al., 1998; Buhlmann et al., 2008; Frost & Steketee, 1997; Lee et al., 2009; Sassaroli et al., 2008). Wetterneck et al. (2011) found a significant relationship between doubts about actions and OCD severity in a clinical sample ($N=51$) of individuals with OCD. Maia et al. (2009) assessed domains of perfectionism in a mixed clinical outpatient group ($N=128$; OCD $n=39$) compared to non-clinical participants ($n=70$). Multidimensional (total HMPS scores), self-oriented and socially prescribed perfectionism were significantly elevated in clinical outpatients, including those with OCD, compared to the non-clinical group.

Limburg et al. (2017) examined the association between perfectionism and psychopathology in a meta-analysis. In addition to OCD (3.9%) and OCD symptoms (18.9%) being one of the most frequently studied domains in relation to perfectionism, measures of perfectionism (perfectionistic concerns; $r=.30$, $p<.0001$; and perfectionistic strivings; $r=.11$, $p<.01$) were significantly related to OCD. Overall, the findings provided robust support for perfectionism as a key component across anxious, affective, and eating disorder psychopathologies, including OCD.

4.2.1.1 Perfectionism and OCD severity

Perfectionism is associated with more severe OCD symptoms and some evidence indicates it can adversely affect treatment outcomes. A number of studies have independently examined OCD populations both with and without OCPD, which

is relevant given that OCPD populations commonly report elevated perfectionism. As briefly discussed in chapter one, while some authors suggest that the presence of comorbid OCPD is not a marker of increased OCD severity (Starcevic et al., 2012), a number of other studies have found comorbid OCPD to be associated with more severe compulsions (Albert et al., 2004; Coles, Frost, Heimberg, & Rheume, 2003), more frequent obsessions, hoarding, checking and ordering (Garyfallos et al., 2010), greater overall OCD severity (Lochner et al., 2011), poorer psychosocial functioning (Coles et al., 2008; Garyfallos et al., 2010), and a significantly earlier age of onset (Maina et al., 2008; Taylor et al., 2011). Given that perfectionism is a core feature of OCPD, findings from these studies provide indirect support for the notion that perfectionism may play a role in increasing OCD severity. In a sample of 51 OCD patients, Wetterneck et al. (2011) found a significant relationship between the doubts about actions subscale of the FMPS (Frost et al., 1990) and OCD severity. Martinelli, Chasson, Wetterneck, Hart, and Björgvinsson (2014) examined whether dimensions of perfectionism predicted OCD in a clinical sample ($N=46$). In addition to the doubts about action subscale predicting OCD severity, especially checking behaviours, there was a unique association between the FMPS (Frost et al., 1990) organisation subscale (a domain of perfectionism) and ordering in OCD.

Findings that OCPD and perfectionism are associated with greater OCD severity raise questions as to the efficacy of current interventions that do not target perfectionism directly in treatment. In fact, results of studies have indicated that perfectionism is a predictor of poorer OCD outcomes, therefore directly focusing on perfectionism in treatment may be warranted.

4.3 The treatment of obsessive compulsive disorder

Historically, OCD was considered treatment refractory and unresponsive to intervention (Foa, Franklin, & Kozak, 1998). This was due to the limited efficacy of early psychodynamic approaches that were only moderately effective in alleviating obsessive-compulsive symptoms (see Steketee & Tynes, 1991). Pharmacotherapy, predominantly selective serotonin reuptake inhibitors (SSRIs), has been used extensively in the treatment of OCD (Blanco et al., 2006; March, Frances, Carpenter, & Kahn, 1997; Soomro, Altman, Rajagopal, & Oakley, 2008). However, up to 60% of patients receiving SSRIs do not achieve satisfactory outcomes, and thus continue to suffer from functional impairment and morbidity (see Pallanti et al., 2002).

Although researchers have continued to examine the efficacy of enhanced medication regimes (e.g., aripiprazole with SSRI's) for SSRI-refractory OCD (Pampaloni, Khan, Tyagi, & Drummond, 2017), behavioural and cognitive psychological interventions have been found to be more effective than pharmacotherapy in randomised controlled trials (RCTs; Simpson et al., 2013; Watson & Rees, 2008) and meta-analytic reviews (Jónsson & Hougaard, 2009; Romanelli, Wu, Gamba, Mojtabai, & Segal, 2014). A systematic review of OCD treatment trials found cognitive and exposure-based psychological interventions to be more effective than medications, but interpretation of these findings was limited given that most trials (80%) included patients on concomitant SSRI regimes (Skapinakis et al., 2016).

4.3.1 Theoretical basis for Cognitive behavioural Therapy and Exposure and Response Prevention

Psychological approaches for OCD are grounded in longstanding cognitive-behavioural theories of OCD (Salkovskis, 1985, 1989), as well as cognitive elements of Beck's model of depression (Beck, 1976). The behavioural approach postulates that graded, deliberate exposure to feared stimuli, together with inhibition/prevention of the response that is typically pursued by the individual to alleviate distress, is essential in treatment of OCD. The process of habituation and graduated exposure tasks was developed decades ago, based on the notion that these therapeutic activities can provide the individual with behavioural data and corrective information about the perceived danger of feared situations, without the performance of neutralising rituals (Foa & Kozak, 1986; Meyer, 1966; Wolpe, 1958). As such, the premise of ERP is to reduce pathological fear relating to obsessional intrusions and the associated reliance on avoidance and compulsions to control fear. The cognitive element of OCD treatment has also been long-established (Beck, Emery, & Greenberg, 1985), and suggests that OCD psychopathology emulates from distorted beliefs of threat and increased personal vulnerability. As such, the cognitive component of treatment focuses on the restructuring of catastrophic misappraisal, distorted beliefs regarding threat and responsibility, and the need for perfection in order to maximise control.

More recently, researchers have also argued the importance of incorporating principles of inhibitory learning in ERP for OCD. From this perspective, the aim is to generate and reinforce inhibitory associations and weaken longstanding non-threatening associations, for example that uncertainty is intolerable (Abramowitz & Arch, 2014; Arch & Abramowitz, 2015). One proposed strategy is to incorporate *desirable difficulties* into ERP therapy that increase challenges for the individual

(e.g., combining multiple featured stimuli into one exposure trial). Ultimately, the goal is to promote tolerance of discomfort and uncertainty by strengthening adaptive inhibitory associations (Jacoby & Abramowitz, 2016).

As a result of these widely accepted theories, cognitive behavioural therapy (CBT) and exposure and response prevention (ERP) have been the psychological treatments of choice for OCD (Aardema, Radomsky, O'Connor, & Julien, 2008; Deacon & Abramowitz, 2004; Franklin, Abramowitz, Kozak, Levitt, & Foa, 2000; Hofmann & Smits, 2008; Levy, McLean, Yadin, & Foa, 2013). Standard clinical practice guidelines recommend the use of CBT, which refers to ERP either with or without the inclusion of cognitive strategies, as the intervention of choice for OCD (Koran & Simpson, 2013; National Collaborating Centre for Mental Health, 2006). Cognitive behavioural therapy for OCD evolved from exposure and response prevention. As such, a combined cognitive behavioural approach to treating OCD encompasses the components of both ERP and cognitive therapy, allowing for erroneous thinking and problem behaviours to be addressed. Ideally, the combined CBT/ERP approach to treatment incorporates psychoeducation, behavioural self-monitoring and cognitive restructuring, with imaginal and in-vivo exposure, and response prevention (Bream, Challacombe, Palmer, & Salkovskis, 2017; Foa, Yadin, & Lichner, 2012). Controlled trials have indicated clinically significant change and large effect sizes for both individual and group-based ERP therapy (Anderson & Rees, 2007; Cabedo, 2010).

4.3.2 Empirical evidence for CBT and ERP in OCD

Evidence for behavioural and cognitive approaches for OCD are well-established. ERP has been found to be efficacious and specific for OCD, as demonstrated by a large magnitude of effect (mean $d=1.18$) compared to other active

treatments such as relaxation training (McKay et al., 2015); acceptance and commitment therapy, eye movement desensitization and reprocessing, pure cognitive therapy, satiation therapy, and stress management (Ponniah et al., 2013). Further, in-vivo, therapist-led ERP, augmented with imaginal exposure to perceived catastrophic outcomes has yielded the largest effect sizes (McKay et al., 2015). As previously noted, the application of CBT for OCD was derived from ERP principles, so the treatments invariably involve a degree of overlap. However, the use of pure CBT for OCD involves a particular focus on interpretations and beliefs as opposed to behaviour based therapy (Bream et al., 2017). Previous comparison trials have found CBT to produce more favourable rates of recovery than ERP (Whittal, Thordarson, & McLean, 2005), but these differences were not significant at two year follow-up (Whittal, Robichaud, Thordarson, & McLean, 2008). Further, a recent meta-analysis of OCD treatment trials found CBT and ERP outcomes to be comparable (Öst, Havnen, Hansen, & Kvale, 2015). While meta-analytic reviews have supported the use of CBT and ERP for OCD, there are also limitations regarding their efficacy (Olatunji et al., 2013; Ponniah et al., 2013). In particular, only 46% of individuals with OCD who receive ERP achieve minimal symptoms by the end of treatment (Simpson et al., 2013; Simpson et al., 2008).

Kyrios et al. (2015) highlight that the delivery of CBT and ERP for OCD can be unreliable due to the existence of few manualised formats where treatment integrity can be evaluated. Some OCD studies have reported high levels of attrition, with up to 30% dropping out (Abramowitz, 2006; Kozak, Liebowitz, & Foa, 2000; McLean et al., 2001; Van Oppen et al., 1995). In a recent meta-analysis, drop-out varied from 11% (Cognitive Therapy), 15.5% (CBT), and 19.1% (ERP) (Öst et al., 2015). However, it should be acknowledged that attrition rates from OCD studies are

acceptable relative to other clinical populations such as eating disorders where reported attrition rates are considerably higher (see Bados, Balaguer, & Saldana, 2007; Signorini, Sheffield, Rhodes, Fleming, & Ward, 2018).

There have also been problems in the reporting of OCD follow up data, with studies using inconsistent follow up periods that limit meaningful assessment of whether post-treatment improvements were maintained (Eddy, Dutra, Bradley, & Westen, 2004). Further, a number of the early abovementioned studies on CBT and ERP included in meta-analyses (e.g., Cottraux et al., 2001; Foa et al., 2005; Van Oppen et al., 1995) have reported statistical significance, whilst the proportion of patients who achieved clinically meaningful change in OCD symptoms in these studies was lower. Further, Fisher and Wells (2005) found that only 21% of those who receive CBT and 25% of those who receive ERP are symptom-free post treatment, indicating that OCD symptoms still persist at considerable levels in the majority of patients. In a review of psychosocial treatments for OCD, pre-post treatment effect sizes were comparable across conditions, CBT ($d=1.27$), ERP ($d=1.32$), and pure cognitive therapy ($d=1.22$), although slightly superior for CBT and ERP (Eddy et al., 2004). Collapsed across the three modalities, a range of 33-78% of treatment completers met criteria for improvement, but only a range of 27-47% met criteria for recovery (Eddy et al., 2004).

Disparity between statistical significance and clinically significant change compromises the degree to which researchers can conclude that CBT and ERP are clinically useful treatments (Kring, Johnson, Davison, & Neale, 2014). It is typically easier to achieve statistically reliable change and more difficult to meet the criteria for clinically significant change. In the OCD population, consistent assessment of clinically significant change is problematic due to the lack of

normative reference data on the primary outcome measure, YBOCS, used in treatment studies. Further, calculation of clinical significance has been inconsistent between studies, which makes reliable comparison across the field difficult. Consistency is needed regarding how to define and assess clinically significant change across treatment outcome studies. Notwithstanding these limitations, the recent meta-analysis of OCD trials found CBT and ERP outcomes to be encouraging (Öst et al., 2015). In particular, response rates and clinically significant change outcomes were as follows: Cognitive Therapy 68% response rate, 52% clinically significant change; ERP, 65% response rate, 50% clinically significant change (Öst et al., 2015). These data are respectable given that clinically significant change criteria is stringent and difficult to achieve. Overall, longitudinal examination of outcomes of OCD treatment trials suggests that treatment response has plateaued over time. As cited by Sookman (2016, p. 35), Stanley Rachman in 2006 stated that OCD “improvement rates are not improving”. It is possible that interventions have become more efficient (i.e., a stable YBOCS outcome can be achieved with fewer treatment sessions) and drop-out rates may have decreased as a result of the introduction of cognitively (as opposed to behavioural and exposure) focused intervention, however there is still room for improvement in the treatment of OCD.

Although ERP is the most empirically supported treatment for OCD, patients may encounter difficulties coping with the demands of ERP, which may serve to explain rates of drop-out and poor adherence to treatment (Kyrios, 2003). There is considerable discomfort associated with exposure as patients must repeatedly face their most feared stimulus in treatment. This prospect may decrease willingness to engage in exposure exercises and also motivation to change, particularly given that treatment requires active and independent participation in exposure between sessions

(Gillihan, Williams, Malcoun, Yadin, & Foa, 2012; Vogel, Hansen, Stiles, & Gotestam, 2006). In a sample of 30 OCD patients, Simpson et al. (2011) observed that patient adherence to exposure tasks in and between therapy sessions was a significant predictor of post treatment OCD status. In particular, those who did not engage in assigned tasks had greater OCD severity by the end of treatment, highlighting the difficulty with exposure based strategies. Cognitive elements in therapy that augment behavioural experiments needed to correct erroneous beliefs and threat misappraisal have been shown to be an effective addition to ERP, but researchers also note that this may not provide the critical impact needed to improve drop-out and treatment response (Olatunji et al., 2013). A shift away from an explicit focus on overt OCD in therapy towards targeting maintaining processes (e.g., perfectionism) in those OCD patients where these processes are elevated, may increase willingness to engage if individuals know that the focus will not exclusively be on exposure tasks.

One argument for the inconsistent and problematic treatment response rates in OCD is comorbid OCPD, and in particular perfectionism. It is important to recognise that CBT and ERP are currently the most evidenced-based for OCD and therefore should be retained as first line. However, in cases where individuals do not respond to these interventions and where mechanisms such as perfectionism are elevated, an alternative approach may ameliorate the maintaining mechanism, comorbid traits (e.g., OCPD), and reduce the severity of disorder specific symptoms (Egan, Wade, et al., 2012). One alternative transdiagnostic approach is CBT for perfectionism (Egan, Wade, et al., 2014), which will be explored in forthcoming sections.

4.3.3 Evidence regarding the impact of OCPD and perfectionism on CBT and ERP outcomes in OCD

There is considerable evidence to suggest that personality psychopathology influences OCD treatment outcomes. In an early pharmacological study with a sample of 30 OCD patients, Cavedini, Erzegovesi, Ronchi, and Bellodi (1997) found that OCPD predicted poorer response to SSRI treatment for OCD. In a clinical sample ($n=63$ OCD; $n=46$ agoraphobia) in an examination of the five-year course of OCD, Eisen et al. (2013) found that OCPD predicted a significantly higher rate of OCD relapse relative to other personality comorbidities (Eisen et al., 2013).

Several narrative reviews have concluded that personality disturbance, in particular OCPD, is associated with poorer outcomes for OCD (Keeley, Storch, Merlo, & Geffken, 2008; Starcevic & Brakoulias, 2017). As discussed earlier, elevated perfectionism in OCD has been demonstrated to have a negative impact on treatment outcome (Kyrios et al., 2015; Pinto, Liebowitz, et al., 2011), even when gold standard interventions are used. A number of studies have found that a core OCPD dimension, perfectionism, interferes with treatment outcome across disorders, including OCD (Egan et al., 2011). Wilhelm, Berman, Keshaviah, Schwartz, and Steketee (2015) examined the mechanisms of change in a sample of 36 individuals with OCD who completed a 24-week course of cognitive therapy. The results indicated that cognitive changes (reductions) in perfectionism symptoms for OCD patients preceded behavioural symptom reduction of OCD (Wilhelm et al., 2015), providing key support for the notion that perfectionism pathology should be directly targeted in the treatment of OCD.

Chik, Whittal, and O'Neill (2008) examined the association between perfectionism and OCD outcomes in a sample of 118 participants who met criteria for OCD. Interactions between 'concern over mistakes' and 'doubts about actions' (CM x DA), and doubts about actions alone, uniquely predicted poorer response to

ERP for OCD. Further, perfectionism severity did not change over the course of treatment, which is noteworthy given that perfectionism was not targeted directly in treatment. In a longitudinal study with OCD patients, Sibrava, Boisseau, Mancebo, Eisen, and Rasmussen (2011) found that primary mental obsessions were associated with greater symptom severity and lower functioning at intake, as well as greater chronicity of illness and frequency of OCD episodes over four years. This has particular implications given support for the notion that comorbid OCD and OCPD possess unique clinical characteristics (i.e., earlier onset, greater frequency and severity of obsessions and compulsions, and stronger familial linkages) which may be representative of distinct OCD subtype (Coles et al., 2008; Garyfallos et al., 2010).

In a study of 49 patients with a principal diagnosis of OCD, comorbid OCPD and OCPD severity both predicted poorer response to treatment in OCD (Pinto, Liebowitz, et al., 2011). When each OCPD criterion was examined separately, perfectionism was the only criterion that predicted worse treatment outcome (Pinto, Liebowitz, et al., 2011). This is a crucial finding because it suggests that the presence of perfectionism is one factor that can contribute to the maintenance of OCD symptoms and subsequent poor treatment outcome, and provides support for the need to target perfectionism in OCD treatment. This is further supported by Kyrios et al. (2015) who examined a sample of 79 individuals undergoing CBT for OCD, and found that the perfectionism subscale of the Obsessive Beliefs Questionnaire (OBQ) was the only subscale that significantly predicted treatment outcome.

In contrast, some studies have indicated that personality traits do not influence OCD outcomes. For example, Dreessen, Hoekstra, and Arntz (1997) found that neither categorical nor dimensional personality diagnoses, including OCPD, had a

significant impact on CBT outcomes in OCD. In a sample of 44 OCD patients, Fricke et al. (2006) found that significant treatment gains were achieved despite comorbid personality disorders. Passive-aggressive and schizotypal traits were baseline determinants for later lack of treatment success at the trend level, but other personality traits, including “compulsive personality disorders” were not (Fricke et al., 2006). There are several potential reasons for the conflicting findings. As explored in chapter one, the concept and classification of personality disorders has been associated with inherent problems that have hindered the development of widely accepted diagnostic instruments for personality disorders. Consequently, a large number of diagnostic instruments exist, reducing comparability of results. There have also been methodological limitations across studies, such as small sample size with non-prospective (i.e., retrospective) study design, and imprecise outcome criteria, which may have contributed to the inconsistent findings.

More recently, Gordon et al. (2016) found that OCPD was associated with enhanced CBT outcomes in OCD. Further, in a sample of OCD patients ($N=70$) receiving exposure therapy, Su, Carpenter, Zandberg, Simpson, and Foa (2016) found significant reductions in obsessive beliefs regarding perfectionism and certainty, however these beliefs were not mediators of subsequent OCD improvement (Su et al., 2016). As such, it is possible that common interventions for OCD such as cognitive behavioural and exposure therapy work via different mechanisms, so further investigation is needed to determine whether changes in perfectionism lead to subsequent improvement in OCD symptoms.

Reich (2003) highlighted that adjunctive intervention that directly targets dysfunctional personality pathology may enhance treatment outcomes. The heterogeneity of the OCD population may also necessitate a specialised treatment

approach that targets the specific characteristics and needs of individuals based on unique symptom presentation (Abramowitz et al., 2009; McKay et al., 2004). As a result, there has been increasing attention on primary considerations for OCD treatment when OCPD pathology exists. Some researchers have drawn attention to the importance of clinicians needing to understand the aetiology and manifestation of perfectionism, a core feature of OCPD, in order to effectively treat OCD (Pinto et al., 2017). The importance of this cannot be underestimated given that narrative (Egan et al., 2011) and meta-analytic reviews (Limburg et al., 2017) have shown that perfectionism is associated with severity and outcomes across psychopathologies including OCD. However, there are also key considerations regarding the treatment of OCD in the context of comorbid OCPD and perfectionism, which are discussed below.

4.3.4 Theoretical challenges of OCPD and elevated perfectionism in the treatment of OCD

Personality pathology has historically been considered unresponsive to treatment due to maladaptive and entrenched behavioural patterns, such as perfectionism, that are typically ego-syntonic (Eskedal & Demetri, 2006). Encouragingly, more recent research has referred to the perceived inability to treat maladaptive personality traits as a fundamental and preventable error (Cloninger & Svrakic, 2016). This argument is made in light of controlled trials that have successfully reduced severe personality psychopathology in optimal therapeutic settings, such as a cooperative working alliance (Crits-Christoph & Barber, 2015).

It is important to consider that there have been discrepant findings regarding whether people with OCPD are likely to initiate independent engagement in therapy. Some findings regarding treatment utilisation by patients with personality disorders

indicate that those with OCPD will initiate engagement in treatment on their own and receive more treatment than other diagnostic groups such as those with depressive disorders (Bender et al., 2006; Chessick, 2001). In contrast, other studies have suggested that the OCPD population is less likely to independently initiate and engage in treatment (Perry, Bond, & Roy, 2007). Reduced treatment seeking behaviour in OCPD may have particular implications in the context of OCD, and is important to consider given that willingness to access and engage in the treatment process may ultimately impact OCD outcomes. Consistent with high prevalence rates and evidence regarding greater severity, the treatment implications of OCPD are arguably the most pronounced in OCD (Diedrich & Voderholzer, 2015). As such, traditional treatment modalities for OCD may need to be reviewed and adapted to ensure that OCPD pathology is effectively targeted.

OCPD has been described as a “diluted” variant of OCD (Kantor, 2016). According to this view, obsessive compulsive personality traits such as perfectionism are less about repetitive thoughts or acts to alleviate anxiety as commonly seen in OCD, and more of a dispersed manner of thinking that permeates across life domains (Kantor, 2016). Accordingly, the manifestation of perfectionism in OCD may differ based on whether it is ego-dystonic or ego-syntonic in nature. OCPD behaviour tends to be ego-syntonic and highly valued. Ego-dystonic thoughts are typically associated with OCD, and are perceived as unwanted and emotionally distressing for an individual (Belloch, Roncero, & Perpina, 2012; Purdon, 2009b). Individuals with OCD, comorbid OCPD and elevated perfectionism may be ambivalent towards change if their obsessions align with personal values (Gordon et al., 2013). For example, fears of contamination and associated hand-washing compulsions can be interpreted in OCPD as a good way to prevent one from

contracting a serious illness, or hours spent tidying and reorganising the house can be viewed as a way of being a good mother.

From a theoretical standpoint the highly valued nature of OCPD traits and need for control may reduce the impetus to engage in treatment. The ego-syntonic nature of perfectionism provides further impetus for greater focus on this pathology in treatment (Pinto et al., 2017). Researchers have also highlighted that the clinical manifestations of OCD (e.g., contamination preoccupation) are not necessarily experienced as distressing or unwanted, and conversely, perfectionism may not be perceived as a desirable component of self (Diedrich & Voderholzer, 2015; Starcevic & Brakoulas, 2014). As such, a strict ego-dystonic/syntonic dichotomy cannot be assumed, and is a further layer of complexity in the treatment of OCD and perfectionism that needs to be evaluated.

Perfectionism can compromise treatment when patients are perfectionistic in therapy. In a case study, Cain, Ansell, and Pinto (2013) describe a man with severe OCD, comorbid OCPD and perfectionistic behaviour whose characteristics centre on exactness, certainty, and the need for a 'just right' feeling before being able to complete a task. The authors describe how he takes several hours to complete simple clinical questionnaires for treatment because of his checking, re-reading and repeating compulsions; and how he applies rigidity and precision in listening to the wording of the therapist's instructions to such an extent that it interferes with the progress of his treatment and ability to complete tasks. Cain et al. (2013) argued that his underlying personality style resulted in difficulty complying with treatment and he displayed anger about completing exposure exercises and facing feared situations (Cain et al., 2013). A case such as this provides support for how perfectionistic behaviours in therapy can potentially compromise the treatment process. This is

particularly relevant if the patient engages in self-criticism and deems that their therapy performance is not ‘perfect’, because they may subsequently avoid sessions or drop out of therapy (Pinto et al., 2017).

