

**School of Population Health  
Faculty of Health Sciences**

**Understanding Perinatal Obsessive-Compulsive Disorder  
(OCD): From prevention to clinical practice**

**Melissa Anne Mulcahy  
ORCID iD: 0000-0001-9610-6915**

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

**February 2021**



## **Author's Declaration**

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

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

## ***Human Ethics***

The research presented and reported in this thesis was conducted in accordance with the National Health and Medical Research Council National Statement on Ethical Conduct on Human Research (2007) – updated March 2014. The study received human research ethics approval from the Curtin University Human Research Ethics Committee (EC00262), approval number HREC 2017-0087.

*M. Mulcahy*

---

Melissa Anne Mulcahy

Date: 5 February 2021



## Abstract

Past research has identified the perinatal period as a time that is associated with an increased risk of obsessive-compulsive disorder (OCD) among women. Postpartum-onset symptoms may be most commonly characterised by obsessions of deliberate or accidental infant-related harm, and covert compulsions and/or avoidance of fear-related situations or cues, to prevent the same. Evidence from the general OCD literature indicates that harm-related obsessions (e.g., violent or sexual intrusions) are frequently mischaracterised by both health practitioners' and individuals in the community, which may prevent individuals experiencing perinatal OCD from accessing effective treatment and support. There is a paucity of research on perinatal OCD to guide clinicians in identifying, assessing, and managing new/expecting parents with this disorder.

The metacognitive model of OCD proposes that specific metacognitive beliefs about the power of intrusive, obsessional thoughts to influence one's own actions, character, or external events (termed 'thought fusion') give rise to other OCD-related cognitive beliefs and thereby drive obsessive-compulsive symptoms (OCS). There is considerable evidence supporting the metacognitive model of OCD in the general population. However, research on the role of OCD-specific metacognitions in perinatal OCD is limited.

This thesis aimed to investigate the role of OCD-specific metacognitive beliefs in understanding perinatal OCD; including in explaining and preventing the onset of OCD among new/expecting parents, and in health practitioners' ability to recognise and respond effectively to perinatal OCS. Study one examined whether prenatal thought fusion better explained postpartum OCS (ppOCS) when compared with OCD-related cognitions via a prospective study of first-time mothers followed from pregnancy through to the postpartum. Thought fusion beliefs were the only independent prenatal predictor of ppOCS after accounting for prenatal cognitive beliefs and worry symptoms.

Further examination of the contribution of specific domains of thought fusion revealed that thought – likelihood fusion but not thought – moral fusion explained ppOCS. These findings indicate that thought fusion beliefs play an important role in ppOCS.

Study two sought to investigate whether very brief, online prenatal psychoeducation intended to correct maladaptive metacognitive beliefs about intrusive, obsessional thoughts would be effective in preventing ppOCS among first-time mothers. While psychoeducation was not associated with decreased ppOCS, a significant reduction in total thought fusion beliefs from pregnancy to 2-3 months' postpartum was observed. This effect was maintained through to 5-6 months' postpartum. The results of this study provide preliminary proof of concept for the use of psychoeducation in modifying an established risk factor for postpartum OCD, specifically, metacognitive beliefs about intrusive thoughts.

Study three and four explored perinatal health practitioners' recognition of ppOCS via a case vignette survey, and the relationship between practitioners' own metacognitive beliefs about intrusive thoughts and their responses to a clinical presentation of infant-related harm obsessions. Almost 70% of health practitioners did not recognise OCS as the primary presenting issue in the case vignette, and the majority endorsed at least one clinical management strategy likely contraindicated for ppOCS. Being a mental health practitioner, working in a specialist mental health setting, and having received formal training in perinatal OCD were associated with accurate ppOCS recognition. Thought importance/control beliefs, but not thought fusion beliefs, were associated with less neutral appraisals of, and greater endorsement of contraindicated clinical management strategies for, responding to ppOCS. Results highlight the need for targeted education for practitioners working with new/expecting parents, focused on recognising symptoms ppOCS and reducing maladaptive beliefs about the meaning of intrusive harm-related thoughts.

Together, the findings presented in this thesis highlight the relevance of OCD-specific metacognitive beliefs to understanding perinatal OCD, from the perspectives of both new/expecting parents, and health practitioners' who work with this population. Cognitive-behavioural conceptualisations of perinatal OCD should extend beyond responsibility beliefs and incorporate metacognitive beliefs, particularly thought fusion beliefs, as a pertinent factor in the disorder's onset and maintenance. Thought fusion beliefs may also be a promising target for universal prevention and screening for, as well as for early identification and intervention for perinatal OCD. Efforts to educate health practitioners and others involved in supporting individuals with perinatal OCD should also address OCD-specific metacognitive beliefs, and further research is required to investigate whether psychoeducation on intrusive thoughts is effective in this regard. In light of recent studies indicating that maternal sleep disturbance may be involved in the development of perinatal OCD, future research should examine potential metacognitive mechanisms that may interact with sleep difficulties to cause OCS onset. Metacognitive beliefs and processes (e.g., concerning memory, attention) and thought – likelihood fusion beliefs, may be fruitful avenues for further investigation.



## Acknowledgements

It has taken a community to enable me to complete my PhD. I have been sustained and nudged forwards by the support and encouragement of many others.

To my supervisors, Dr Rebecca Anderson, Professor Clare Rees and Professor Megan Galbally, thank you for patience, support and guidance throughout this project. Your persistence and belief that I could complete this thesis, most especially when I doubted myself, has made all the difference to me. I have been inspired by your knowledge and expertise, passion for the mental health field and your skills in integrating research with clinical practice. I also wish to thank Dr Robert Kane for his time, advice and assistance with the statistical analyses and data interpretation for my project.

My fellow clinical psychology students Aoibheann McCarthy, Eleanor Jones, Kate Tonta, Lienke Wilker and, most especially, Dr Sarah Shihata, also have my gratitude for their assistance with participant screening/follow-up for my prevention trial. Thanks to Melanie Coleman for your helpful comments on one of my final draft thesis chapters.

My most sincere thanks to my family; most especially my parents, Peter and Carole, who have encouraged me to pursue my own path and passions and because of whom, I developed a desire to find a career that would allow me to serve others and the broader community. I know that your support has not been without sacrifice at times and I am grateful. I also thank my (recently married) brother Michael, sister-in-law Kayla, and step-nephew Tatum for their love and support. I am excited to see what the future holds for you and us as a family. To Chloe and Bella, your love and companionship have brought so much to our family. You lifted my spirits in the most challenging times throughout these past five years.

I also could not have completed this PhD without the support and encouragement of an amazing group of friends and colleagues in my daily life. Special thanks must go to Amy and Vanessa for your friendship over many years. Our friendships began when we were much younger and have shaped who I am today, including my values and professional interests. Thank you for growing with me and for giving me the confidence to believe that I could take on the substantial challenge of a combined Clinical PhD in the first place.

I also wish thank my current and recent housemates, Lee, Amber, Simone, Amy, and Shelley. You have been my live-in cheer squad throughout the past two years and your encouragement and humour kept me going and made our home a haven. Thank you, in particular, to Lee, Amber, and Simone for making our home and time together so enjoyable during those strange weeks we spent in lockdown in early 2020 and again in the past month. I could not have asked for a better group of housemates and friends!

To the staff, coaches, and students/members at AS and, more recently, TMA as well. Thank you for holding space for me and indulging my newly (re)discovered enthusiasm for movement. You have helped me (re)learn what it is like to play again and enjoy the things that I once loved to do as a kid, grow as a person and find a much-needed outlet outside of my studies and work. The past two years wouldn't have been the same without you.

I also offer my sincere thanks to my university friends and colleagues, for your encouragement throughout my degree. You are truly an exceptional group of people. I

have learnt much from you and continue to be inspired by your integrity, thoughtfulness and dedication to your own clients, learning, and professional growth.



## Table of Contents

Author’s Declaration .....	iii
Abstract .....	v
Acknowledgements .....	ix
Table of Contents .....	xiii
List of Figures .....	xvii
List of Tables.....	xix
List of Abbreviations.....	xxi
<b>Chapter 1</b> Introduction .....	<b>1</b>
1.1 What is Obsessive-Compulsive Disorder?.....	1
1.1.1 Definitions and classification.....	1
1.1.2 Prevalence, onset, and course of OCD and OCS in the general population .....	2
1.1.3 Characteristics .....	4
1.2 Broad impacts on functioning .....	5
1.3 Aetiological models and related treatments.....	6
1.3.1 Biological factors .....	6
1.3.1.1 Biological treatments for OCD.....	7
1.3.2 Psychological .....	8
1.3.2.1 Behavioural .....	8
1.3.2.2 Cognitive model and treatment of OCD.....	11
1.3.2.3 Metacognitive model and treatment of OCD .....	14
<b>Chapter 2</b> OCD in the Perinatal Period.....	<b>19</b>
2.1 Definitions.....	19
2.2 Prevalence in the perinatal population .....	20
2.2.1 Prevalence of perinatal OCD .....	20
2.2.2 Prevalence of Perinatal OCS.....	21
2.3 Characteristics of perinatal OCD .....	22
2.4 Differential diagnosis of perinatal OCD .....	25
2.5 Impacts specifically related to perinatal OCD .....	27
2.6 Potential differences in terms of aetiology.....	31
2.6.1 Hormonal and biological changes linked to onset .....	31
2.6.2 Cognitive and broad psychosocial factors.....	34
2.6.3 Metacognitive factors.....	42
2.7 Specific treatments indicated for perinatal OCD .....	47
2.8 Current issues and controversies.....	50
2.8.1 Systemic issues.....	50
2.8.1.1 Recognition of and attitudes toward OCS.....	50

2.8.1.2	Implications of OCS misidentification in the perinatal period.....	53
2.8.1.3	Factors impacting on perinatal OCS misidentification .....	55
2.8.2	Prevention of OCD.....	57
2.8.2.1	Defining prevention approaches.....	57
2.8.2.2	Potential for prevention in the perinatal period.....	58
Chapter 3	Thesis overview .....	60
3.1	Research questions and aims.....	60
3.2	Significance of the current project .....	61
Chapter 4	Do prenatal metacognitive beliefs predict postpartum OCS (Study 1)? .....	63
4.1	Introduction .....	63
4.2	Method .....	67
4.2.1	Research design.....	67
4.2.2	Participants.....	67
4.2.3	Ethics.....	71
4.2.4	Measures .....	71
4.2.5	Procedure.....	73
4.3	Results .....	74
4.3.1	Worry, postpartum obsessive-compulsive symptoms, and sample characteristics .....	74
4.3.2	Hypothesis 1: hierarchical MRA analysis of hypothesised predictors of ppOCS.....	76
4.3.3	Hypotheses 2 and 3: metacognitive mediation of the effect of cognitive beliefs on ppOCS .....	77
4.4	Discussion .....	81
Chapter 5	Does prenatal metacognitive psychoeducation about intrusive thoughts prevent postpartum OCS (Study 2)? .....	89
5.1	Introduction .....	89
5.2	Method .....	91
5.2.1	Participants.....	91
5.2.2	Ethics.....	96
5.2.3	Measures .....	96
5.2.4	Procedure.....	98
5.2.5	Analysis.....	101
5.3	Results .....	102
5.3.1	Prenatal baseline values .....	102
5.3.2	Sample characteristics.....	102
5.3.3	OCD and OCS in the postpartum period.....	104
5.3.4	Prevalence of infant-related obsessions and compulsions .....	105
5.3.5	Hypothesis 1: Differences in metacognitive and obsessive beliefs at postpartum follow-up .....	107

5.3.6	Hypothesis 2: Differences in OCS severity at postpartum follow-up.....	110
5.3.7	Hypotheses 3 .....	112
5.4	Discussion .....	112
Chapter 6	Health practitioners' recognition and management of postpartum obsessive-compulsive thoughts of infant harm (Study 3) .....	121
6.1	Introduction .....	121
6.2	Materials and Methods .....	125
6.2.1	Participants .....	125
6.2.2	Survey Materials .....	126
6.2.3	Procedure.....	128
6.3	Results .....	128
6.3.1	Identification of OCS .....	128
6.3.2	Formal training, experience, and professional development .....	129
6.3.3	Selection of management strategies .....	131
6.4	Discussion .....	133
Chapter 7	Are health practitioners' metacognitive beliefs related to their responses to postpartum obsessions of infant harm? (Study 4) .....	137
7.1	Introduction .....	137
7.2	Method .....	142
7.2.1	Participants .....	142
7.2.2	Materials.....	144
7.2.3	Procedure.....	146
7.3	Results .....	147
7.3.1	Analyses .....	147
7.3.2	Hypothesis 1: Metacognitive beliefs and ppOCS misidentification .....	148
7.3.3	Hypothesis 2: MC beliefs and appraisals of ppOCS.....	149
7.3.4	Hypothesis 3: MC beliefs and scenario anxiety and confidence.....	152
7.3.5	Hypothesis 4: MC beliefs and management strategies for ppOCS .....	153
7.4	Discussion .....	156
Chapter 8	Thesis discussion.....	163
8.1	Thesis overview .....	163
8.2	Theoretical implications of the thesis .....	168
8.3	Clinical implications of the thesis .....	170
8.4	Strengths of the thesis .....	173
8.5	Limitations of the thesis .....	176
8.6	Future directions.....	178
8.6.1	Sleep disruption and metacognition .....	178
8.6.2	Assessment of perinatal OCS.....	180
8.6.3	Cultural differences in perinatal OCS .....	182

8.6.4	Prevention, treatment, and support.....	182
8.7	Conclusion.....	186
	References .....	188
Appendix A	Metacognitive psychoeducational intervention materials.....	227
	Video Script, Example Screenshots, and Access.....	227
	Video understanding/knowledge check survey (intervention adherence check).....	235
Appendix B	Published article (Study 3).....	237
Appendix C	Confirmation of Author Contributions.....	239
Appendix D	Permission to use copyright material .....	242
	Parental thoughts and behaviours checklist (PTBC) .....	242
	Thought Fusion Instrument (TFI).....	252
	Permission to reproduce publication (Chapter 6) in thesis.....	255
Appendix E	Participant Information Sheet and Consent Forms .....	260
	Prospective studies (Study 1 & 2) .....	260
	Health practitioner studies (Study 3 & 4).....	267
Appendix F	Survey Packages.....	271
	Prospective studies (Study 1 & 2) .....	271
	Prenatal survey (Study 1 & 2).....	271
	Three-month postnatal follow-up survey (Study 1 & 2).....	291
	Six-month postnatal follow-up survey (Study 2).....	305
	Health practitioner studies (Study 3 & 4).....	318

## List of Figures

<i>Figure 1 Conceptual Model Illustrating the Hypothesised Mediation Relationship Between Prenatal Cognitive Beliefs, Thought Fusion Beliefs, and Postpartum OCS After Controlling for Prenatal Worry.</i> .....	66
<i>Figure 2 Pathway Analysis for Model 1 (Mediator = TAF-M)</i> .....	78
<i>Figure 3 Pathway Analysis for Model 2 (Mediator = TAF-O)</i> .....	79
<i>Figure 4 Pathway Analysis for Model 3 (Mediator = TAF-S)</i> .....	80
<i>Figure 5 CONSORT Diagram</i> .....	93
<i>Figure 6 Time (Prenatal; 3-Months' Postpartum Follow-Up; 6 Months' Postpartum Follow-Up) x Group (Metacognitive Education; TAU-Control) Interaction Effect for TAF-T Scores</i> .....	108
<i>Figure 7 Time (Prenatal; 3-Months' Postpartum Follow-Up; 6 Months' Postpartum Follow-Up) x Group (Metacognitive Education; TAU-Control) Interaction Effect for OCI-R Total Scores</i> .....	111



## List of Tables

<i>Table 1 Number of Participants (N) and Percentage of the Overall Sample (%) in Each Demographic Group (N = 70).</i> .....	69
<i>Table 2 Mean (M) and Standard Deviation (SD) for Prenatal Thought Fusion Beliefs (TAF), Obsessive Beliefs (OBQ-44), and Prenatal Worry (GAD-7) and Postpartum Obsessive-Compulsive (OCI-R) Symptoms (N = 54).</i> .....	75
<i>Table 3 Associations Between Study Measures, Calculated Using Spearman's rho<sup>a</sup> (N = 54).</i> .....	75
<i>Table 4 Unstandardised (B) Regression Coefficients, Standardised (β) Regression Coefficients, and Squared Part Correlations (sr<sup>2</sup>) for Prenatal GAD-7 and OBQ-C Scores, Prenatal TAF Total, and Postpartum OCI-R Total Scores On Each Step of a Hierarchical MRA (N=54).</i> .....	77
<i>Table 5 Participant Characteristics (N = 130).</i> .....	95
<i>Table 6 Cronbach's Alpha (α) for Each of the Study Measures.</i> .....	98
<i>Table 7 Mean (M) and Standard Deviation (SD) of Participants' Prenatal Scores on Each of the Study Measures.</i> .....	102
<i>Table 8 Kendall's Tau- b Correlation Coefficients (tb) for Pregnancy- and Delivery-Related Factors and Postpartum OCI-R Total (OCI-T), OBQ-44, and TAF Total Scores</i> .....	103
<i>Table 9 Number (N) and Percentage (%) of Participants Reporting OCD or Subclinical OCS on the MINI, and Mean and Standard Deviation OCI-R Total Scores, in Each Trial Group at 3-Months' and 6-Months' Postpartum Follow-Up.</i> .....	105
<i>Table 10 Frequency (N) and Percentage (%) of Infant-Related Obsessional/Intrusive Thoughts and Compulsive/Neutralising Responses on the PTBC at Postpartum Follow-Up.</i> .....	106
<i>Table 11 Mean (M) and Standard Deviation (SD) for Participants' TAF-T, TAF-M, TAF-O, TAF-S, and OBQ-44 Scores at 3-Months' and 6-Months' Postpartum in the Intervention (Metacognitive Education) and TAU-Control Groups.</i> .....	109
<i>Table 12 Hypothetical Case Vignette.</i> .....	127
<i>Table 13 Primary Presenting Issue Selected By Participants Based on the Case Vignette.</i> .....	129
<i>Table 14 Associations Between Training and Experience Variables and Correct OCS Identification of OCS.</i> .....	130
<i>Table 15 Management Strategies.</i> .....	132
<i>Table 16 Participant Characteristics.</i> .....	144
<i>Table 17 Mean and Standard Deviation (SD) of TFI and OBQ-IC Scores by ppOCS Identification, and Results of the GLMM Binary Logistic Regression for ppOCS Identification.</i> .....	148
<i>Table 18 Results of the GLMM Regression Using Robust Statistics for Unhelpful and Neutral MC Appraisals (N=58)<sup>#</sup></i> .....	150
<i>Table 19 Results of the GLMM Regression Using Robust Statistics for Anticipated Anxiety and Confidence (N=58)<sup>#</sup></i> .....	153
<i>Table 20 Results of the GLMM Binary Logistic Regression for Likely Contraindicated and Likely Indicated Strategies (N = 58)<sup>#</sup></i> .....	155