4.4 CBT for perfectionism: A transdiagnostic approach

Support for the use of tailored interventions that target transdiagnostic factors is growing (Craske, 2012; Rodriguez-Seijas, Eaton, & Krueger, 2015). There is a clear need for a specialised treatment approach that targets perfectionism across psychopathologies, and in OCD specifically given that perfectionism has been found to predict poorer treatment response (e.g., Kyrios et al., 2015; Pinto, Liebowitz, et al., 2011). It has been long identified that “treatments specifically designed to modify perfectionistic thinking may be a useful adjunct to OCD treatment” (Frost, Novara, & Rhéaume, 2002 p. 102). Pinto et al. (2017) stipulate that treatment of a patient with OCD and comorbidities should be based on clear functional analysis to determine if there is a main driving process across diagnoses. The implication of comorbid psychopathology in OCD is that in practice, clinicians are often restricted by a lack of available treatments that address varied presentations (Craske, 2012; Egan, Wade, et al., 2012). As such, clinicians continue to adopt disorder-specific interventions in anticipation that they will address complex symptoms such as perfectionism that are associated with multiple diagnoses. In light of this limitation, a transdiagnostic perfectionism treatment would potentially offer a comprehensive, time and cost efficient strategy for patients with OCD and perfectionism.

4.4.1 Overview and format for delivery

CBT for perfectionism is a transdiagnostic intervention that is designed to be implemented with individuals who meet criteria for elevated perfectionism (Egan, Wade, et al., 2014; Shafran et al., 2010). The treatment studies discussed below have examined the efficacy of CBT for perfectionism within individual, group, self-help, and internet delivered formats. Core treatment content across these modalities focuses on psychoeducation that promotes enhanced understanding of perfectionism, motivation to change, challenging beliefs using behavioural experiments and thought diaries, reducing tendencies for procrastination and self-criticism, and increasing self-compassion (Egan & Shafran, 2017; Egan, Wade, et al., 2014). Based on an individualised client formulation and conceptualisation of therapeutic needs, treatment can be delivered in varying length (e.g., 8 weeks, 10 weeks, 12 weeks) and session time (e.g., 50 minutes for individual sessions, or 2-hour group sessions).

4.4.2 Empirical evidence regarding the use of CBT for perfectionism

The use of CBT for perfectionism has received support in the last decade, with studies showing promising results as indicated by reductions in perfectionism and accompanying disorder-specific symptoms. Single case designs (Egan & Hine, 2008) and case series (Glover, Brown, Fairburn, & Shafran, 2007) have found CBT for perfectionism to have efficacy in reducing anxiety and depression symptoms. CBT for perfectionism has also been shown to have efficacy in non-clinical samples. Arpin-Cribbie et al. (2008) examined the relationship between perfectionism and distress in a sample of undergraduates ($N=83$) by comparing three arms: pure stress-management therapy, stress management with CBT for perfectionism, and a control group (Arpin-Cribbie et al., 2008). Pure stress management produced significant

decreases in perfectionism, whereas stress management plus CBT for perfectionism produced reductions in perfectionism plus depressive symptoms. In another study with undergraduates ($N=47$) comparing 12-week CBT for perfectionism in an online format to waitlist controls, there were significant improvements in anxiety, depression, and perfectionism (Radhu, Daskalakis, Arpin-Cribbie, Irvine, & Ritvo, 2012).

Pleva and Wade (2007) examined the efficacy of CBT for perfectionism in reducing obsessive-compulsive and depressive symptoms. The study was conducted on a self-selected community sample of 49 participants completed measures assessing perfectionism, OCD, and depression. Both guided self-help and pure self-help formats of the intervention were found to be effective in reducing perfectionism and disorder specific OCD and depressive symptoms, which were maintained at 3-month follow-up. In particular, 30% of participants experienced clinically significant reductions in obsessions and depressive symptoms, and 15% had clinically significant reductions in anxiety. To date, this has been the only study to explicitly examine the impact of the intervention for OCD, however the CBT for perfectionism was in self-help format, so individual and group modalities have not been examined in OCD. Further, the sample was non-clinical rather than a sample diagnosed with OCD.

Controlled studies have found that CBT for perfectionism has efficacy in reducing perfectionism and disorder specific symptoms for a range of diagnoses, including depression, anxiety disorders, and eating disorders. Riley, Lee, Cooper, Fairburn, and Shafran (2007) implemented CBT for perfectionism with a sample of 20 individuals ($n=10$ waitlist; $n=10$ immediate treatment) who met criteria for anxiety and depressive disorders, including two participants with OCD. Following

10 sessions of CBT for perfectionism over eight weeks, there were significant reductions on both FMPS (Frost et al., 1990) and HMPS (Hewitt & Flett, 1991b) measures of perfectionism, as well as depression, anxiety, and general psychopathology symptoms, which were maintained at two-month follow-up. Further, 75% of the sample ($n=15$) showed a significantly greater improvement in perfectionism and disorder-specific symptoms relative to waitlist controls. The number of participants who met criteria for a diagnosis had reduced by 50% at post treatment, indicating that the accompanying diagnoses had improved with perfectionism treatment. The researchers noted that there are a number of patients for which “clinical perfectionism is a barrier to change in the Axis-I psychopathology and for whom specific intervention is warranted” (Riley et al., 2007, p. 2230).

CBT for perfectionism has also demonstrated good outcomes regarding eating disorder symptoms. Steele and Wade (2008) implemented CBT for perfectionism in a RCT with 42 patients with bulimia nervosa or eating disorder not otherwise specified (EDNOS). Individuals were randomly assigned to either CBT for perfectionism in a guided self-help format, CBT for bulimia, or dismantled mindfulness. CBT for perfectionism produced significant reductions in bulimic symptoms at post treatment and follow up including reductions in core eating disorder behaviours and attitudes. The improvement in symptoms was comparable to those who received CBT for bulimia or placebo treatment, which suggests that the primary clinical dysfunction can be effectively treated by focusing on the underlying perfectionism pathology. However it is important to note that the perfectionism treatment, while still being as efficacious in reducing eating pathology as the other treatment, showed larger effect sizes in the reduction of associated anxiety and

depression, providing evidence for perfectionism treatment being able to target a range of symptoms and as a promising transdiagnostic treatment.

In a mixed sample of 52 individuals who met criteria for anxiety disorders, depression, and bulimia nervosa, Egan, van Noort, et al. (2014) compared to face-to-face individual CBT for perfectionism (Shafran et al., 2010) with an internet-delivered unguided self-help version of the treatment, and a waitlist control group. Face-to-face treatment produced more favourable reductions in perfectionism as measured by ‘concern over mistakes’ ($d=1.23$) and ‘personal standards’ ($d=.77$) of the FMPS, depression ($d=.89$), and improvements in measures of self-esteem ($d=.97$) and these changes had further improved at 6-month follow-up (‘concern over mistakes’; $d=2.11$, ‘personal standards’; $d=1.77$; depression; $d=1.16$; self-esteem; $d=1.16$). Although the self-help internet delivered modality produced moderate reductions in perfectionism (‘concern over mistakes’; $d=.73$; ‘personal standards’; $d=.74$), there were no significant reductions in disorder-specific symptoms. Hoiles, Egan, Kane, and Rees (2014) also employed a mixed diagnosis sample ($N=40$) who were elevated on perfectionism, and met criteria for anxiety, depressive, and eating disorders, and compared CBT for perfectionism in a guided self-help format with a waitlist control group. There were significant reductions in perfectionism as measured by the ‘concern over mistakes’ ($d=1.6$) and ‘personal standards’ ($d=1.16$), and moderate reductions in depression ($d=.63$), and improvement in quality of life ($d=.87$) that were maintained at four month follow-up.

CBT for perfectionism has been predominantly implemented individually, and relatively few trials have adopted a group format. A study of non-clinical undergraduate (Kutlesa & Arthur, 2008) and preliminary empirical investigation (Egan & Stout, 2007) showed group CBT for perfectionism to have efficacy. Steele

et al. (2013) compared the use of psycho-education followed by 8 weeks of group CBT for perfectionism in a community sample of 47 individuals meeting criteria for clinical disorders and elevated perfectionism. Following treatment, there were significant reductions in perfectionism and accompanying psychopathy with treatment gains maintained at 3-month follow up.

Handley, Egan, Kane, and Rees (2015) compared eight-week group CBT for perfectionism with a waitlist-control in a sample ($N=42$) who met criteria for anxiety disorders, depression, and eating disorders. At post-treatment, there were significant improvements in perfectionism as indicated by large reductions in ‘concern over mistakes’ of the FMPS ($d=1.23$) and measures of self-criticism ($d=1.48$). There were also medium to large reductions in anxiety (general anxiety; $d=.56$; social anxiety; $d=.84$), and small but significant reductions in eating disorder symptoms ($d=.30$), which were maintained at six month follow-up.

Two recent RCTs have also found favourable outcomes for internet delivered CBT for perfectionism. Rozental, Shafran, Wade, Egan, Nordgren, Carlbring, Landström, Roos, Skoglund, and Thelander (2017) randomised 156 individuals to eight-week intervention or waitlist control, and pre and post self-report measures of perfectionism, anxiety, depression, self-criticism, self-compassion, and quality of life were assessed. Moderate to large between-group effect sizes were attained for the primary outcomes, including ‘concerns over mistakes’ and ‘personal standards’ of the FMPS, ($d = 0.68–1.00$; 95% Confidence Interval (CI) [0.36–1.33]), and 44.9% of the patients in who received the intervention met criteria for clinical improvement. Further, Shafran et al. (2017) randomised 120 individuals to either eight-week internet delivered CBT for perfectionism, or a waitlist control condition. There was a significant impact of the treatment on the primary outcome, FMPS ‘concern over

mistakes' between group effect sizes ($d = 0.98$ [95% CI: 0.60–1.36]), and on the Clinical Perfectionism Questionnaire ($d = 1.04$ [95% CI: 0.66–1.43] using intent-to-treat analyses. Importantly, participant engagement and treatment module completion was noted to be problematic in the latter study. Differences in study procedures (e.g., meeting face-to-face with participants at the outset of treatment and a telephone call prior to randomisation to confirm if the participant still wished to participate) may have been responsible, and resulted in good engagement in the study by Rozental, Shafran, Wade, Egan, Nordgren, Carlbring, Landström, Roos, Skoglund, Thelander, et al. (2017), but further examination is required to elucidate how to optimise internet delivery of CBT for perfectionism

CBT for perfectionism studies to date provide an encouraging and compelling empirical foundation supporting the use of perfectionism treatment as an intervention for primary emotional disorders. However, further examination of group CBT for perfectionism is needed, and no known study to date has examined the use of this intervention in an OCD population. A limitation of the abovementioned studies is that their samples have been transdiagnostic, and while small numbers of individuals with OCD have been included, no study has directly examined an adequate sample size with OCD in order to determine if CBT for perfectionism has efficacy in reducing perfectionism and OCD symptoms. This is an imperative next step in research given the prevalence of perfectionism in OCD.

Chapter 5 A pilot investigation of CBT for clinical perfectionism in OCD

5.1 Chapter overview

The following chapter presents a study that is published in *Behavioural and Cognitive Psychotherapy*. The study was also presented in a symposium at the World Congress on Behavioural and Cognitive Therapies in 2016. The chapter presents a modified version of the published paper, the supplementary material that is published as an addendum to the journal article is integrated within the substantive body of the chapter. A copy of the publication is attached in Appendix H. Associated recruitment information used in the study is provided in Appendices C, D, and E. Confirmation of order of authorship by the co-authors is provided in Appendix K. Copyright permission from Cambridge University Press is provided in Appendix N.

Sadri, S. K., Anderson, R. A., McEvoy, P. M., Kane, R. T., & Egan, S. J. (2017). A pilot investigation of cognitive behavioural therapy for clinical perfectionism in obsessive compulsive disorder. *Behavioural and Cognitive Psychotherapy*, 45, 312-320. doi: 10.1017/S1352465816000618

Running Head: Perfectionism treatment for OCD

A pilot investigation of cognitive behavioural therapy for clinical perfectionism in
obsessive compulsive disorder

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5.2 Abstract

Background: Perfectionism is strongly associated with obsessive compulsive disorder. Cognitive behavioural therapy for perfectionism (CBT-P) has been found to result in reductions in a range of symptoms in individuals with anxiety disorders, depression and eating disorders. **Aim:** To pilot-test the effectiveness of group CBT for perfectionism in participants with OCD and elevated perfectionism. **Method:** Participants were randomised to receive immediate eight-week group CBT-P ($n=4$) or an eight-week waitlist followed by CBT-P ($n=7$). **Results:** Reliable reductions and a large effect size indicated that CBT-P was associated with improvements in perfectionism and OCD severity at post-test. However, these changes were not clinically significant and dropout was high resulting in a small final sample. **Conclusions:** CBT-P may be effective in reducing perfectionism and disorder-specific OCD symptoms. However, the high drop-out rate and lack of clinically significant findings suggest further research needs to be conducted to determine the effectiveness of CBT for perfectionism in OCD.

Keywords: Obsessive Compulsive Disorder, Perfectionism, Cognitive Behavioral Therapy

5.3 Introduction

Perfectionism is argued to be a “transdiagnostic” process that is an important risk and maintaining factor across a number of disorders (Egan et al., 2011). In particular, perfectionism is associated with obsessive compulsive disorder (OCD). The Obsessive Compulsive Cognitions Working Group argued that perfectionism is one of six core cognitive feature of OCD (see Egan et al, 2011). Theorists have argued that perfectionism triggers the development of OCD, particularly a sense of having never performed actions in “just” the right way (see Frost, Novara & Rheume, 2002). Within the cognitive-behavioural model, OCD manifests from three cognitive distortions including perfectionism, the belief in the existence of perfect solutions and a need for certainty (see Frost et al., 2002). Further, cognitions aligned with perfectionism can lead to misguided threat appraisal, which is at the core of OCD. For example, the belief that one must be perfectly competent or that failure to achieve perfect standards should result in punishment, perpetuates the repetition of compulsive behaviours in order to avoid feared consequences (see Frost et al., 2002).

Perfectionism has been found to predict poorer treatment response in OCD (see Egan et al., 2011). Chik, Whittal and O’Neill (2008) reported that perfectionism, as measured by the doubts about actions subscale of the Frost Multidimensional Perfectionism Scale (Frost et al., 1990) predicted poorer treatment response in OCD. Manos et al. (2010) found that changes from pre to post treatment in perfectionism and intolerance of uncertainty were a unique predictor of change in OCD severity. Kyrios, Hordern and Fassnacht (2015) found that pre-treatment perfectionism and intolerance of uncertainty were the only significant and unique predictors of treatment outcome in OCD. Kyrios et al. (2015) concluded that future OCD

treatment may need to focus on changing perfectionism earlier in treatment to enhance outcomes. Similarly, Wilhelm, Berman, Keshaviah, Schwartz and Steketee (2015) found that changes in perfectionism and intolerance of uncertainty mediated successful treatment response in OCD. These findings suggest that it may be useful to directly target perfectionism in the treatment of OCD.

Given that perfectionism has been found to predict poorer treatment outcomes, it has been argued that this transdiagnostic construct should be directly targeted in treatment (Egan et al., 2011). A recent meta-analysis of eight trials found that CBT for perfectionism (Egan, Wade, et al., 2014) is associated with large reductions in perfectionism and medium reductions in anxiety and depression (Lloyd et al., 2015). In a non-clinical sample, Pleva and Wade (2007) found that self-help CBT-P resulted in significant reductions in obsessive-compulsive and depressive symptoms.

There have been two trials of CBT-P delivered on a group basis. Using a case series design in a mixed clinical sample with anxiety, panic and depressive disorders, Steele et al. (2013) found CBT for perfectionism was effective in reducing anxiety and depression however only one participant had an OCD diagnosis. Handley, Egan, Kane and Rees (2015) conducted a RCT of group CBT for perfectionism in a mixed sample of participants with OCD, anxiety disorders, eating disorders and depression ($N=42$). They found moderate to large reductions in symptoms, however there were insufficient numbers of people with OCD to examine efficacy regarding OCD. In previous RCTs that have found individual CBT-P to be efficacious across disorders, only small numbers of participants with OCD have been included, which has precluded an examination of effects on OCD symptoms (e.g., Riley, Lee, Cooper, Fairburn, & Shafran, 2007; OCD $n= 2$, Egan, van Noort et al., 2014; OCD $n= 2$).

Consequently, to date there has been no examination of the efficacy of CBT-P in a sample with OCD.

The aim of this study was to compare group CBT-P to waitlist in a sample of participants with OCD. The mode of delivery of CBT-P in trials has been mixed. A number of studies have delivered CBT-P individually; however larger trials have adopted group delivery to optimise time and cost efficiency (see Lloyd et al., 2015). To date, individual and group CBT-P have not been compared. As this is the first trial of CBT-P for OCD, group CBT-P was employed to maximise resource efficiency and the opportunity to deliver the intervention to more participants. It was predicted that CBT-P would be superior to waitlist in reducing clinical perfectionism and OCD severity at post-treatment and that these reductions would be maintained at 3-month follow-up.

5.4 Method

The study was designed as a randomised controlled trial with a view to execute a large trial comparing three research arms: CBT-P, Exposure and Response Prevention (ERP) and a waitlist-control group. Due to insufficient appropriate referrals to the study and difficulties with participant retention as specified in the consort diagram, and in order to maximise power, the ERP arm of the study was dropped and the study was modified to a comparison of CBT-P versus waitlist only (see Australian and New Zealand Clinical Trials Registry, 2007; ACTRN12614000295640).

5.4.1 Design

Tabulated, block randomisation was used to allocate participants into an 8-week group intervention or 8-week waitlist, which was carried out by an independent

clinician to minimise selection bias. At the conclusion of the waitlist, participants were non-randomised to the intervention group.

5.4.2 Inclusion and Exclusion Criteria

Inclusion criteria were (i) age 18 years and above (ii) a primary diagnosis of OCD and (iii) elevated perfectionism indicated by a score of ≥ 22 on the ‘concern over mistakes’ subscale of the Frost Multidimensional Perfectionism Scale (FMPS; Frost et al., 1990), which has been used as a cut-off in previous perfectionism treatment studies. Exclusion criteria included self-harm, moderate or severe suicidal ideation, psychosis, an organic mental disorder, substance abuse or dependence, or principal diagnosis other than OCD. Participants were requested to not engage in other psychological intervention from baseline until three-month follow-up and to maintain a stable dose of psychotropic medication throughout the trial.

5.4.3 Procedure

Ethical approval for this study was obtained by the Curtin University Human Research Ethics Committee and it took place at Curtin University in Perth, Western Australia between March 2014 and September 2015. Individuals who were referred or expressed interest were provided with an information pack and provided their signed consent to participate. Following this, individuals were screened over the telephone which involved: obtaining relevant background information, administration of the Mini International Neuropsychiatric Interview screen version 5.0 (MINI; Sheehan, 1998) to determine suicide risk and the presence of OCD symptoms, and elevated perfectionism (≥ 22) on ‘concern over mistakes’ of the FMPS (Frost et al., 1990). Individuals who were appropriate based on this screening were then assessed face to face using the Structured Clinical Interview for DSM-IV

(SCID-IV; First, Spitzer, Gibbon, & Williams, 1997) and the outcome measures outlined below.

5.4.4 Measures

Outcome measures were administered to the waitlist group at pre-test and post-waitlist. The intervention group completed outcome measures at pre-treatment, post-treatment and 3-month follow-up.

Yale Brown Obsessive Compulsive Scale (YBOCS; Goodman et al., 1989).

The YBOCS is a 10-item clinician administered measure. Items are summed to calculate a total severity score, with five items each, relating to obsessions and compulsions. Each item is measured on a 4-point Likert-type scale ranging from 0 (no symptoms) to 4 (severe symptoms). Total scores are representative of five ordinal categories of severity; 0-7 *subclinical*, 8-15 *mild*, 16-23 *moderate*, 24-31 *severe* and 32-40 *extreme*. The YBOCS was adopted as it is a widely used, clinician administered measure of OCD severity with high internal consistency ($\alpha=.89$), inter-rater reliability and validity (Arrindell et al., 2002; Goodman et al., 1989; Storch et al., 2005).

Frost Multidimensional Perfectionism Scale (FMPS; Frost et al., 1990). The

FMPS is a 35-item multidimensional measure of perfectionism with six subscales.

We administered the ‘concern over mistakes’ (CM) and personal standards (PS) subscales only, as the remaining subscales were not directly relevant to our hypotheses (e.g. parental criticism and parental expectations). Items are rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Higher scores indicate higher perfectionism. The FMPS has good internal consistency ($\alpha=.77 - .93$) and validity (Frost et al., 1990; Frost & Steketee, 1997; Khawaja & Armstrong, 2005).

Clinical Perfectionism Questionnaire (CPQ; Fairburn, Cooper, & Shafran, 2003). The CPQ is a 12-item self-report measure of clinical perfectionism pertaining to the past 28 days. Items are rated on a 4-point Likert-type scale ranging from 1 (not at all) to 4 (all the time). Individual items are summed to a total score (ranging from 12 to 48), with higher scores indicating higher clinical perfectionism. The focus of the CPQ is on assessing clinical perfectionism and it is sensitive to changes in perfectionism during treatment, unlike multidimensional measures (Egan et al., 2016). As such, it was included in addition to the FMPS. The measure has good internal consistency ($\alpha = .83$), convergent and predictive validity (Chang & Sanna, 2012; Dickie, Surgenor, Wilson, & McDowall, 2012; Egan et al., 2016; Steele, O'Shea, Murdock, & Wade, 2011; Stoeber & Damian, 2014).

5.4.5 Intervention protocol

Cognitive Behavioural Therapy for Perfectionism (CBT-P) was delivered in groups, with two-hour sessions held once weekly over an eight-week period (Egan et al., 2014). CBT-P has previously been found to be effective in reducing symptoms of anxiety, depression and eating disorders (Lloyd et al., 2015). Sessions were delivered by trainee, postgraduate level clinical psychologists, under the supervision of registered clinical psychologists.

The content of the eight-session group treatment program involved: psycho-education about clinical perfectionism and why it persists, the pros and cons of perfectionism, self-monitoring of perfectionism, increasing flexibility in thinking and learning to accept less than perfect performance, behavioural experiments for perfectionism, challenging unhelpful perfectionism thoughts, reducing self-criticism, increasing self-compassion and relapse prevention strategies (see Egan, Wade et al., 2014). In order to ensure protocol adherence and treatment fidelity, all sessions were

video-recorded and reviewed weekly in either group or individual supervision with registered clinical psychologists at the Curtin University Psychology Clinic.

5.4.6 Participants

There were 74 individuals who expressed interest and were screened. A consort diagram is presented in Figure 2. A total of 19 individuals (26%) were eligible and accepted into the study (69% female). There were 11 participants (age range 26-61 years, $M=40.00$, $SD=10.39$) who completed treatment (42% dropout), four who received treatment immediately and seven who received treatment following the waitlist period. A total of three groups were run: group one (four participants commenced, two completed); group two (two commenced, two completed); group three (seven commenced, seven completed).

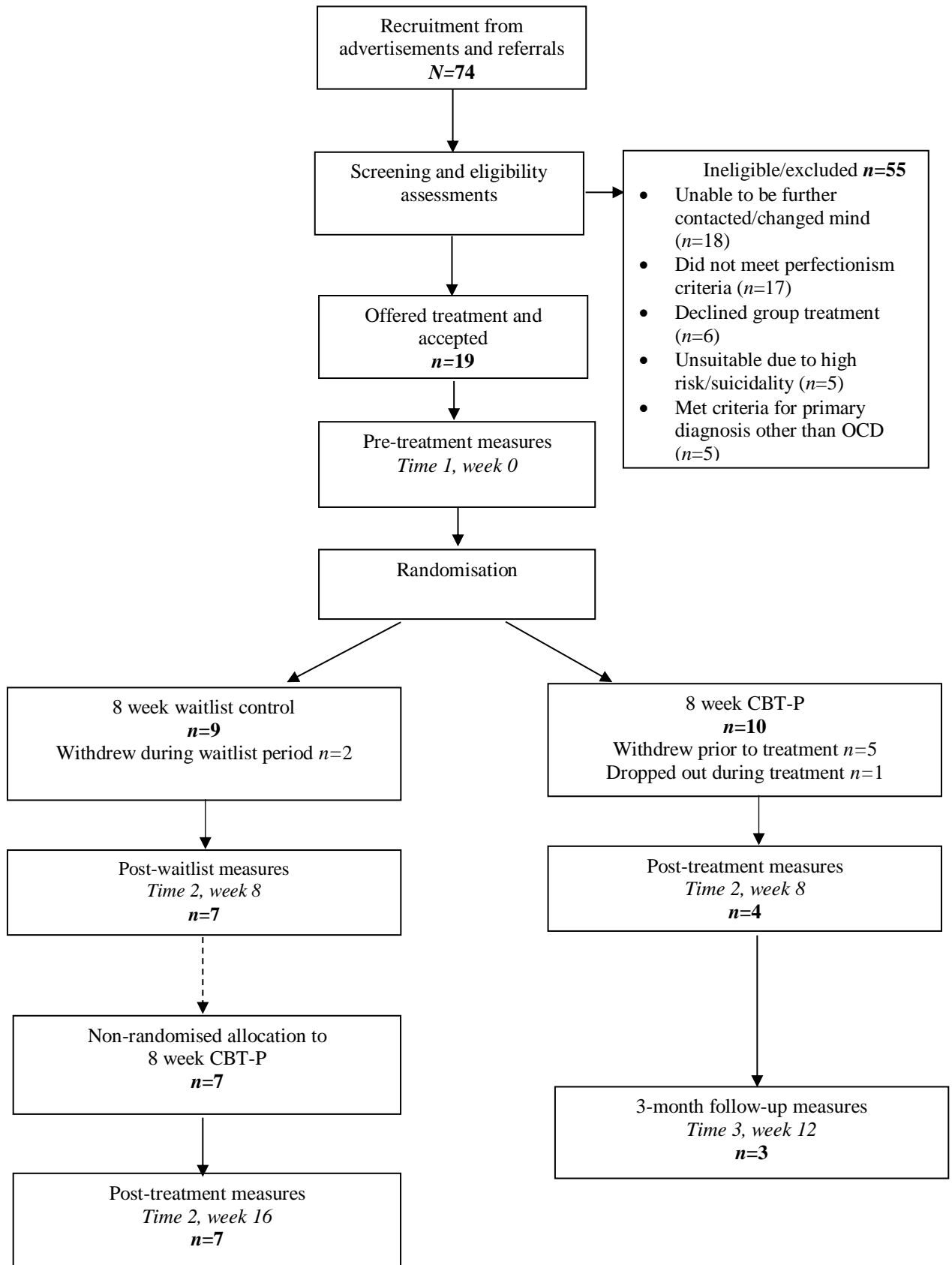


Figure 2. CONSORT diagram of participant recruitment and allocation through the study

5.4.7 Participant symptom presentation

A summary of OCD symptom presentations for the sample is presented in Table 7.

Table 7. *Summary of OCD subtype (YBOCS) symptom presentation in the waitlist and immediate intervention group*

| OCD symptom subtype | Waitlist <i>n</i> =7 | Immediate intervention <i>n</i> =4 |
|-------------------------|-------------------------|---------------------------------------|
| Obsessions | | |
| Aggressive or injurious | 2 | 1 |
| Contamination | 5 | 2 |
| Sexual | 0 | 0 |
| Hoarding or saving | 0 | 0 |
| Religious | 0 | 0 |
| Symmetry | 1 | 1 |
| Miscellaneous | 3 | 2 |
| Somatic | 1 | 0 |
| Compulsions | | |
| Cleaning or washing | 5 | 2 |
| Checking | 6 | 2 |
| Repeating | 3 | 2 |
| Counting | 1 | 1 |
| Ordering | 2 | 2 |
| Hoarding or collecting | 0 | 0 |
| Miscellaneous | 4 | 3 |

Note. The waitlist and immediate intervention group were combined into one ‘intervention group’ (*n*=11) for analyses

5.5 Results

A within-subjects (paired-samples) analysis of effect sizes, together with an examination of statistically reliable and clinically significant change, was used to examine the effectiveness of CBT-P versus waitlist.

Of the total sample that was accepted and randomised within the study ($N=19$), 73% participants met criteria for a diagnosis in addition to OCD, with the most common being generalised anxiety disorder (GAD; 63%), major depression (MDD; 54%) and dysthymia (54%). All participants met SCID-IV criteria for OCPD. Given the 42% attrition rate in this study, pooled demographic and pre-treatment severity data are reported in Table 9 for those who completed the study (i.e. completed waitlist or intervention) compared with non-completers (i.e. dropout after randomisation).

Chi-Square (χ^2) and analyses of variance indicated no significant differences between completers (those who completed waitlist and/or intervention) and non-completers (drop-outs) on OCD, perfectionism, gender, medication and engagement in previous psychological intervention; and the magnitude of effect was small according to conventions (Cohen, 1992); see Table 9. The non-completer group consisted of the following: five participants randomised to intervention withdrew before the first treatment session due to (a) lack of response to contact from the first author, $n=1$; (b) conflicting work schedule, $n=1$; (c) intrusive thoughts relating to public transport use and thus could not arrange travel to attend sessions, $n=1$; (d) discomfort with being labelled as having “OCD” $n=1$; and I change of mind, $n=1$. One participant dropped out during the second session because they felt as though they were “less severe” in regards to perfectionism symptoms relative to others in the group. Two participants dropped out from the waitlist control condition and were

unable to be further contacted by the first author. Those who completed treatment attended all eight treatment sessions.

Table 8. *Pre-treatment means and standard deviations for study completers versus non-completers*

| Variable | Completer <i>n</i> =11 | Non-completer <i>n</i> =8 | Test statistic | Effect size |
|-------------------------------------|---------------------------|------------------------------|------------------|----------------|
| Gender (female) | <i>n</i> =8 (72%) | <i>n</i> =5 (62%) | $\chi^2(1)=0.22$ | <i>w</i> =0.11 |
| Using medication (yes) | <i>n</i> =8 (72%) | <i>n</i> =5 (62%) | $\chi^2(1)=0.22$ | <i>w</i> =0.11 |
| Previous psychological intervention | <i>n</i> =6 (55%) | <i>n</i> =3 (27%) | $\chi^2(1)=0.54$ | <i>w</i> =0.17 |
| Age (range, years) | 26-61 | 19-64 | $t(17)=0.00$ | <i>d</i> =0.00 |
| OCD (YBOCS) | 27.45 (3.56) | 26.25 (5.20) | $t(17)=0.60$ | <i>d</i> =0.28 |
| Perfectionism (CM) | 33.63 (6.97) | 28.37 (10.74) | $t(17)=1.30$ | <i>d</i> =0.07 |
| Perfectionism (PS) | 28.64 (4.13) | 26.5 (5.78) | $t(17)=0.94$ | <i>d</i> =0.09 |

Note: YBOCS= Yale Brown Obsessive Compulsive Personality Scale; CM= ‘concern over mistakes’ subscale of the Frost Multidimensional Perfectionism Scale; PS= Personal Standards subscale of the Frost Multidimensional Perfectionism Scale

5.5.1 Descriptive Clinical Means and Effect Sizes

Tabulated demographic data for the full sample (waitlist and intervention conditions) is displayed in Table 9.

Table 9. *Demographic and descriptive clinical data for waitlist and intervention*

| Variable | Waitlist control <i>n</i> =7 | Intervention <i>n</i> =11 |
|----------------------------------------|---------------------------------|------------------------------|
| Age (years) | 37.85 | 40.0 |
| Gender (% female) | 85.7% | 72.7% |
| % using medications | 85.7% | 72.7% |
| % in a relationship | 71.4% | 54.5% |
| % full time student/employment | 42.8% | 63.6% |
| Previous psychological intervention | 57.1% | 54.5% |
| No. Comorbid Diagnoses Axis I | 3.42 (2.07) | 3.54 (2.02) |
| No. Comorbid Diagnoses Axis II | 2.0 (.816) | 2.18 (1.25) |
| CM pre | 33.28 (8.56) | 33.00 (2.08) |
| post | 33.14 (8.55) | 26.67 (4.81) |
| follow-up | | 30.67 (3.48) |
| PS pre | 28.57 (4.47) | 28.63 (4.13) |
| post | 29.42 (3.36) | 26.45 (3.61) |
| follow-up | | 27.67 (2.60) |
| CPQ pre | 32.0 (4.43) | 30.50 (3.81) |
| Post | 33.14 (6.25) | 27.33 (5.17) |
| follow-up | | 24.33 (2.73) |
| YBOCS pre | 26.57 (2.87) | 27.45 (3.56) |
| post | 27.57 (2.07) | 16.45 (5.22) |
| follow-up | | 15.67 (2.96) |

Note. The intervention group includes the immediate treatment group and treated waitlist participants; Mean (Standard Deviation); CM= concern over mistakes; PS=personal standards; CPQ=Clinical Perfectionism Questionnaire; YBOCS=Yale Brown Obsessive Compulsive Scale

Effect sizes on each outcome variable are reported in Table 9 for the waitlist and intervention group. The intervention group demonstrated an improvement in perfectionism, which according to conventions (Cohen, 1992) indicated a large effect

on CM; and a medium effect on PS and the CPQ. The waitlist group had a small effect on these variables. The largest improvement was for OCD symptoms, in which the intervention group demonstrated a considerable reduction in YBOCS symptoms as indicated by a mean reduction in severity of 11 points from ‘*severe*’ to ‘*moderate*’ at post-treatment.

5.5.2 Reliable Change

The pre-post reliable change index (RCI) score is the degree to which the participant changes on the outcome variable divided by the standard error of difference between the pre-test and post-test scores. In accordance with Jacobson and Truax (1991), when the absolute value of the RCI score is greater than 1.96, it is likely that the post-intervention score is reflecting a real and reliable change, rather than the fluctuations of an imprecise measuring instrument and thus statistical error. In the absence of normative reference data for perfectionism, Riley et al. (2007) utilised the CPQ to define that participants were “clinically significantly improved” if their post-treatment CPQ score was two standard deviations below the entire sample’s mean pre-treatment score. A reliable change index (RCI) score was computed for each participant according to established criteria.

Results for statistically reliable change at post-test are reported in Table 10. Consistent with our predictions, the waitlist group indicated no reliable improvement on any perfectionism measure over the waitlist period, whereas five (45.5%, CM), three (27.3%, PS) and one (9.1%, CPQ) participant in the intervention group achieved a reliable reduction on the perfectionism measures. One waitlist participant indicated a decrease in the CPQ. The most pronounced improvement was for OCD severity, with all 11 participants in the intervention group displaying a reliable

reduction in YBOCS symptoms at post-treatment. Two waitlist participants experienced a reliable deterioration in OCD severity. For each outcome measure, the strength of the association between group (intervention, waitlist) and reliable change (yes, no) was measured by the Phi statistic. The Phi coefficient indicated moderate associations for the CM, PS, and CPQ. The strength of the association for YBOCS was large, strong and positive ($\Phi = .886$) indicating that, compared to the perfectionism outcomes, CBT-P had its strongest impact on OCD symptoms.

The reliable change results for participants available at 3-month follow up are reported in Table 11. Two participants reported further improvement from post-test to follow-up in perfectionism on 'concern over mistakes' of the FMPS (Frost et al., 1990), and one participant indicated reliable deterioration perfectionism. One participant reported a reliable improvement in perfectionism according to the CPQ, whilst two participants reported a reliable deterioration. Each participant demonstrated reliable improvement in OCD symptoms.

Table 10. Comparison of effect sizes and proportion of participants in the waitlist and intervention conditions demonstrating reliable and clinically significant change on outcome variables from pre to post treatment

| Outcome Variable | Effect sizes | | Reliable Change | | | | Phi value ϕ | Clinically significant change | |
|------------------|-------------------------|------------------------------|-------------------------|----------------|------------------------------|----------------|---------------------|-------------------------------|--------------------------------------------|
| | Waitlist <i>n</i> =7 | Intervention <i>n</i> =11 | Waitlist <i>n</i> =7 | | Intervention <i>n</i> =11 | | | Waitlist <i>n</i> =7 | Intervention <i>n</i> =11 |
| | | | ↓ <i>n</i> , % | ↑ <i>n</i> , % | ↓ <i>n</i> , % | ↑ <i>n</i> , % | | | |
| FMPS-CM | <i>d</i> = .01 | <i>d</i> =1.17 | 0 (0%) | 0 (0%) | 5 (45.5%) | 0 (0%) | -.495 | - | - |
| FMPS-PS | <i>d</i> = -.21 | <i>d</i> =.56 | 0 (0%) | 0 (0%) | 3 (27.3%) | 0 (0%) | -.357 | - | - |
| CPQ | <i>d</i> = -.21 | <i>d</i> = .71 | 0 (0%) | 1 (14.3%) | 1(9.10%) | 0 (0%) | .351 | - | 2 (18.2%) |
| YBOCS | <i>d</i> = -.39 | <i>d</i> =2.46 | 1(14.3%) | 2 (28.6%) | 11 (100%) | 0 (0%) | .886*** | 7 (100%)* | 6 (54.5%)* 3 (27.3%)** 2 (18.2%)**** |

Note: The intervention group includes data from immediate intervention and waitlist participants; *n*, % = ↓ number and percentage of participants who experienced a reliable decrease (improvement) on the outcome variable; ↑ *n*, % = number and percentage of participants who experienced a reliable increase (deterioration) on the outcome variable; FMPS= Frost Multidimensional Perfectionism Scale; CM='concern over mistakes'; PS=Personal Standards; CPQ=Clinical Perfectionism Questionnaire; YBOCS=Yale Brown Obsessive Compulsive Personality Scale; * = unchanged; ** recovered; improved****; *d*= Cohen's magnitude of effect; Phi value=magnitude of effect (.10=small, .30=moderate, +.50=large); ***strong positive association

Table 11. *Reliable Change Index scores of intervention participants available at 3 month follow up*

| Outcome Variable | <u>No</u> | <u>Yes</u> | | <u>RCI</u> <u>Scores</u> (n=3) | |
|------------------|-----------|------------|-------|--------------------------------------|--------|
| FMPS-CM | 1 | 2 | 2.84* | -2.84 | 3.97* |
| FMPS-PS | 2 | 1 | 0.34 | -1.03 | 2.06* |
| CPQ | 2 | 1 | 0.00 | 0.27 | 5.22* |
| YBOCS | 0 | 3 | 5.65* | 6.46* | 15.34* |

Note: *Reliable improvement (RCI > 1.96); RCI=Reliable Change Index;

YBOCS=Yale Brown Obsessive Compulsive Scale; CM= concern over mistakes; PS=personal standards; CPQ=Clinical Perfectionism Questionnaire

5.5.3 Clinically Significant Change

Clinically significant change indicates whether a participant's post-treatment score on an outcome measure is more likely to represent the functional or the dysfunctional population. In the absence of normative reference data for the CPQ, Riley et al. (2007) defined that participants were "clinically significantly improved" if their post-treatment CPQ score was two standard deviations below the entire samples' mean pre-treatment score. According to this criterion, one intervention participant in our sample who indicated reliable change in their CPQ score also achieved clinically significant improvement.

As there is currently no normative reference data for the YBOCS, Fisher and Wells (2005) have argued that when measuring OCD severity, a shift from a pre-test score of above 14 to a post-intervention score of 14 or below represents a clinically significant change. Three participants from the intervention group ($n=11$), and none from the waitlist satisfied the Fisher and Wells' (2005) criterion for clinically significant change on the YBOCS.

In addition to RCI scores used to establish pre-post treatment changes, Fisher and Wells (2005) established that a 10-point change criterion on the YBOCS is required to show that a statistically reliable change has taken place, such that individuals who meet criteria for reliable and clinically significant change are classified as *recovered*; a 10 or more point decrease is classified as *improved*; a 10 or more point increase is *deteriorated*; and a variation in score by less than 9 points is considered *unchanged*. According to these criteria, 27.3% ($n=3$) of the intervention group were recovered, $n=2$ were improved and $n=6$ were unchanged.

5.6 Discussion

This is the first study to examine CBT-P in an OCD sample. Consistent with predictions, CBT-P was associated with improvements in perfectionism and OCD severity, as indicated by a reduction in primary outcome means and medium to large effect sizes. However, the prediction that reliable changes would be accompanied by clinically significant improvement was not supported, as only 18.2% of participants experienced a clinically significant improvement in perfectionism and 27.3% of participants experienced a clinically significant improvement in OCD severity. Reliable improvements were maintained in a small sub-set of participants (YBOCS $n=3$; FMPS-CM $n=2$).

These results make a novel contribution as the first examination of the CBT-P intervention in an OCD sample. However the lower than expected rates of clinically significant change and high rates of drop-out are less encouraging, which may have been influenced by a number of limitations to the study.

In addition to the small sample size and high drop-out rate, one limitation was the standardised selection of participants on their ≥ 22 point CM subscale (perfectionism) score of the FMPS (Frost et al., 1990). A total of 17 individuals were ineligible in our study because they did not meet this criterion, resulting in a relatively large proportion (31%) of potential participants being precluded. Future OCD studies could consider removing the perfectionism inclusion criterion. Given the association between perfectionism and obsessive-compulsive pathology (Egan et al., 2011), implementation of the CBT-P intervention could be effective in participants learning relevant useful therapeutic content and principles that generalise to OCD symptoms.

Whilst the Fisher and Wells (2005) criterion of an OCD cut-off score of 14 or below and a 10-point change (decrease) on the YBOCS for clinically significant change sets a robust benchmark, in practice the criteria are somewhat stringent, requiring a substantial categorical downwards shift in severity, for example from *moderate* to *mild*. This can be difficult to achieve in the context of a relatively brief eight session group treatment program and given that it is acknowledged that OCD tends to persist at moderate levels in many people following treatment (Kyrios et al., 2015). Future studies may seek to increase therapy duration (e.g., 12 weeks) or frequency (e.g., bi-weekly sessions) in order to observe whether clinically significant change outcomes improve with treatment intensity.

Of the total sample that was offered and accepted into the study, 42% dropped out on the day prior to starting treatment or during the initial stages of program commencement. In addition, only three participants were available at three-month follow-up, which limited our ability to evaluate the longevity of the intervention. The drop-out rate is relatively high compared with the drop-out observed in recent OCD treatment studies (e.g. 25%; Kyrios et al., 2015). Further, the manner of dropout in the current investigation, which predominantly occurred prior to commencement of the intervention, was unique relative to previous OCD trials in which dropout occurred during the course of treatment. The focus on perfectionism in the current study is a point of distinction compared to previous OCD studies. As such, it is conceivable that elevated perfectionism may have played a role in the significant dropout, given its association with rigidity and ambivalence about change (Egan et al., 2011). Further, a number of participants declined treatment because it was group-based. It would be useful for future research to investigate reasons for drop-out and declining therapy to inform understanding of the

feasibility of treatment and further clinical trials for perfectionism in OCD. One way to improve retention may be to engage individuals with OCD and perfectionism in treatment individually first, in order to mitigate concerns regarding performance in a group setting.

Given the small sample, it would also have been useful to have measured symptoms across the treatment program (e.g. weekly) as this may have provided richer data from which to evaluate the effectiveness of the intervention. Given that some studies have found perfectionism interferes with treatment response in OCD (e.g., Kyrios et al., 2015) it would be useful to further investigate how to address perfectionism in OCD to improve treatment outcomes. Conceivably, by increasing flexibility in thinking and increasing capacity for more realistic standards (i.e., addressing perfectionism at pre-treatment or as a simultaneous adjunctive component), individuals may then be more amenable to engaging in necessary exposure-based exercises with increased self-awareness and more realistic expectations for performance.

In summary, further research is required to determine whether effects for perfectionism treatment for OCD are more robust when implemented with a larger sample over a longer time period, or whether drop-out is still a significant problem. Preliminary outcomes from this study suggest that CBT for perfectionism would be useful to investigate in future studies with larger samples to evaluate the effectiveness of this intervention.

Conflict of Interest. Shalane K. Sadri, Rebecca A. Anderson, Peter M. McEvoy, Robert T. Kane & Sarah J. Egan have no conflict of interest with respect to this publication.

Ethics. This study has been approved by the Curtin University Human Research Ethics Committee (Approval No. HR38/2014). The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, and its most recent revision.

Financial Support. This research received no specific grant from any funding agency, commercial or not-for-profit sectors.

Chapter 6 Therapist perspectives on group cognitive behavioural treatment of perfectionism in obsessive compulsive disorder

6.1 Chapter overview

The following chapter explores the experiences of therapists who administered the perfectionism intervention in the preceding treatment trial. This study was presented at the Australian Association for Cognitive and Behaviour Therapy Conference in October 2017. A copy of recruitment information used in this study is provided in Appendix F.

Running head: Clinician experiences working with perfectionism

Therapist perspectives on group cognitive behavioural treatment of
perfectionism individuals with obsessive compulsive disorder

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Sarah J. Egan

Contribution of authors

[**Sadri** – study design, data collection, analysis, writing of full draft, revisions to manuscript, corresponding author]

[**Anderson, McEvoy, Egan** – study design, editing and reviewing]

[**Breen** – methodology and analysis advice, editing and reviewing]

6.2 Abstract

Perfectionism is associated with numerous psychological disorders. Research has shown that perfectionism predicts treatment response across disorders; however, an examination of how perfectionism manifests within and impacts on the therapeutic process is needed. The aim of the current study was to explore therapists' perspectives regarding group treatment of perfectionism in obsessive compulsive disorder. A qualitative approach consisted of interviews with the therapists ($N=6$) who delivered group cognitive behavioural therapy for perfectionism in an obsessive-compulsive disorder sample with elevated perfectionism. Thematic analysis resulted in five themes – the valued nature of perfectionism, promoting insight to enhance motivation, working with perfectionism behaviours in therapy, managing emotionality, and optimising group dynamics. Key recommendations for therapeutic practice are outlined, including an emphasis on therapist supervision, using the emotional experience, and utilising strengths of the group format. The study provides a basis for further research into the role of perfectionism in the therapeutic process.

Keywords: perfectionism; obsessive compulsive disorder; client; therapist

6.3 Introduction

Perfectionism involves a relentless pursuit of personally demanding standards despite adverse consequences and overly self-critical evaluation (Frost et al., 1990; Shafran et al., 2002). Perfectionism is transdiagnostic in that it contributes to the onset and maintenance of eating disorders, anxiety disorders, obsessive-compulsive disorder, and depression (Egan et al., 2011; Limburg et al., 2017). As such, the manifestation of perfectionism in therapy has wide ranging implications across psychopathologies.

The role of perfectionism in therapy has predominantly been examined in terms of its impact on treatment outcomes. Studies from the National Institute of Mental Health Treatment of Depression Collaborative Research Program (Elkin, 1994) found that perfectionism was a predictor of poorer outcome at post-treatment and 18 month follow-up (see Blatt, 1995; Blatt, Zuroff, Bondi, Sanislow, & Pilkonis, 1998). Perfectionism was also found to moderate the therapeutic alliance, such that stronger patient-therapist relationships were formed when patients had lower perfectionism (Shahar, Blatt, Zuroff, Krupnick, & Sotsky, 2004; Zuroff et al., 2000). These findings have important implications given that the therapeutic alliance is a predictor of outcomes in treatment of perfectionism (Miller, Hilsenroth, & Hewitt, 2017), and meta-analysis has demonstrated that weaker client-therapist relationships are associated with higher psychotherapy drop-out rates across diagnoses (Sharf, Primavera, & Diener, 2010).

Core constructs of perfectionism include high self-imposed standards, continual striving, and striving despite negative consequences (Riley & Shafran, 2005). Individuals with perfectionism may have difficulty coping with the demands of therapy given findings that perfectionism is associated with poorer interpersonal

functioning (Hewitt, Flett, & Mikail, 2017), and difficulties with emotional regulation (Aldea & Rice, 2006; Richardson et al., 2014). Further, the ego-syntonic nature of perfectionism means that individuals may not see their perfectionistic behaviour as problematic (Aldea & Rice, 2006; Frost et al., 1993). For instance, in a qualitative study with participants who had elevated perfectionism and a range of psychological disorders, Egan, Piek, Dyck, Rees, and Hagger (2013) reported that, when participants were given the choice between staying a perfectionist and changing, the majority stated that they would choose to remain a perfectionist due to the benefits they perceived that resulted from their behaviour. Consequently, perceived advantages of perfectionism together with limited insight, can increase resistance to help-seeking behaviour and willingness to engage in therapy (Purdon, 2009a).