## List of Abbreviations

ACT: Acceptance and Commitment Therapy;  
ACTH: Adrenocorticotrophic hormone;  
APA: American Psychiatric Association;  
ASPD: Anti-social personality disorder;  
AUS: Australia;  
BAR: Beliefs about rituals;  
BPD: Borderline personality disorder;  
CAS: Cognitive attentional syndrome;  
CB: Cognitive-behavioural;  
CBT: Cognitive behaviour therapy;  
CI: Confidence interval;  
CP: Child protective service  
DBS: Deep brain stimulation;  
DSM-5: Diagnostic and Statistical Manual of Mental Disorders - 5th Edition;  
ECT: Electro-convulsive therapy;  
EPDS: Edinburgh Postnatal Depression Scale;  
EPPBs: Early parental preoccupation and behaviours;  
ERP: Exposure and Response Prevention;  
GAD: Generalised anxiety disorder;  
GAD-7: Generalised Anxiety Disorder- 7 item Scale;  
GLMM: Generalised linear mixed model  
HREC: Human Research Ethics Committee;  
ICD-11: International Classification of Diseases – 11th Edition;  
III: Interpretation of Intrusions Inventory  
DOCS: Dimensional Obsessive-Compulsive Scale  
*M*: Mean;  
MBCT: Mindfulness-Based Cognitive Therapy;  
MB-ERP: Mindfulness-Based Exposure and Response Prevention;  
MC: Metacognitive;  
MCT: Metacognitive Therapy;  
MHP: Mental health practitioner;  
MINI: MINI Neuropsychiatric Interview for DSM-V Psychiatric Disorders;  
MRA: Multiple regression analysis;

*n*: Sample size;  
*N*: Total sample size;  
NZ: New Zealand;  
NICE: National Institute for Health and Care Excellence;  
OBQ-44: Obsessive Beliefs Questionnaire – 44-item version;  
OBQ-C: Obsessive Beliefs Questionnaire – Cognitive subscales;  
OBQ-IC: Obsessive Beliefs Questionnaire – Short Form;  
OCCWG: Obsessive Compulsive Cognitions Working Group;  
OCD: Obsessive-compulsive Disorder;  
OCI-R: Obsessive-Compulsive Inventory – Revised;  
OCS: Obsessive-compulsive symptoms;  
OFC: Orbitofrontal-cortex;  
PMD: Postpartum-onset Major Depressive Disorder;  
pnOCD: Perinatal Obsessive-compulsive Disorder;  
ppOCD: Postpartum Obsessive-compulsive Disorder;  
ppOCS: Postpartum obsessive-compulsive symptoms  
PTBC: Parental Thoughts and Behaviours Checklist;  
QoL: Quality of Life;  
RCT: Randomised-control trial;  
SCID-IV-TR: Structured Diagnostic Interview for DSM-IV-TR Personality Disorders  
*SD*: Standard deviation;  
*SE*: Standard error;  
SIDS: Sudden Infant Death Syndrome;  
SS: Stop signals;  
SPSS: Statistical Package for the Social Sciences;  
SSRIs: Selective serotonin reuptake inhibitor;  
TAF: Thought Action Fusion Scale;  
TAF-M: Thought – moral fusion subscale;  
TAF-L: Thought – likelihood fusion;  
TAF-O: Thought – likelihood – other fusion subscale;  
TAF-S: Thought – likelihood – self fusion subscale;  
TAF-T: Thought action fusion – total;  
TAU: Treatment-as-usual;  
TF: Thought fusion;  
TFI: Thought Fusion Instrument;

TTM; Trichotillomania

UK: United Kingdom;

USA: United States of America;

VIF: Variance inflation factor;

WHO: World Health Organisation;

YBOCS: Yale-Brown Obsessive-Compulsive Scale;



## Chapter 1

## Introduction

### 1.1 What is Obsessive-Compulsive Disorder?

#### 1.1.1 *Definitions and classification*

Obsessive-Compulsive Disorder (OCD) is a psychiatric disorder characterised by the presence of obsessions that cause substantial distress and/or the performance of compulsions (American Psychiatric Association, 'APA', 2013). Obsessions (or 'obsessional thoughts' or 'intrusions') can be described as recurrent intrusive thoughts, images, urges, or sensations that the individual experiences as unwanted, disturbing, or even repugnant. These thoughts occur involuntarily, spontaneously, and are accompanied with attempts to suppress or otherwise eliminate the thought.

Compulsions, sometimes referred to as 'rituals', are acts that an individual is driven to perform repeatedly (APA, 2013). They are often, although not universally, performed in direct response to the distress evoked by the occurrence of obsessional thought/s. They may be overt (e.g., cleaning, ordering, counting rituals, repeatedly asking for reassurance), or covert (e.g., mental distraction, thought suppression or replacement). Compulsions may be performed to prevent a feared event from occurring (e.g., harm to self or others), neutralise/reduce an intrusive sensation or urge (e.g., to handwash in response to an unwanted sensation of contamination), or to fulfil a rigid rule and provide a sense of completeness. Avoidance of situations that evoke the intrusive thoughts or concerns is also typical in OCD (APA, 2013). In OCD, both compulsions and avoidance reduce distress and/or prevent perceived risk of harm and restore a sense of safety.

Current criteria for the diagnosis of OCD are included in both the *Diagnostic and Statistical Manual of Mental Disorders – Fifth Edition (DSM-5; APA, 2013)* and

*International Classification of Diseases – Eleventh Edition (ICD-11*; World Health Organisation, 'WHO', 2020). To fulfil criteria for OCD within either diagnostic system, the obsessions and/or compulsions must consume a substantial amount of time (e.g., more than one hour, on average, a day), cause the individual significant distress, and/or result in impairment of everyday functioning. Insight may vary between individuals and across the course of the disorder; ranging from absent insight to good insight into the excessive nature of the obsessional concerns and/or compulsive responses. However, regardless of the level of insight, individuals with OCD recognise that the obsessions originate in his/her own mind and the obsessions and compulsions are resisted to at least some extent (APA, 2013; WHO, 2020).

Obsessions and compulsions commonly occur in the general population amongst individuals who would not meet either *DSM-5* or *ICD-11* criteria for OCD (Adam et al., 2012; Angst et al., 2004). Consistent with this, Obsessive-Compulsive Symptoms (OCS) are defined in this thesis as obsessions and/or compulsions that fall either within a clinical or subclinical range in terms of severity (including frequency, duration, and/or intensity). OCS are distinguished from normally occurring intrusive thoughts and repetitive behaviours that all individuals in the general community may experience at some time in that OCS are associated with at least some distress or impact on functioning (Adam et al., 2012; WHO, 2020).

### **1.1.2            *Prevalence, onset, and course of OCD and OCS in the general population***

An estimated that 2-3% of the general population will experience OCD in their lifetime (Kessler, Berglund, et al., 2005; Ruscio et al., 2010; Williams & Steever, 2015), and that around 1% will have the disorder in any 12-month period (Kessler, Wai, et al.,

2005). The lifetime prevalence of OCD appears to be relatively consistent in epidemiological studies across cultures (Williams & Steever, 2015). OCD occurs equally in males and females (Lochner & Stein, 2001), although young children (i.e., under the age of 10 years) with OCD are more likely to be male (APA, 2013). Additionally, it is now acknowledged that obsessions and compulsions occur on a continuum (APA, 2013; Muris et al., 1997; Rees, 2009). Estimates of the prevalence of subthreshold OCD in population cohort studies range from 4.5 for 12-month, and 4.9% for lifetime, prevalence (Adam et al., 2012; De Bruijn et al., 2010), to 8.3% and 8.7% for 12-month and lifetime OCS prevalence, respectively (Adam et al., 2012; Angst et al., 2004). Thus, obsessions and compulsions are a commonly occurring phenomenon in the general community.

The average age of onset of the disorder is 19 but differs between genders; males more commonly develop OCD in pre-adolescence, and females in late adolescence or early adulthood (APA, 2013). The onset of OCD in the general population is often gradual, with an average of seven years elapsing between the beginning of subclinical OCS and full diagnostic criteria being met for the disorder (Thompson et al., 2020). It is an often-severe disorder – the majority of individuals with OCD in the community have symptoms in the severe range (Kessler, Wai, et al., 2005). While the course of OCD may be episodic in terms of severity, meta-analyses indicate an average illness duration of greater than 10 years and remission rates of just over 50% (Sharma et al., 2014). Research indicates that the course of OCD is most often chronic (Angst et al., 2004; Marcks et al., 2011); over a third of treatment-seeking individuals with OCD may experience unremitting or deteriorating symptoms spanning decades (Skoog & Skoog, 1999).

### **1.1.3            *Characteristics***

OCD is commonly regarded as a heterogeneous condition with symptoms varying greatly between individuals and over time (APA, 2013). Common obsessional themes observed among individuals with OCD in the general community include contamination and illness; fear of causing harm to self or others; unwanted aggressive, sexual, or religious thoughts; morality and existential, and somatic concerns (Bloch et al., 2008). Compulsions may include excessive cleaning, repeated checking, reordering/symmetry, counting, or repeating neutralising phrase, thought, or mental image (APA, 2013; Bloch et al., 2008). These ritualistic behaviours may relate directly to the thematic content of the obsessional thought (e.g., handwashing rituals to address contamination obsessions or repeatedly checking appliances to prevent a housefire) or be superstitious in nature (e.g., ritualistically ordering household items performed to prevent a feared car accident; Bream et al., 2017). Individuals with OCD recognise that their intrusive thoughts are the product of their own mind, although insight into the excessive nature of their distress and preoccupation with, and compulsive responses to, their obsessional concerns may vary (APA, 2013; Stein et al., 2019).

Obsessions and compulsions can be distinguished from the symptoms of other psychiatric disorders, including psychosis, depression, generalised anxiety, eating disorders, paraphilias, and other anxiety and obsessive-compulsive related disorders. OCD does not include formal thought disorder or positive or negative symptoms of psychosis (as is the case in psychotic disorders). The distressing thoughts reported by individuals with OCD are inconsistent with their view of themselves and others and actively resisted (i.e., are ego-dystonic), contrary to the mood-congruent cognitions in depressive disorders. Differentiation of OCD and OCS from other psychiatric disorders is discussed in more detail in Section 1.4.3, in relation to the specific characteristics of perinatal OCD.

## 1.2 Broad impacts on functioning

OCD is typically associated with a very high level of psychological distress and psychosocial impairment. The impact of OCD on quality of life (QoL) for individuals affected by the disorder extends across social, emotional, and occupational domains of functioning (Huppert et al., 2009). Studies have consistently demonstrated that more than one-fifth of adults with OCD were unable to engage in paid employment in the previous month due to their symptoms (Coban & Tan, 2019). Previous research indicates that individuals with OCD experience greater impairment in family relationships and their ability to complete daily living activities relative to individuals with social phobia or panic disorder (Lochner et al., 2003). Family accommodation of symptoms (e.g., participating in safety-seeking behaviours or assisting with avoiding triggers of distress) appears to be greater in OCD than in other anxiety disorders (Renshaw et al., 2005). Treatment-seeking individuals with OCD often report marital or family distress (Emmelkamp et al., 1990; Riggs et al., 1992), and partners and family members may also demonstrate associated distress and QoL impacts (for review – Lee et al., 2015). A number of studies have reported that the overall impacts of OCD on QoL and functioning are equivalent to, or greater than, those observed in schizophrenia (Bobes et al., 2001; Mavrogiorgou et al., 2015; Stengler-Wenzke et al., 2006). Commensurate with this, OCD is associated with an increased risk of suicidality (Angelakis et al., 2015), with 6-10% of individuals with OCD reporting suicidal ideation within the preceding month (Brakoulias et al., 2017; Torres et al., 2011) and 6-27% reporting a lifetime history of attempted suicide (APA, 2013; Brakoulias et al., 2017; Kamath et al., 2007). OCS severity has also been shown to longitudinally predict the level of suicidality the following year (Brown et al., 2019). Thus, it is clear that OCD significantly impacts individuals' psychosocial functioning, and may also influence their caregivers QoL, including partners and family members.

## **1.3 Aetiological models and related treatments**

### ***1.3.1 Biological factors***

A range of biological factors, including genetics, neurotransmitters and hormones, and differences in brain structure and function, have been linked to OCD. An estimated one-third of OCS severity is attributable to heritability, based on studies comparing OCD concordance in monozygotic and dizygotic twins (Taylor, 2011; Taylor & Jang, 2011). Candidate genes implicated in susceptibility to OCD include those involved in serotonin regulation (5-Hydroxytryptamine or 5-HT; Stein et al., 2019) and the glutamatergic system (for review – Robbins et al., 2019). Studies of candidate serotonergic and dopaminergic genes have typically not attained genome-wide significance (Robbins et al., 2019). Lower dopaminergic (D<sub>2</sub>) receptor binding levels in selective brain regions (Denys et al., 2004; Goodman et al., 1993), and elevated oxytocin plasma levels, have also been found in adults with OCD when compared with healthy controls (Marazziti et al., 2015). However, the correlational nature of these studies means they do not imply a direct causal pathway between neurotransmitter or hormone function and OCD (Bream et al., 2017).

From a neuropsychological perspective, differences in the neurocircuitry of the cortical-striatal-thalamic-cortical loop, including the orbitofrontal-cortex (OFC) and basal ganglia (Burguière et al., 2015; van den Heuvel et al., 2016), and increased activation of the amygdala during fear and emotion processing (Rus et al., 2017; Thorsen et al., 2018), have been observed among individuals with OCD. Robbins et al. (2019) suggest that neurocircuits involved in (increased) negative affectivity, and (decreased) top-down executive control and cognitive flexibility, and disruptions in the habit-formation and goal-directed systems, interact to both produce and maintain compulsive behaviour in OCD. However, this not consistent with prospective findings

that OCD-related beliefs precede OCS onset (i.e., the onset of compulsions; Abramowitz et al., 2006, 2007; Fairbrother et al., 2018). A meta-analysis of over 100 studies found that the effect of OCD on executive functioning performance was small, and below a level that could be considered clinically meaningful (Abramovitch et al., 2013). It is, therefore, apparent that additional factors also contribute significantly to OCD.

### **1.3.1.1 Biological treatments for OCD**

A range of biological interventions, including pharmacological, neurosurgical, and neurostimulation interventions, have been used to treat OCS. Among the pharmacological interventions, tricyclic antidepressants (i.e., clomipramine) and selective serotonin reuptake inhibitors (SSRIs; e.g., sertraline, fluoxetine, fluvoxamine) are most commonly utilised (Franklin & Foa, 2014). These agents have been shown to produce significant, albeit modest, reductions in OCS severity, typically measured using the *Yale-Brown Obsessive-Compulsive Scale (YBOCS)* (Goodman et al., 1989b), when compared with placebo (for review –Stein et al., 2019). Relapse of OCS upon discontinuation of antidepressant treatment is typical, although not invariable (Batelaan et al., 2017; Dougherty et al., 2002; Pato et al., 1988). Augmentation of SSRIs with atypical antipsychotic/neuroleptic medications that act upon the dopaminergic system has also been used in the treatment of severe OCD (Robins et al., 2019). Specifically, aripiprazole and risperidone has been found to reduce OCS in meta-analyses of studies (Albert et al., 2016; Dold et al., 2013; Veale et al., 2014). Psychosurgery and neurostimulation (e.g., electro-convulsive therapy, ‘ECT’; deep brain stimulation, ‘DBS’) have also been investigated for OCD (Murphy et al., 2016). Psychosurgical alteration of the cortico-striatal-thalamic loop has been shown to significantly decrease

OCS severity in 30-60% of individuals with severe OCD (Stein et al., 2019). The evidence for the use of ECT in treating OCD has been inconclusive at best (Fontenelle et al., 2015). DBS targeting selective regions of the striatal circuit has some reported efficacy in reducing OCS (Naesström et al., 2016; Vicheva et al., 2020). However, the evidentiary basis for both psychosurgery and DBS is largely limited by a lack of comparisons with credible controls (e.g., sham neurosurgery; Stein et al., 2019). Furthermore, studies have demonstrated changes in the neurological structures and functioning of the striatum following targeted psychotherapy, such as Cognitive Behaviour Therapy ('CBT'; Thorsen et al., 2015). Thus, it is not clear whether changes in brain structure and functioning are causative of post-treatment reductions in OCS, and there is a need for research to elucidate further the mechanisms involved in the biological treatment of OCD.

### **1.3.2 Psychological**

#### ***1.3.2.1 Behavioural***

Early models of OCD, including the two-stage model of anxiety disorders (Dollard & Miller, 1950; Mowrer, 1960) explained OCS in terms of the interacting processes of both classical and operant conditioning. Specifically, obsessions were purported to result from a learnt association/s between a neutral stimulus (such as a spontaneous intrusive thought) and an unconditioned stimulus, leading to a learnt response of fear or distress to the obsessional stimulus/stimuli. Compulsions permit escape from feared stimuli and, by markedly and immediately reducing the individual's distress, are maintained via a schedule of negative reinforcement. Repeated pairings of the obsession, distress (e.g., panic), and contingencies (i.e., relief from distress obtained

by completing compulsions) lead to strengthening of the learnt associations and a progressive increase in OCS frequency and/or intensity over time (Mowrer, 1960).

The behavioural model of OCD proved highly informative in terms of developing the first empirically validated psychological treatments for OCD. Since it was first described in the 1970s, exposure and response prevention (ERP) remains the psychological treatment for OCD with the greatest empirical support (Franklin & Foa, 2014). During ERP, individuals engage in systematic, repeated, and prolonged exposure to stimuli that evoke obsessional concerns, whilst refraining from engaging in physical or mental compulsions. Exposure is continued until a specified criterion is reached (e.g., there is a reduction in anxious affect, or cognitive change reflecting a reduction in perceived threat) - with criteria depending on the underpinning treatment model (Arch & Abramowitz, 2015; Benito & Walther, 2015; Craske et al., 2014). The goal of ERP is to progressively weaken the learned associations between the obsessions and compulsions until the fear associations are extinguished. Exposures may be self- or therapist-guided and implemented on an intensive basis (e.g., over a few days) or on a weekly or bi-weekly basis within an individual or group-setting, dependent upon the specified treatment protocol (Franklin & Foa, 2014; Percy et al., 2016; Stein et al., 2019).

A robust body of literature has demonstrated that the majority of individuals (50-83%) with OCD experience clinically significant reductions in OCS, and that a substantial proportion (40-52%) achieve remission from OCD, following ERP treatment (Abramowitz, 1998; Foa & Kozak, 1996; Law & Boisseau, 2019; Wheaton et al., 2016). Meta-analyses indicate that effect sizes for ERP are typically large (for review – Olatunji et al., 2013; Ong et al., 2016). Additionally, ERP appears to be more effective than monotherapy with clomipramine, and research has failed to establish evidence for

any additional benefits of combined treatment (i.e., ERP with clomipramine) above ERP alone (Cuijpers et al., 2014; Foa et al., 2005; Öst et al., 2015; Simpson et al., 2004). Finally, ERP is associated with more favourable treatment response for adults with OCD, when compared with other anxiety disorders, including specific phobia, social phobia/anxiety disorder, illness anxiety disorder/hypochondriasis, and generalised anxiety disorder (Abramowitz, Deacon, & Whiteside, 2010). Accordingly, psychotherapies that are inclusive of ERP are a recommended first-line treatment for OCD in established clinical practice guidelines (National Institute for Health and Care Excellence, 'NICE', 2005).