Perfectionism has particular implications for the treatment of obsessive compulsive disorder (OCD). Perfectionism has been found to be elevated in individuals with OCD, and is a core feature of obsessive-compulsive personality disorder (OCPD), which occurs in up to 47.3% of people with OCD (Starcevic et al., 2012). Gordon et al. (2016) found that OCPD, of which perfectionism is a core feature, resulted in improved OCD outcomes following individual treatment. It was suggested that adaptive components of perfectionism may be an asset in therapy and facilitate assiduousness, such as on-task behaviour and homework completion (Gordon et al., 2016). However, other studies have shown that perfectionism can predict poorer treatment response in OCD (Kyrios et al., 2015; Pinto, Liebowitz, et al., 2011). Cognitive dimensions that underpin both perfectionism and OCD such as performance checking may reduce efficiency with therapy tasks and thus limit progress (Cain et al., 2013; Hood & Antony, 2016; Pinto et al., 2017). The first

investigation of group cognitive behavioural therapy for perfectionism in OCD showed encouraging treatment outcomes, but the study had a high drop-out rate (42%) and difficulties with recruitment (Sadri, Anderson, McEvoy, Kane, & Egan, 2017). During the treatment trial, a number of therapists expressed to the researcher (first author) that there were ongoing difficulties with engaging the clients in therapy that are worthy of further investigation.

To date, there has been no qualitative examination of how perfectionism affects the therapy process, particularly in OCD. It is essential for treating clinicians to understand how perfectionism manifests in therapy in order to mitigate potential barriers that may affect the delivery of treatment. The aim of the current study was to answer the research question: *What are therapists' perspectives of implementing group cognitive behavioural therapy for perfectionism in clients with OCD and elevated perfectionism?* We used a qualitative approach in order to augment treatment outcome data on perfectionism, and provide a rich and in-depth understanding of barriers to effective treatment (Green & Thorogood, 2013). Further, we engaged therapists, who can provide valuable insider perspectives regarding the efficacy of interventions that are difficult to capture in quantitative studies (Bieling, McCabe, & Antony, 2013).

6.4 Method

6.4.1 Participants

The participants were a convenience sample of all therapists ($N=6$) who delivered treatment in a recent trial evaluating group-based CBT-P in OCD (Sadri et al., 2017). All therapists identified as female, ranged in age from 24 to 28 years ($M=25.67$, $SD=1.97$), and were provisionally registered psychologists completing

graduate training in clinical psychology. The clients in the trial were an adult sample who met diagnostic criteria for OCD, and elevated perfectionism based on a pre-determined clinical cut-off criteria (see Sadri et al., 2017)

6.4.2 Materials

A semi-structured interview schedule was developed (see Table 12). We were interested in the therapists' perspectives regarding delivering the intervention, so the questions focused on therapeutic engagement rather than broader issues (e.g., recruitment). The questions were designed to allow the therapists to describe their experiences, while allowing the researchers to explore responses further.

Table 12. *Semi-structured interview questions*

| | |
|----|--------------------------------------------------------------------------------------------------------------------|
| Q1 | How would you describe your overall experience as a therapist implementing treatment with perfectionism clients? |
| Q2 | What were your observations of participants' level of insight in regards to their perfectionism symptoms? |
| Q3 | What were your observations of clients' motivations to change their perfectionism? |
| Q4 | Did clients discuss any difficulties they were having in treatment with you? If so, what were they? |
| Q5 | Did you feel that any aspects of the clients' perfectionism got in the way of therapy and if so, how? |
| Q6 | What were the most difficult aspects of implementing treatment with perfectionism clients overall? |
| Q7 | Did you feel that anything could have been done differently to improve client engagement in the treatment process? |

6.4.3 Procedure

The study was approved by the University's Human Research Ethics Committee (HR38/2014). Therapists provided their voluntary and informed consent to participate, and were interviewed in person by the first author. All interviews were

conducted and video-recorded at the University psychology clinic. The interviews lasted for 60 to 90 minutes each. The interviews were semi-structured, which allowed the interviewer to clarify responses and ask further questions. Further, the therapists' responses were summarised and clarified during the interview in order to ensure accuracy of interpretation. The interviewer kept a reflexive journal in which personal reflections about the interviews were recorded, which provided an avenue to monitor biases and bracket any personal views. The first author transcribed the interviews verbatim, and listened to each interview twice to confirm transcription accuracy.

6.4.4 Data Analysis

The research team comprised five psychologists (three senior clinical psychologists, one senior psychologist with experience in intervention research and qualitative methodologies, and one psychologist completing graduate clinical training). Four out of five members of the research team had experience conducting psychological therapy with clients who met criteria for perfectionism and OCD, which allowed opportunity for multiple perspectives on the research question and a thorough approach to reflexivity when interpreting the therapists' experiences (Creswell, 2012). Thematic analysis was used to determine major themes across the data (Braun & Clarke, 2006). A dual deductive/inductive and latent/manifest approach was used in analysis (Joffe, 2012). The demarcation of themes was inductive in order to allow for themes to be identified through active engagement with the data; and a deductive (theoretical) approach was incorporated given that the study was derived based on the methodological difficulties that emerged for the therapists during the treatment trial. Data were analysed at a manifest (semantic) level in order to describe the explicit

reflections of the therapists, but we also delved to a deeper, latent level of analysis in order to identify potential implications of the therapists' experiences in the treatment of perfectionism (Joffe, 2012).

The first phase of analysis involved familiarisation with each interview transcript, which began by the first author conducting and transcribing all interviews. NVivo 11 software was used to code the data and identify the key themes through multiple readings of the transcripts. Throughout this process, the research team engaged in ongoing and open dialogue about the data. The team met to review the transcripts and discuss emerging ideas, which allowed for collaborative development and refinement of themes.

6.5 Results

Five themes were derived from the thematic analysis, and are outlined in Table 13. The aim of the study was to understand and describe the therapists' perspectives, rather than the number of participants within each theme (Maxwell, 2010; Sandelowski, 2001). Where appropriate, we have used the pronouns 'all' to indicate the total population of therapists and 'commonly' to indicate more than 50% of therapists.

Table 13. *Summary of themes and corresponding sub-themes*

| Theme | Sub-themes |
|--------------------------------------------------|------------------------------------------------------------------|
| Valued nature of perfectionism | Core identity 'Stuckness' and ambivalence |
| Promoting insight to enhance motivation | Lack of awareness of dysfunctionality Externalised motivation |
| Working with perfectionism behaviours in therapy | Fear of imperfection Perfectionistic self-presentation |
| Managing emotionality in therapy | Avoidance of emotions Emotional dysregulation |
| Optimising group dynamics | Group cohesion Shared experience |

Valued nature of perfectionism

The therapists commonly reported that clients defined themselves by perfectionism, for example "Yes I'm a perfectionist, I need to maintain these standards, there's nothing wrong with that" (T3). Accordingly, therapists reported that perfectionism was enmeshed with identity and that clients regarded perfectionism as central to their performance in key life domains such as health, physical appearance, parenting, career, health, and sport. The therapists stated that the clients gave examples of the role of perfectionism in their core roles in life, such as being the perfect mother by spending hours cleaning the house at midnight before going to bed and waking up in the early hours of the morning to clean again; or being a perfect student by spending the majority of every day studying including missing work shifts and cancelling social arrangements to spend further time on

assignments. Two therapists reported that client perceptions regarding the origins of their behaviour reinforced the view that perfectionism is impervious to change. For example, some clients believed that their perfectionism was genetic or inherited as a result of parental expectations of high standards. The therapists described these beliefs as underpinning clients' ambivalence about the potential for change. For instance, one therapist described this process "stuckness" in perfectionism and summarised the clients' perspective as "yeah okay I'll make some changes, but I don't really think that will be helpful to me because perfectionism has always been like that in my life and I don't see a point as to why I should change" (T1).

One therapist stated that clients' ambivalence and scepticism at the outset of the program resulted in the therapist working harder to "sell" the rationale for therapy to the clients. For example "with some of them I felt that I had to prove to them that...these things were helpful" (T5). Therapists commonly described a sense of frustration and powerlessness at the clients' ambivalence towards change, for example, "she didn't try the experiment at all, so she wasn't willing to give it a try and in therapy as the therapist, there's only so much that you can do" (T1); "the clients didn't make very much progress throughout the group, it didn't feel like a rewarding process, it was definitely hard to continue on throughout the eight sessions" (T3).

Promoting insight to enhance motivation

There was a common view expressed by the therapists that clients lacked insight into the negative impacts of their perfectionism. The therapists explained that while most clients did not deny being perfectionistic, they were unable to see the dysfunctional impact of perfectionism in their lives, such as procrastination. For example, a therapist described one client who reported spending 12 hours a day in

the library working on assignments, but routinely needing extensions due to making limited progress. Further, the therapists reported that clients were able to identify perceived advantages of their perfectionism, and either minimised or could not recognise negative impacts on functioning. For example, one therapist stated “they drew comfort from the way they behaved and changing perfectionism would mean changing their whole lifestyle and who they believed they were” (T2). Another therapist commented on the difficulty of working with clients to change perfectionistic core beliefs, stating that “she was the toughest to challenge because some of her beliefs were entwined to who she thought she was and the schemas she had of herself” (T1).

The therapists reported that despite attempting to highlight the undesirable outcomes of perfectionism, clients defended their behaviours and the need to maintain perfectionism. For example one therapist described a client who said “You don’t understand everything, I have to do it like this” (T6). Commonly, therapists reported that limited insight in clients manifested through externalised motivation for being in therapy. In particular, the therapists stated that clients reported attending therapy to appease family members, for example “she didn’t think she had an issue, it was that her husband and son thought that she had an issue” (T2). The implication of externalised motivation for some clients was that it appeared to result in superficial engagement in therapeutic tasks, for example:

“His parents really wanted him to be attending to do something about addressing his issues, so I did wonder whether it was more to keep them happy that he was coming along, and he was kind of just going through the motions of working through the intervention” (T4).

The need for perfect self-presentation within the group also contributed to externalised motivation for being in therapy:

“Perfectionism impacts them socially and was a big deal for lots of the people in the group...no one didn’t want to turn up, for example, because that meant that everyone would think that they didn’t like them ...they were worried about what everyone else in the group thought of them” (T5).

Working with perfectionism behaviours in therapy

The therapists commonly reported that high standards and ‘concern over mistakes’ were observable in the way clients engaged with treatment content. For example “not wanting to design an experiment because they might get it wrong, not wanting to do the experiment because they might not get it right” (T5). One therapist described the dichotomy between clients’ over-achievement and avoidance of tasks:

“They’ll push themselves in lots of areas to do things correctly, above and beyond what’s required, but there’s other times where...if the task is really difficult they don’t start the task at all for fear of not doing it correctly and say no I’m not going to do it at all” (T5).

Dichotomous thinking in the clients’ all or nothing approach to therapy was described by the therapists as preventing clients from broadening attention and willingness to attempt tasks. This was commonly expressed by the therapists, for example “[the clients] engage with the treatment in the way they engage in normal life, which is black and white, I didn’t do it right and if I don’t do it right then I’m not going to do it at all” (T5); “it was black and white sort of thinking, it was very yes or no, with no middle ground” (T1); “it was the all or nothing approach ...if she couldn’t do it successfully she wasn’t going to do it at all” (T6). One therapist also

recounted an example of a client who was unable to shift her thinking regarding substituting an ingredient in a recipe for the purposes of a behavioural experiment:

“she was very fixated on one point and just really not wanting to see where we were coming from...it was like you were talking about it but you could just tell that she wasn’t going to try it and she couldn’t see the point in trying it as well” (T1).

The therapists also reported clients having difficulty with homework tasks due to the avoidance and procrastination aspects of perfectionism. For example, “we would try to ask them why they didn’t do their homework, and it literally was their perfectionism getting in the way of starting the task” (T5); “I think avoidance and procrastination got in the way in terms of homework for some of them” (T6). Fear of negative evaluation also appeared to impact the way clients contributed to and interacted within sessions. For example one therapist observed that:

“everyone was very hyper sensitive to the reaction that other people would have and I would say that was down to their perfectionism, worry what other people were going to say about them or think about them” (T3).

One therapist reported that not completing homework contributed to a fear of negative evaluation in the group, for example “there were times where they didn’t do their homework for example, and then they didn’t want to come because they didn’t want to say that they hadn’t done their homework” (T5). Given the prominence of clients’ perfectionism within sessions, therapists reported that their own modelling of imperfection became a useful therapeutic tool. For example, one therapist described a client who commented that the therapists’ handwriting on the board was not perfectly straight, which provided an opportunity to model acceptance of imperfection. Another therapist summarised:

“it is important as a therapist, particularly with perfectionists, to set up this idea that you can actually make a mistake within the group...we made mistakes early on...and I think that was such a good thing to naturally happen because they were like oh, the therapists make mistakes, I’m okay to make a mistake” (T5).

Managing emotionality in therapy

The therapists described that two extremes in emotionality were evident. On one hand, there was a pattern of emotional restriction and avoidance, for example a therapist noted “We had reserved clients that were unwilling to share emotions” (T3). The implication of the clients’ emotional restriction was that discussion regarding emotion was driven by the therapists. When the content of the group was triggering or provoking, clients would avoid emotional expression, which was evident through deflecting behaviours. For example:

“She would shift the focus to another person or deflect and want to go into a deeper level about someone else, whereas we kept re-focusing it back on her at an emotional level...she would skim over, it was very surface talk and then she would shift the conversation to another person” (T1).

One therapist reported that a client deflected by telling the therapists that they were not sufficiently validating other group members and as such the therapists described needing to be mindful of reorienting clients who avoided emotional experiences. For example, “I would say I know you’re very concerned about C, so are we, but let’s focus on you and how you felt, and bring the attention back to her” (T2).

In contrast to avoidance, emotional dysregulation was also evident. The therapists commonly described clients who were emotionally labile in session. These

instances of emotionality appeared to coincide with particular realisations that clients had about their perfectionism, for example “she had this session where she got very upset, very teary for about 15 minutes, really crying and saying that it was all her Dad’s fault because he had said all these horrible negative things to her and she always tried to please him” (T5); “she cried in each session, and would talk about how she finds it difficult because it’s challenging who she believes she is” (T2). As a result, the therapists described needing to be mindful of balancing the demands of group process with the structure and time constraints of the structured program. For example one therapist reflected “it took up time, all the attention would be drawn to that one person who was crying, so it’s about managing that so that everybody is heard but at the same time we didn’t want to let this one person feel like nobody is validating them” (T4).

Optimising group dynamics

The therapists commonly reported a number of strengths that evolved as a result of the group format. It appeared from the therapists statements that the group setting assisted in normalising the experience of being in therapy. In particular, the common thread of all clients meeting criteria for elevated perfectionism played an important role in alleviating clients feeling isolated in their experience. For example “there were people who had perfectionism that impacted different areas of their life...but everyone seemed to be able to pick out the commonalities” (T5). Quotes from the therapists appeared to highlight that group validation and a sense of shared experience had a positive impact on group process, and assisted clients’ willingness to share in the group, for example:

“anytime someone did bring up something more challenging or something that was a little bit more distressing the group was really good at being kind

to them and normalising the experience for them and sharing in that with them” (T6).

There also appeared to be a sense of collective motivation that was facilitated by the group setting. In the smaller groups (i.e., $n=2$) where there was drop-out prior to or early in treatment, the therapists reported more difficulties in group dynamics such as the clients not having things in common, being unable to relate to one another and therefore having minimal interaction with each other. One therapist stated:

“Lack of motivation went hand in hand with the insight that they lacked about the importance of changing...because it was a small group, that made it really hard to encourage group members because they didn’t have any other group members that were highly motivated” (T3).

In contrast, two therapists described that having a larger group (i.e., $n=7$) fostered a sense of responsibility within clients to the wider group, and promoted engagement with treatment content. For example, “that idea of having to be accountable to the group really fuelled their change, they were doing the experiments and they were finding really great results, they were coming into session really looking and talking like they had been able to identify the perfectionism and work on it” (T5).

6.6 Discussion

The aim of this study was to explore therapist perspectives regarding working with OCD clients with elevated perfectionism engaging in group CBT for perfectionism. The therapists reported that perfectionism was a part of clients’ core identity, and contributed to difficulties with insight and ambivalence towards change.

However, the group setting appeared to facilitate a sense of cohesion and shared experience.

The therapists reported that the clients had difficulty engaging in challenging their beliefs because being a perfectionist was central to their sense of identity. As a result, there was a common theme expressed by therapists that clients lacked insight into the dysfunctional impact of perfectionism, which perpetuated ambivalence about change. This is consistent with previous theoretical research on the ego-syntonic nature of perfectionism, which can increase resistance to change and willingness to engage in therapy (Belloch et al., 2012; Purdon, 2009b), and findings that individuals with perfectionism value the perceived advantages (Egan et al., 2013). However, our findings are disparate to previous CBT for perfectionism trials using mixed-diagnosis clinical samples, where retention rates were acceptable and client process and engagement was not identified as problematic (see Handley et al., 2015; Steele et al., 2013). Conceivably, there may be particular challenges associated with treating perfectionism in OCD. In particular, perfectionism has been associated with increased OCD severity (Pinto, Liebowitz, et al., 2011; Wetterneck et al., 2011), which may increase difficulties in treatment. The core pathology of perfectionism may also interfere with OCD therapy, such as individuals finding it difficult to complete exposure tasks due to a fear of incorrect performance (see Pinto et al., 2017). Future studies should compare the use of group CBT for perfectionism in homogenous (single) diagnostic groups, including OCD, versus mixed-diagnosis samples in order to determine whether recruitment and retention rates are a particular problem for comorbid perfectionism and OCD. Internet-based delivery of CBT (ICBT) for perfectionism has also been found to have efficacy in mixed diagnostic samples (Egan, van Noort, et al., 2014; Rozental, Shafran, Wade, Egan, Nordgren,

Carlbring, Landström, Roos, Skoglund, & Thelander, 2017; Shafran et al., 2017), and may circumvent the therapeutic difficulties that arose in our face-to-face study. Comparison of face-to-face (individual and group) and ICBT for perfectionism is required.

Miller and Rollnick (2013) note that client ambivalence towards change and low motivation can lead to therapist frustration, unfavourable views of clients, and conceivably increase risk of a ruptured alliance. The therapeutic alliance is considered to be a central aspect of psychotherapy (Barber, Khalsa, & Sharpless, 2010), and ruptures in the alliance are associated with poorer treatment outcomes (Shahar et al., 2004; Zuroff et al., 2000). The difficulties expressed by therapists in our study suggests that it is important for therapists to effectively manage their own process when working with perfectionistic clients. Whilst supervision is encouraged across general psychotherapy practice, and mandatory for trainee therapists (e.g., Cartwright, 2011; Cartwright, Rhodes, King, & Shires, 2014) there is a relative dearth of literature regarding recommendations for supervision when working with clients with perfectionism in particular.

Warren, Crowley, Olivardia, and Schoen (2008) conducted a qualitative investigation of therapist experiences working with eating disorder populations, a problem that is commonly associated with perfectionism (Fairburn & Harrison, 2003; Wade et al., 2016). Consistent with our findings, the most prominent theme reported by the therapists in that study was clients' ambivalence regarding change, including lack of readiness, and difficulties with motivation. Furthermore, regular clinical supervision and consultation was identified by the therapists as the most important strategy in managing countertransference to resistance and in ensuring the effective delivery of treatment (Warren, et al., 2008). In light of these issues, regular

individual and peer supervision for therapists working with perfectionism should be emphasised to promote awareness of personal reactions and preservation of the therapeutic alliance. In their treatment manual on CBT for perfectionism, Egan, Wade, et al. (2014) recommend a CBT structure for supervision that includes essential components of a well-defined format for supervision, collaborative agenda, review of homework, discussion of any clients in crisis, and therapeutic issues.

Perfectionism within therapists can also influence the treatment process. Therapists' perfectionism has been found to result in therapists feeling frustrated if clients are not improving quickly or as expected by the therapists, who can interpret client progress as a reflection of their own abilities (D'Souza, Egan, & Rees, 2011). Empirical outcomes have indicated that higher levels of therapist perfectionism including striving for excellence, high standards for others, and 'concern over mistakes', are associated with poorer client outcomes for depression and anxiety (Presley, Jones, & Newton, 2017). Further, perfectionism is recognised as a common schema for trainee CBT therapists (Haarhoff, 2006). Given that the therapists in our sample were trainees, perfectionism may have contributed to frustration in the therapeutic process and impacted client engagement. While not directly assessed in the current study, therapist' perfectionism is worthy of investigation. In particular, it is important to determine whether bi-directional perfectionism factors between the client and therapist (e.g., expectations of performance and high standards for others) impacts the working alliance and treatment outcomes for OCD and elevated perfectionism.

There was also a theme in our study regarding the management of clients' emotional avoidance and dysregulation. Importantly, it was not the experience of emotion in therapy, but the dichotomy of extremes in emotionality that were evident

across the therapists' descriptions of the clients. It should be acknowledged that the emotion-focused difficulties may have been, in part, a function of the relative inexperience of the trainee therapists. However, consistent with our findings regarding emotional avoidance and lability, perfectionism has been associated with deficits in emotional regulation (Rudolph, Flett, & Hewitt, 2007). In particular, restricted affect is prominent in perfectionism, and consistent with theoretical research on the interpersonal domain of perfectionism (e.g., Hewitt et al., 2017). Displays of emotion in front of others can be challenging for individuals with perfectionism, and can amplify feelings of shame and guilt depending on perceived performance (Stoeber, Harris, & Moon, 2007). This may have been amplified in the group therapy setting where the fear of negative evaluation and perceived costs of social mistakes are high. There is also some indirect support for our findings in a study that examined emotional functioning in patients with OCPD compared to borderline personality disorder and healthy controls (Steenkamp, Suvak, Dickstein, Shea, & Litz, 2015). Perfectionism is a core behavioural pattern in OCPD. In that study, the OCPD group endorsed high levels of negative affect including difficulties with understanding and managing negative emotions. Notably, the OCPD group reported strong emotional response tendencies (e.g., feeling emotions strongly) but also being able to control (inhibit) the expression of these emotions. Steenkamp et al. (2015) did not assess perfectionism in OCPD specifically, but their findings of strong emotionality together with the perceived ability to inhibit emotional expression in OCPD provides some indirect support for our findings.

The difficulties experienced in relation to client emotionality in our study raise important considerations for CBT therapists in the treatment of perfectionism. Improvements in emotional processing are often deemed incidental in the CBT

process, however researchers acknowledge the importance of emotions as an explicit and intentional process in CBT (Greenberg, 2008; Mischel, 2004). Adaptive emotional expression has also been found to predict more favourable CBT outcomes (Baker et al., 2012; Taylor et al., 2017). In a previous controlled trial, Aldea, Rice, Gormley, and Rojas (2010) found that openly discussing perfectionism with maladaptive perfectionists and providing feedback about their symptoms reduced global distress and emotional reactivity. As such, we recommend that therapists emphasise open and client-led discussion of emotions in perfectionism therapy. A focus on the management of emotionality in CBT for perfectionism may also be a useful aspect of therapist supervision.

The group setting was identified as a strength, where the common experience of perfectionism promoted a sense of cohesion, shared experience, and source of validation for the clients. This was particularly important given that the clients also met criteria for OCD. Typically, OCD is a heterogeneous condition (Bragdon & Coles, 2017; Lochner & Stein, 2003), which means that individuals can present with diverse themes that underpin their behaviours (see Sadri, Anderson, McEvoy, Kane, & Egan, 2017). The implication in therapy is that individuals can perceive their symptoms to be exceptional and unable to be understood by others, which makes those perceptions difficult to normalise in individual therapy. Further, group CBT has been shown to bear several advantages such as time and cost efficiency (Himle, Van Etten, & Fischer, 2003), and therapeutic benefits such as clients feeling a sense of relief that they are not alone in their experience (Bieling et al., 2013). However, studies have found both individual and group formats effective for perfectionism (Lloyd et al., 2015) and OCD (Anderson & Rees, 2007). No qualitative study to date has compared differences in group versus individual therapy for perfectionism in an

OCD population, so further evidence is required to support the proposition that a group rather than individual format for perfectionism therapy may be beneficial.

Strengths and limitations

This is the first study to examine therapist perspectives on conducting group CBT for perfectionism, which is a gap in the literature to date. Further, the use of qualitative methodology allowed for in-depth examination of process issues when working with clients' perfectionism. A limitation is that although all therapists who administered treatment within the trial participated, the results may not be generalizable to all contexts given the small trainee therapist sample working with an OCD population. Further qualitative research into the role of perfectionism in the therapeutic process with other diagnoses and larger therapist samples is required. However, given the transdiagnostic nature of perfectionism, the findings of this study may have implications for various psychological presentations beyond OCD.

6.7 Conclusion

In summary, therapists conducting group CBT for perfectionism described clients as valuing their perfectionism, which was reflected in ambivalence towards change. Therapists may encounter difficulties when attempting to challenge perfectionistic beliefs, and experience frustration as a result of client ambivalence. Supervision for therapists to manage their own reactions should be emphasised. The group format for therapy may offer advantages, but further evidence regarding modalities of CBT for perfectionism is required.

Chapter 7 General discussion

This chapter will summarise the major findings of the research presented in this thesis with regards to the measurement and assessment of OCPD; the association between pertinent OCPD dimensions and OCD treatment outcomes; and the treatment of perfectionism in OCD. The strengths and limitations of this research will be discussed, and future directions and recommendations will be proposed.

7.1 Key findings and future directions

The overall aim of this thesis was to increase understanding of three related areas of psychopathology, OCPD, OCD, and perfectionism. This required first exploring taxometric and classification issues regarding OCPD that have hindered accurate and consistent measurement of the disorder.

7.1.1 Assessment of the OCPD construct

Emerging literature suggests that personality disorders, and OCPD specifically, are more validly conceptualised and assessed as dimensions rather than taxons (Haslam et al., 2012; Krueger & Eaton, 2010; Liggett, Sellbom, & Carmichael, 2017). Study 1 (Chapter 2) assessed the factor structure of a dimensional measure of OCPD traits, the Pathological Obsessive Compulsive Personality Scale (POPS). A bifactor structure provided the best fit to the data. A general factor of overall OCPD pathology, and four subfactors; difficulty with change, emotional over-control, maladaptive perfectionism, and reluctance to delegate, can be reliably scored to obtain an indication of specific OCPD subdomains. Given the heterogeneity of the OCPD construct (Samuel & Griffin, 2012; Widiger, 2016), the bifactor structure of the POPS provides a comprehensive means for clinicians to assess overall

psychopathology on the general factor by calculating a total score, as well as distinct OCPD subdomains that may assist with individualised case conceptualisations.

Only one previous unpublished study has examined the factor structure of the POPS (Pinto, Ansell, et al., 2011). In contrast to the previous study, the current findings revealed that the rigidity subfactor explained a negligible proportion of reliable variance beyond the general OCPD factor. That is, the variance in rigidity was captured entirely by the general factor. This suggests that features of rigidity are a fundamental component of OCPD, and are thus important in providing an overall assessment of OCPD pathology within the general factor of the POPS.

Consistent with study 1, previous factor analytic studies have identified rigidity as a significant component of OCPD (Ansell, Pinto, Edelen, & Grilo, 2008; Grilo, 2004). Further, in a recent examination of OCPD criteria as measured by Section III of the DSM-5, “rigid perfectionism” was found to be a significant component of OCPD and, together with perseveration and intimacy avoidance, accounted for a large proportion of variance (53%) in a latent OCPD variable (Liggett et al., 2017). Recognition of the central importance of rigidity in OCPD was also confirmed by its retention as a feature of both core and alternative diagnostic criteria sets in the DSM-5 (APA, 2013). Perfectionism and rigidity are commonly used to describe and conceptualise OCPD (Pinto et al., 2008). Together with perfectionism, rigidity has been identified as the most stable and persistent trait in OCPD over a two year period (McGlashan et al., 2005) and has been associated with poorer OCPD treatment outcomes (Smith & Saklofske, 2017). There is also a considerable overlap between rigidity in OCPD and associated psychopathologies such as stringent self-imposed rules in eating disorders (e.g., Crane, Roberts, & Treasure, 2007; Goodwin, Haycraft, Willis, & Meyer, 2011), and inflexible,

ritualistic behaviour in OCD (Remijnse et al., 2013). Further, in an exploratory analysis of another self-report measure of OCPD, the Obsessive Compulsive Personality Disorder Questionnaire (OCPDQ; Martukovich, 2010), it was found that rigidity was significantly correlated with the total score, and rigidity strongly correlated with the other factors assessing OCPD (Martukovich, 2010).

One explanation for the weak association between the rigidity group factor and the POPS in study 1 may have been that the study was comprised of undergraduate students, who, by factors such as age and social status, may be less rigid and more open to experience than other groups. Further, it may be the case that the rigidity subfactor is more separable from the general factor within clinical samples. Further examination is required to investigate this hypothesis given that previous studies discussed above, and the findings of study 1, indicate that rigidity is a fundamental component of OCPD. Future studies should compare undergraduate, community and clinical samples to determine whether the rigidity group factor still yields weak associations with the POPS, or whether this is reflective of the undergraduate demographic.

In study 1, the POPS demonstrated good coverage of current (DSM-5) OCPD criteria with robust intraclass correlations, providing support for clinical utility of the POPS. Although intraclass correlations were poor for the miserliness and hoarding criteria, the results align with research demonstrating that these features are manifestations of broader dispositions not specific to OCPD only (Hertler, 2015a; Riddle et al., 2016) and findings that miserliness and hoarding are the weakest performing criteria of OCPD with regard to diagnostic efficiency (Grilo et al., 2001; Grilo et al., 2004; Hummelen et al., 2008). There was also a poor intraclass correlation for the excessive devotion to work criterion, and in particular,

considerable variability among clinicians' ratings of POPS item coverage of workaholism. This is surprising given the theoretical association between workaholism and OCPD, and it highlights the difficulty in developing a comprehensive measure that sufficiently captures the heterogeneity of OCPD criteria. A question for future research lies in examining the utility of retaining these criteria in OCPD diagnosis. Consistent with the findings in Study 1 regarding the POPS, the alternate, Section-III DSM-5 model includes emotional over-control but deemphasises miserliness, hoarding, and work devotion. Examination of interrater reliability of the POPS was an important step in Study 1, however the sample of clinicians used to assess interrater reliability was relatively small ($N=6$), and thus generalisability is limited. Future studies should seek to utilise larger clinician samples to assess interrater reliability.

7.1.2 Implications for the measurement of personality traits

As predicted, the POPS yielded the strongest association with another measure of OCPD traits, however there were also weak, significant positive associations with measures of borderline, antisocial, and impulsivity traits. This finding was somewhat surprising given that predominantly, OCPD is conceptualised as the opposite of behavioural disinhibition, and negatively associated with impulsivity (Samuel & Gore, 2012; Widiger & Simonsen, 2005). For example, in a sample of 313 individuals who met criteria for OCPD, Liggett et al. (2017) found that high anxiousness and low impulsivity predicted latent OCPD scores. Furthermore, OCPD is conceptually related to conscientiousness (Samuel & Widiger, 2011) and behaviours that resemble high restraint and control, including self-discipline and deliberation.

One possibility is that the POPS general factor assesses general negative affect or personality pathology, and is therefore positively associated with other measures of psychopathology. Consistent with this possibility, the association between the POPS and measures of disparate traits aligns with some, albeit limited, research into personality phenotypes. Kendler et al. (2011) suggests that psychiatric disorders are clinical-historical constructs, with aetiology and pathophysiology that is largely unknown and therefore based on observed similarities over time, rather than categories that provide clinically useful distinctions. Some evidence indicates correlations between psychopathology phenotypes (Angold & Costello, 2009), which may be suggestive of a general factor of psychopathology rather than discrete mental disorders (Hopwood et al., 2012; Krueger, Derringer, Markon, Watson, & Skodol, 2012; Lahey et al., 2012). It has been proposed that psychiatric disorders share transdiagnostic factors (Krueger & Eaton, 2015) such as a core interpersonal nature (Hopwood, Wright, Ansell, & Pincus, 2013), and thus an integrated model of personality may be an accurate reflection of psychopathology.

Factor analyses on data from large epidemiological twin studies have demonstrated that correlations among a range of high prevalence disorders are almost entirely due to shared aetiology and common genetic influences (Kendler et al., 2011). These findings led Kendler et al. (2011) to suggest that common psychological disorders (e.g., mood and anxiety) and personality disorders have a coherent underlying structure that is broader than indicated by categorical classification, and they are reflective of two major (internalising and externalising) dimensions. Internalising and externalising disorders are typically characterised by negative affectivity and disinhibition, respectively (Hink et al., 2013). OCPD is typically associated with a restricted negative affect, but Kendler et al. (2011) found

that OCPD had the strongest positive loading on externalising disorders, together with borderline, histrionic, and narcissistic traits.

It is important to note that these assertions are in contrast to longstanding, prevailing theory and findings regarding how individuals with OCPD typically present, that is, with a high need for control and low impulsivity (Liggett et al., 2017). As such, suggestions that the findings in study 1 align with research by Kendler et al. (2011) and that there are associations between OCPD and externalising traits (e.g., borderline personality) are tentative. Further evidence is needed to determine whether traits related to behavioural disinhibition and impulsivity are present in OCPD, and thus whether a specialised (e.g., transdiagnostic approach) to treatment may be of benefit in these cases.

Study 1 presented an initial psychometric examination, and further studies are required to confirm that the POPS is a reliable and valid measure. Moreover, factor analytic and measurement invariance research across diverse samples would assist to establish whether the POPS discriminates between those with versus without an existing OCPD diagnosis, and therefore whether the general factor of the POPS is more accurately conceptualised as a general measure of psychopathology severity, or of OCPD in particular. Comparisons between clinical and non-clinical samples would also assist in establishing discriminant validity and would provide an indication of whether negative associations with measures of impulsivity are evident.

Further, study 1 was cross-sectional, which limited the ability to make causal or temporal inferences. Longitudinal assessment would allow for stronger and more definitive conclusions about the POPS and its subfactors as indications of trait severity, which may be particularly useful given the chronicity of personality psychopathology (Cloninger & Svrakic, 2016) and OCPD traits (Hertler, 2015a).

7.1.2.1 Clinical implications and use of the POPS in practice

There is a lack of self-report measures of OCPD, which means that the assessment of OCPD typically occurs within the context of broader diagnostic assessments or personality inventories (see Samuel & Widiger, 2010). As such, the POPS goes some way towards addressing this gap in personality assessment and may be useful for assisting clinicians to develop individualised case formulations, treatment plans, and assess change during treatment. The strong general factor identified from the bifactor modelling suggests that calculating a total POPS score may provide an efficient means for clinicians to assess overall psychopathology severity. In contrast, subscale scores may provide an indication of specific OCPD domains that are relevant for different individuals, thereby accounting for heterogeneity within the diagnosis. For example, the emotional over-control subscale of the POPS may be useful in assessing traits in a client describing difficulties with emotional expression. Another client reporting difficulties with perfectionistic tendencies could be evaluated on the maladaptive perfectionism subscale of the POPS. Using the POPS in this way may be particularly useful for clinicians in treatment planning. For example, elevated perfectionism traits as indicated by the POPS may be targeted directly (e.g., CBT for perfectionism) based on functional analysis of treatment need (i.e., where gold-standard interventions have not reduced symptom severity and where perfectionism is deemed to be maintaining core symptoms).

Researchers could also use the POPS to evaluate the efficacy of treatments for OCPD and perfectionism by administering the POPS at pre, post, and follow-up assessments. Given the POPS is a dimensional measure, this would be particularly useful for determining the efficacy of treatments by highlighting the quantitative

degree of change in overall OCPD symptoms following intervention, and change in subsets of OCPD behaviours (e.g., rigidity, perfectionism) as indicated by the subscales. The dimensional assessment of personality underpinned by a general factor acknowledges that (1) subthreshold manifestations of traits can also be associated with distress and dysfunction that are worthy of treatment, and (2) there are important differences in severity among individuals who, based on the current system, receive the same diagnosis (Krueger & Eaton, 2015). An integrated model may also simplify the focus of clinical intervention by providing a common target for treatment that can ameliorate multiple problems, including obsessive-compulsive personality traits (Rodríguez-Seijas et al., 2015).

7.1.3 The impact of OCPD traits on OCD outcomes

While there has been considerable focus on the association between OCPD and OCD in terms of comorbidity, symptom dimensions, level of impairment, and treatment response (Chessick, 2001; Coles et al., 2008), evidence regarding the impact of OCPD on OCD outcomes has been conflicting. Some studies have found OCPD to be associated with increased OCD severity (Lochner et al., 2011) and poorer ERP outcomes (Pinto, Liebowitz, et al., 2011; Wetterneck et al., 2011), while others have found OCPD to be associated with comparable pre-treatment severity and favourable outcomes in OCD (Gordon et al., 2016). In study 2 (Chapter 3) OCPD, and in particular conscientiousness, were examined in relation to OCD outcomes in individuals who engaged in ERP. A clinical sample of individuals with OCD ($N=46$) was compared based on OCPD comorbidity as a category (23.9%), and dimensional conscientiousness scores. The findings indicated that neither OCPD diagnosis, nor the facets of conscientiousness as conceptualised in the Five Factor Model (Costa & McCrae, 1990) including competence, self-discipline, and

deliberation, were associated with group ERP outcomes in OCD. It needs to be acknowledged that the sample with OCPD was very small ($n=11$), and thus statistical power to detect significant effects and moderate effect sizes was limited (Ellis, 2010). As such, generalisations that can be made as a result of this study are extremely limited. However, there has been a trend of conflicting findings in the broader field of research that has examined the role of OCPD and conscientiousness in OCD outcomes.

As has been explored in this thesis, OCPD has been subject to numerous diagnostic and classification changes over time (Hertler, 2015a). Consequently, there has been disparity in conceptualisation and measurement of OCPD, which has contributed to inconsistencies regarding findings of the association between OCPD and OCD (Fineberg et al., 2015; Reddy et al., 2016; Samuel & Widiger, 2010). The shift towards dimensional conceptualisations of personality disorders (Krueger et al., 2007; Widiger & Trull, 2007) recognises personality, including OCPD, as a continuum of traits. In study 2, OCPD was examined categorically. This was due to the SCID-IV skip-criteria being used in diagnosis in the original trial from which the data was derived, meaning that ensuing questions were excluded when inadequate criteria were endorsed to proceed with further questioning (see Anderson & Rees, 2007). As such, comprehensive dimensional data for OCPD were not collected and analyses in study 2 were limited to categorical examination. Patients with OCPD can present with a range of symptom combinations, which is reflective of the heterogeneity in this diagnostic group (Watson et al., 2016). Given that certain OCPD traits may be more problematic than others for individuals with OCD (e.g., perfectionism), categorical measurement fails to recognise such heterogeneity and may obscure findings and conclusions (Wetterneck et al., 2011). However, the

examination of dimensional conscientiousness scores in study 2 went some way towards addressing the limitation of the categorical approach alone.

The results of study 2 indicated that conscientiousness scores per se were not associated with OCD outcomes. From a theoretical perspective, obsessive compulsive individuals are often regarded as highly conscientious. Given the comorbidity between OCD and OCPD, it may be assumed that by extension, conscientiousness is pertinent in OCD, but findings have been inconsistent. Samuels et al. (2000) and Rector et al. (2002) both found OCD to be associated with low conscientiousness scores. In a depressed sample and an OCD sample, Rector, Richter, and Bagby (2005) found no difference in conscientiousness. Rees, Anderson, and Egan (2006) compared an OCD sample with anxious and depressed non-OCD patients. Although there were no overall differences in conscientiousness, they did find that the OCD patients had lower scores on the competence and self-discipline facets. In contrast, Inchausti et al. (2015) found that conscientiousness was significantly higher in OCD patients relative to the other anxiety disorders. Nestadt et al. (2009) found that high conscientiousness was associated with increased risk of tic-related comorbidity in OCD, whereas lower conscientiousness scores increase risk for type 3 affective-related comorbidity in OCD.

In study 2, it was found that dimensional conscientiousness scores were not associated with OCD outcomes. One plausible explanation for this finding aligns with argument by Rector et al. (2002) that although OCD patients may desire a sense of organisation and thoroughness that is reflected in conscientious behaviour, their own high standards reduce their ability to achieve the desired outcomes. For example, the severity of obsessions and compulsions may undermine coherent insight and subjective perception of competence, thoroughness, and self-discipline.

As such, future studies should examine whether conscientiousness impedes functionality and insight in OCD. Arguably, poor insight associated with conscientiousness and OCD may reduce treatment seeking behaviour and willingness to engage, and increase risk of poorer outcomes as a result of counter-therapeutic behaviours associated with conscientiousness, such as thoroughness at the expense of progress.

In contrast, an implication of a significant association between conscientiousness and OCD for clinicians is that differential diagnosis between OCD and OCPD may be difficult, and could suggest of an inclination towards traits such as perfectionism and heightened subjective responsibility in people with OCD that may need to be addressed directly in treatment (Inchausti et al., 2015). The Five Factor Obsessive Compulsive Inventory (FFOCI) was developed to determine whether OCPD is a maladaptive variant of Five Factor Model Conscientiousness (Samuel et al., 2012), and one study has found the FFOCI to be valid in measuring maladaptive variants of Five Factor Model personality traits in individuals with OCPD (Crego et al., 2015). Future studies could use the FFOCI to determine if levels of conscientiousness manifest with the same intensity in OCD and OCPD, and whether this is pertinent in differential diagnosis, and the development and maintenance of psychopathology.

It is important to determine how conscientiousness impacts OCD given that Five Factor Model Conscientiousness has been found to be a significant predictor of treatment utilisation, including number of therapy sessions needed, treatment satisfaction, and compliance (Hopwood et al., 2008). As such, further studies will help to ascertain the importance of the association, and will assist in guiding OCD treatment planning and clinical practice. For example, client-centred feedback

sessions for clients who endorse NEO-PI-R traits, including conscientiousness have been found to be associated with improved engagement and treatment outcomes (Blonigen, Timko, Jacob, & Moos, 2015). In particular, providing clients with psychoeducation and a written summary of their NEO-PI-R results early in treatment has been found to have a positive impact on client's perceived treatment experience, engagement in treatment, and the therapeutic alliance (Blonigen et al., 2015). Clinicians may need to consider incorporating these strategies to improve client engagement in individuals with OCD and conscientiousness traits.

In addition to the construct of conscientiousness, a predominant CBT theory on OCD emphasises the role of inflated responsibility (Salkovskis, Shafran, Rachman, & Freeston, 1999). Responsibility is undoubtedly part of the core behavioural nature of conscientiousness. As noted by Fayard, Roberts, Robins, and Watson (2012) individuals who are highly conscientiousness rely on structure and organisation in their lives, persist to achieve goals, work hard to meet others expectations and espouse rules and morality more strongly than others. In contrast, those low on conscientiousness tend to embrace spontaneity at the expense of intrapersonal responsibilities. As a result of high need for responsibility in conscientiousness, individuals can avoid feared negative outcomes such as failure to achieve goals and intrapersonal issues. Grounded in longstanding cognitive behavioural theory on OCD, Salkovskis et al. (1999) proposed that individuals who are parentified or inappropriately blamed for negative outcomes in childhood can go on to develop a heightened sense of responsibility. In adulthood, it is proposed that this sense of responsibility can translate into high levels of conscientiousness, with a behavioural manifestation of excessive work devotion and social obligation. Conceivably, ritualistic and goal-oriented behaviour can serve to fulfil subjective responsibility

and mitigate feared negative outcomes (Salkovskis et al., 1999). The relationship is further reflected in measures of conscientiousness that contain responsibility subscales (e.g., Conscientiousness Adjective Checklist; Roberts, Bogg, Walton, Cherynshenko, & Stark, 2004; Chernyshenko Conscientiousness Scales; Chernyshenko, 2003). Further, in a factor analysis of 36 measures, Roberts, Walton, and Bogg (2005) found that the domain of conscientiousness was reliably explained by six factors, including impulse control, conventionality, responsibility, industriousness, order and virtue. In order to understand these associations and best direct treatment, it would be useful for future research to further examine the overlap and differences between the constructs of responsibility, conscientiousness, OCD, and OCPD.

7.1.4 The efficacy of targeting perfectionism directly in the treatment of OCD

Given the centrality of perfectionism in the diagnosis of OCPD, and the well-established relationship between perfectionism and OCD, the thesis then shifted focus on to the role that perfectionism may play in maintaining OCD symptoms. Study 3 (Chapter 5) presented the pilot RCT of CBT for perfectionism in an OCD population. The treatment outcomes supported the efficacy of CBT for perfectionism in individuals with OCD and elevated perfectionism. The intervention group demonstrated an improvement in perfectionism, as indicated by a large reduction in FMPS (Frost et al., 1990) concern over mistakes ($d=1.17$); and a medium reduction in FMPS personal standards ($d=.56$) and scores on the Clinical Perfectionism Questionnaire ($d=.71$). By comparison, the waitlist was associated with a small magnitude of effect on perfectionism variables ($ds < .01$). The largest effect in the intervention group was for OCD symptoms as measured by the YBOCS ($d=2.46$),

accompanied by a shift in average severity from '*severe*' to '*moderate*' at post-treatment.

Study 3 was the first known study to examine the efficacy of CBT for perfectionism in OCD, and the outcomes provide encouraging preliminary support for the treatment of individuals with OCD and high perfectionism. Although there has been considerable theoretical argument (Frost et al., 2002; Pinto et al., 2017) and empirical evidence (Kyrios et al., 2015; Wilhelm et al., 2015) to indicate that perfectionism negatively influences OCD outcomes, no previous study has examined the efficacy of directly targeting perfectionism in the treatment of OCD. The reduction in perfectionism and OCD symptoms observed in study 3 extends previous research demonstrating that CBT for perfectionism is efficacious in mixed samples with anxiety disorders, eating disorders, and depression (Egan, 2016), and in meta-analytic review (Lloyd et al., 2015). The main implication of the findings of study 3 is that where patients do not achieve a reduction in symptoms with gold standard treatment (i.e., ERP), and where perfectionism is deemed to be maintaining psychopathology in functional analysis, clinicians can adopt CBT for perfectionism as an alternative approach (Pinto et al., 2017).

As presented in study 3, investigation of an alternative, transdiagnostic treatment for OCD is important given that one third of the OCD population meets criteria for elevated perfectionism (Egan et al., 2011) and up to 47.3% meet criteria for the broader construct of OCPD (Starcevic et al., 2012). Further, the limited effectiveness of SSRI regimes (Romanelli et al., 2014; Simpson et al., 2013), and suboptimal rates of recovery at post-treatment for disorder specific ERP (Fisher & Wells, 2005; Olatunji et al., 2013) necessitate the investigation of novel approaches.

Study 3 revealed several difficulties in the recruitment and retention of participants within the trial, which have important implications for future research and clinical practice. Of the 74 individuals who expressed interest, a total of 55 (74%) were either ineligible or excluded. Key reasons included change of mind regarding participation after self-referral, which could have been reflective of the valued nature of perfectionism and high ambivalence (Marchesi et al., 2008; Pinto & Eisen, 2011; Purdon, 2009b). A number of individuals also declined the group therapy format and expressed a preference for individual treatment, although previous studies have indicated both individual and group modalities of CBT for perfectionism are effective in reducing perfectionism and disorder-specific symptoms in mixed samples (Lloyd et al., 2015). Further, there was a particularly high dropout rate (42%) in study 3, with several participants opting out of treatment either the day before or in the very early stages (i.e., first session) of the program. This rate of dropout is considerable when compared to OCD trials where the dropout of CBT (15.5%) and ERP (19.1%) conditions has been lower (Öst et al., 2015), and compared to previous group CBT for perfectionism trials in mixed clinical samples where rate of withdrawal was only 14.2% (Handley et al., 2015). In considering reasons for dropout in study 3, it is important to note that typically, OCD treatment studies report average pre-treatment YBOCS scores in the range of 22 to 24 (e.g., Collins & Coles, 2017; Kyrios et al., 2015), which is in contrast to study 3 where the pre-treatment YBOCS was 27. Conceivably, the elevated pre-treatment YBOCS was the result of selecting a sample that also had elevated scores on the concern over mistakes subscale of the FMPS. Consequently, the severity of the sample in study 3 may have contributed to the high dropout rate.