Despite this, there are some established limitations or disadvantages of ERP for OCD. Past research indicates that a proportion of treatment completers do not improve following ERP or experience significant residual symptoms (Abramowitz, 1998; Law & Boisseau, 2019; Wheaton et al., 2016). Lapse of OCS at longer-term follow-up is also common, although relapse to pre-treatment levels of symptom severity is less so (Foa & Kozak, 1996; Simpson et al., 2005). Lastly, several studies indicate that many individuals prematurely drop out of ERP treatment (Law & Boisseau, 2019), although a weighted systematic review reported a weighted mean drop-out rate of 18.7%, comparable to other OCD treatments (Ong et al., 2016). These considerations in relation to ERP led to recent efforts to develop alternative or enhanced psychotherapies to improve engagement and treatment effectiveness for individuals with OCD (Abramowitz et al., 2018; Arch & Abramowitz, 2015; Fisher, 2009; Jacoby & Abramowitz, 2016; Rees & Anderson, 2013).

### 1.3.2.2 *Cognitive model and treatment of OCD*

The cognitive model of OCD initially emerged as a way to reconcile two sets of findings demonstrated in the previous literature; namely, that (a) individuals with OCD are highly distressed by unwanted, intrusive thoughts and engage in compulsive attempts to neutralise/reduce them; whilst (b) at the same time, the majority of adults in the general population experience OCD-like intrusions that are not accompanied by the same distress or maladaptive behavioural responses (Moulding & Kyrios, 2006; Rachman & de Silva, 1978; Radomsky et al., 2014). This led early cognitive theorists within the field of OCD (Clark, 2004; Rachman, 1993, 1998; Salkovskis, 1985; Shafran et al., 1996) to conclude that it is individuals' evaluation of their internal experiences (e.g., intrusive thoughts, images, or urges), rather than just their mere occurrence, that leads to the heightened fear or distress, obsessional preoccupation, and compulsions focused on alleviating this distress observed in individuals with OCD. Beginning in 2001, the Obsessive Compulsive Cognitions Working Group (OCCWG), described specific belief domains ('obsessive beliefs') purported to lead individuals with OCD to appraise (normally occurring) intrusive thoughts in a threatening way. These include overestimation of threat and responsibility for (preventing) harm (*threat/responsibility*); perfectionistic standards for behaviour and intolerance of uncertainty (*perfectionism/intolerance of uncertainty*); and over-evaluation of the importance of thoughts and the need to control them (*thought importance/control*; OCCWG, 2005). According to the cognitive model of OCD, it is high levels of obsessive beliefs that drives the intrusion-related distress and neutralising behaviours (i.e., compulsions and rituals) observed in OCD. Performing compulsions, in turn, reinforces the underlying obsessive beliefs and, thus, the obsessional concerns.

Obsessive beliefs have been found to distinguish between individuals with, and those without, OCD (OCCWG, 2001, 2003, 2005), and to be positively correlated with OCS (such that higher levels of these beliefs are associated with more severe symptoms; (OCCWG, 2003, 2005). Furthermore, while each domain of obsessive beliefs has been shown to contribute uniquely to OCS, the tendency to view one's thoughts as important to monitor and control is a commonality across domains (Moulding et al., 2011; OCCWG, 2005; Taylor, McKay, et al., 2005). *Thought importance/control beliefs* may be the strongest predictor of OCS overall (Myers et al., 2008); however, different obsessive belief domains appear to be more strongly related to different OCS subtypes. For instance, responsibility for harm may contribute more to checking and contamination compulsions and perfectionism/intolerance of uncertainty to symmetry and checking concerns (OCCWG, 2005). Responsibility (OCCWG, 2005; Taylor et al., 2005) and thought importance/control beliefs (Myers et al., 2008; Timpano et al., 2014) may be more relevant to primary obsessions, including those involving themes of harm, than other OCD symptom presentations. Most importantly, this research into obsessive beliefs provided a valuable, integrated account of emerging findings on the role of cognition in maintaining both obsessions and compulsions (OCCWG, 2001, 2003, 2005).

Accordingly, cognitive treatments for OCD typically focus on modifying obsessive beliefs to reduce obsessions and compulsions, and associated distress and disruption in functioning (Olatunji et al., 2013). There are some important differences between various cognitive treatment protocols that have been investigated in the OCD literature, somewhat clouding conclusions about the effectiveness of cognitive therapy for OCD. Some cognitive treatments target specific OCD-subtypes – such as compulsive checking, contamination concerns, or predominant obsessions (Radomsky et al., 2020; D. Sookman, 2016; Debbie Sookman et al., 2005). Other cognitive

treatments for OCD are inclusive of the large number of diverse OCS that *individuals* with OCD often report, as well as the heterogeneity of symptoms *between* those individuals (Bream et al., 2017).

Cognitive therapy has been found to be effective in treating OCD, and effect sizes have typically been moderate to large (McKay et al., 2015; Olatunji et al., 2013). A number of studies have failed to find a significant difference between outcomes for ERP and cognitive therapy (Öst et al., 2015; Whittal et al., 2005). Many forms of cognitive therapy for OCD include an ERP component with an explicit focus on decreasing target behaviours (e.g., situational avoidance and rituals), which may account for findings of treatment equivalence (Abramowitz et al., 2002). Recently, research attention has focused on the development of new cognitively-focused treatments for OCD, including Acceptance and Commitment Therapy (ACT; Twohig et al., 2015), Mindfulness-Based Exposure and Ritual Prevention (Hale et al., 2013) and Mindfulness-Based Cognitive Therapy (MBCT; Hale et al., 2013; Key et al., 2017). Until recently, there were no head-to-head trials that compared these third-wave cognitive interventions (e.g., ACT, MBCT) to existing empirically supported psychological therapies for OCD. However, recent randomised-controlled trials (RCTs) comparing ACT and ERP (Twohig et al., 2015), and mindfulness-based ERP (MB-ERP) with ERP (Strauss et al., 2018), showed that ACT and MB-ERP were not significantly more effective than ERP alone in terms of either reduction in OCS severity or treatment engagement. There is some evidence, from a non-randomised comparison trial (Selchen et al., 2018) and an RCT (Külz et al., 2019), that MBCT may lead to further improvements in OCS when offered as an augmentation treatment after CBT, or when compared with an active control condition (i.e., stress management training; Mathur et al., 2021).

### **1.3.2.3                      *Metacognitive model and treatment of OCD***

In recent years, there has been considerable research interest in the role of metacognition in psychological disorders, including OCD (Rees & Anderson, 2013). Metacognition has been broadly defined as the cognitive knowledge or beliefs (i.e., about thinking), internal experiences (i.e., of thoughts, sensations, and mood states), and thinking styles/processes (e.g., worry and rumination, threat monitoring) that determine which stimuli cognition is orientated towards and the degree of rigidity or flexibility in cognitive focus (Wells, 2009). The metacognitive model of psychological disorders posits that maladaptive beliefs about cognition lead individuals to engage in repetitive negative thinking – labelled the ‘cognitive attentional syndrome’ (CAS). The CAS is characterised by worry and/or rumination on mental events (e.g., intrusions); attention fixated on the perceived threat (i.e., unwanted thoughts, feelings, or sensations); and coping behaviours undertaken to increase control over thinking (e.g., attempts at thought suppression, distraction, avoidance, checking, reassurance-seeking). These metacognitive strategies paradoxically undermine cognitive control, maintain a sense of threat, and prevent adaptive problem-solving.

The metacognitive (MC) model of OCD contends that obsessions and compulsions arise from unhelpful beliefs that lead to maladaptive appraisals of intrusive thoughts, and attempts to suppress, neutralise, or otherwise control intrusions through physical or mental rituals and/or avoidance (Fisher, 2009; Wells, 2009). These include ‘thought fusion’ beliefs about the potential of intrusive thoughts to influence the external world (e.g., one’s actions or morality, the likelihood of events, or that imbue objects with harmful properties); beliefs about the need to perform rituals and/or to worry/ruminate about the meaning of intrusions (‘beliefs about rituals’); and internal criteria that it is safe to stop ritualising (‘stop signals’), such as having completed a

ritual in a certain way or attaining an internal sense of certainty or completion. As such, the CAS activated in OCD includes worry about the meaning or significance of intrusions, which fixes attention on the intrusions. Other responses that constitute the CAS (e.g., physical compulsions) also function to maintain attention on the obsessions and prevent disconfirmation of the maladaptive underlying beliefs (i.e., that intrusions are meaningful and important to control). These strategies may result in a temporary (often, only momentary) reduction in distress, but increase the frequency of intrusions in the long-term. In turn, this outcome reinforces the perceived significance of the intrusions and the perceived loss of cognitive control, resulting in renewed and potentially escalating efforts at thought control/neutralisation via rituals (Wells, 2009).

Emerging research from both clinical and community samples indicates that metacognitive beliefs may contribute to obsessions and compulsions (Fisher, 2009). Myers et al. (2008) examined the contributions of OCD-related cognitive (i.e., threat estimation/responsibility, perfectionism/intolerance of uncertainty) and metacognitive (i.e., thought importance/control) beliefs to OCS in a student sample. Only thought importance/control beliefs independently and significantly predicted OCS severity across different symptom subtypes (e.g., obsessing, checking, ordering, washing subtypes). Other empirical studies have investigated the OCD-specific metacognitive beliefs implicated in the metacognitive model of OCD. Thought fusion (TF) beliefs, beliefs about rituals (BARs), and stop signals (SS) were reported to explain additional variance in OCS when entered sequentially into a regression model (i.e., beginning with TF beliefs) in an undergraduate student sample (Myers et al., 2009). Higher TF beliefs and beliefs about rituals were also associated with higher OCS in community and OCD patient samples, and stop signals were positively correlated with OCS severity in a community sample, in a follow-up investigation (Solem et al., 2010). These relationships remained significant in both studies after controlling for OCD-related

cognitive beliefs (Myers et al., 2009; Solem et al., 2010). A more recent study found that each OCD-specific metacognitive belief domain (i.e., thought fusion, beliefs about rituals, stop signals) was positively associated with OCS over-and-above obsessive beliefs and non-OCD specific metacognitive beliefs (beliefs about worry) in a cross-sectional sample of individuals receiving treatment for OCD, another anxiety disorder, depressive disorder, and non-clinical community controls (Hansmeier et al., 2016). Lastly, changes in OCD-related metacognitive beliefs from pre- to post-treatment have been found to mediate reductions in OCS following ERP (Solem et al., 2009). Thus, there is strong evidence that metacognition, including thought importance/control beliefs and thought fusion beliefs, play a significant role in obsessive-compulsive symptomatology.

The metacognitive model of OCD has also informed the development of metacognitive therapy for OCD (MCT), which involves a range of targeted interventions intended to (i) weaken the maladaptive metacognitive beliefs (e.g., TF beliefs) thought to underlie obsessions and compulsions; and (ii) disrupt the self-perpetuating operation of the CAS in relation to the OCS (e.g., thought monitoring, obsessional worry/rumination, thought control/suppression strategies). These interventions include efforts at restructuring metacognitive beliefs (e.g., via Socratic questioning, behavioural experiments); and detached mindfulness activities to increase attentional control and decrease perseverative thinking (Wells, 2009). Accordingly, MCT differs from both ERP and CBT for OCD in that treatment strategies are used to prompt individuals' re-examination of overarching beliefs about the significance of intrusions, and their need to respond to them (e.g., using compulsions; Fisher, 2009).

Prior research, including early case series' (Fisher & Wells, 2008; Fitt & Rees, 2012; Rees & van Koesveld, 2008) has provided preliminary evidence of the

effectiveness of MCT in treating OCD. One notable pilot study reported large, statistically significant reductions in OCS and comorbid depressive and generalised anxiety symptoms, as well as TF beliefs, after individuals ( $n = 25$ ) with a diagnosis of OCD received individual outpatient MCT for the disorder (van der Heiden et al., 2016). Importantly, these reductions on dimensional symptom measures were maintained at 3-month post-treatment follow-up. A benchmarking study conducted by Wells and others (Papageorgiou et al., 2018) comparing group MCT to group ERP for outpatients with OCD found that MCT was associated with greater statistically significant reductions in OCS than ERP from pre- to post-treatment. Moreover, a higher proportion of participants who received MCT (86%) than ERP participants (64%) demonstrated clinically significant post-treatment reductions in OCS. A case series with random allocation ( $N = 11$ ) to either MCT or ERP for OCD found that MCT was effective in children aged 8-17 with OCD, with significant reductions in OCS reported at post-treatment and 3-month and 2-year follow-up (Simons et al., 2006). Whilst this study involved a paediatric, rather than adult population, combined findings indicate that MCT may hold promise as an alternative psychological treatment for OCD. Brief online self-directed MCT has also been shown to be superior to a waitlist control condition (Moritz et al., 2010) and general psychoeducation in reducing OCS and comorbid depressive symptoms.

While these initial findings are promising, the studies from which they were derived correspond with level three evidence (with level one and level four indicating the highest and lowest levels of evidence, respectively, within the Australian National Health and Medical Research Council (NMHRC) guidelines for evaluating healthcare interventions (Australian Psychological Society, 2018; NHMRC, 1998). Further and more rigorous evaluations by independent research teams, particularly via RCT (i.e., level two evidence), are needed to replicate these initial findings and establish MCT's

potential usefulness as a novel intervention for improving treatment response rates for OCD. One such RCT comparing the effectiveness of MCT to ERP for adults with OCD is reportedly underway in the Netherlands, with results not yet published (Melchior et al., 2019). Nonetheless, research on MCT for OCD provides further evidence supporting the contribution of metacognition – specifically, beliefs about intrusions and maladaptive strategies for controlling intrusions – to OCD symptomatology.

## Chapter 2

## OCD in the Perinatal Period

### 2.1 Definitions

Currently, there is no established definition of ‘perinatal OCD’ (sometimes referred to as ‘peripartum OCD’) in the research literature, with this term having been used variably to describe OCD with onset in pregnancy or the postpartum; exacerbation of pre-existing OCD during this period; and OCD occurring in this period without any regard to time of onset or course (Abramowitz, Schwartz, Moore, et al., 2003; McGuinness et al., 2011; Sharma & Mazmanian, 2020). Perinatal mental illness is generally understood to include any mental health disorder occurring among parents (i.e., both childbearing and non-childbearing parents) from the time of conception of pregnancy to 12 months following the birth of the child (O’Hara & Wisner, 2014). However, consistent with previous prospective research on OCD during the perinatal period (e.g., Timpano et al., 2011), and for the purpose of this thesis, ‘perinatal OCD’ is defined as OCD with onset in pregnancy and up to 12-months’ following childbirth. This definition includes both prenatal OCD (i.e., OCD with onset in pregnancy or the ‘antenatal’ period) and postpartum OCD (i.e., OCD with onset in the postpartum or ‘postnatal’ period). Likewise, ‘perinatal OCS’ (including prenatal and postpartum OCS) refers here to obsessions and compulsions that are associated with some distress or impairment in functioning but may vary more widely in severity (i.e., frequency, duration, and intensity) and impact and may not meet full criteria for formal diagnosis of OCD.

## **2.2 Prevalence in the perinatal population**

### **2.2.1 *Prevalence of perinatal OCD***

There is strong evidence that the perinatal period is a time of increased vulnerability to obsessive-compulsive disorder (OCD) for some individuals (see Abramowitz et al., 2003; Fairbrother & Abramowitz, 2007, 2016). Initial research on the prevalence of OCD in the perinatal period, as summarised by McGuinness et al. (2011), yielded highly mixed findings. This was likely due to the fact that many of these earliest studies relied on the retrospective self-reported life events associated with disorder onset among individuals with OCD, differences in the measurement of OCD between studies, and the absence of systematic comparisons with non-childbearing women of a similar age (Abramowitz, Schwartz, Moore, et al., 2003). Subsequent investigations, however, have yielded a more nuanced and robust picture on rates of OCD in the perinatal period.

A meta-analysis of 17 prevalence studies found that perinatal women were more than twice as likely overall than women matched on age and region within the general community to have OCD (Russell et al., 2013). While OCD prevalence was found to be elevated in pregnancy (2.07% compared with 1.08% in the general population), rates were highest in the postpartum period (prevalence - 2.45%; relative risk – 2.38). Consistent with this, Fairbrother and Abramowitz (2016) recently reported an average prevalence of OCD of 6.1% among postpartum individuals across 11 studies. These findings support the assertion that pregnancy and childbirth are specific life events associated with an increased risk of OCD in some cases (Fairbrother & Abramowitz, 2007; Maina et al., 1999).

However, there is also emerging evidence of group differences in the rates of OCD in the postpartum period. Specifically, one notable study found OCD to be more common among first-time parents (prevalence: 6.6%), compared with those who have had more than one child (prevalence: 1.8%), at 6-weeks post-childbirth (Uguz et al.,

2007). Another study investigated OCD in fathers followed across the pre- and postpartum periods (Coelho et al., 2014); the researchers reported mixed findings regarding whether there was an increased prevalence of OCD among perinatal fathers. Thus, it appears that new parenthood may confer a greater risk of experiencing OCD for women in particular (Fairbrother & Abramowitz, 2016).

### 2.2.2 *Prevalence of Perinatal OCS*

As is the case in the general community, perinatal individuals may also experience OCS that distressing and/or problematic to a lesser extent than is required for formal diagnosis of OCD. Once again, it appears that the prevalence of subclinical OCS may, however, be greater among the perinatal population than in the general community. Rates of subclinical postpartum obsessive-compulsive symptoms (OCS) have varied widely in the literature, from 5.4% in a community sample of 147 women recruited from birth records (Amy Wenzel et al., 2005), to 37.5% in a small ( $N = 44$ ) prospective pilot study of women who attended a local antenatal and maternity service (Chaudron & Nirodi, 2010). Two additional studies reported that at least 15% of antenatal and postpartum women (Barrett et al., 2016) scored in the ‘moderate’ or ‘severe’ range, and 20% of first-time parents (i.e., both mothers and fathers; Abramowitz et al., 2006) in the ‘mild’ range, on a well-validated and widely utilised measure of OCD symptoms, the *Yale-Brown Obsessive-Compulsive Scale (YBOCS)* (Goodman et al., 1989), suggesting the presence of at least subthreshold obsessions and compulsions. Possible explanations for the large disparities in rates of subclinical obsessions and compulsions between studies include sampling methodology, with more representative methods yielding lower prevalence rates than convenience methods; the inclusion of parents who had previously had a child versus first-time parents; and the potentially increased sensitivity of the *YBOCS* to detecting what may be considered adaptive anxiety and hypervigilance

among new parents leading to over-inclusivity of OCD-like thoughts and behaviours (Kim et al., 2013; Leckman et al., 1999; Leckman & Mayes, 1999). Research also indicates that the majority of women who experience postpartum-onset major depressive disorder (PMD), perhaps the most common and extensively researched psychiatric disorder occurring in the perinatal period, also experience clinically significant obsessions and compulsions (Wisner et al., 1999). Moreover, OCS were more prevalent among women with PMD than those with non-postpartum onset major depressive disorder. Thus, despite some limitations in the existing literature on perinatal OCS, it is apparent that obsessions and compulsions are a common phenomenon also experienced by many women without OCD in the perinatal period.

### **2.3 Characteristics of perinatal OCD**

Some research findings (e.g., Miller et al., 2015; Uguz et al., 2007) show a similar heterogeneity of symptom presentation in perinatal OCD (Timpano et al., 2011). Nonetheless, based on recent comprehensive reviews of the available literature, perinatal OCD appears to be associated with a more characteristic set of features reflecting foetus/infant-related concerns and behaviours (Abramowitz, Schwartz, Moore, et al., 2003; Fairbrother & Abramowitz, 2016; McGuinness et al., 2011). Only a limited number of studies have been conducted to date on OCD in pregnancy. Some studies indicate that prenatal obsessive-compulsive symptoms are typically focused on fears of contamination and illness resulting in loss of the pregnancy or harm to the developing child, often accompanied by ritualistic attempts (e.g., excessive cleaning and checking) to avoid potential contaminants (McGuinness et al., 2011). However, a recent meta-analysis of the comparative prevalence of different OCS themes in the perinatal period, which included three prenatal studies, found no significant differences

between the frequency of different types of obsessions and compulsions in pregnant and non-perinatal individuals (Starcevic et al., 2020).

Postpartum-onset OCD, in contrast, has received more research attention and is more commonly characterised by intrusive thoughts of accidental or deliberate infant harm or death (Fairbrother & Abramowitz, 2016). In particular, there is considerable evidence that thoughts of causing deliberate physical or sexual harm are more prevalent among postpartum individuals with OCD than in the general OCD population (Hudak & Wisner, 2012; Starcevic et al., 2020; Uguz et al., 2007; Uguz & Ayhan, 2011). Infant harm-related cleaning and checking behaviours are also common (Zambaldi et al., 2009). However, the meta-analysis recently conducted by Starcevic et al. (2020) indicates that compulsive washing behaviours are less common overall in the postpartum when compared with pregnancy and the non-perinatal period. Onset appears to most commonly occur within the puerperium (i.e., within 4-weeks of childbirth), suggesting that postpartum OCD is associated with a more rapid onset of symptoms than is generally the case in non-postpartum OCD (Fairbrother & Abramowitz, 2016). These findings are unsurprising given that OCS typically reflect an anxious preoccupation with the individual's predominant fears in the context of his/her current life circumstances (e.g., new parenthood; Fairbrother & Abramowitz, 2007). The increased prevalence of OCD, combined with its more distinctive symptom presentation, in the postpartum have led some authors to argue that perinatal OCD may be considered a distinct subtype of OCD (McGuinness et al., 2011; Sharma & Mazmanian, 2020; Starcevic et al., 2020).

Obsessional thoughts of infant-related harm are invariably *ego-dystonic* in nature in that the individual experiences them as unwanted and unrealistic, and wholly inconsistent with their morals, volition, sense of self, and behaviours (Lawrence et al., 2017). Obsessive-compulsive thoughts of deliberate infant harm are not associated with

risk of actual harm to the baby (Abramowitz, Schwartz, Moore, et al., 2003; Brok et al., 2019; McGuinness et al., 2011). The distress observed in postpartum OCD typically arises because the intrusive harming thoughts reflect the parent's very worst fear – harm coming to their baby – accompanied by an intense experience of responsibility to protect the child from threats to its safety and wellbeing (both realistic and otherwise). Individuals with postpartum OCD typically fear that the presence and recurrence of these intrusive thoughts mean that they actually desire or may cause harm to the infant (Challacombe & Wroe, 2013; Hudak & Wisner, 2012). Consequently, they may engage in ritualistic checking behaviours to ensure the infant is safe, along with covert behavioural or mental rituals (e.g., engaging in distraction, attempting to replace/suppress the intrusive thought, repeatedly seeking reassurance from others) intended to control, or neutralise the distress and/or perceived threat associated with, the intrusions (Fairbrother & Abramowitz, 2016). Partial or complete avoidance of situations that elicit their fears that they may cause harm to their baby (e.g., changing, bathing, holding, feeding, or driving with the baby; being alone with the baby) may also occur. These behaviours counterproductively reinforce the parent's preoccupation with the intrusions and become conditioned cues for the re-occurrence of the thoughts in the future, thereby increasing the frequency of the thoughts. Concealment of the obsessions from others, including health practitioners, is common due to the parent's concerns that the thoughts indicate risk of harm, and that disclosure of the thoughts may lead to child safeguarding interventions (e.g., removal of the child from their care), despite the absence of increased actual risk of deliberate harm to the child (Sharma & Sommerdyk, 2015).

In sum, infant harm-related obsessions and compulsions appear to be widely prevalent in perinatal OCD, as well as the predominant feature of postpartum-onset OCD. Given its increased prevalence, the specific event associated with onset (i.e.,

pregnancy or childbirth), and characteristic clinical features, there is some evidence that perinatal OCD could be considered a distinct subtype of OCD (McGuinness et al., 2011). Regardless, emerging research highlights the need for an approach to understanding, preventing, and responding to OCD that addresses the distinctive phenomenology of the disorder within the perinatal population.

#### **2.4 Differential diagnosis of perinatal OCD**

OCD can be differentiated from other disorders that may occur in the perinatal period that may also include thoughts of infant harm, including depressive disorders, postpartum psychosis, schizophrenia and generalised anxiety disorder (GAD). In the postpartum period, it is particularly important to differentiate OCD from postpartum psychosis (O'Hara & Wisner, 2014), a severe condition occurring in approximately 1 in 1000 live births with typical onset in the first four weeks following childbirth (Robertson Blackmore et al., 2016; Sit et al., 2006). Postpartum psychosis is a highly distressing, very severe disorder most commonly characterised by unusual perceptual experiences (i.e., the presence of delusions or hallucinations) that the individual cannot distinguish from reality (Sharma & Sommerdyk, 2015). As with postpartum OCD, postpartum psychotic symptoms often centre on themes of infant harm but stand in sharp contrast to obsessional thoughts of harm, in that the thoughts are ego-syntonic and perceived by the individual to be realistic and external in origin (Brok et al., 2017; Fairbrother & Abramowitz, 2016). Delusions and hallucinations with persecutory themes, including the belief that the baby is being monitored, possessed, threatened, or has been replaced, by an external force or agency, or of monitoring/persecution by the infant, may occur in postpartum psychosis (Sit et al., 2006). Because a defining feature of postpartum psychosis is hallucinations and/or delusions, the condition carries an increased risk that a mother may engage in behaviours that cause harm or place herself

or her infant at risk, in order to protect herself or the child from the perceived, but imagined, threat/s. As such, postpartum psychosis is associated with a significantly elevated risk of maternal suicide and infant harm or death (Robertson Blackmore et al., 2016). Clinical guidelines advise that all cases of this disorder be treated as a psychiatric emergency requiring immediate intervention and close monitoring and safeguarding of risk to both mother and infant, often in an inpatient hospital setting (Doucet et al., 2011; Sit et al., 2006).

As previously mentioned, past research has documented a relationship between depressive and obsessive-compulsive symptoms in the perinatal period, including findings of a high level of comorbidity between postpartum OCS and depression (Abramowitz, Schwartz, & Moore, 2003; Miller et al., 2013, 2015; Wisner et al., 1999), and a moderate but partial correlation between symptoms of both disorder types (for review – Fairbrother & Abramowitz, 2007). However, as in psychosis, depressive thoughts of infant harm are ego-syntonic in character; the thoughts, images, or urges are mood-congruent; the individual experiences them as realistic; and they are generally consistent with the person's sense of self and others, including their perceptions of their infant. While these ego-syntonic thoughts may be accompanied by unwanted affect or behavioural responses (which the individual desires or attempts to avoid, suppress, or resolve), the occurrence of the thoughts are at least not initially resisted by the individual (Lawrence et al., 2017). Furthermore, in the context of depression, thoughts of accidental or deliberate infant harm often do not arise spontaneously (i.e., they are consistent with situational context) and are generally not experienced as intrusive to one's consciousness (Sharma & Sommerdyk, 2015).

Lastly, GAD (including generalised anxiety in the perinatal period) is characterised by chronic worry (persisting for at least 6-months) about several everyday aspects of functioning (e.g., parenting, finances, work, other significant relationships;

APA, 2013). Individuals with GAD in the perinatal period may therefore present with concerns about the safety, health and wellbeing of one's infant (including thoughts of accidental harm); however, these are not predominant and are consistent with parents' self-concept and worldview (Sharma & Sommerdyk, 2015). Thoughts of deliberate harm to others, including the infant, are not a clinical feature of GAD (APA, 2013).

Thus, obsessional thoughts of deliberate infant harm are distinguished from thoughts of harming one's baby that may be symptomatic of perinatal depressive and psychotic disorders in that they are ego-dystonic and not linked with an increased risk of infant abuse or death (O'Hara & Wisner, 2014; Sharma & Sommerdyk, 2015). In actuality, given the significant lengths that mothers with postpartum OCD often go to in order to resist such thoughts and avoid the situations that trigger them, infant-related harming obsessions are contraindicative of risk of deliberate harm to the baby (Lawrence et al., 2017). This has significant implications for the clinical assessment and management of women experiencing obsessions of infant/foetus-related harm, including in postpartum OCD (Challacombe & Wroe, 2013; Hudak & Wisner, 2012; Shakespeare et al., 2018).

## **2.5 Impacts specifically related to perinatal OCD**

There is a relative paucity of research on the impact of perinatal OCD on both parents and families affected by the condition. However, the perinatal OCD literature is replete with clinical case examples of mothers experiencing obsessions and compulsions consistent with severe OCD. For example, Gershkovich (2003) and Sichel and colleagues (Sichel, Cohen, Dimmock, & Rosenbaum, 1993; Sichel, Cohen, Rosenbaum, & Driscoll, 1993) recounted the experiences of mothers presenting for treatment with highly distressing obsessions of deliberate infant harm who were avoidant of interactions with their infant, or avoided performing essential caregiving

behaviours (e.g., bathing, changing, or holding the baby) due to concerns that they would act on their intrusive thoughts. Given the prevalence of infant-harm related symptoms within perinatal OCD, the potential for the disorder to severely disrupt the mother's caregiving experiences, and the developing mother-infant relationship, is readily apparent. Perinatal mental illness has been shown to be related to both parenting stress in the postpartum period (Riva Crugnola et al., 2016) and the quality of the mother-infant relationship (Hakanen et al., 2019; Raine et al., 2020; Rossen et al., 2016). Mothers who reported elevated levels of anxiety in pregnancy may be less able to respond effectively to their infant's emotional needs in the postpartum period (Hakanen et al., 2019; Riva Crugnola et al., 2016). Research indicating that maternal perinatal depression is associated with lower levels of mother-infant bonding is also concerning (Raine et al., 2020; Rossen et al., 2016), given that mood and anxiety disorders so often co-occur in the perinatal period. These maternal mental health impacts on the developing mother-infant relationship may, in turn, contribute to adverse child outcomes previously associated with maternal perinatal stress and anxiety, including poorer motor and social-emotional development (Karam et al., 2016); and increased risk of anxiety, behavioural, and neurodevelopmental problems in childhood or later life (Kinney et al., 2008; O'Connor et al., 2002). There is some evidence that parental OCD is associated with an increased likelihood of OCD in their children/offspring (Black et al., 2003; Wilcox et al., 2008).

Perinatal OCD has been associated in the empirical literature with a range of negative health and social outcomes for parents and their children. These outcomes include reduced birth weight and gestational age (i.e., related to OCD in pregnancy; Uguz et al., 2015); reduced rates of breastfeeding and parenting confidence (Challacombe et al., 2016); a less sensitive parenting style (Challacombe et al., 2017; Challacombe & Salkovskis, 2009; Challacombe et al., 2016); and greater marital

distress and lower social support when compared with postpartum mothers without OCD (Challacombe et al., 2016). This is consistent with previous research findings that maternal prenatal anxiety predicted lower sensitivity to the infant's emotional needs in the postpartum period (Hakanen et al., 2019; Riva Crugnola et al., 2016). Also relevant is evidence that maternal OCD may be related to more negative parenting experiences during early childhood. In particular, Challacombe and Salkovskis (2009) found that mothers with OCD ( $n = 23$ ) who had children aged 7-14 displayed higher expressed emotion, and less warmth and support for psychological autonomy, during interactions with their children, when compared with a non-anxious control group ( $n = 20$ ). Children of parents with OCD also displayed more anxious behaviour during child-parent interactions than children of parents with panic disorder and a group of non-clinical dyads. In another study, parents reported improvements in their parenting experiences (e.g., interacting/undertaking more activities with their children) and reduced OCS following intensive treatment for OCD at 6-9 months postpartum (Challacombe et al., 2017). However, the relationship between postpartum OCD and parenting interactions may be mediated at least in part by the effects of comorbid depressive symptoms (Challacombe et al., 2016).

Consistent with this, mothers in one particular trial who received treatment for postpartum OCD continued to display lower parenting sensitivity during observed interactions with their infant rated using the Ainsworth sensitivity scale (Ainsworth, as cited in Bretherton, 2013) than a non-OCD control group of mother-infant dyads, despite improvements in symptomatology (Challacombe et al., 2017). This study provides additional evidence that factors other than OCS may account for the observed relationship between OCD and the quality of parenting interactions. However, the overwhelming majority of mother-infant dyads in both the OCD ( $n = 32$ ) and non-OCD ( $n = 37$ ) groups of Challacombe et al.'s (2017) study demonstrated a secure attachment

style, and the frequency of either secure or insecure attachment styles and organised or disorganised attachment styles, as measured by Ainsworth's strange situation procedure, were comparable across groups at 12 months' postpartum (Ainsworth et al., 2015).

Thus, while it may be concluded that OCD is related to reduced subjective quality of parenting experiences among postpartum women, evidence that OCD leads to more negative parenting interactions or a reduction in the quality of the parent-child relationship in offspring is mixed and requires replication. Other research indicates that an overprotective parenting style was not associated with an increased risk of OCD among offspring whose mothers had OCD (Wilcox et al., 2008). As noted by Challacombe and Salkovskis (2009), differences in parenting behaviours observed among mothers with OCD may be statistically significant but not clinically meaningful in many instances. It may be that the impacts of ppOCD on mothers' experience of parenting reflect, to a large degree, their obsessional concerns that their symptoms will result in harm coming to their children, rather than being an outcome of the same (Challacombe & Salkovskis, 2009). There is also a current absence of research investigating any direct impacts of ppOCD on either short- or long-term infant/child developmental outcomes.

Moreover, Uguz et al. (2007) also found that postpartum onset OCD was associated with less severe OCS than non-postpartum-onset OCD, although this finding has yet to be replicated. The researchers suggest that this may be because mothers with OCD may be less likely to avoid obsessional cues (e.g., activities/interactions with their infant) and engage in time-consuming, repetitive rituals due to their caregiving responsibilities. Instead, they may be more likely to engage in mental neutralising strategies in response to their obsessional thoughts (e.g., mental rumination, thought suppression and replacement). Notably, these covert compulsions may also be less likely to be detected on common measures of OCS used in perinatal OCD research (e.g.,

the *Obsessive-Compulsive Inventory – Revised*; Fairbrother et al., 2018). Therefore, despite some inconsistencies in results that warrant further investigation, perinatal OCD appears to have significant negative psychosocial impacts upon both mothers and their children, particularly when this disorder co-occurs with depression or other anxiety disorders.

## **2.6 Potential differences in terms of aetiology**

### **2.6.1 *Hormonal and biological changes linked to onset***

The perinatal period is unique in terms of the significant hormonal and biological changes that women experience in the lead up to, and following their child's birth, some of which have also been linked with OCS (for review - Brok et al., 2017). In particular, oxytocin is increased in mothers in late pregnancy and during delivery and breastfeeding, and in both mothers and fathers during interaction with their infant (Campbell, 2008). This hormone is proposed to facilitate bonding with the infant and direction of attentional resources towards the infant, and may increase sensitivity to threat cues and heightens motivation to protect one's baby from harm (Brok et al., 2017; Leckman & Mayes, 1999; Schaffir, 2016). Higher oxytocin plasma levels have been shown to be correlated with greater OCS severity in adults (Marazziti et al., 2015). However, this is inconsistent, with research findings that have observed lower postpartum oxytocin levels in women with postpartum depression, a condition that often co-occurs with postpartum OCS (ppOCS), compared with healthy controls (Jobst et al., 2016). Other research has also indicated that postpartum increases in endogenous oxytocin promotes positive affect and reduces stress reactivity and may be protective against postpartum distress (for review; Bell et al., 2014). In sum, changes in maternal oxytocin surrounding childbirth may, consistent with Leckman and Mayes (1999) model of early parental preoccupation and behaviours (EPPBs), lead to important

changes in cognition that influence the content and frequency of new parents' infant-related intrusive thoughts. However, it is unclear how these changes relate to the heightened psychological distress in response to these intrusions characteristic of postpartum OCD.

Serotonin, which has previously been implicated in OCD (see discussion on 'Biological Factors' in Section 1.3.1), also decreases shortly after childbirth owing to an increase in ovarian steroids that bind to estrogen and progesterone receptors, leading to a potential increase in negative mood and anxiety (Brok et al., 2017). Relatedly, physiological markers of the stress hormones adrenocorticotrophic hormone (ACTH), taken within 48-hours of childbirth, were found to predict infant harming intrusions reported by mothers at eight weeks' postpartum (Labad et al., 2011). It was recently reported that postpartum women with OCD had increased stress reactivity marked by increased cortisol and alpha-amylase levels in response to the Cold Pressor Test compared with postpartum women without OCD (Lord, Hall, et al., 2011). These studies suggest that increased reactivity of the hypothalamic-pituitary-adrenal axis is also involved in the development of ppOCS. Thus, a raft of potential neurobiological changes occur for women during the short-period after childbirth, and these may act to increase new mothers' propensity to experience unwanted intrusive thoughts in the postpartum period in particular (Brok et al., 2017).

Another biological factor that may contribute to the elevated risk of developing OCD that has been observed in the perinatal period is pregnancy- and postpartum-related shifts in sleep timing and duration (Sharma, 2019). Previous research has demonstrated that OCD is associated with sleep disturbance. Individuals with OCD have been reported to experience shorter sleep duration and greater rates of delayed sleep phase disorder (Nota et al., 2015); the regional prevalence of OCD has also been

shown to increase as geographical latitude increases (Coles et al., 2018). The relationship between sleep disturbance and OCD appears to be strongest for primary obsessional symptoms such as concerns about unacceptable intrusive thoughts (Hellberg et al., 2019; Raines et al., 2015).