Previous OCD trials have found that perfectionism as measured by concern over mistakes was not predictive of post-treatment YBOCS outcome (McLean et al., 2001; Whittal et al., 2008). Further, these trials did not adopt a minimum inclusion score on the concern over mistakes subscale and drop-out was considerably lower compared to study 3. As such, it is reasonable to conclude that the CBT-P approach was misaligned and perhaps overly restrictive in content relative to the primary presenting problem. Broader CBT protocols for OCD may allow greater flexibility to target perfectionism by also allowing associated psychopathology to be targeted in treatment, such as inflated responsibility and the need for certainty. Potentially, addressing these concerns may increase participants' willingness to work on and change their perfectionism. In this way, future research could examine whether additional modules of CBT-P could be incorporated into existing CBT protocols.

Given the level of dropout prior to commencement of the trial in study 3, practical aspects associated with treatment delivery may also need attention when seeking to engage clients with perfectionism and OCD in treatment. Several broad aspects of psychotherapy have been identified as effective in mitigating dropout, including thoroughly educating and guiding client expectations prior to commencement, attending to their preferences such as session timing, and fostering the early therapeutic alliance (Barrett, Chua, Crits-Christoph, Gibbons, & Thompson, 2008; Swift, Greenberg, Whipple, & Kominiak, 2012). Empirically-validated 'early warning' systems can also be developed based on pre-determined indicators of sub-optimal treatment response, and can provide the therapist with useful information that has been shown to reduce attrition (Harmon, Hawkins, Lambert, Slade, & Whipple, 2005). Cooper and Conklin (2015) noted that when participants recruited from the community are prone to significant barriers (e.g.,

costs associated with transport), strategies to placate these issues can be built into the study design (e.g., providing free bus passes). Notably, some participants in study 3 did express disorder specific barriers that led to drop-out (e.g., a perception of being unable to attend treatment due to obsessive fears relating to public transport), which may require particular consideration in future trials with OCD populations. Further, internet-based delivery of CBT (ICBT) for perfectionism has been found to be efficacious in RCTs with mixed diagnostic samples (Egan et al., 2014; Rozental et al., 2017; Shafran, 2017). Internet delivered treatment may be a viable modality for CBT for perfectionism in OCD to circumvent perceived treatment access barriers, as it may be perceived by clients as less subjectively threatening, and may mitigate the difficulties that arose in the face-to-face format of study 3. Comparison of face-to-face (individual and group) and ICBT for perfectionism in OCD is required. A further limitation of study 3 was that data on homework adherence was not collected. Future research should aim to collect this information to determine whether outcome varies according to engagement in treatment as defined by completion of homework.

The evidence for CBT for perfectionism in RCTs has been favourable and is growing. However, there can be additional administration and practicalities associated with RCTs that need to be considered, for example ensuring participants understand the randomisation process and completion of outcome measures. Notwithstanding, good clinical practice should be paramount and researchers highlight the importance of effective delivery of treatment via thorough pre-treatment briefing, and affording participants the opportunity to clarify uncertainties in order to minimise dropout (Cooper & Conklin, 2015; Stines & Feeny, 2008). Particular strategies have been emphasised as a means to improve engagement in CBT for perfectionism trials, including a telephone conversation at the outset to

confirm that participants want to take part after completing the screening measures, and asking participants in detail about the acceptability of the intervention and procedures, which may assist in better understanding reasons for dropout (Rozenal et al., 2017; Shafran et al., 2017). These approaches were used in study 3, but a high proportion of clients still discontinued treatment. Therefore, novel strategies for individuals with OCD and perfectionism may be required.

Notably, high dropout rates within RCTs limit robust statistical analyses, interpretation, and generalisability of results (Yang & Maxwell, 2013), as experienced in study 3. If the aims and potential benefits of the research, and the importance of collecting information about symptoms are thoroughly explained to participants at the outset, this may increase willingness to complete additional assessments even if they do not complete the treatment protocol (Cooper & Conklin, 2015).

Some of the difficulties that arose in the trial were investigated in study 4 (Chapter 6) from the perspectives of the therapists who delivered the intervention. Qualitative methodology was used, involving semi-structured interviews with the therapists ($N=6$) who conducted CBT for perfectionism with OCD clients. Thematic analysis resulted in five key themes including (1) the valued nature of perfectionism (2) promoting insight to enhance motivation (3) working with perfectionism behaviours in therapy (4) managing emotionality, and (5) optimising group dynamics. The most prominent notion expressed by the therapists was the sense that perfectionism was an entrenched component of core identity, which contributed to difficulties with insight and ambivalence towards change. The findings from studies 3 and 4 elucidated key content and process implications for the treatment of OCD when perfectionism is elevated, which will be discussed in the following section.

7.1.5 Implications for therapeutic process and modality of CBT for perfectionism delivery

The difficulties expressed by the therapists in study 4 (Chapter 6) in relation to engaging clients who are high in perfectionism aligns with previous theory and research on the ego-syntonic nature of perfectionism, which can increase ambivalence and reduce willingness to engage therapeutically (Belloch et al., 2011; Purdon, 2009), and that individuals with perfectionism value the perceived advantages (Egan et al., 2013). However, the particular difficulties experienced in study 3 may have been a unique function of perfectionism and OCD psychopathology when it is considered that previous CBT for perfectionism studies on mixed-diagnosis samples have produced favourable outcomes, and client dropout and engagement were not problematic (e.g., Handley et al., 2015; Steele et al., 2013).

It is important to consider motivation, which has been identified as a predictor of treatment response in OCD (de Haan et al., 1997; Solem et al., 2016; Vogel et al., 2006). In a therapeutic context, motivation and willingness to change has been defined as the probability that an individual will enter into, continue, and adhere to a specific change strategy (Miller & Rollnick, 2013). The therapists reported observing the clients having difficulties with motivation to change, which suggests that there are particular therapeutic challenges that need to be considered in treating perfectionism and OCD.

One of the most common notions expressed by the therapists was that clients lacked insight into the dysfunctional impact of perfectionism, which they believed perpetuated ambivalence. This finding may be pertinent in an OCD context. Ambivalence has been found to be elevated in OCD relative to other diagnostic groups (Bhar & Kyrios, 2007), and reductions in ambivalence following CBT for OCD have been found to predict lower OCD severity and improved recovery (Bhar,

Kyrios, & Hordern, 2015). It could be important for future research to examine whether ambivalence predicts and moderates treatment outcome in OCD and elevated perfectionism. This may provide one explanation for the difficulties engaging this population in treatment, and warrant investigation of targeted focus on ambivalent traits (e.g., increased focus on motivational interviewing techniques).

Another consideration is that perfectionism has been associated with increased OCD severity and poorer functioning (Pinto et al., 2011; Wetterneck, 2011), which may increase therapeutic difficulties if by nature these individuals have more severe and disabling symptoms at pre-treatment than those without perfectionism. As such, the core pathology of perfectionism may interfere with OCD treatment and introduce process difficulties, such as individuals finding it difficult to complete exposure tasks due to a fear of inadequate performance. Compulsions driven by perfectionism and a need for just right feelings are subject to negative reinforcement associated with anxiety reduction, together with positive reinforcement related to feelings of satisfaction and praise when the desired outcome is achieved, making them particularly resistant to modification (Hood & Antony, 2016). Current treatment guidelines for perfectionism and OCD highlight the need for a clear functional analysis to discern best practice therapeutic decisions (Pinto et al., 2017). No CBT protocols have been purposefully designed and assessed for the treatment of perfectionism in OCD, but may be warranted given the recruitment and therapeutic challenges identified in studies 3 and 4. Future studies should also compare the use of CBT for perfectionism in homogenous (single) diagnostic groups, including OCD, versus mixed-diagnosis samples to determine whether recruitment and retention rates are a particular problem for comorbid perfectionism and OCD.

Another consideration is that perfectionism can be a common trait in clinical psychologists (Presley et al., 2017), and from a theoretical perspective may be problematic if therapists have unhelpful high standards for themselves and for clients. For example, therapist perfectionism could arguably lead to therapeutic rupture and diminish optimal treatment outcomes. Indeed, perfectionism has been associated with stress and burnout in clinical psychologists (D'Souza et al., 2011). Education for clinical psychologists delivering CBT for perfectionism could be useful to promote insight and self-awareness, and strategies to manage stress levels associated with perfectionism, could be a useful focus for therapist supervision (Egan, Wade, et al., 2014). Future studies could examine these interactive effects, in particular whether supervision focusing on issues relating to therapists' perfectionism ameliorates any negative effects of therapists' perfectionistic beliefs if these are identified.

The modality of CBT for perfectionism delivery also needs further consideration given that a number of participants in study 3 declined group treatment. Across mixed samples, both individual and group modalities of CBT for perfectionism have previously produced reductions in perfectionism and disorder specific symptoms (Lloyd et al., 2015), but comparison of individual versus group CBT for perfectionism across diagnostic groups, including OCD, is needed. It was apparent that the prospect of group therapy was a barrier to commencing treatment for some individuals who declined to participate in study 3. However, in study 4 it was identified that once clients were engaged in treatment the group structure facilitated the cohesion and a shared experience, which appeared to be particularly important in the context of an OCD diagnosis. OCD is heterogeneous (Bragdon & Coles, 2017; Lochner & Stein, 2003) and typically perceived by the individual as

exceptional and unable to be understood by others. The group modality of CBT for perfectionism provided a means to normalise experience, which can be challenging in a one-to-one therapy setting. However, in a RCT that compared modality of delivery of ERP for OCD, Anderson and Rees (2007) found that dropout from individual therapy (19%, $n=4$) was comparable to group therapy (12%, $n=3$). These similar dropout rates suggest that cohesion and normalising to facilitate engagement is not necessarily a function of the group format, and thus further investigation is required. Future qualitative investigations should be conducted in order to compare both client and therapist perceptions of differences in group versus individual therapy for perfectionism in OCD. Further, in study 4, it was found that incidental mistakes made by therapists during sessions became a useful tool to model imperfection. However, it is acknowledged that therapists modelling mistakes may not always result in a positive experience, for example if clients equate these mistakes to lack of thoroughness or competence. The impact of perceived therapist perfection or imperfection may be an important aspect of the therapeutic process that can be further explored as the evidence base for CBT for perfectionism treatment continues to evolve.

7.2 Translating evidenced-based treatment into evidenced-based practice

The pilot RCT (study 3) provides important preliminary support for the use of CBT for perfectionism in OCD, and contributes to the developing evidence base for the intervention. Encouragingly, individuals in the community have been found to be knowledgeable about the potential benefits of evidenced-based treatments (McHugh, Whitton, Peckham, Wedge, & Otto, 2013) and seek CBT as a preferred approach (Layard & Clark, 2014). Evidenced-based practice is recognised as a catalyst to

effective therapy across disorders (Barlow, 2008), but there is a concern in the field that evidenced-based treatments do not unequivocally translate into evidence based practice (Dobson & Beshai, 2013). These concerns are, in part, based on the fact that the public health impact of well-established interventions remains below standard (Insel, 2009; Olfson & Marcus, 2010). Several barriers are thought to affect the implementation of evidenced-based practice, and are important to consider as the evidence base for CBT for perfectionism continues to develop across disorders, and in OCD.

One issue is “therapist drift”(Waller, 2009), which refers to practitioner overreliance on clinical experience at the expense of standardised and evidenced-based strategies. In an online sample of 736 therapists, it was found that evidence from clinical trial outcomes played a minimal role in therapists’ theoretical orientation and clinical decision making (Gyani, Shafran, Myles, & Rose, 2014). In contrast, a significantly greater proportion of therapists reported that the source of their clinical decision making was personal experience with clients, discussions with peers (Gyani et al., 2014). With regards to OCD in particular, researchers have found that some therapists rely solely on clinical experience in decision making, and in doing so, omit key components of CBT that have been deemed essential for at least minimum effectiveness in controlled trials (Stobie, Taylor, Quigley, Ewing, & Salkovskis, 2007). In their OCD sample, 60% of individuals who reported receiving CBT did not meet pre-defined minimal criteria for adequacy at post-treatment (Stobie et al., 2007).

Collaborative, client-centred case formulation is central to evidenced-based practice of CBT, and is designed to integrate the client experience with theory and research (Eells, 2007; Kuyken, Padesky, & Dudley, 2009). Zivor, Salkovskis,

Oldfield, and Kushnir (2013) assessed the quality of CBT based case formulations for OCD developed by clinicians ($N=85$), and found the average standard to be “poor” increasing to “adequate” following training. In a sample of 29 OCD clients, Nattrass, Kellett, Hardy, and Ricketts (2015) found that although the use of early case formulation in treatment did not impact OCD outcomes, there was a significant improvement in levels of client distress, the therapeutic alliance, and attrition. Increased focus on ongoing clinician training and supervision for case formulations early in treatment may assist to improve evidence-based practice in OCD. Egan, Wade, et al. (2014) draw attention to the importance of individualised case formulation in the treatment of perfectionism. Given the high drop-out in the randomised pilot trial in study 3 (42%) and difficulties with client engagement identified by the therapists in study 4, an increased focus on revisiting the case formulation throughout the group treatment process as is typical in the individual version of the treatment, and in supervision may be key in strengthening the therapeutic alliance and reducing attrition in perfectionism-related group OCD treatment.

Kyrios et al. (2015) note that consistent delivery of CBT based interventions for OCD remains unreliable due to the existence of few manualised formats where treatment integrity can be evaluated. Researchers have also drawn attention to a shortage in availability of standardised CBT relative to the demand, which has led some international healthcare systems (e.g., the National Health Service in England) to adopt a “stepped approach” whereby minimalist intervention is used for mild problems (Clark et al., 2009). Shafran et al. (2009) highlight several reasons for incongruence between evidenced-based treatment and practice in CBT. First, there are commonly held beliefs by therapists (i.e., that RCT data does not generalise to

therapeutic settings because participants in trials are subject to exclusion criteria and are therefore less severe; beliefs about non-specific therapist factors that play a greater role in determining treatment outcomes than manualised protocols; and beliefs about the rigidity of protocols based on diagnostic label). Second, there are also gaps in knowledge of CBT delivery coupled with inadequate training opportunities and supervision; lack of minimum therapy dosages for clients, and difficulties in measuring therapy quality and therapist adherence to protocols (Shafran et al., 2009).

Shafran et al. (2009) emphasise the need for greater availability of standardised CBT manuals at reasonable cost, access to clinician training in the use of diagnostic assessments, adequate therapist supervision, establishment of a minimum therapist skill level and assessment of competence in disseminating CBT, and discernment between patients who could benefit from lower intensity (i.e., internet based) intervention versus those whose severity necessitates face-to-face treatment. In a review of current evidence, Stirman, Gutner, Langdon, and Graham (2016) provide further recommendations to improve dissemination of evidenced-based CBT, including matching training strategies to individual therapist characteristics, therapist fidelity monitoring and provision of feedback, and the use of transdiagnostic interventions that target core elements across disorders. The pilot RCT presented in study 3 (Chapter 4) implemented a transdiagnostic intervention and therapist fidelity and adherence to protocol were monitored. These elements should continue to be prioritised in future CBT for perfectionism trials given their importance in shaping evidence-based CBT practice.

7.2.1 The efficiency of transdiagnostic versus disorder-specific treatments

Transdiagnostic interventions can assist in the delivery of evidenced-based practice in clinical settings and reduce the number of protocols that are applicable to only a single diagnosis (Barlow, Bullis, Comer, & Ametaj, 2013; Craske, 2012; Farchione & Bullis, 2014). Conceptually, the rationale for transdiagnostic treatment is informed by evidence that disorders share several characteristics including temperamental antecedents, symptoms, course, and response to treatment (Goldberg, 2010; Krueger & Eaton, 2015). There is growing support for transdiagnostic modalities given their pragmatic utility over disorder-specific treatments, including simplified treatment planning for clinicians and patients, and reduced costs (McHugh, Murray, & Barlow, 2009; Titov, Dear, Johnston, & Terides, 2012). Current evidence from RCTs indicate that CBT based transdiagnostic approaches are comparable with disorder-specific treatments in terms of treatment outcome and a moderate to large magnitude of effect in anxiety and depressive disorders (Newby, McKinnon, Kuyken, Gilbody, & Dalgleish, 2015; Titov et al., 2015) and meta-analyses (Andrews, Cuijpers, Craske, McEvoy, & Titov, 2010; McEvoy, Nathan, & Norton, 2009; Păsărelu, Andersson, Bergman Nordgren, & Dobrea, 2017; Pearl & Norton, 2017; Reinholt & Krogh, 2014).

As demonstrated in this thesis, CBT for perfectionism is a transdiagnostic approach with preliminary evidence of efficacy in OCD, as well as across disorders as demonstrated in previous RCTs (Egan, van Noort, et al., 2014; Handley et al., 2015; Riley et al., 2007; Steele et al., 2013). However, stronger evidence for CBT for perfectionism is needed in trials that directly compare the use of CBT for perfectionism with disorder-specific treatments. Although this has occurred for eating disorders with bulimia nervosa patients (Steele & Wade, 2008), it is yet to occur for OCD, anxiety disorders, and affective disorders. The problem is that

comorbidity is the norm rather than exception in the clinical field (Gadermann, Alonso, Vilagut, Zaslavsky, & Kessler, 2012; Goldstein-Piekarski, Williams, & Humphreys, 2016), particularly given that the DSM-5 (APA, 2013) retains a categorical approach to diagnoses. High comorbidity is commonplace when it is considered that more than 50% of individuals diagnosed with a mental disorder will meet criteria for other disorders within one year (Kessler, Chiu, & Demler, 2005). In OCD, the vast majority of individuals meet criteria for comorbid anxiety disorders (75.8%) and mood disorders (63.3%; Ruscio, Stein, Chiu, & Kessler, 2010). However, limited research has been conducted to inform guidelines on treating multiple diagnoses, and there is an absence of evidenced-based interventions that address varied comorbid presentations, even in well-established areas of research such as mood and anxiety disorders (Whisman, 2008).

Craske et al. (2007) recommend that clinicians should discern between primary and secondary presenting issues and treat consecutively, but this does not offer time and administrative efficiency for therapists, or cost efficiency for clients and health services. In contrast, Bieling et al. (2004) asserts that amelioration of an underlying transdiagnostic maintaining factor of perfectionism more efficient than treating individual disorders sequentially. As examined in this thesis, a transdiagnostic approach can be used to target an array of disorders underpinned by perfectionism (Egan et al., 2011), and can maximise therapeutic resources, particularly if delivered in a group format (Bieling et al., 2013). Conceivably, time in treatment and the number of sessions required may reduce if therapeutic tasks promote skills generalisation for clients. For example, transdiagnostic formulations may be helpful in identifying common processes that implicate comorbid diagnoses. Psychoeducation can be provided to clients regarding the impact of transdiagnostic

maintaining mechanisms, which may have application to both primary and comorbid issues (Dudley, Kuyken, & Padesky, 2011; Nolen-Hoeksema & Watkins, 2011). For example, in individuals with OCD and elevated perfectionism, the clinician can provide a client centred formulation about how obsessions and compulsions driven by perfectionism, perfect performance of rituals, and the need for just right feelings are reinforced by providing short term reductions in anxiety (Hood & Antony, 2016).

Until further research is conducted, disorder-specific interventions for OCD (e.g., ERP) should be retained as first line as they have a solid evidence base (Stewart & Chambless, 2009). Disorder-specific interventions for OCD are appropriate and effective if delivered with fidelity and based on individualised case formulations (Nattrass et al., 2015; Zivor et al., 2013). In cases where underlying mechanisms (e.g., perfectionism) are deemed to be maintaining core psychopathology or interfering with ERP, CBT for perfectionism may be warranted.

7.2.2 Clinical implications of CBT for perfectionism in OCD

The findings presented in this thesis have provided encouraging preliminary support for the efficacy of CBT for perfectionism in OCD. However, it is important that clinicians discern the appropriateness of the use of CBT for perfectionism in therapeutic practice. As recommended in the CBT for perfectionism treatment manual (Egan, Wade, et al., 2014) and recommendations for the treatment of perfectionism in OCD (Egan & Shafran, 2017; Pinto et al., 2017), the decision to pursue CBT for perfectionism needs to be informed by a functional analysis and conceptualisation of perfectionism as either the primary issue, a key maintaining

factor in the primary diagnosis, or interfering with disorder-specific intervention (Egan & Shafran, 2017). CBT for perfectionism may also be appropriate where individuals have not responded to gold standard intervention (e.g., ERP for OCD), or where counter-therapeutic perfectionism behaviours are preventing engagement in ERP tasks. Clinicians should be attuned to potential counter-therapeutic perfectionism behaviours in OCD clients that may compromise treatment, such as being unable to start exposure tasks until details are understood perfectly, or asking for extensive and absolute clarification of details about how to correctly engage in exposure tasks. These behaviours can exacerbate cognitive process in OCD such as reassurance seeking, and exhaustive clarification of details may be a means to focus on intellectual discussion and avoid discomfort (Hood & Antony, 2016). Similarly, perfectionism may interfere with therapeutic progress. For example, clients may have difficulty creating a graded exposure hierarchy with the therapist due to a subjective of perception of needing to create a “perfect” hierarchy and complete the tasks “perfectly”, or a need for exactness and precision in expressing thoughts that interferes with collaborative understanding and shared formulation.

Accordingly, future studies could examine whether CBT for perfectionism after receiving standard ERP assists in the maintenance of changes from ERP and reduction in relapse. For example, researchers could compare individuals who receive ERP followed by further sessions of ERP with those who receive ERP followed by CBT for perfectionism. Furthermore, where individuals have not responded to ERP or where perfectionism has interfered with engagement in ERP, clinicians and researchers could trial the efficacy of starting with CBT for perfectionism to ameliorate perfectionism symptoms and whether this is associated with subsequent ERP engagement and outcomes. An RCT with three arms: ERP,

CBT for perfectionism, and a waitlist-control would also be an important next step in the research to directly compare their impact on OCD outcomes.

7.3 Overall strengths and limitations of the research

Strengths and limitations of each successive study have been discussed above and within the context of the relevant chapters, but there are also broader strengths and limitations of the research that are worth mentioning. The collective body of studies presented in this thesis has made a significant contribution to the wider clinical discipline, and in particular to the field of obsessive-compulsive disorders. First, while methodological issues relating to personality assessment have been widely acknowledged in the literature, few researchers have gone beyond recognising problems of heterogeneous criteria and poor psychometrics. This is a serious limitation given the number of issues that have been identified in relation to the reliability of personality disorder diagnoses, the assessment of OCPD specifically, and the subsequent impact on diagnostic accuracy and treatment decisions (Tyrer et al., 2015). In this thesis, the investigation of the OCPD construct, and examination of the factor structure and reliability of a dimensional measure of OCPD attempted to reconcile some of these issues, with direct application and discussion of implications for clinicians who will be able to use the POPS as a valid and reliable tool to assess OCPD traits.

Another strength concerns the examination of the three main constructs in this thesis; OCD, OCPD, and perfectionism, which are often examined in isolation. For example, literature regarding the aetiology and treatment of OCD as a discrete issue

has been widely established (Abramowitz, 2017; Abramowitz et al., 2009; Olatunji et al., 2013). However, there is a relative paucity of research assessing the co-occurrence of OCD, OCPD, and perfectionism. The integrated examination provided in this thesis covered a range of issues from assessment and diagnosis, to treatment considerations and therapeutic recommendations. A further strength of this thesis lies in the use of mixed-methods research. As the development of sound measurement and psychological intervention in this area continues to evolve, the combination of quantitative and qualitative techniques used in this project serve to contribute to the breadth and depth of understanding of OCPD and perfectionism, with key therapeutic process considerations in the treatment of OCD.