This research may be relevant for understanding the increased prevalence of OCS in the perinatal period. Insomnia and sleep difficulties are very common in pregnancy (Chaudhry & Susser, 2018), and the postpartum period is characterised by significant changes in parents' sleep schedule due to the infant's irregular sleep schedule, and the need to attend to the baby throughout the night (e.g., for feeding; Miller, 2016). Two recent prospective studies have explored the relationship between mothers' self-reported sleep difficulties and postpartum OCS. Osnes et al. (2020) found that expectant mothers' ( $N = 530$ ) who reported insomnia at 17 weeks' gestation experienced more obsessions and compulsions (assessed using the *MINI Neuropsychiatric Interview for DSM-V Psychiatric Disorders*; Sheehan et al., 1998) at 8-weeks postpartum than women who did not report mid-pregnancy insomnia. Likewise, maternal sleep difficulties and self-reported fatigue have recently been shown to be positively correlated with postpartum OCS symptom dimensions – including higher levels of obsessional concerns, and greater frequency, distress, and perceived impairment in parenting in response to intrusions of accidental infant harm (Fairbrother et al., 2018). The same relationships were not, however, apparent for responses to intrusions of deliberate infant harm. Therefore, preliminary evidence, supports a link between maternal sleep difficulties and fatigue in the perinatal period and postpartum OCS, although the relationship with some types of symptoms (i.e., thoughts of deliberate infant harm) remains unclear.

Proposed mechanisms that may account for the relationship between sleep disturbance and postpartum OCS include reduced immune modulation evidenced by increased neuroinflammation within select brain regions (Sharma, 2019); as well as reduced inhibitory control (Nota et al., 2016) and control of attentional focusing (Cox et al., 2018), potentially leading to an increased propensity to engage in repetitive negative thinking or neutralising behaviours in response to intrusions. Research findings on neuroinflammation in the postpartum, however, have been mixed. Christian et al. (2018) found that increased simulated cytokine serum levels (a marker of neuroinflammation) were associated with sleep and psychosocial distress in African American, but not Caucasian women; serum levels of proinflammatory cytokines were not related to sleep or distress in either group. Research also indicates the relationship between decreased inhibitory control and OCS is not mediated by sleep (Nota et al., 2016). Furthermore, beliefs about the impact of insomnia on mental functioning may mediate the relationship between insomnia and OCS (Hellberg et al., 2019; Raines et al., 2015), consistent with previous research on the relationship between cognitive confidence and OCD (Nedeljkovic et al., 2009; Nedeljkovic & Kyrios, 2007). In short, although there appears to be a link between disturbed sleep and OCS or OCS-related impairment, evidence of a causal role for sleep to date has been minimal. Instead, it appears likely that the impact of changes in sleep on perinatal OCS is at least partially mediated by additional psychological factors, including affect and cognition.

### **2.6.2 *Cognitive and broad psychosocial factors***

The increased frequency and distinctive content of intrusive thoughts is a unique cognitive factor related to perinatal OCS. Previous research indicates that the overwhelming majority, if not all, parents experience infant-related intrusive thoughts in the postpartum period. Studies conducted in a non-clinical population (i.e., new parents

without mental health disorders), have shown that 69-100% of postpartum parents report intrusions of accidental harm, and 21-50% intrusions of deliberate harm coming to their baby (Abramowitz et al., 2006; Abramowitz, Schwartz, & Moore, 2003; Fairbrother & Woody, 2008). Recently, Brok et al. (2017) completed a systematic and critical review of the prevalence and features of infant harm intrusions in the postpartum period and reported that this phenomenon is near universal in new parents with and without comorbid psychiatric disorders (e.g., postpartum depression). These findings are, in themselves, unremarkable given the prevalence of intrusive thoughts in the general population; past studies indicate that 80-94% of the population experience intrusions, and that these intrusive thoughts are similar in content or theme to those observed in OCD (Clark et al., 2014; Clark & Radomsky, 2014; Moulding et al., 2014; Parkinson & Rachman, 1981a; Rachman & de Silva, 1978; Radomsky et al., 2014; Salkovskis & Harrison, 1984).

However, the thematic content of normatively occurring intrusive thoughts appears to differ when comparing the general and perinatal population. Whereas intrusive thoughts reported in the general community have been found to span a wide range of themes (reflective of the heterogeneity of OCS more generally; Moulding et al., 2014; Radomsky et al., 2014), the intrusions reported by new parents appear to be less variably focused on concerns about infant safety and wellbeing (Abramowitz, Schwartz, & Moore, 2003; McGuinness et al., 2011). This suggests the involvement of various potential biopsychosocial mechanisms specific to the perinatal period that (i) trigger intrusive thoughts at such a high frequency among new parents, and (ii) influence the specific content of these concerns as they are seen in the postpartum.

OCD has previously been termed, somewhat colloquially, as the ‘curse of caring too much’ (Rees, 2009), a phrase which is strikingly consistent with emerging

aetiological models of perinatal OCD in particular. Indeed, in 1956, Winnicott – a Paediatrician foundational figure in the then emerging field of attachment and early child development – first described the normative mental state of postpartum mothers as that of an ‘obsessional preoccupation’ with their newborn infant, whereby the mother’s thoughts are fixated on her baby (including its health, wellbeing, appearance, and behaviour), often to the exclusion of other previously important social relationships and activities (Winnicott, 2012). With this in mind, Leckman and colleagues (Feygin et al., 2006; Leckman et al., 1999; Leckman & Mayes, 1999) conceptualised perinatal OCS, among other types of harm OCD, in terms of a dysregulation of the evolutionarily based mammalian (i.e., in this case, maternal) caregiving system vis-à-vis an overactivation of specific components of this system.

The authors describe the operation of this caregiving system in terms of EPPBs directed towards one’s infant, comprised of three psychological and behavioural domains; caregiving and relationship domains arising as a dynamic interaction between the parent’s internal relationship working models and previous attachments, and their care given to and reciprocal interactions with their infant; and anxious intrusive thoughts and harm-avoidant behaviours as a result of increased maternal sensitivity to detect and protect the baby from both real and imagined threats (Leckman et al., 1999). As with other aspects of EPPBs, anxious intrusive thoughts and harm-avoidant behaviours are perceived to have a clear adaptive function – to facilitate mother-infant attachment and assist with keeping one’s offspring alive and well – particularly given that infant mortality rates remained high well into the early 20th Century, even in the developed world. Adaptive anxious intrusive thoughts and harm-avoidant behaviours are therefore distinguished from OCS in that they are not viewed by the mother as excessive or unreasonable, as well as not being impairing (Leckman et al., 1999). Within this model, OCS is attributed to overactivation of ‘anxious intrusive thoughts

and harm-avoidant behaviours' domain of the maternal caregiving system, leading to excessive maternal hypervigilance to infant-related harm cues (including intrusions and other internal cues to perceived threat) and an obsessional preoccupation with avoiding the same.

Leckman et al. (1999) also outline evidence supporting this conceptualised relationship between the maternal caregiving system, EPPBs, and perinatal OCS. In a prospective study, they reported on the anxious intrusive thoughts and harm-avoidant behaviours of female-male parent dyads, who did not have any previous diagnosis of OCD, at eight months' gestation, and two weeks' and four months' postpartum. Consistent with their model, they found that anxious intrusive thoughts and harm-avoidant behaviours peaked at the assessment point immediately following childbirth and decreased by four months' postpartum. They also found that this peak was higher among first-time parents (i.e., with less caregiving experience) and that, across the sample, anxious intrusive thoughts and harm-avoidant behaviours were qualitatively comparable to OCS particularly in terms of thematic content (i.e., disturbing thoughts of accidental or deliberate infant harm). Further support for the influence of psychosocial transition into a parenting role on the development of OCS in the perinatal period comes from neuropsychological studies that have found that some of the same neurobiological correlates of maternal caregiving behaviours and experiences are also implicated in OCD (e.g., heightened sensitivity to environmental stimuli and perceived threats to safety; Leckman et al., 1999). For example, as outlined above, increased oxytocin has been associated both with infant feeding and mother-infant interaction (Campbell, 2008) and OCD among adults (Marazziti et al., 2015). Parental preoccupation with the infant may be particularly intense for first-time parents and for mothers compared with fathers (Kim et al., 2013). Thus, postpartum intrusions of infant harm are not only common but is best regarded as a *characteristic psychological feature* of the postpartum period. In

this way, intrusions both reflect and exemplify the profound psychosocial changes, and its neuropsychological correlates of transition in social role, experienced by new mothers in the lead up to and after their baby's arrival.

An increase in psychosocial stressors surrounding the birth of a new baby may also be a psychological factor in the development of OCD in the perinatal period. Several studies have demonstrated a positive correlation between the level of stress and the frequency and intensity at which intrusive thoughts occur (Clark & Rhyno, 2005; Labad et al., 2011; Parkinson & Rachman, 1981b). The same also appears to be the case in the perinatal period. In a comprehensive review of the literature on postpartum intrusions of infant harm, Brok et al. (2017) propose that intrusions may be elicited by a range of emotional cues, including infant vocal and motor cues such as crying and restlessness, that may produce feelings of stress within caregivers. In one notable experimental study, mothers recruited from the general community listened to audio recordings of either an infant crying or cooing and reported their infant-related intrusive thoughts (Fairbrother et al., 2015). Intrusions of deliberate infant harm were endorsed more frequently among mothers who heard crying rather than cooing. As summarised by Brok et al. (2017), other studies also indicate that infant-harming intrusions are associated with infant restlessness (Barr & Beck, 2008) and prolonged crying (Levitzky & Cooper, 2000), as well as with higher levels of self-reported maternal stress and low social support (Fairbrother & Woody, 2008). Thus, the increased stress that often comes with caring for a newborn infant, particularly where the parent's resources for coping are reduced (e.g., due to disturbed sleep, inadequate social support), may go some way to explaining why postpartum individuals experience intrusive thoughts at a higher rate and intensity than the broader population. Given that many of the stressors reported in the immediate postpartum period by new parents are related to caring for their infant

(e.g., infant feeding, sleep, health needs and safety), it is unsurprising that postpartum intrusions often reflect these concerns.

Further research provides insight as to how the experience of postpartum intrusions may progress to become obsessive-compulsive symptoms or OCD for some parents. The cognitive-behavioural model of OCD highlights a number of specific cognitive factors that may increase in the lead-up to and following the birth of one's first child, thus conferring increased psychological vulnerability to experiencing OCS. Fairbrother and Abramowitz (2007) describe the potential role of increased responsibility and threat estimation in the development of OCS among first-time parents. It is argued that new parenthood brings about a dramatic increase in responsibility for preventing harm, specifically, to one's infant, and that – particularly in the immediate postpartum period – this occurs in the context of normally heightened parental awareness of threats to the safety and wellbeing of a physically vulnerable and wholly dependent infant. The role of elevated responsibility beliefs and appraisals in OCD was first proposed by Salkovskis (1985) and has since garnered considerable empirical support (Mantz & Abbott, 2017; Pozza & Dèttore, 2014; OCCWG, 2001, 2003, 2005). According to the responsibility model, individuals with OCD display a tendency to interpret threatening stimuli as conveying personal responsibility for causing and/or preventing harm to oneself and others (Salkovskis, 1985). Put another way, those with elevated general beliefs/assumptions about responsibility for harm are likely to appraise unwanted infant harm-related intrusive thoughts, as indicating responsibility for any harm caused to their baby (Barrett et al., 2016), and thus, a need to undertake all possible actions to prevent this harm from occurring (termed 'responsibility appraisals'; Salkovskis et al., 2000).

Both general responsibility beliefs and situational-specific (i.e., infant-related) responsibility appraisals have been shown to predict OCS in the perinatal period. Two prospective studies have demonstrated that first-time parents' obsessive beliefs during pregnancy, including their beliefs about responsibility, predict the postpartum onset of OCS at 12 weeks postpartum or more (Abramowitz et al., 2006, 2007). In the latter of these two studies, parents' appraisals of their infant-related intrusive thoughts (including appraisals concerning responsibility for causing/preventing harm) at 2-3 weeks' postpartum, mediated the link between antenatal obsessional beliefs, and OCS at 12-16 weeks' postpartum follow-up. This finding regarding the mediational role of responsibility appraisals of intrusions was further supported by more recent research conducted by Barrett et al. (2016). The researchers compared general responsibility beliefs and responsibility appraisals of both general and infant-related intrusions among antenatal, postpartum, and non-childbearing women recruited from the general community. Appraisals of responsibility for infant-related intrusions, but not appraisals of general intrusions, were higher among the childbearing than non-childbearing women; general beliefs about responsibility for causing/preventing harm also did not differ between groups. Most significantly, responsibility for infant-related intrusions was positively correlated with the level of OCS. These results support the theorised role of changes in responsibility during the perinatal period in eliciting OCS in two respects. First, it is apparent that the perinatal period brings increased thoughts of infant-related responsibility – specifically, for infant-related intrusions – and second, that this increase in perinatal specific appraisals of responsibility is associated with greater perinatal OCS.

It may be that new parents' perceptions of closeness to their infant and their infant's vulnerability to harm (which may vary between individuals) increase new parents' sense of responsibility for preventing harm to their child, leading them to

experience increased distress in response to infant-harm intrusions. Researchers have found that community (i.e., non-clinical) participants were more distressed and endorsed greater levels of thought – likelihood fusion appraisals when imagining a loved one developing cancer, compared with a stranger (Berman et al., 2011). In a follow-on study, community participants were instructed to imagine either an able-bodied or more physically vulnerable person they knew (e.g., an elderly person or person with a physical impairment) experiencing a car accident. They then rated their feelings of anxiety, guilt, and perceptions of moral wrongness and likelihood of the imagined event occurring (Berman et al., 2012). While the study sought to investigate metacognitive (i.e., thought fusion) beliefs, results showed that ratings of distress, morality, and event likelihood were greater for participants who imagined a less physically able person being injured. These studies suggest that interpersonal closeness with, and the perceived strength of the ‘victim’, is related to feelings of responsibility (as well as thought fusion beliefs) in response to intrusions of physical harm. As such, they are consistent with the view that perceptions of both infant vulnerability to harm and responsibility for preventing harm interact in a way that is associated with increased distress following infant-harm related intrusions in perinatal OCD (Barrett et al., 2016; Fairbrother & Abramowitz, 2007).

Importantly, however, the origin of over-responsibility is unclear, and the direction of the relationship/s between responsibility beliefs and appraisals and OCD-related metacognitive beliefs (i.e., thought fusion beliefs) remains contentious (Marino et al., 2008). Some researchers contend based on prior literature that thought fusion (TF) beliefs are a product of (and thus secondary to) increased responsibility for intrusions (for review – Purdon & Clark, 2002; Shafran & Rachman, 2004), whereas others view TF beliefs as a precipitant to maladaptive appraisals of responsibility for causing and/or preventing harm (e.g., Wells, 2009). Furthermore, as noted by the

authors, Barrett et al.'s (2015) study did not investigate other psychological factors, including metacognitive beliefs, that may lead to unhelpful appraisals of infant-related intrusions. At the same time, prospective studies of perinatal individuals (Abramowitz et al., 2006, 2007; Fairbrother et al., 2018) indicate that non-cognitive beliefs (i.e., about thought importance and control) also contribute significantly to the pathogenesis of postpartum OCS. Nonetheless, it is clear that a typical psychological feature of the perinatal period is an increased parental sense of responsibility, as well as awareness of the infant's physical vulnerability and dependency on others for care and protection (Leckman et al., 1999).

### **2.6.3**                    *Metacognitive factors*

While other factors (e.g., biological and social changes) experienced by parents in the period leading up to and immediately following having a baby may explain the increased prevalence and distinctive thematic content of intrusions in the perinatal period, metacognitive factors may also aid in our understanding of why some parents (but not others) develop OCD at this time. Indeed, some of the most compelling studies on the aetiology of OCD have come from prospective studies that have specifically investigated cognitive and metacognitive predictors of OCS onset in perinatal individuals (Abramowitz et al., 2006, 2007; Fairbrother et al., 2018). These studies are worthy of detailed consideration, given their direct relevance to understanding contributing factors and potential pathways to prevent and treat perinatal OCD. In the first of these seminal studies, Abramowitz et al. (2006) explored the relationship between 85 first-time expecting parents' (including childbearing females and their partners) pre-existing obsessive beliefs – measured at five or more months' gestation – and postpartum OCS. Scores on the *Obsessive Beliefs Questionnaire – 44 item version (OBQ-44)* scores, a measure of OCD-related beliefs including thought

importance/control beliefs, were found to be significantly and positively correlated with OCS at 3-months' postpartum follow-up, including checking, washing, and obsessional concerns measured using the subscales of the *Obsessive-Compulsive Inventory – Revised (OCI-R)*; Foa et al., 2002). These relationships remained after controlling for prenatal OCS and anxiety and depressive symptoms. Obsessive beliefs did not predict neutralising or ordering symptoms. Notably, the factor structure of the *OBQ* meant that scores were treated as a composite measure of OCD-related cognitive and metacognitive beliefs and, thus, the study did not allow for assessment of the independent contribution of thought importance/control beliefs to postpartum OCS. Despite this, the prospective and robust design of the study offered persuasive preliminary evidence that metacognitive beliefs play a role in the development of OCS in the perinatal period.

Abramowitz et al. (2007) replicated and extended upon this by including thought fusion beliefs in a second investigation of the relationship between antenatal OCD-related beliefs, interpretations of intrusions at 4-weeks' postpartum, and OCS at 3-4 months' postpartum among parents ( $N = 76$ ) who reported experiencing intrusions about their infant during the puerperium. Consistent with earlier findings, higher antenatal *OBQ-44* scores predicted higher levels of maladaptive appraisals of infant intrusions (measured by the *Interpretation of Intrusions Inventory or III*; OCCWG, 2001) and greater OCS severity (i.e., *OCI-R* and *YBOCS*) in the postpartum period. TF beliefs about the likelihood of thoughts causing harm to others (thought – likelihood – others fusion), but not about the likelihood of harm to oneself (thought – likelihood – self fusion) or beliefs equating thoughts about immoral deeds with immoral actions (thought – moral fusion), also significantly predicted postpartum OCS. The study also found that the relationship between prenatal obsessive and TF beliefs and OCS at 3-4 months'

postpartum was significantly but partially mediated by parents' postpartum appraisals of intrusive thoughts about their baby (i.e., at four weeks following the infant's birth).

As such, this study provides support for a model of OCD that references the role of metacognitive beliefs in the onset and maintenance of obsessive-compulsive symptoms in the perinatal period. Specifically, the results indicated that elevated pre-morbid metacognitive beliefs about the importance and significance of intrusions (particularly thought fusion beliefs) give rise to maladaptive metacognitive appraisals of infant-related intrusions, leading to increased psychological distress and engagement in physical and mental compulsions in order to control these intrusions, as is predicted by the metacognitive model of OCD. Limitations of the study include relatively small main effect sizes; analysis of obsessive beliefs (i.e., cognitive and metacognitive factors) as a single construct owing to the psychometric structure of the *OBQ-44* in the study sample; and a lack of comparison of the contribution of the cognitive and metacognitive predictors to different OCS symptom dimensions, which limit the usefulness of the study in empirically validating proposed aetiological models (including the metacognitive model) of perinatal OCD. Nonetheless, the study confirms previous findings of the contribution of metacognitive beliefs about the importance and significance of one's thoughts to OCS among postpartum parents.

A more recent and independent replication of these initial studies (Abramowitz et al., 2006, 2007) was conducted by Fairbrother et al. (2018) and assessed the relationship between first-time mothers' obsessive beliefs (including thought importance/control) at 36 weeks' gestation, and infant harm-related OCS in particular, at one and three months' postpartum. Results demonstrated that prenatal *OBQ* scores significantly predicted scores on the 'Obsessions' subscale of the *OCI-R* at postpartum assessment points, although the unique variance in OCS accounted for was less than

10%. Pre-existing obsessional beliefs predicted time occupied by, but not the frequency of, thoughts of accidental infant harm, distress, and perceived impairment in parenting associated with these thoughts, at both points in the postpartum period. Higher prenatal *OBQ* scores were also correlated with the distress associated with intrusions of deliberate infant harm at both one month and three months' postpartum, and with time spent preoccupied with the obsessions at one month postpartum, and self-rated interference with parenting at three months' postpartum. Additionally, prenatal obsessive beliefs predicted the extent of maladaptive emotional and behavioural (e.g., compulsive) responses to thoughts of both accidental and deliberate infant harm in the postpartum.

In sum, the results of this study demonstrate that new mother's level of obsessive beliefs, including their metacognitive beliefs about thought importance/control, before childbirth is associated with increased infant-related obsessions and compulsions in the postpartum period. As with previous prospective studies in this field, the *OBQ-44* was treated in this study as a single-scale measure rather than of distinct belief domains due to its psychometric properties. Moreover, no additional measures of OCD-related metacognitive beliefs (such as the *Thought Action Fusion Scale*, or *TAF*; Shafran et al., 1996) were included to distinguish the contribution of cognitive and metacognitive beliefs to postpartum harm OCS. The sample of women reporting intrusive thoughts of deliberate harm ( $n = 12$ ) was also very low, limiting the strength of the conclusions that may be drawn concerning predictors of postpartum intrusions of deliberate infant harm. Also, given that the study included women recruited from the general community and did not include OCD-diagnostic screening or follow-up measures, this sample size limitation means that the generalisability of the findings to women who experience OCD in the postpartum period (of which deliberate infant harm obsessions is a common symptom) has yet to be shown. Regardless,

Fairbrother et al.'s (2018) findings further add to the literature that has consistently demonstrated that psychological beliefs (including thought importance/control) precede postpartum-onset OCS through robust longitudinal study designs. Extending upon this, the study demonstrated a specific relationship between prenatal beliefs and the severity and features (e.g., duration, associated distress, and impairment) of a characteristic symptom of postpartum OCD among first-time mothers - obsessions of infant harm. With this in mind, the study results strongly suggest that psychological beliefs are involved in the development of OCD in the perinatal period. It also supports the metacognitive model of OCD, which emphasises the centrality of overvalued ideas about the importance and significance of intrusive thoughts in driving OCS.

Research has also explored postpartum parents' use of metacognitive thought control strategies in response to infant-related intrusive thoughts that constitute part of the proposed *CAS* for OCD (e.g., distraction, thought suppression, worry and rumination, mental and physical neutralising). Larsen et al. (2006) surveyed 75 parents (including females and males) identified using health service birthing records who had given birth to a healthy and full-term baby within the preceding four months, and who reported having had at least one intrusive thought about their infant since delivery. The researchers found that parents' scores on a measure of thought control strategies (i.e., the *Thought Control Scale*; Wells & Davies, 1994) were positively and significantly correlated with scores on the 'Obsessions' subscale of the *YBOCS Severity Scale*. More specifically, parents who reported engaging in greater distraction, reappraisal of intrusions, worry, and punishment in response to intrusive thoughts experienced higher obsessional symptoms. Accordingly, although correlational in nature, the results of this perinatal study, are wholly consistent with the metacognitive model of OCD, which argues that efforts to control intrusive thoughts (i.e., metacognitive strategies) paradoxically maintain and often exacerbate OCS.

Findings from Fairbrother et al.'s (2018) study were somewhat less consistent in this regard. Obsessive beliefs (including thought importance/control) in pregnancy significantly predicted behavioural responses to intrusive thoughts of infant harm (e.g., attempts to control thoughts by mentally reviewing one's actions or avoiding caregiving behaviours) following childbirth. Behavioural responses to infant harm intrusions in the early postpartum period (i.e., at one month postpartum), in turn, predicted the frequency and duration of later thoughts of accidental infant harm, and perceived impairment in parenting associated with intentional infant harm intrusions at 3 months' postpartum. However, behavioural responses were not significantly associated with the level of overall obsessions (i.e., *OCI-R* Obsessing subscale scores) nor with distress evoked by the intrusions. In sum, although there has been limited research to date on the role of maladaptive metacognitive strategies for controlling thoughts in the development and maintenance of perinatal OCS, emerging research largely supports the prediction, based on the metacognitive model of OCD, that individuals' use of these strategies may have a role in accounting for the increased onset of OCD in postpartum women.

## **2.7 Specific treatments indicated for perinatal OCD**

Few studies offer guidance on specific treatments indicated for perinatal OCD, with most authors advocating for the use of existing interventions for adult OCD (Hudak & Wisner, 2012; Namouz-Haddad & Nulman, 2014). To date, there have been no controlled studies evaluating either biological or psychological treatments for OCD in pregnancy. However, there are a few treatment modalities with emerging evidentiary support for their effectiveness in treating OCD within the postpartum period, including pharmacotherapy (SSRIs) and psychotherapy (CBT, including ERP and MCT) approaches.

Verinder Sharma (2018) conducted a systematic review and reported a current absence of randomised-controlled placebo studies investigating pharmacotherapy for postpartum OCD. However, two previous trials of SSRI treatment included postpartum women with OCD and reported on OCS severity (*YBOCS*) as an outcome measure, albeit with inconsistent results in terms of symptom remission rates. In one case series ( $N = 2$ ) that investigated postpartum OCD specifically, SSRI (fluoxetine, clomipramine, and/or desipramine) treatment led to remission of OCS in both participants (Sichel et al., 1993). An RCT of paroxetine (with or without CBT) reported more favourable results, with most participants (80%) obtaining OCD symptom resolution (Misri et al., 2004). However, this study included women with primary depression and a range of comorbid anxiety disorders ( $n$  participants with comorbid OCD = 10), limiting the conclusions that may be drawn in relation to OCD. Other studies indicate that antidepressant medications may be effectively augmented with quetiapine (an atypical antipsychotic) to reduce treatment-resistant postpartum OCS comorbid with depression ( $n = 14$ ; Misri & Milis, 2004) or bipolar disorder ( $n = 3$ ; Sharma & Sharma, 2015). Verinder Sharma's (2018) systematic review also included two studies (Misri & Milis, 2004; Sharma & Corpse, 2008) that included participants with postpartum exacerbation/onset of trichotillomania (TTM) – an obsessive-compulsive related disorder – rather than symptoms of OCD, despite accumulating evidence that common pharmacological interventions for OCD (e.g., SSRIs) may not be effective for TTM (Slikboer et al., 2017). Thus, there is some evidence supporting the use of psychopharmacology (particularly SSRIs) to reduce perinatal OCS. However, the comparison of findings between studies is confounded by the inclusion of participants without primary diagnoses of OCD. In sum, this area of research is limited to a large extent by a lack of controlled studies investigating perinatal OCD specifically (i.e., where the primary disorder is OCD). There is also an absence of findings to guide

clinicians on the appropriate dosage or timing required for effective treatment of perinatal OCS (Sharma, 2018).

Most notably, two studies have investigated the effectiveness of CBT, in particular, in treating postpartum OCS. A small pilot randomised-controlled trial ( $n = 34$ ) of time-intensive individual CBT (consisting of 12 hours clinical contact hours delivered in four sessions over a 2-week period) found that this treatment significantly reduced OCS in postpartum women with OCD compared with a treatment-as-usual control condition (Challacombe et al., 2017). Furthermore, treatment effect size (as measured using *YBOCS* severity scores at 12 months postpartum, or around five months after treatment completion) for the CBT group were large and comparable to that found in CBT treatment studies for OCD in general. Average OCS scores decreased by over 50%, over two-thirds of participants in the intervention group obtained clinically significant changes in OCS, and treatment attrition ( $n = 1$ ) was very low. This was consistent with the results of an earlier clinical case series, conducted by authors from the same research group, that included six postpartum women (Challacombe & Salkovskis, 2011); all participants reported reductions in OCS and improvements in the quality of their parenting experiences at post-treatment, and 3-5 month follow-up. Other researchers have described the successful implementation of ERP, along with cognitive therapy interventions (e.g., psychoeducation about OCD), resulting reduction in the severity of OCS and related impairment (e.g., in parenting behaviours), in single case studies of postpartum mothers with primary obsessions of deliberate and/or accidental infant harm (Christian & Storch, 2009; Gershkovich, 2019; Puryear et al., 2017). Finally, MCT may be an effective intervention for perinatal OCD. In a recent open trial ( $N = 7$ ), 67% of participants who received group MCT specifically targeted at reducing perinatal OCS (OCS with onset or exacerbation in pregnancy or the postpartum) no longer met criteria for OCD based on a structured diagnostic interview, as well as

obtaining symptom remission into the non-clinical range on the *YBOCS*, at 3-months post-treatment (Ramunno, 2017).

Together, these studies provide strong evidence that cognitive-behavioural treatments are effective in treating perinatal OCD, as is indicated in current evidence-based guidelines on the treatment of both OCD in general and perinatal anxiety disorders (Austin et al., 2017; NICE, 2005, 2014). Significantly, each of these studies utilised interventions that addressed parents' maladaptive beliefs about and appraisals of infant-related intrusions. Only one study to date, however, has measured either obsessive or metacognitive beliefs following treatment for perinatal OCD (Ramunno, 2017). In this study, participants reported decreased maladaptive metacognitive beliefs (specifically, thought fusion and thought importance/control beliefs), but not OCD-related cognitive beliefs (i.e., responsibility/threat estimation and perfectionism/intolerance of uncertainty) between pre- and post-treatment with MCT. This finding fits with previous research that demonstrated that changes in metacognitive beliefs predicted treatment outcome during ERP for OCD (Solem et al., 2009). This again supports the proposed role of metacognitive factors in the aetiology of OCD and indicates that metacognition may be critical to understanding and developing effective approaches to OCD in the perinatal period in particular.

## **2.8 Current issues and controversies**

### **2.8.1 Systemic issues**

#### **2.8.1.1 *Recognition of and attitudes toward OCS***

Despite the comparatively higher prevalence of OCD in the perinatal period (Russell et al., 2013), there is a range of systemic factors that may affect access to appropriate and timely care for perinatal women affected by OCD (Challacombe &

Wroe, 2013; Hudak & Wisner, 2012; Shakespeare et al., 2018). Early and targeted intervention approaches to perinatal mental health typically focus on identifying women experiencing depression and directing them towards integrated, formal pathways for mental health care, rather than on detecting other mental health concerns during the perinatal period (e.g., anxiety disorders and OCD; Laios et al., 2013). The current paucity of research on perinatal OCD also has implications in terms of the extremely limited information currently available in the clinical literature to guide clinicians in best-practice for detecting and effectively managing perinatal OCD (Lawrence et al., 2017). More specifically, despite advances in the availability of clinical practice guidelines for both OCD (e.g., NICE, 2005) and perinatal mental health problems such as depression and anxiety (e.g., Austin et al., 2017; NICE, 2014) there are currently no expert-developed evidence-based guidelines to inform clinical assessment and treatment specific to, and based on the unique concerns of individuals with, perinatal OCD (Lawrence et al., 2017). Gaps in the clinical practice literature may consequently impact practitioners' knowledge of the disorder and how it presents in the perinatal period (Sharma & Sommerdyk, 2015).

Clinicians' knowledge of common postpartum OCS (e.g., infant harm-related concerns), in turn, may have significant implications in terms of the quality of care afforded to mothers experiencing OCD in the perinatal period. There is evidence of high rates of symptom misidentification by mental health professionals in relation to OCD in general (Storch, 2015). In one notable study, 70% of individuals engaged with a general community (i.e., non-perinatal-specialist) psychiatric outpatient service who met criteria for OCD had not been diagnosed or treated for the disorder (Wahl et al., 2010).

However, other research has also demonstrated that OCD symptom presentation may influence the detection of, and responses to, individuals experiencing OCD. One large study of over 2000 mental health practitioners found that harming or sexual obsessions

were less likely to be identified as symptoms of OCD, and more likely to be characterised in terms of another disorder (e.g., such as an impulse control or paraphilic disorder), when compared with other OCS subtypes, such as cleaning or checking concerns (Glazier et al., 2013).

OCD recognition rates have also been shown to differ within the general community in a similar way across OCD symptom dimensions, and there is evidence that this is related to attitudes towards individuals with the disorder. García-Soriano and Roncero (2017) investigated Spanish adolescents' attitudes towards aggressive/harming and symmetry/order-OCS. They found that harming concerns were frequently mischaracterised as symptoms of depression or psychosis, and an individual described as having these concerns was rated higher on a measure of stigmatising attitudes. Other researchers similarly found that university students ascribed higher ratings of social unacceptability, fear, and shame, towards a hypothetical case featuring an individual with harming concerns, than cases featuring washing or checking behaviours (Simonds & Thorpe, 2003). More recent experimental research indicates that the more negative social attitudes observed towards individuals with harming or sexual obsessions may be related to the mischaracterisation of these symptoms (e.g., as psychosis) and that these attitudes, along with the accuracy of OCS recognition, improve following brief education on the symptoms of OCD (Snethen & Warman, 2018; Warman et al., 2015).

Only one study has explored differences in clinician attitudes towards various symptoms of OCD (Steinberg & Wetterneck, 2017). Specifically, practitioners rated harming, along with sexual and contamination obsessions, higher in terms of social rejection and concern than scrupulosity/religious obsessions. While rates of OCD symptom misidentification were not reported in this study, the findings raise the possibility that a relationship between recognition of OCS and attitudes towards individuals with obsessions of deliberate harm may also exist among health

practitioners (i.e., consistent with research in the general community; García-Soriano & Roncero, 2017; Warman et al., 2015). If this is indeed the case, it is particularly concerning considering obsessions of infant-related harm are a common clinical feature of perinatal OCD (Abramowitz, Schwartz, Moore, et al., 2003; Fairbrother & Abramowitz, 2016; McGuinness et al., 2011).

### **2.8.1.2                    *Implications of OCS misidentification in the perinatal period***

The misidentification of OCS has significant implications in terms of the clinical care that women with perinatal OCD are likely to receive (Challacombe & Wroe, 2013; Hudak & Wisner, 2012; Sharma & Sommerdyk, 2015). For example, mischaracterisation of obsessive-compulsive thoughts of deliberate infant harm as symptoms of psychosis – may lead to an inaccurate assessment of the actual risk to the self, child, or others – given that postpartum psychosis is associated with both maternal suicide and infant death and often requires hospitalisation (Fairbrother & Abramowitz, 2016). Postpartum depression, in its most severe form, may also include passive or active, but ego-syntonic, thoughts of causing harm to oneself or one's baby that are related to an increased risk that these thoughts will be acted upon (Lawrence et al., 2017; Sharma & Sommerdyk, 2015). As previously outlined, such a relationship between thoughts of deliberate harm and increased risk of harm has not been shown to exist in OCD (Challacombe & Wroe, 2013; Lawrence et al., 2017; Shakespeare et al., 2018).

Inaccurate clinician assessment of the usually negligible risk associated with postpartum obsessions of infant harm may lead to inappropriate treatment approaches that reinforce and even stigmatise OCS (Challacombe & Wroe, 2013; Gupta & Kiran, 2019). For instance, one might imagine a first-time mother disclosing highly distressing, unwanted, and repeated thoughts of deliberately harming her baby to her

perinatal/maternal healthcare provider, with whom she may have an established relationship, to obtain reassurance, guidance, and support. As is characteristic of individuals experiencing OCD, the mother may hold a strong belief that the mere presence of these thoughts indicates that she is abnormal, an immoral person, and/or at risk of actually harming her child (Fairbrother & Abramowitz, 2016). The use of common child safeguarding interventions – such as conducting a detailed violence risk assessment, referring the case to child protective services, arranging for another family member to care for the child, or placing the mother in involuntary psychiatric treatment – would likely reinforce the mother’s OCD-related metacognitive beliefs that the thoughts are concerning or dangerous and may be acted upon if she is not able to control or avoid them.

These interventions would likely increase the mother’s distress about the thoughts, thereby maintaining and exacerbating her OCS, in the absence of any significant clinical indications of risk to the child (Challacombe & Wroe, 2013; Shakespeare et al., 2018). They may also further impact the mother’s opportunity to interact and bond with her infant during a time when the mother-infant relationship is so crucial to the infant’s development (Rossen et al., 2016). Furthermore, these responses may stigmatise OCS and deter future help-seeking, which may be exacerbated by clinician’s attitudes towards infant-related harming concerns. Conversely, while reassurance from healthcare providers may be indicated for perinatal depression, in the context of OCD, this response may somewhat counter-intuitively increase OCS by preventing disconfirmation of beliefs about intrusions and compulsions through experiential learning (Kobori & Salkovskis, 2013; Rees, 2009). These considerations highlight the importance of accurate identification of OCS in the perinatal period to inform the effective management and support of women experiencing OCD and their families during this time. Despite this, no empirical studies to date have investigated

clinician knowledge or attitudes, or how these may relate to the management, of perinatal OCD. An investigation of this kind would be an important addition to the perinatal mental health literature.

### **2.8.1.3 *Factors impacting on perinatal OCS misidentification***

With this in mind, there is also a need to explore factors that may influence clinician's ability to accurately recognise and effectively respond to perinatal OCS. Previous studies have found that brief education on harming and sexual obsessions improved the ability of individuals in the community to attribute obsessions to OCD, rather than schizophrenia, as well as more favourable attitudes towards OCS (Snethen & Warman, 2018; Warman et al., 2015). Although there is currently a distinct lack of research on the effects of clinician training and education about OCD, this study does suggest that targeted education and training may be a factor that may affect practitioners' responses to perinatal OCS.