A limitation was the sample sizes of the treatment studies, which were too small to make definitive conclusions and generalisations about the treatment of perfectionism in OCD. Also, the treatment trial did not include a disorder-specific treatment arm and therefore claims could not be made regarding the efficacy of CBT for perfectionism in comparison to ERP. Although gold standard RCT design stipulates inclusion of a targeted treatment, alternative treatment, and waitlist-control, a number of researchers note the challenges associated with this design (e.g., attrition), and acknowledge that observations regarding treatment efficacy can still be made (Grossman & Mackenzie, 2005; Schwartz, Trask, Shanmugham, & Townsend, 2004).

The difficulties with recruitment and retention that were observed in this research highlighted potential difficulties associated with engaging individuals with OCD and perfectionism that were able to be explored in-depth with the clinicians involved in treatment. Accordingly, the treatment trial and experiences of the therapists have provided avenues for future research, including the possibility of

internet-based interventions for perfectionism in OCD, or further specialised treatment for perfectionism-related OCD (Hood & Antony, 2016). The use of mixed-methods (quantitative augmented by qualitative) techniques used in this thesis has contributed to the breadth and depth of understanding of OCPD and perfectionism, with key content and therapeutic recommendations for the treatment of OCD.

7.4 Conclusion

In this thesis, preliminary evidence was found for the validity and reliability of the POPS as a measure of OCPD traits. The bifactor structure increases our understanding of the constructs assessed by the POPS, and provides a tool for clinicians and researchers to assess OCPD symptoms using the general factor (total score), and specific domains (subscale scores) based on individual case conceptualisation and need. The finding that OCPD and conscientiousness traits were not predictive of OCD in this research contributes to a body of mixed findings regarding the association between these disorders in the literature, and a lack of consensus regarding their association. Clarity regarding the association between OCD and OCPD may ensue from increased reliability in the measurement of the OCPD construct. In particular, the use of the POPS may assist researchers to reliably examine the association between OCD and OCPD.

One of the key sources of association between OCD and OCPD is the shared underlying perfectionism construct, which in some studies has been found to impede OCD outcomes. CBT for perfectionism delivered in a group format was found to be efficacious at reducing perfectionism and OCD symptoms, however recruitment and attrition were problematic. The literature regarding perfectionism treatment is still developing, but the increasing number of RCTs are serving to strengthen the evidence base of CBT for perfectionism, whilst also providing broader support for

the utility of transdiagnostic interventions if future research can demonstrate efficacy in comparison to disorder-specific treatments. Given the resource efficiencies associated with the dissemination of transdiagnostic treatments (Pearl & Norton, 2017; Rodriguez-Seijas et al., 2015), CBT for perfectionism may be a viable alternative to disorder-specific interventions. Future research could extend upon the current treatment trial findings by replicating the study with a larger sample, and conducting a RCT comparing CBT for perfectionism with disorder-specific treatment for OCD (e.g., ERP), and a waitlist-control condition. Ultimately, it is envisaged that where the use of disorder-specific treatment is ineffective or inefficient as identified by treatment outcomes and functional analysis, CBT for perfectionism may present a viable and efficient alternative for a range of psychological disorders, including OCD.

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CALLING ALL UNDERGRADUATE STUDENTS!

Are you 18 years or over?

Are you a current undergraduate student?

Would you like to participate in upcoming research for course credit?



If you answered YES to these questions, you may be eligible to participate in a study within the School of Psychology and Speech Pathology.

The purpose of this study is to determine the validity of a new measure of a personality style regarding setting high personal standards and goals.

If you would like to participate in this research please visit the following link <https://curtin.sona-systems.com>. All you will need is access to a computer!

Please forward any questions to:

shalane.sadri@postgrad.curtin.edu.au

Appendix B: Participant information – Online POPS study (sample from online questionnaire)



Curtin University

Participant Information (Personality Scale Validation Study)

Thank you for taking the time to read this information and take part in this research. I am a Clinical PhD student in the School of Psychology and Speech Pathology and am investigating a new measure of a personality style associated with perfectionism. The purpose of the study is to increase the accuracy with which this personality style is measured so that clinicians can improve diagnoses and treatments used. If you decide to participate, a series of questions will be asked as well as demographic details. Participation in this research will take approximately 45 minutes. It is intended that the research will be published, but any information used will remain anonymous and not identifiable to you personally.

Please read the following statements and if satisfied and you would like to participate, please **enter your name and email address at the bottom of this page**. You will immediately receive an email with the link and password for this study.

- I understand that my information will be treated with confidentiality by the researchers involved.
- I understand that the results and data from this study may be used for publication of research at a later date. I am satisfied that any information released will remain anonymous and not be identifiable or traceable to me personally.
- I agree that my details will be retained by the researcher and kept as a record of my consent.
- I agree to complete the questionnaires and take part in this study as has been outlined to me above. I am aware that I can withdraw my participation at any time without consequences to myself or the researcher.

If you have any questions, please do not hesitate to contact the head researcher Shalane Sadri by email; shalane.sadri@postgrad.curtin.edu.au

Your time and participation is appreciated!

This study has been approved by the Curtin University Human Research Ethics Committee (Approval Number HR 38/2014). The Committee is comprised of members of the public, academics, lawyers, doctors and pastoral carers. 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.



OCD Treatment Study

Hello,

My name is Shalane Sadri, I am a Clinical PhD student at Curtin University. I am interested in comparing current standard treatments with a new treatment for obsessive-compulsive disorder (OCD). Often individuals with OCD also have elevated perfectionism tendencies, and so the aim of this research is to determine whether targeting perfectionism directly in the treatment process is effective for those with OCD and elevated perfectionism.

Where: ALL TREATMENT SESSIONS WILL BE CONDUCTED AT THE PSYCHOLOGY & SPEECH PATHOLOGY CLINIC AT CURTIN UNIVERSITY'S BENTLEY CAMPUS, AT NO COST TO PARTICIPANTS.

What is involved: You will be randomly assigned to either 8 week cognitive-behavioural therapy targeting perfectionism or an 8 week waitlist control group. The use of a waitlist group is for research purposes; all individuals who are waitlisted will receive treatment at the end of the waitlist period.

Contact: If you are interested in participating, please contact the Curtin Psychology Clinic (Ph: 9266 3436).

If you have any questions about the study, please feel free to contact me via the clinic or email; shalane.sadri@postgrad.curtin.edu.au

Please pass on to any family, friends or colleagues. Your time is important and appreciated.

*This study has been approved by the Human Research Ethics Committee at Curtin University
Approval Code (HR 38/2014)*



Appendix D: Participant information – Pilot randomised controlled trial



Participant Information Sheet

My name is Shalane Sadri. I am a current PhD student in the School of Psychology and Speech Pathology at Curtin University.

Purpose of this research

The aim of this research is to compare current standard treatments and a new treatment for obsessive-compulsive disorder (OCD) and perfectionism. People who meet criteria will be randomly assigned to one of the following groups: cognitive-behavioural therapy targeting perfectionism or an 8 week waitlist control group. The use of a waitlist group is for research purposes; all individuals who are waitlisted will be randomly assigned to treatment at the end of the waitlist period.

You will be asked to complete a number of questionnaires to look at if treatment is effective, as well as how good some of the measures are at measuring aspects of OCD. We are also interested in your views about how acceptable you find treatment. In order to do this, the final session will be extended to ask your opinions on your overall treatment experience.

What does it involve?

After reading this information, if you decide to participate please read and sign the consent form and return this via post to Curtin University using the reply paid envelope.

You will then receive a phone call from one of the researchers (supervised clinical psychology trainees) from Curtin University involved with this study, who will ask you a few questions which will help us to know if you will be eligible to participate. You will also have the opportunity to ask any questions. Following this, I will arrange a time for you to come into the Clinic. During this meeting, supervised clinical psychology students will complete an interview with you relating to OCD and perfectionism and will also need to complete some questionnaires. This should take approximately 2 hours. Treatment sessions will be once-weekly for 2 hours over 8 weeks and are free. All treatment sessions will be held at the Psychology and Speech Pathology Clinic at Curtin University and you will receive a parking permit so there is no cost incurred. The researcher will contact and invite you back to the Clinic for 3 month and 6 month follow-up. At each follow up will be paid \$20 to reimburse you for your time.

Participation is voluntary

Your participation in this study is entirely voluntary and there is no obligation to partake. If you do choose to participate, you can withdraw from the study without any negative consequences. You are able to withdraw at any point, up until data has been collected and entered by the researcher. This is because each participant will be allocated a random, non-identifiable number which will be attached to the answers

and information you provide during research. If you choose to withdraw, you can continue to receive the treatment course or alternatively we can refer you to appropriate services.

Potential risks

It is possible that you may not benefit from treatment. We foresee that this risk of not benefiting will be outweighed by the likelihood of benefits to be gained from treatment given the research studies to date indicating the evidence for these treatments. However, you are free to withdraw participation at any time with no negative consequences to you.

Potential benefits

One of the aims of this study is to provide you with treatment that may reduce symptoms. We also aim to improve available treatments for those who suffer with OCD in the wider community.

Confidentiality

All information is confidential and only accessible to the therapists and researchers associated with this study. All files will be stored in a locked cupboard at the Clinic which only the primary researcher and supervisors will have access to. If the study is published at a later date, no identifying information will be used. Data collected will be retained for a period of 5 years, in a locked cabinet in the supervisor's office.

Contact details

If you have any questions, please feel free to contact myself (Shalane Sadri - primary researcher) by email shalane.sadri@postgrad.curtin.edu.au Alternatively, you can contact my research supervisors Dr. Sarah Egan; S.Egan@exchange.curtin.edu.au or Dr. Rebecca Anderson; Rebecca.Anderson@curtin.edu.au.

Appendix E: Participant consent form – Pilot randomised controlled trial

Consent Form











PRINCIPAL RESEARCHER: Shalane Sadri, Curtin University

SUPERVISORS: Dr. Sarah Egan, Dr. Rebecca Anderson, Dr Peter McEvoy, Dr. Robert Kane

I _____,

have read the information sheet and give my voluntary consent to participate in this research.

I acknowledge that I have been informed about the purposes of this research. I understand that this study will be exploring the role of perfectionism in OCD and providing treatment for this at the Psychology and Speech Pathology Clinic, Curtin University.

-  I understand that I am able to ask the researcher any questions and have been provided with contact details to do so.
-  I understand that I will be randomly allocated to receive one of two available treatments being investigated in this study. I understand that it is possible that I may not benefit from the treatment provided.
-  If on medication; I agree to try and remain on a stable dose of antidepressant medication for one month before treatment and throughout the study
-  I understand that my personal information will be treated with confidentiality by the researchers and therapists involved. I understand that information will be stored in a locked cupboard in the Psychology and Speech Pathology Clinic at Curtin University.
-  I understand that the results and data from this study may be used for publication of research at a later date. I am satisfied that any information released will not be identifiable or traceable.
-  I agree that my signed consent form will be retained by the researcher and kept as a record of my consent.
-  I understand that I am able to freely withdraw my participation without consequences and may continue to receive treatment or be referred to another service
-  I agree to participate in this study and undertake treatment as has been outlined to me.

Signed _____ Date ____/____/____

Appendix F: Participant information and consent: Therapists



Curtin University

Barriers to treatment study: Therapist perspectives

Thank you for taking the time to read this information and take part in this research. My name is Shalane Sadri. I am a Clinical PhD student in the School of Psychology and Speech Pathology at Curtin University. My area of research is focusing on clients with obsessive compulsive disorder and elevated perfectionism.

As a clinician working with clients with perfectionism tendencies, I am interested in your perspectives on what you felt worked well versus potential barriers in the treatment process. Your participation will involve attending one individual interview at the Curtin Adult Psychology Clinic which is expected to run for approximately 60 minutes. You will be asked a series of semi-structured questions and given the opportunity to provide open ended responses which reflect your experience. It is intended that the outcomes of this research will be published, however any information used will remain anonymous and not identifiable to you personally. If you have any queries, please feel free to contact Shalane Sadri via the Curtin Adult Psychology Clinic on 9266 3436.

Please read the following statements and if you agree, sign your name and provide the date below.

I understand that my information will be treated with confidentiality by the researchers involved.

1. I give permission for the interview to be video recorded and used in analysis. I am aware that the video will be stored confidentially and only accessed by researchers involved in this project.
2. I understand that the results and data from this study may be used for publication of research at a later date. I am satisfied that any information released will remain anonymous and not be identifiable or traceable to me personally.
3. I agree that my signed consent form will be retained by the researcher and kept as a record of my consent.
4. I am aware that I can withdraw my participation at any time without consequences to myself or the researcher.

Name _____

Signature _____

Date ____/____/____

This study has been approved by the Curtin University Human Research Ethics Committee (Approval Number HR 38/2014). The Committee is comprised of members of the public, academics, lawyers, doctors and pastoral carers. 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

Appendix G: Copy of article published in Behavioural and Cognitive Psychotherapy

Behavioural and Cognitive Psychotherapy, 2017, 45, 524–529
First published online 10 April 2017 doi:10.1017/S1352465817000194

The Relationship between Obsessive Compulsive Personality and Obsessive Compulsive Disorder Treatment Outcomes: Predictive Utility and Clinically Significant Change

Shalane K. Sadri, Peter M. McEvoy, Sarah J. Egan, Robert T. Kane, Clare S. Rees and Rebecca A. Anderson

School of Psychology and Speech Pathology, Curtin University, Perth, Australia

Background: The evidence regarding whether co-morbid obsessive compulsive personality disorder (OCPD) is associated with treatment outcomes in obsessive compulsive disorder (OCD) is mixed, with some research indicating that OCPD is associated with poorer response, and some showing that it is associated with improved response. **Aims:** We sought to explore the role of OCPD diagnosis and the personality domain of conscientiousness on treatment outcomes for exposure and response prevention for OCD. **Method:** The impact of co-morbid OCPD and conscientiousness on treatment outcomes was examined in a clinical sample of 46 participants with OCD. **Results:** OCPD diagnosis and scores on conscientiousness were not associated with poorer post-treatment OCD severity, as indexed by Yale-Brown Obsessive Compulsive Scale (YBOCS) scores, although the relative sample size of OCPD was small and thus generalizability is limited. **Conclusion:** This study found no evidence that OCPD or conscientiousness were associated with treatment outcomes for OCD. Further research with larger clinical samples is required.

Keywords: Obsessive compulsive disorder, obsessive compulsive personality disorder, conscientiousness.

Introduction

Obsessive compulsive personality disorder (OCPD) is the most common personality disorder in obsessive compulsive disorder (OCD), with a co-morbidity rate of up to 47.3% (see Supplementary material for details). Individuals with OCD and co-morbid OCPD may be at risk of poorer outcomes as a result of ambivalence or resistance to treatment if their obsessions align with their personal values, impacting on motivation to change. Whilst several studies have found that OCPD traits are predictive of worse treatment outcomes (see Wetterneck et al., 2011), Gordon et al. (2016) found that those with a co-morbid OCPD diagnosis demonstrated greater treatment gains in relation to OCD severity than those without OCPD.

Studies that have found OCPD to be associated with poorer outcomes raise the question as to whether dimensional aspects of OCPD also play a role in treatment response. Conscientiousness has been of interest in OCD research given its alignment with OCPD

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pathology, such as order, achievement-oriented behaviours, and perfectionism. Studies that have examined conscientiousness in OCD have utilized the Revised NEO Personality Inventory (NEO PI-R; Costa and McCrae, 1992) that measures conscientiousness with six subscales: competence, order, dutifulness, achievement-striving, self-discipline, and deliberation. Studies that have examined conscientiousness among OCD samples have yielded mixed findings. Rector et al. (2005) found no difference in conscientiousness scores between a depressed sample and an OCD sample when controlling for level of depression. However, Rees et al. (2005) compared OCD patients with anxious and depressed non-OCD patients and whilst they found no overall differences in conscientiousness, they did find that the OCD patients had lower scores on the competence and self-discipline facets (see Supplementary material for details). Other studies employing the NEO PI-R or Big Five Inventory measures have found that conscientiousness shows no statistically significant relationship with OCD, suggesting that this personality domain may not be critical to OCD (see Wetterneck et al., 2011).

There is a relative dearth of research that has examined OCPD and personality (e.g. conscientiousness) in relation to OCD outcomes, and further, the evidence regarding these relationships is mixed. Although studies have identified low scores on conscientiousness in OCD (Rector et al., 2005; Rees et al., 2005), facets of conscientiousness have been found to be predictive of post-treatment severity, and thus further research is required to clarify the impact of these associations on treatment outcome. Studies that have examined conscientiousness in OCD have only made comparisons with anxious or depressed populations, as opposed to OCPD. Examining OCD treatment outcomes based on OCPD and conscientiousness is important given the co-morbidity between OCPD and OCD, the association between conscientiousness and OCPD, and the conflicting evidence regarding the role of OCPD in OCD outcomes.

The aim of the current study was to determine whether OCPD diagnosis and the personality domain of conscientiousness were predictive of post-treatment OCD severity. Based on previous findings it was predicted that co-morbid OCPD and the conscientiousness facets of competence, self-discipline and deliberation would be negatively associated with poorer treatment outcomes.

Method

Participants

Data for this study came from a published trial of Exposure and Response Prevention (ERP) therapy for OCD (Anderson and Rees, 2007; see Supplementary Material for details).

In the current study, all participants ($N = 46$) met criteria for a primary diagnosis of OCD and a total of 11 participants (23.9%) met criteria for a co-morbid diagnosis of OCPD. Treatment outcomes were compared for participants with and without OCPD, with analyses based on this co-morbidity herein referred to as the 'OCD only' ($n = 35$) and 'OCD/OCPD' groups ($n = 11$).

Materials

Participants were diagnosed via the Structured Clinical Interview for DSM-IV. The clinician-administered Yale-Brown Obsessive Compulsive Scale (YBOCS) was used as the primary

outcome measure of OCD severity at pre- and post-treatment. The NEO PI-R (self-report) was used to measure dimensional conscientiousness (see Supplementary Material for details).

Procedure

Participants in the current study were randomized to 10-week individual or group ERP therapy for OCD. All treatment and assessment procedures were conducted at the Curtin University Psychology Clinic. Diagnostic interviews were recorded and 25% reviewed for reliability. All measures were completed prior to the first treatment session, and the YBOCS was re-administered at the final treatment session (see Anderson and Rees, 2007).

Results

Descriptive clinical and demographic data

No significant differences were found on sociodemographic variables between the OCD only and OCD/OC PD groups (see Supplementary Material for further details).

Pre-treatment means

Assumption testing and analyses were conducted using the Statistical Package for the Social Sciences (SPSS) version 22.0 (see Supplementary Material for details). YBOCS scores for the OCD/OC PD group were as follows: obsessions (mean = 11.82, $SD = 4.90$), compulsions (mean = 13.09, $SD = 3.51$); and for OCD only: obsessions (mean = 12.11, $SD = 3.88$), compulsions (mean = 12.26, $SD = 3.55$). The mean pre-treatment total YBOCS score for the OCD/OC PD group indicated 'severe' symptoms (mean = 24.91, $SD = 7.76$), which was comparable to 'severe' symptoms in the OCD only group (mean = 24.40, $SD = 6.54$). An independent samples t -test indicated that the difference was not statistically significant and the effect size was small; $t(44) = -.22$; $p = .83$; 95% confidence interval of the mean difference (CI) -5.28 to 4.26; $d = -.07$. The OCD/OC PD group reported higher total NEO PI-R conscientiousness scores (mean = 42.90, $SD = 11.27$) compared with OCD only (mean = 38.32, $SD = 11.91$). An independent samples t -test indicated that this difference was not statistically significant and the effect size was small to medium; $t(39) = -1.12$, $p = .27$; 95% CI -12.82 to 3.67; $d = -.39$.

Bivariate correlations

Pearson's bivariate correlation coefficients were calculated to assess covariation between categorical OC PD diagnosis (minimum of four out of eight DSM-IV OC PD symptoms coded as present and clinically significant at baseline) and dimensional NEO PI-R conscientiousness scores at pre-treatment, with OCD severity (YBOCS scores) at post-treatment. Partial correlation analyses were used to explore the association between post-treatment OCD severity with OC PD diagnosis and the facets of conscientiousness, after controlling for pre-treatment YBOCS scores.

Bivariate correlations revealed that only total pre-test YBOCS symptoms were significantly correlated with total post-test YBOCS severity, which demonstrated a moderate, positive

relationship; $r(46) = .61, p < .001$. The association between post-test YBOCS severity and the remaining variables were weak: OCPD diagnosis [$r(46) = .08, p = .62$]; competence [$r(41) = -.41, p = .80$]; self-discipline [$r(41) = .06, p = .70$]; deliberation [$r(41) = -.20, p = .22$]. The associations between OCPD diagnosis and YBOCS obsessions pre [$r(46) = -.03, p = .84$], YBOCS compulsions pre [$r(46) = .10, p = .50$], YBOCS obsessions post [$r(46) = .06, p = .70$], YBOCS compulsions post [$r(46) = .09, p = .55$], were small and non-significant.

Partial correlations

The trends in the partial correlations, controlling for pre-treatment YBOCS scores, were consistent with bivariate correlations, weak and statistically non-significant; OCPD diagnosis [$r(38) = .10, p = .54$]; competence [$r(38) = .10, p = .55$]; self-discipline [$r(38) = .24, p = .15$]; deliberation [$r(38) = -.08, p = .62$]. Furthermore, the associations between OCPD diagnosis and post-treatment discrete YBOCS scores, controlling for YBOCS pre-treatment scores, were weak and statistically not significant; YBOCS obsessions post [$r(38) = .09, p = .60$]; YBOCS compulsions post [$r(38) = .11, p = .52$]. A power analysis conducted using G*Power 3.1.9.2 indicated that the study was underpowered to detect a statistically significant, medium-sized (.30) association between OCPD and conscientiousness with OCD outcome; a sample size of 82 ($\alpha = .05$, two-tailed, 80% power) would have been required to detect these effects.

Discussion

It was predicted that co-morbid OCPD and the conscientiousness facets of competence, self-discipline and deliberation would be associated with poorer treatment outcomes, but our results indicated that treatment outcome was not impacted by the presence of OCPD or conscientiousness. Neither OCPD diagnosis nor pre-treatment conscientiousness facets of competence, self-discipline and deliberation, were predictive of post-treatment OCD symptom severity. Further, rates of recovery between the OCD/OCPD and OCD-only group were comparable based on relative proportions in each group (see Supplementary material).

Our findings are in contrast to previous studies that have found OCPD traits, such as perfectionism, to be associated with poorer outcomes in OCD (see Wetterneck et al., 2011). Our results align with a recent investigation indicating that co-morbid OCPD diagnosis is not associated with poorer OCD outcomes (Gordon et al., 2016). However, in contrast to the findings by Gordon and colleagues (2016), our results did not indicate that OCPD was associated with greater improvement. Whilst earlier studies (Rector et al., 2005; Rees et al., 2005) found conscientiousness to differ between OCD and non-OCD clinical samples, in the current study, conscientiousness scores *per se* were not found to have an impact on treatment outcome.

It is acknowledged that there were methodological constraints within the current study. Whilst the co-morbidity rate of OCPD in our sample (23.9%) was consistent with previous OCD studies (see Supplementary Material for details), the number of participants with co-morbid OCPD was relatively small, which limited the degree to which we were able to detect OCPD and conscientiousness as predictors of outcome; thus caution is warranted in generalizing these results. Further examination with larger samples with adequate statistical power to detect

smaller effects is required. The original trial from which the current data were derived was designed to examine differences between individual *versus* group ERP for OCD and not OCPD, and the SCID-IV skip-criteria were used in diagnosis, which meant that subsequent questions were omitted when insufficient criteria were endorsed to warrant further questioning (Anderson and Rees, 2007). As such, comprehensive dimensional data for OCPD were not collected and thus our analyses were limited to categorical examination. Given the evidence that particular traits of OCPD, such as perfectionism, are predictive of OCD outcomes, our research would have been strengthened by a broader examination of the predictive utility of individual OCPD traits.

Overall, the body of empirical findings regarding the role of OCPD and conscientiousness has been mixed, but our study failed to find any evidence that co-morbid OCPD or conscientiousness impacted on treatment outcomes for OCD. It is essential that future studies with larger clinical samples seek to augment this developing body of research to inform clinicians as to best practice treatment decisions for patients with OCD and concomitant OCPD traits.