One additional factor that may influence the detection and management of perinatal OCD and OCS and, thus, access to care, is clinicians' metacognitive beliefs and appraisals about intrusive thoughts. Practitioners' who hold elevated unhelpful OCD-related metacognitive beliefs about their own intrusive thoughts may be more likely to appraise postpartum obsessions of infant harm in a threatening way that may lead to an inaccurate assessment of risk the mother's risk to self, her child, and others, and to interventions that are both clinically contraindicated and unnecessarily restrictive. For instance, clinicians with particularly strong thought importance/control beliefs may be more inclined to view a new mother's intrusive thoughts of deliberately harming her baby as indicating a desire to harm or a risk that the mother may 'lose control' of her behaviour and cause harm. They may also be likely to misattribute OCS symptoms to another psychological disorder associated with ego-syntonic thoughts of

infant harm that carry an increased risk of actual harm in some cases, such as postpartum depression or psychosis. Surprisingly, no studies to date have investigated the potential role of clinician's metacognitive beliefs and appraisals about intrusive thoughts in their responses to individuals presenting with OCS. Examining the potential impact of health practitioners' own OCD-related beliefs and appraisals and their attitudes towards, and management of, OCS is a particularly important avenue for research inquiry, given that (i) almost all new parents experience infant-related intrusions, and (ii) unhelpful metacognitive beliefs about, and appraisals of, these thoughts appear to differentiate those parents who go on to develop OCD in the postpartum period.

In sum, despite widespread acknowledgement of systemic factors that may affect the ability of individuals experiencing perinatal OCD to access appropriate care (Challacombe & Wroe, 2013; Fairbrother & Abramowitz, 2016; Ford et al., 2017; Gupta & Kiran, 2019; Hudak & Wisner, 2012; Lawrence et al., 2017; Sharma & Sommerdyk, 2015), there is a dearth of empirical research in this area. Research aimed at understanding barriers to care for perinatal OCD should include clinicians' knowledge of how OCD presents during the perinatal period. It is important also to consider the potential influence of practitioners' own beliefs and attitudes towards infant-harm related OCS (and the potential factors that may influence these factors), to address problems with access to care and develop more effective responses to perinatal OCD.

## 2.8.2 Prevention of OCD

### 2.8.2.1 *Defining prevention approaches*

The goal of preventative health, including within mental health, is to reduce the risk of developing illness or disease among groups in the community (Mrazek & Haggerty, 1994). The concept of health prevention overlaps with, but is nonetheless distinguished from, health promotion, which involves the enhancement of wellbeing beyond illness and disease (Cowen, 1998, 2000). In sum, ‘mental health prevention’ can be defined in terms of interventions intended to reduce known aetiological risk factors for psychiatric illness (known as the ‘medical model’ or ‘disease modelling approach’ to prevention) and/or enhance psychological wellbeing or resilience to reduce the occurrence of one or more psychiatric disorders (Brakoulias et al., 2018; Newton, 1992).

Efforts to prevent specific psychiatric disorders that follow the disease modelling approach can be further understood in terms of the extent to which they are targeted to the general population, at-risk groups, or individuals who are prodromal or symptomatic, and may be classed as ‘primary’, ‘secondary’, or ‘tertiary’ prevention (Newton, 1992). ‘Primary prevention’, often referred to as ‘universal prevention’, involves the untargeted and broad delivery of (typically brief and low-cost) interventions intended to reduce specific aetiological/risk factors for psychological disorder within the general population. Assuming that symptoms of major psychiatric illnesses (as is the case with OCD) occur on a spectrum in the general community that follows a normal distribution, primary prevention interventions, therefore, capture individuals across this spectrum, including both individuals who are and are *not* at risk of developing the disorder. For instance, in the context of OCD, primary prevention involves modifying known psychological (e.g., OCD-related beliefs) and environmental

(e.g., familial) risk factors associated with OCD onset to individuals in the general community, prior to the onset of OCD symptoms (Brakoulias et al., 2018). Such interventions may be delivered at established times of increased risk for the onset of OCD, for example, during adolescence or the perinatal period. Secondary or indicated prevention, in turn, concerns intervening to reduce risk of OCD in those who display known individual-level predictors of OCS onset (e.g., high OCD-related beliefs) or initial OCS that are not yet sufficiently severe to meet full diagnostic criteria for OCD (Brakoulias et al., 2018). Lastly, tertiary or targeted prevention involves clinical interventions (e.g., identification, treatment, and management) to reduce the likelihood of further symptom deterioration and ongoing impairment or disability in individuals who have developed OCD (Brakoulias et al., 2018).

#### **2.8.2.2 *Potential for prevention in the perinatal period***

The significant negative effects experienced by mothers and families affected by perinatal OCD (Challacombe et al., 2017; Challacombe et al., 2016; Fairbrother & Abramowitz, 2016), and the barriers that women who develop this disorder may experience in accessing timely and appropriate care (Challacombe & Wroe, 2013; Shakespeare et al., 2018; Sharma & Sommerdyk, 2015), highlights a critical need to develop effective approaches to perinatal OCD that include OCS prevention. More importantly, given the increased prevalence of OCD in the perinatal period for women; that childbirth is a specific life event that individuals usually anticipate and have some time to prepare for; and the established findings that metacognitive beliefs about intrusive thoughts represent a (modifiable) risk factor for OCD onset, the prenatal period presents an ideal opportunity for efforts focused on preventing the (postpartum) onset of OCD in women (Timpano et al., 2011). Additionally, because of the potential for prospective and longitudinal research across the perinatal period, such research

would also shed light on potential novel approaches to understanding and preventing OCD that may also be of broader relevance to the general community (Abramowitz et al., 2006). Previous studies, including one trial of face-to-face group interpersonal therapy with first-time expectant mothers ( $N = 194$ ) in China (Gao et al., 2010), and two trials of face-to-face group CBT in pregnant women (with  $N = 1,179$  and  $N = 240$ , respectively; Kozinszky et al., 2012; Mao et al., 2012), have indicated that brief, low-intensity antenatal psychological intervention may be effective in preventing postpartum depressive symptoms in the general population (Werner et al., 2015). However, except for a single study (Timpano et al., 2011; see Chapter 5 for details), which targeted expecting parents at elevated risk of OCD (i.e., using secondary prevention), no empirical research has explored prevention interventions for postpartum OCS. Furthermore, a recent systematic review by Brakoulias et al. (2018) did not identify any studies that investigated primary prevention of OCD.

### 3.1 Research questions and aims

The program of research presented in this thesis aims to enhance understanding of perinatal OCD. The cognitive-behavioural model is currently the dominant psychological model used to explain the development and maintenance of OCD (Franklin & Foa, 2014). However, given that infant-related intrusions are a characteristic feature of both the perinatal period in general, and perinatal OCD specifically, it is proposed that the metacognitive model of OCD (with its focus on beliefs about intrusive thoughts; Wells, 2008, 2009) is more relevant in explaining the development of ppOCS. Accordingly, this thesis presents a series of studies that test this claim and explore the relevance of metacognition in identifying and managing expecting/new parents at risk of, or who have developed, OCD.

In this thesis, the first arm of investigation examined whether OCD-specific metacognitive beliefs explain, and therefore can be modified to prevent risk of, OCD onset in the perinatal period. Second, this thesis explored front-line health practitioners' understanding of perinatal OCS, and whether metacognitive beliefs relate to their ability to identify and respond effectively to OCD in the perinatal period. To this end, this thesis addresses the following questions:

- Do maladaptive metacognitive beliefs about intrusive thoughts emerge as significant and independent predictors of OCS in the postpartum period when other OCD-related beliefs (e.g., obsessive beliefs) are taken into account, as is proposed by the metacognitive model of OCD (Wells, 2009)? Furthermore, do these OCD-specific metacognitions mediate the effect of other psychological beliefs on ppOCS? This

question is addressed in **Chapter 4**, using a prospective design that follows first-time mothers from pregnancy through to the postpartum period.

- Is the provision of a brief psychoeducational intervention, based on the metacognitive model of OCD and intended to correct maladaptive metacognitive beliefs about intrusive thoughts, effective in preventing the onset of OCS amongst first-time mothers in the postpartum period? **Chapter 5** presents a prospective, randomised-controlled trial that examines this question.
- How do health practitioners characterise and respond to ppOCS? Are the clinical responses of practitioners influenced by their own metacognitive beliefs about intrusive thoughts? An exploration of these questions, conducted by surveying perinatal health practitioners, is presented in **Chapter 6 and 7**, respectively.

### **3.2 Significance of the current project**

As detailed in Chapter 3, perinatal OCD is associated with a range of adverse health and social outcomes for parents and their children, including significant maternal psychological distress, avoidance of caregiving behaviours that elicit anxiety, and potentially, reduced quality of mother-infant interactions (Brandes et al., 2004; Challacombe et al., 2016). Despite this, there is limited information in the clinical literature to guide health practitioners' on the assessment and management of perinatal OCD, and case identification and access to appropriate services may be poor (Challacombe & Wroe, 2013; Sharma & Mazmanian, 2020; Sharma & Sommerdyk, 2015). The first two prospective studies set out in this thesis will aid the development of a more comprehensive understanding of the aetiology and treatment of OCD in the perinatal period by incorporating recent metacognitive advances in conceptualising OCD (Hansmeier et al., 2016; Myers et al., 2009; Rees & Anderson, 2013; Solem et al.,

2010). Additionally, it presents the first study to examine a low-intensity, online universal intervention intended to prevent ppOCS. Lastly, the thesis includes two novel studies that investigate practitioners' identification of and management of ppOCS. These studies seek to elucidate factors (e.g., practitioner metacognitions, training and experience) that may influence health practitioner recognition of perinatal OCD and its appropriate clinical management, and which may therefore affect access to early intervention and treatment at the practitioner and systemic levels.

## Chapter 4                      Do prenatal metacognitive beliefs predict postpartum OCS (Study 1)?

### 4.1              Introduction

Given the significant negative impacts associated with postpartum OCD ('ppOCD') noted in Chapter 2, it is vitally important that women experiencing this problem are identified and offered appropriate treatment and support (Mulcahy et al., 2020). There is also a need for research to elucidate predictive factors that may be involved in the development of OCD in the postpartum period to facilitate early identification and intervention and, potentially, inform prevention interventions for ppOCD.

To this end, a number of prospective studies have followed women throughout pregnancy and into the postpartum period to identify factors that explain postpartum OCS (ppOCS; Abramowitz et al., 2006, 2007; Fairbrother et al., 2018; Osnes et al., 2019, 2020; Timpano et al., 2011). Abramowitz et al. (2006) found that the level of 'obsessive beliefs', measured using total summed scores on the *Obsessive Beliefs Questionnaire – 44 item version* (Obsessive Compulsion Cognitions Working Group, 'OCCWG', 2005), reported by first-time expecting parents in the antenatal period predicted their level of self-reported OCS at around three months' postpartum. Obsessive beliefs include cognitive beliefs about the threat of, or responsibility for, causing harm ('threat' and 'responsibility' beliefs); the need to ensure perfection or complete certainty of the outcomes of one's behaviour ('perfectionism/intolerance of uncertainty' beliefs); and metacognitive beliefs about the importance of, and need to control, one's own thoughts ('thought importance/control' beliefs; OCCWG, 2005). A subsequent extension of this study provided further support for the role of psychological beliefs in ppOCS (Abramowitz et al., 2007). Results demonstrated that the impact of expecting parents' prenatal obsessive beliefs on postpartum obsessions and compulsions

(i.e., at 12 weeks' postpartum) was mediated by their appraisals of infant-related intrusive (i.e., obsessional) thoughts in the first month following their child's birth, measured using the *Interpretation of Intrusions Inventory* (OCCWG, 2005).

Independent replication and extension of Abramowitz et al.'s (2006, 2007) earlier studies confirmed that *prenatal OBQ-44* total scores predicted postpartum OCS dimensions; specifically, severity, distress caused by, time occupied by, and behavioural responses to postpartum intrusive thoughts of accidental or deliberate infant harm.

A notable limitation of these previous studies relates to advances in understanding the contribution of metacognitive factors (e.g., beliefs about thinking) to OCD. The metacognitive model of OCD posits that it is maladaptive beliefs about thinking that give rise to maladaptive appraisals of intrusive thoughts, leading to the development of obsessions and compulsions (Wells, 2008, 2009). Central to this model is the concept of thought action fusion, including the belief that thinking about a harmful deed is morally equivalent to performing the imagined action (thought – moral fusion), or that thinking about harm increases the likelihood of harm coming to self or others (thought – likelihood fusion; Shafran et al., 1996). There is some evidence that thought fusion beliefs more strongly predict OCS than other non-metacognitive obsessive beliefs (i.e., threat/responsibility and perfectionism/intolerance of uncertainty beliefs) in a general community sample (Hansmeier et al., 2016). However, only one study has reported on the contributions of thought fusion beliefs to ppOCS (Abramowitz et al., 2007), measured using the *TAF* (Shafran et al., 1996). While this study found that new parents' thought action fusion beliefs in pregnancy did predict levels of OCS in the postpartum period, it did not directly compare the relative contribution of thought fusion and obsessive beliefs to ppOCS. Including OCD-specific measures of metacognition – specifically, of thought fusion beliefs – in further prospective investigations, therefore, has the potential to explain greater variance in

ppOCS and enhance existing psychological models of how OCD develops in the postpartum period. Identifying specific, underlying beliefs that predict OCS in the postpartum would also be particularly valuable in developing brief primary prevention initiatives (e.g., psychoeducational interventions) directly targeting these beliefs that could be delivered broadly to expecting parents in the general community to reduce risk of OCD.

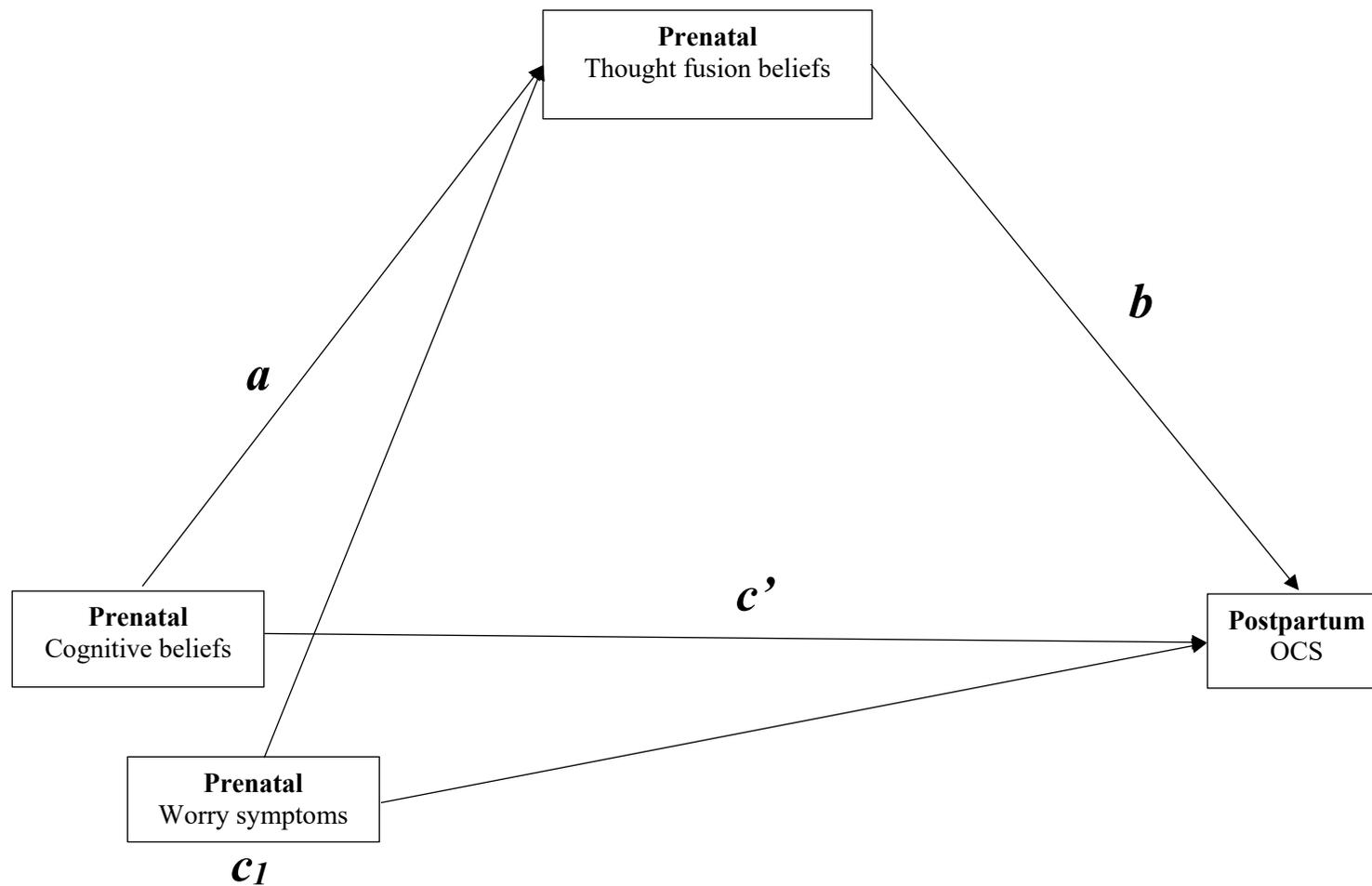
The present study aimed to investigate whether prenatal OCD-specific metacognitive (MC) beliefs (specifically, thought fusion beliefs) would prospectively explain OCS in the postpartum period in a community sample of first-time mothers, when prenatal worry symptoms are accounted for. The core assumption of the metacognitive model of OCD, that metacognitive beliefs drive obsessive beliefs and contribute more directly to OCS, will also be explored. Specifically, consistent with previous research (Abramowitz et al., 2006, 2007; Fairbrother et al., 2018), we hypothesised that:

- (i) both cognitive beliefs and thought fusion beliefs (*TAF* total scores) in pregnancy will predict ppOCS after controlling for prenatal worry.
- (ii) there will be a significant direct effect of participants' prenatal thought fusion and cognitive beliefs on their self-reported level of ppOCS.
- (iii) the relationship between prenatal cognitive beliefs and ppOCS will be mediated by each type of prenatal thought fusion beliefs after controlling for prenatal worry.

Figure 1 shows the mediation model to be tested.

**Figure 1**

*Conceptual Model Illustrating the Hypothesised Mediation Relationship Between Prenatal Cognitive Beliefs, Thought Fusion Beliefs, and Postpartum OCS After Controlling for Prenatal Worry.*



## 4.2 Method

### 4.2.1 Research design

Hypothesis 1 will be tested with hierarchical multiple regression analysis with ppOCS (*OCI-R* total scores) as the criterion variable, and prenatal worry (*GAD-7*), OCD-related cognitive beliefs (*OBQ-C*; the summed ‘threat/responsibility’ and ‘perfectionism/intolerance of uncertainty’ subscales of the *OBQ-44*) and thought fusion (*TAF* total scores) sequentially added as predictor variables to the model in order of listing. Hypotheses 2 and 3 will be tested using the PROCESS macro version 3.5 (Hayes, 2017) for the *Statistical Package for the Social Sciences (SPSS) version 26*. A mediation model will be tested to evaluate whether prenatal TF beliefs (i.e., thought – moral fusion, thought – likelihood – other fusion, and thought – likelihood – self fusion) mediates the effect of prenatal *OBQ-C* scores (i.e., the predictor variable) on postpartum *OCI-R* scores (i.e., the criterion variable). For each pathway model, the significance of the indirect effect will be determined using 10000 bootstrap samples and 95% bias-corrected confidence intervals, as recommended by Hayes (2017).