Acknowledgements

Financial support: This research received no specific grant from any funding agency, commercial or not-for-profit sectors.

Conflicts of interest: Shalane K. Sadri, Peter M. McEvoy, Sarah J. Egan, Robert T. Kane, Clare S. Rees and Rebecca A. Anderson have no conflicts of interest with respect to this publication.

Ethics statement: This study has been approved by the Curtin University Human Research Ethics Committee (approval no. HR38/2014). The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, and its most recent revision.

Supplementary material

To view supplementary material for this article, please visit <https://doi.org/10.1017/S1352465817000194>

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A Pilot Investigation of Cognitive Behavioural Therapy for Clinical Perfectionism in Obsessive Compulsive Disorder

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and Sarah J. Egan

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Background: Perfectionism is strongly associated with obsessive compulsive disorder (OCD). Cognitive behavioural therapy for perfectionism (CBT-P) has been found to result in reductions in a range of symptoms in individuals with anxiety disorders, depression and eating disorders. **Aim:** To pilot-test the efficacy of group CBT for perfectionism in participants with OCD and elevated perfectionism. **Method:** Participants were randomized to receive immediate 8-week group CBT-P ($n=4$) or an 8-week waitlist followed by CBT-P ($n=7$). **Results:** Reliable reductions and a large effect size indicated that CBT-P was associated with improvements in perfectionism and OCD severity at post-test. However, these changes were not clinically significant and drop-out was high, resulting in a small final sample. **Conclusions:** CBT-P may be effective in reducing perfectionism and disorder-specific OCD symptoms. However, the high drop-out rate and lack of clinically significant findings suggest that further research needs to be conducted to determine the efficacy of CBT for perfectionism in OCD.

Keywords: Obsessive compulsive disorder, perfectionism, cognitive behavioural therapy.

Introduction

Perfectionism is argued to be a 'transdiagnostic' process that is an important risk and maintaining factor across a number of disorders (Egan et al., 2011). In particular, perfectionism is associated with obsessive compulsive disorder (OCD). The Obsessive Compulsive Cognitions Working Group argued that perfectionism is one of six core cognitive features of OCD (see Egan et al., 2011). Theorists have argued that perfectionism triggers the development of OCD, particularly a sense of having never performed actions in 'just' the right way (see Frost et al., 2002). Within the cognitive-behavioural model, OCD manifests from three cognitive distortions including perfectionism, the belief in the existence of perfect solutions, and a need for certainty (see Frost et al., 2002). Further, cognitions aligned with perfectionism can lead to misguided threat appraisal, which is at the core of OCD. For example, the belief that one must be perfectly competent or that failure to achieve perfect standards should result in punishment, perpetuates the repetition of compulsive behaviours in order to avoid feared consequences (see Frost et al., 2002).

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Perfectionism has been found to predict poorer treatment response in OCD (see Egan et al., 2011). Kyrios et al. (2015) found that pre-treatment perfectionism and intolerance of uncertainty were the only significant and unique predictors of treatment outcome in OCD. Kyrios et al. (2015) concluded that future OCD treatment may need to focus on changing perfectionism earlier in treatment to enhance outcomes. These findings suggest that it may be useful to directly target perfectionism in the treatment of OCD.

Given that perfectionism has been found to predict poorer treatment outcomes, it has been argued that this transdiagnostic construct should be directly targeted in treatment (Egan et al., 2011). A recent meta-analysis of eight trials found that CBT for perfectionism (Egan et al., 2014) is associated with large reductions in perfectionism and medium reductions in anxiety and depression (Lloyd et al., 2015). However, to date, studies have included insufficient participants with OCD (e.g. $n = 2$) to enable a comprehensive examination of the efficacy of CBT for perfectionism (CBT-P) for OCD.

The aim of this study was to compare group CBT-P to waitlist in a sample of participants with OCD. The mode of delivery of CBT-P in trials has been mixed. A number of studies have delivered CBT-P individually; however, larger trials have adopted group delivery to optimize time and cost efficiency (see Lloyd et al., 2015). To date, individual and group CBT-P have not been compared. As this is the first trial of CBT-P for OCD, group CBT-P was employed to maximize resource efficiency and the opportunity to deliver the intervention to more participants. It was predicted that CBT-P would be superior to waitlist in reducing clinical perfectionism and OCD severity at post-treatment and that these reductions would be maintained at 3-month follow-up.

Method

Design

The study employed a randomized waitlist-control design. Tabulated, block randomization was used to allocate participants into an 8-week group intervention or 8-week waitlist, which was carried out by an independent clinician to minimize selection bias. At the conclusion of the waitlist, participants were non-randomized to the intervention group (see supplementary material for further details regarding study design).

Inclusion and exclusion criteria

Inclusion criteria were: (i) age 18 years and above, (ii) a primary diagnosis of OCD, and (iii) elevated perfectionism indicated by a score of ≥ 22 on the concern over mistakes subscale of the Frost Multidimensional Perfectionism Scale (FMPS; Frost et al., 1990), which has been used as a cut-off in previous perfectionism treatment studies. Exclusion criteria included self-harm, moderate or severe suicidal ideation, psychosis, an organic mental disorder, substance abuse or dependence, or a principal diagnosis other than OCD. Participants were requested to not engage in other psychological intervention from baseline until 3-month follow-up, and to maintain a stable dose of psychotropic medication throughout the trial.

Procedure

Individuals who expressed interest were first screened over the telephone, which involved administering diagnostic screening instruments to determine suicide risk and the presence of

OCD and perfectionism symptoms. Eligible individuals based on this screening were then assessed face-to-face using a clinician-administered structured diagnostic interview and the outcome measures outlined below (see supplementary material for further details).

Measures

Outcome measures were administered to the waitlist group at pre-test and post-waitlist. The intervention group completed outcome measures at pre-treatment, post-treatment and 3-month follow-up. Outcome measures consisted of the Yale-Brown Obsessive Compulsive Scale (YBOCS); FMPS; concern over mistakes (CM) and personal standards (PS) subscales; and the Clinical Perfectionism Questionnaire (CPQ). See supplementary material for further details.

Participants

There were 74 individuals who expressed interest and were screened. A consort diagram is presented in Fig. 1. A total of 19 individuals (26%) were eligible and accepted into the study (69% female). There were 11 participants (age range 26–61 years, mean = 40.00, SD = 10.39) who completed treatment (42% drop-out), four who received treatment immediately and seven who received treatment following the waitlist period. A summary of OCD symptom presentations for the sample is presented in the supplementary material (Table S1).

Intervention protocol

CBT-P was delivered in groups, with 2-hour sessions held once weekly over an 8-week period (Egan et al., 2014). CBT-P has previously been found to be effective in reducing symptoms of anxiety, depression and eating disorders (Lloyd et al., 2015). Sessions were delivered by trainee postgraduate-level clinical psychologists, under the supervision of registered clinical psychologists.

Results

A within-subjects (paired-samples) analysis of effect sizes, together with an examination of statistically reliable and clinically significant change, was used to examine the efficacy of CBT-P versus waitlist.

Descriptive clinical means and effect sizes

Tabulated demographic data for the full sample is reported in the supplementary material (Tables S2 and S3). Descriptive clinical data for the waitlist and intervention group on each outcome variable was as follows: waitlist ($n=7$); CM: pre-treatment mean = 33.28, SD = 8.56, post-waitlist mean = 33.14, SD = 8.55; PS: pre-treatment mean = 28.57, SD = 4.47, post-waitlist mean = 29.42, SD = 3.36; CPQ: pre-treatment mean = 32.0, SD = 4.43, post-waitlist mean = 33.14, SD = 6.25; YBOCS: pre-treatment mean = 26.57, SD = 2.87, post-waitlist mean = 27.57, SD = 2.07; intervention ($n=11$); CM: pre-treatment mean = 33.00, SD = 2.08, post-treatment mean = 26.67, SD = 4.81, follow-up mean = 30.67, SD = 3.48; PS pre-treatment mean = 28.63, SD = 4.13, post-treatment mean = 26.45,

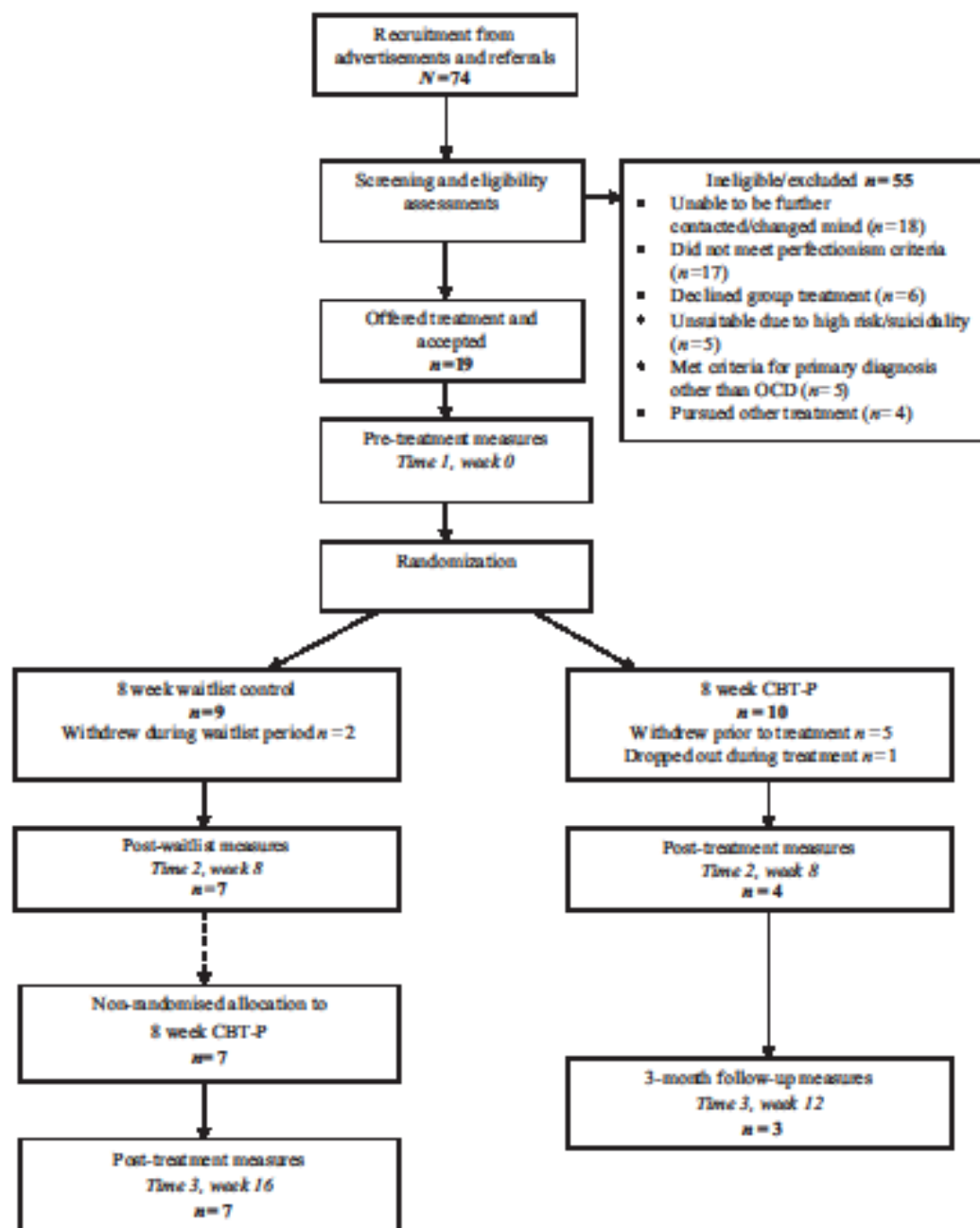


Figure 1. CONSORT diagram of participant recruitment and allocation through the study

SD = 3.61, follow-up mean = 27.67, SD = 2.60; CPQ: pre-treatment mean = 30.5, SD = 3.81, post-treatment mean = 27.33, SD = 5.17, follow-up mean = 24.33, SD = 2.73; YBOCS pre-treatment mean = 27.45, SD = 3.56; post-treatment mean = 16.45, SD = 5.22, follow-up mean = 15.67, SD = 2.96.

Effect sizes on each outcome variable are reported in Table 1 for the waitlist and intervention group. The intervention group demonstrated an improvement in perfectionism, which according to conventions (Cohen, 1992) indicated a large effect on CM; and a medium effect on PS and the CPQ. The waitlist group had a small effect on these variables. The largest improvement was for OCD symptoms, in which the intervention group demonstrated a considerable reduction in YBOCS symptoms as indicated by a mean reduction in severity of 11 points from 'severe' to 'moderate' at post-treatment.

Reliable change

A reliable change index (RCI) score was computed for each participant according to established criteria (see supplementary material). Results for statistically reliable change at post-test are reported in Table 1. Consistent with our predictions, the waitlist group indicated no reliable improvement on any perfectionism measure over the waitlist period, whereas five (45.5%, CM), two (18.2%, PS) and one (9.1%, CPQ) participant in the intervention group achieved a reliable reduction on the perfectionism measures. One waitlist participant indicated a decrease in the CPQ. The most pronounced improvement was for OCD severity, with all 11 participants in the intervention group displaying a reliable reduction in YBOCS symptoms at post-treatment. Two waitlist participants experienced a reliable deterioration in OCD severity. For each outcome measure, the strength of the association between group (intervention, waitlist) and reliable change (yes, no) was measured by the Phi statistic. The Phi coefficient indicated moderate associations for CM and CPQ, and a small-to-moderate association for PS. The strength of the association for YBOCS was large, strong and positive ($\Phi = 0.886$) indicating that, compared with the perfectionism outcomes, CBT-P had its strongest impact on OCD symptoms.

Tabulated reliable change index scores for intervention participants available at 3-month follow-up ($n = 3$) are reported in the supplementary material (Table S4). Two participants reported further improvement from post-test to follow-up in perfectionism on CM (Frost et al., 1990), and one participant indicated reliable deterioration in perfectionism. One participant reported a reliable improvement in perfectionism according to the CPQ, whilst two participants reported a reliable deterioration. Each participant demonstrated reliable improvement in OCD symptoms at follow-up.

Clinically significant change

Clinically significant change indicates whether a participant's post-treatment score on an outcome measure is more likely to represent the functional or the dysfunctional population. In the absence of normative reference data for the CPQ, previous research has used a post-treatment score that is two standard deviations below the samples' pre-treatment mean to define clinically significant improvement (see supplementary material for sources). According to this criterion, two intervention participants in our sample who indicated reliable change in their CPQ score also achieved clinically significant improvement.

Table 1. Comparison of effect sizes and proportion of participants in the waitlist and intervention conditions demonstrating reliable and clinically significant change on outcome variables from pre to post treatment

| Outcome variable | Effect sizes | | Reliable change | | | | Phi value ϕ | Clinically significant change | |
|------------------|---------------------|--------------------------|---------------------|-----------|--------------------------|-----------|---------------------|-------------------------------|---------------------------|
| | Waitlist $n = 7$ | Intervention $n = 11$ | Waitlist $n = 7$ | | Intervention $n = 11$ | | | Waitlist $n = 7$ | Intervention $n = 11$ |
| | | | ↓ n , % | ↑ n , % | ↓ n , % | ↑ n , % | | | |
| FMPS-CM | $d = 0.01$ | $d = 1.17$ | 0 (0%) | 0 (0%) | 5 (45.5%) | 0 (0%) | -0.495 | – | – |
| FMPS-PS | $d = -0.21$ | $d = 0.56$ | 0 (0%) | 0 (0%) | 2 (18.2%) | 0 (0%) | -0.282 | – | – |
| CPQ | $d = -0.21$ | $d = 0.71$ | 0 (0%) | 1 (14.3%) | 1 (9.1%) | 0 (0%) | 0.495 | – | 2 (18.2%) |
| YBOCS | $d = -0.39$ | $d = 2.46$ | 1 (14.3%) | 2 (28.6%) | 11 (100%) | 0 (0%) | 0.886*** | 7 (100%)* | 6 (54.5%)* 5 (45.5%)** |

The intervention group includes data from immediate intervention and waitlist participants; n , % = ↓ number and percentage of participants who experienced a reliable decrease (improvement) on the outcome variable; ↑ n , % = number and percentage of participants who experienced a reliable increase (deterioration) on the outcome variable; FMPS, Frost Multidimensional Perfectionism Scale; CM, concern over mistakes; PS, personal standards; CPQ, Clinical Perfectionism Questionnaire; YBOCS, Yale-Brown Obsessive Compulsive Personality Scale; *unchanged; **recovered, improved; d = Cohen's magnitude of effect; Phi value = magnitude of effect (0.10 = small, 0.30 = moderate, +0.50 = large); ***strong positive association.

Of the total sample that was offered and accepted into the study, 42% dropped out on the day prior to starting treatment or during the initial stages of programme commencement. In addition, only three participants were available at 3-month follow-up, which limited our ability to evaluate the longevity of the intervention. The drop-out rate is relatively high compared with the drop-out observed in recent OCD treatment studies (e.g. 25%; Kyrios et al., 2015). Further, the manner of drop-out in the current investigation, which predominantly occurred prior to commencement of the intervention, was unique relative to previous OCD trials in which drop-out occurred during the course of treatment. The focus on perfectionism in the current study is a point of distinction compared with previous OCD studies. As such, it is conceivable that elevated perfectionism may have played a role in the significant drop-out, given its association with rigidity and ambivalence about change (Egan et al., 2011). Further, a number of participants declined treatment because it was group-based. It would be useful for future research to investigate reasons for drop-out and declining therapy to inform understanding of the feasibility of treatment and further clinical trials for perfectionism in OCD. One way to improve retention may be to engage individuals with OCD and perfectionism in treatment individually first, in order to mitigate concerns regarding performance in a group setting.

Given the small sample, it would also have been useful to have measured symptoms across the treatment programme (e.g. weekly) as this may have provided richer data from which to evaluate the sample and efficacy of the intervention. Given that some studies have found perfectionism interferes with treatment response in OCD (e.g. Kyrios et al., 2015) it would be useful to further investigate how to address perfectionism in OCD to improve treatment outcomes. Conceivably, by increasing flexibility in thinking and increasing capacity for more realistic standards (i.e. addressing perfectionism at pre-treatment or as a simultaneous adjunctive component), individuals may then be more amenable to engaging in necessary exposure-based exercises with increased self-awareness and more realistic expectations for performance.

In summary, further research is required to determine whether effects for perfectionism treatment for OCD are more robust when implemented with a larger sample over a longer time period, or whether drop-out is still a significant problem. Preliminary outcomes from this study suggest that CBT for perfectionism would be useful to investigate in future studies with larger samples to evaluate the effectiveness of this intervention.

Acknowledgements

Financial support: This research received no specific grant from any funding agency, commercial or not-for-profit sectors.

Conflicts of interest: Shalane K. Sadri, Rebecca A. Anderson, Peter M. McEvoy, Robert T. Kane and Sarah J. Egan have no conflicts of interest with respect to this publication.

Ethics: This study has been approved by the Curtin University Human Research Ethics Committee (approval no. HR38/2014). The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, and its most recent revision.

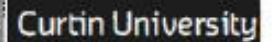
Supplementary material

To view supplementary material for this brief clinical report, please visit <https://dx.doi.org/10.1017/S1352465816000618>.

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I, Shalane Sadri, was the major contributor to the conceptualisation and coordination of the research resulting in the following paper:

I am the lead author, and it was primarily my responsibility to conceptualise, collect and analyse data, write and edit the paper above, which is included in my PhD thesis. This paper provided a psychometric evaluation of a measure of obsessive compulsive personality disorder. Commensurate with the extent of my contribution, I am the first author on this paper.

Date: 13/9/2017

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Date: 14/9/2017

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Appendix J: Study two co-author permissions

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13 September 2017

I, Shalane Sadri, was the major contributor to the conceptualisation and coordination of the research resulting in the following paper:

Sadri, S. K., McEvoy, P. M., Egan, S. J., Kane, R. T., Rees, C. S., & Anderson, A. (2017). The relationship between obsessive compulsive personality and obsessive compulsive disorder treatment outcomes: Predictive utility and clinically significant change. *Behavioural and Cognitive Psychotherapy*, 45, 524-529.

I am the lead author, and it was primarily my responsibility to conceptualise, analyse, write and edit the paper above, which is included in my PhD thesis. This paper provided an empirical investigation concerning the role of OCPD and conscientiousness in OCD treatment outcomes. Commensurate with the extent of my contribution, I am the first author on this paper.

Shalane Sadri: 


Date: 13/9/2017

I, Professor Peter McEvoy, endorse Shalane Sadri's contribution to the abovementioned paper, as specified above.

Prof Peter McEvoy: 

Date: 13/9/2017

I, Doctor Sarah Egan, endorse Shalane Sadri's contribution to the abovementioned paper, as specified above.

Dr Sarah Egan: 


Date: 13/9/2017

I, Doctor Robert Kane, endorse Shalane Sadri's contribution to the abovementioned paper, as specified above.

Dr Robert Kane: 

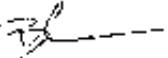
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I, Professor Clare Rees, endorse Shalane Sadri's contribution to the abovementioned paper, as specified above.

Prof Clare Rees: 

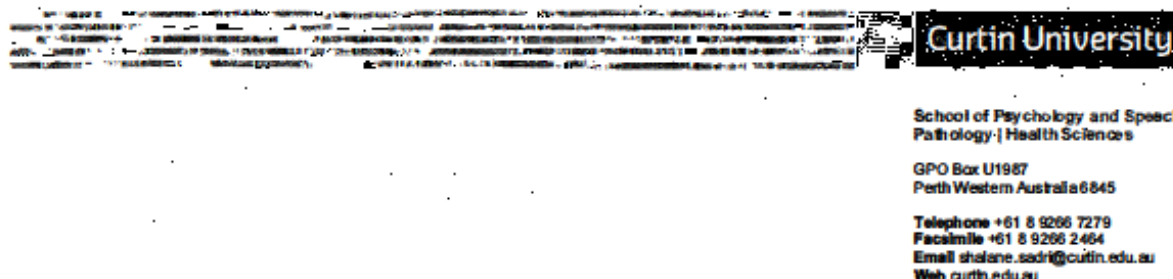
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I, Doctor Rebecca Anderson endorse Shalane Sadri's contribution to the abovementioned paper, as specified above.

Dr Rebecca Anderson: 

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I, Shalane Sadri, was the major contributor to the conceptualisation and coordination of the research resulting in the following paper:

Sadri, S. K., Anderson, R. A., McEvoy, P. M., Kane, R. T., & Egan, S. J. A pilot investigation of cognitive behavioural therapy for clinical perfectionism in obsessive compulsive disorder. *Behavioural and Cognitive Psychotherapy*, 45, 312-320.

I am the lead author, and it was primarily my responsibility to conceptualise, collect and analyse data, write and edit the paper above, which is included in my PhD thesis. This paper reports on the findings of a randomised pilot trial of cognitive behavioural therapy for perfectionism in obsessive compulsive disorder. Commensurate with the extent of my contribution, I am the first author on this paper.

Shalane Sadri

Date: 13/9/2017

I, Doctor Rebecca Anderson, endorse Shalane Sadri's contribution to the abovementioned paper, as specified above.

Dr Rebecca Anderson:

Date: 13/09/2017

I, Professor Peter McEvoy, endorse Shalane Sadri's contribution to the abovementioned paper, as specified above.

Prof Peter McEvoy:

Date: 13/9/2017

I, Doctor Robert Kane, endorse Shalane Sadri's contribution to the abovementioned paper, as specified above.

Dr Robert Kane:

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Dear Shalene Sadri,

Sadri, Shalene K., Anderson, Rebecca., McEnvoy, Peter M., Kane, Robert., Egan, Sarah J., Rees, Clare S. (2017) 'The Relationship between Obsessive Compulsive Personality Disorder Treatment Outcomes: Predictive Utility and Clinically Significant Change', *Behavioural and Cognitive Psychotherapy*, Cambridge University Press, Vol 1-6 plus supplementary material.

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Dear Shalene Sadri,

Sadri, Sharlane K., Anderson, Rebecca A., McEnvoy, Peter M., Kane, Robert T. (2017)
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