### 4.2.2 Participants

A total of 70 participants were recruited online via social media and community newspaper advertising. Participants were English-speaking females aged 18 years or over residing in Australia or New Zealand (NZ) who responded to a study listing seeking women who were >20 and <33 weeks pregnant with their first child and who consented to participate in a concurrent study evaluating an intervention for preventing postpartum anxiety. Participants in the present study were selected from the control (i.e., non-intervention) group of the prevention study. Women were excluded from entry into the study if they had a self-reported current neurodevelopmental or autism spectrum

disorder, a current alcohol or other substance dependency disorder, a current or past psychotic disorder, or endorsed current thoughts of suicide or other concerns regarding risk to self. The mean maternal age, and gestational age, at time of entry into the study was 30.04 years of age ( $SD = 2.94$ ) and 25.66 weeks' pregnant ( $SD = 3.43$ ), respectively. All participants were primiparous (i.e., expecting one baby). Participant demographics are described in Table 1.

**Table 1**

*Number of Participants (N) and Percentage of the Overall Sample (%) in Each Demographic Group (N = 70).*

Group	N (%)
Country of residence	
Australia	66 (94.29%)
New Zealand	4 (5.71%)
Maternal country of birth	
Australia	56 (80.00%)
The United Kingdom and Ireland	5 (7.14%)
New Zealand	3 (4.29%)
Finland	1 (1.43%)
France	1 (1.43%)
India	1 (1.43%)
Malaysia	1 (1.43%)
South Africa	1 (1.43%)
United States of America	1 (1.43%)
Ethnicity	
Majority groups	
Australian	58 (80.6%)
New Zealand European	2 (2.86%)
British	3 (4.29%)
European	3 (4.29%)
North American	1 (1.43%)
Minority groups	
Australian Aboriginal or Torres Strait Islander	0 (0.00%)
Maori	1 (1.43%)
South-East Asian	1 (1.43%)
English as first language	
Yes	69 (98.57%)
No – please specify	
Finnish	1 (1.43%)
Relationship status	
Single	1 (1.43%)
Married	50 (71.43%)
Defacto or living with another	17 (24.29%)
Prefer not to say	1 (1.43%)

Group	N (%)
Number of previous pregnancies	
No previous pregnancy	60 (85.71%)
1 previous pregnancy	10 (14.29%)
2 previous pregnancies	2 (2.86%)
Previous difficulties in conceiving	
Yes	18 (25.71%)
No	53 (75.71%)
Prefer not to say	1 (1.43%)
Received fertility treatment	
Yes	5 (7.14%)
No	67 (95.71%)
Current or past psychiatric diagnosis	
No	53 (75.71%)
Not sure	4 (5.71%)
Yes – please specify (free text)	15 (21.43%)
Anxiety disorder	9 (12.86%)
Depressive disorder	7 (10.00%)
Eating disorder	1 (1.43%)
Current psychiatric treatment	
N/A (no current mental health disorder)	52 (74.29%)
No	16 (22.86%)
Yes	4 (5.71%)
Counselling or psychological therapy	4 (5.71%)

Fifty-four participants (77%) completed both the study components (i.e., the pre- and postpartum surveys). Seventeen participants did not respond to the researcher's attempts to contact them to complete the postpartum survey within the follow-up window. One participant chose to withdraw from the study without disclosing a reason for doing so. A-priori power calculations for the regression and path analyses conducted using G\*Power (Faul et al., 2007) indicated a required sample size of 42 participants to provide an 80% likelihood of detecting a medium effect size of  $f^2 = 0.2$  (at  $\alpha = 0.05$ ).

#### 4.2.3 *Ethics*

The Curtin University Human Research Ethics Committee approved the study before data collection commenced (No. HRE 2017-0087). Participants recruited via social media and community newspaper advertising were given the opportunity to enter into a random draw to win a gift card.

#### 4.2.4 *Measures*

The pre- and postpartum surveys were comprised of measures of OCD-related beliefs, metacognitive beliefs, OCS severity, and general worry symptoms. Participants also completed sociodemographic questionnaires developed for the present study that elicited relevant information about the individual participant (i.e., age, country of birth and residence, ethnicity, relationship status, past and current psychiatric diagnoses and treatment); pregnancy-related difficulties (i.e., number of previous pregnancies, fertility treatment, previous difficulties in conceiving and carrying the pregnancy to term); and delivery and postpartum factors (i.e., infant date of birth, gestational age at delivery, mode of delivery, complications/medical interventions during delivery, breastfeeding status).

The *Obsessive Beliefs Questionnaire – 44 item version (OBQ-44; OCCWG, 2005)* is a 44-item composite measure of OCD-related cognitive (i.e., ‘*responsibility/threat overestimation*’, ‘*perfectionism/intolerance of uncertainty*’) and metacognitive (i.e., ‘*thought importance and control*’) beliefs. The *OBQ-44*, including its constituent subscales, has high internal reliability, and criterion validity with measures of OCS severity and OCD diagnosis. In the present study, participants’ scores on the ‘*responsibility/threat*’ and ‘*perfectionism/intolerance of uncertainty*’ subscales of the *OBQ-44* were summed to provide a measure of OCD-related cognitive beliefs, hereafter termed the *OBQ-C*. Possible scores on the *OBQ-C* ranged from 32-224, with higher

scores indicating a greater level of OCD cognitions. The internal consistency of the *OBQ-C* in the current study was excellent ( $\alpha = 0.95$ ).

The *Thought Action Fusion Scale (TAF)*; Shafran et al., 1996) is a 19-item Likert-type self-report scale consisting of three subscales that assess three metacognitive domains associated with onset and maintenance of OCD. Specifically, the *TAF* measures thought – likelihood fusion concerning thoughts directed towards (i) others (e.g., ‘*If I think of a friend/relative being in a car accident, this increases the risk that he/she will have a car accident*’) and (ii) self (e.g., ‘*If I think of myself falling ill, this increases the risk that I will fall ill*’), and (iii) thought – moral fusion (e.g., ‘*If I wish harm on someone, it is almost as bad as doing harm*’). The *TAF* scale yield a total score ranging from 0-76; scores on the 12-item thought moral subscale range from 0-48, the 4-item thought – likelihood – other fusion subscale range from 0-16, and the 3-item thought - likelihood – self fusion subscale range from 0-12. Each of the subscales has excellent internal reliability indicated by a Cronbach’s alpha value greater than 0.85 (Berle & Starcevic, 2005) and discriminant validity in distinguishing individuals with and without OCD (Shafran et al., 1996). Scores on the *TAF* are calculated by summing the relevant items for each subscale. Cronbach’s alpha for the current study was 0.93 for the full-scale *TAF*, and ranged from 0.88-0.96 for the *TAF* subscales, indicating good to excellent internal consistency for the measure in the participant sample.

The 18-item *Obsessive-Compulsive Inventory – Revised (OCI-R)*; Foa et al., 2002) was selected as the primary outcome measure (i.e., of OCS severity) due to its brevity, strong reliability ( $\alpha = 0.9$ ), and validity indicated by its ability to discriminate OCS from symptoms of other anxiety disorders in both clinical and community samples (Abramowitz et al., 2006; Foa et al., 2002; Huppert et al., 2007), and its previous use in research with a perinatal population (Abramowitz et al., 2006; Fairbrother et al., 2018). Items are summed to yield an overall score ranging from 0-72, with a higher score

indicating greater OCS, as well as producing subscale scores measuring various obsessive-compulsive symptom dimensions, including checking, doubting, ordering, obsessions, hoarding, and neutralising concerns (Foa et al., 2002). Internal consistency for the *OCI-R* fell within the ‘good’ range for the current study, as indicated by a Cronbach’s alpha value of 0.86.

Lastly, the *Generalised Anxiety Disorder – 7-item Scale (GAD-7)* was used to measure worry symptoms on a continuous scale, with potential scores ranging from 0-21 (Spitzer et al., 2006). The measure is internally reliable ( $\alpha = 0.92$ ; Spitzer et al., 2006) and has strong validity, including discriminant validity in distinguishing anxiety from depressive symptoms measured via the *Edinburgh Postnatal Depression Scale (EPDS)*; Simpson et al., 2014). The internal consistency of the *GAD-7* in the current study was satisfactory ( $\alpha = 0.79$ ).

#### **4.2.5 Procedure**

The study was implemented via the Qualtrics online survey platform, and responses were collected between June 2018 and December 2019. After confirming their eligibility for the study, participants were directed to an online survey including sociodemographic questions, and baseline measures of prenatal thought fusion beliefs (i.e., *TAF*), obsessive beliefs (i.e., *OBQ-44*), and worry symptoms (i.e., *GAD-7*). Participants were recontacted via email at 2-6 months after their expected delivery date (self-reported in the initial survey) and requested to complete additional sociodemographic questions and the *OCI-R*.

## 4.3 Results

### 4.3.1 *Worry, postpartum obsessive-compulsive symptoms, and sample characteristics*

Participants' prenatal scores on the *TAF*, *OBQ-44*, and *GAD-7*, and postpartum *OCI-R* scores are presented in Table 2 and correlations between these measures are presented in Table 3. Eighty-three percent of participants were pregnant for the first time, and 5 participants (6.94%) had received fertility treatment. Two individuals (3.70%) delivered a pre-term infant (i.e., at less than 37 weeks' gestation). Thirty-five participants (64.81%) delivered via vaginal birth and nineteen delivered by caesarean-section (35.19%). Half of the participants (50.00%) reported experiencing at least one medical complication during pregnancy; over a third (35.19%) of participants reported medical complication/s during childbirth. Eighty-nine percent of the sample reported that they were breastfeeding (including mixed breastfeeding and formula feeding). *OCI-R* scores were not significantly related to number of months' postpartum (i.e., 1-2 months; 2-3 months; 3-4 months; 4-5 months; and 5-6 months) at the time of follow-up survey completion,  $\tau_b = -0.03$ ,  $p = 0.76$  (2-tailed).

**Table 2**

*Mean (M) and Standard Deviation (SD) for Prenatal Thought Fusion Beliefs (TAF), Obsessive Beliefs (OBQ-44), and Prenatal Worry (GAD-7) and Postpartum Obsessive-Compulsive (OCI-R) Symptoms (N = 54).*

	<i>M (SD)</i>
Prenatal measures	
TAF total	13.42 (11.65)
Moral subscale	9.69 (8.32)
Likelihood – other – subscale	1.61 (2.95)
Likelihood – self – subscale	2.13 (2.64)
OBQ-44 total	116.86 (31.99)
GAD-7 score	4.34 (3.07)
Postpartum (OCS) measure	
OCI-R total score	7.19 (6.93)
Obsessions subscale	1.22 (1.60)
Washing	0.91 (1.78)
Checking	1.30 (2.09)
Ordering	2.22 (2.47)
Neutralising subscale	0.35 (0.78)
Hoarding subscale	1.19 (1.35)

**Table 3**

*Associations Between Study Measures, Calculated Using Spearman's rho<sup>a</sup> (N = 54).*

Measure	Correlation coefficient ( $r_s$ )			
	1	2	3	4
1. GAD-7	-			
2. OBQ-C	0.41**	-		
3. TAF	0.36**	0.38**	-	
4. OCI-R	0.36**	0.37**	0.35*	-

<sup>a</sup> Non-parametric correlations were conducted owing to mild departures from normality for the study measures.

\* Indicates significance at  $p < 0.05$  (2-tailed).

\*\* Indicates significance at  $p < 0.01$  (2-tailed).

#### 4.3.2 *Hypothesis 1: hierarchical MRA analysis of hypothesised predictors of ppOCS*

Box plots indicated that each variable in the MRA was approximately normally distributed after a small number of outliers were addressed (specifically, by replacing outlier with the nearest non-outlier value for the variable). The assumptions of normality, linearity, and homoscedasticity of standardised residuals were met. Tolerances and variance inflation factor (VIF) statistics for each variable were acceptable, indicating that multicollinearity was not a problem in the dataset. No multivariate outliers were identified, as the maximum Mahalanobis distance value of 11.824 was lower than the critical  $\chi^2$  of 16.27 ( $\alpha = 0.01$ ).

Prenatal *GAD-7* scores contributed a significant 12.4% of the variance in postpartum *OCI-R* scores when added to Step 1 of the hierarchical MRA,  $R^2 = 0.12$ ,  $F(1, 52) = 7.36$ ,  $p < 0.01$ . Prenatal *OBQ-C* scores explained a non-significant further 5.8% of the variance in postpartum *OCI-R* scores when entered into the second step of the model,  $\Delta R^2 = 0.15$ ,  $\Delta F(2, 51) = 3.61$ ,  $p = 0.06$ . The contributions of prenatal *GAD-7*,  $t(50) = 1.03$ ,  $p = 0.31$ , and prenatal *OBQ-C*,  $t(50) = 1.49$ ,  $p = 0.14$ , were no longer statistically significant once *TAF* total scores were included in the model. *TAF* total scores contributed a significant, additional 6.9% variance in postpartum *OCI-R* scores after prenatal *GAD-7* and *OBQ-C* scores were accounted for,  $\Delta R^2 = 0.21$ ,  $\Delta F(1, 50) = 4.62$ ,  $p = 0.04$ . Overall, the three-predictor model accounted for 25.1% of the variance in postpartum *OCI-R* scores, with a medium to large effect size indicated by an  $f^2$  value of 0.34 (Cohen, 1988). Table 4 contains the unstandardised ( $B$ ) and standardised ( $\beta$ ) regression coefficients, as well as the squared part correlations ( $sr^2$ ), for each variable on each step of the hierarchical MRA.

**Table 4**

*Unstandardised (B) Regression Coefficients, Standardised ( $\beta$ ) Regression Coefficients, and Squared Part Correlations ( $sr^2$ ) for Prenatal GAD-7 and OBQ-C Scores, Prenatal TAF Total, and Postpartum OCI-R Total Scores On Each Step of a Hierarchical MRA (N=54)*

Variable	B [95% CI]	$\beta$	$sr^2$
Step 1			
GAD-7*	0.90	0.35	0.12
Step 2			
GAD-7	0.60	0.23	0.05
OBQ-C	0.05	0.27	0.07
Step 3			
GAD-7	0.37	0.15	0.02
OBQ-C	0.04	0.21	0.04
TAF total*	0.17	0.29	0.07

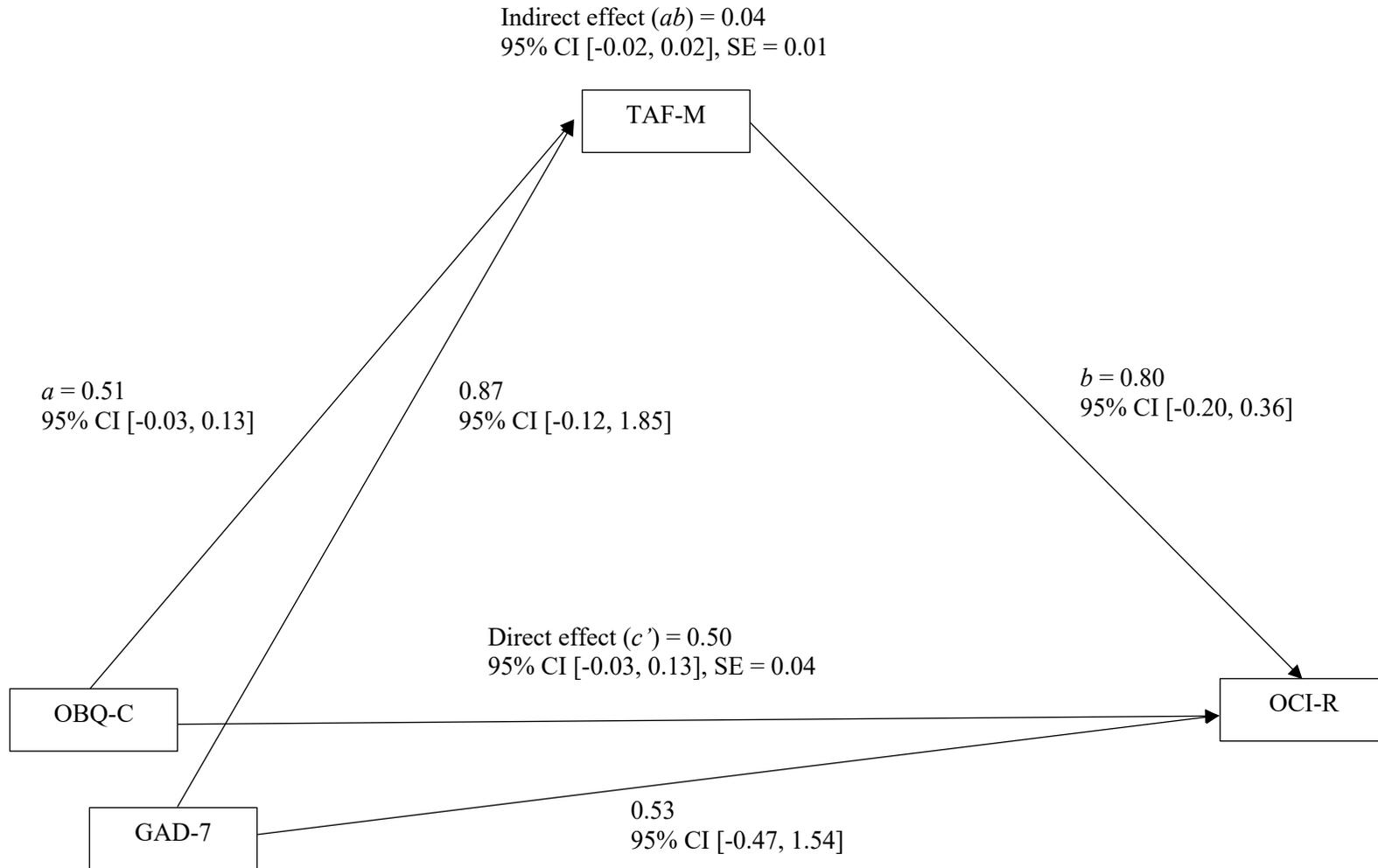
\* Indicates statistical significance at  $p < 0.05$ .

#### 4.3.3 *Hypotheses 2 and 3: metacognitive mediation of the effect of cognitive beliefs on ppOCS*

Meditational analyses were conducted to investigate the hypotheses that the effect of prenatal obsessive beliefs on ppOCS would be mediated by prenatal metacognitive (i.e., thought fusion) beliefs. Given that *TAF* total scores were significant in the regression model, to explore the contribution of thought fusion beliefs in more detail, the mediational analyses were conducted with each *TAF* subscale. Specifically, we tested three mediation models in which the relationship between *OBQ-C* scores and postpartum *OCI-R* total scores were indirect via thought – moral fusion (*TAF-M*; **model 1**), thought – likelihood – other fusion (*TAF-O*; **model 2**), or thought– likelihood – self fusion (*TAF-S*; **model 3**) scores. Prenatal *GAD-7* scores were entered into each model as a covariate.

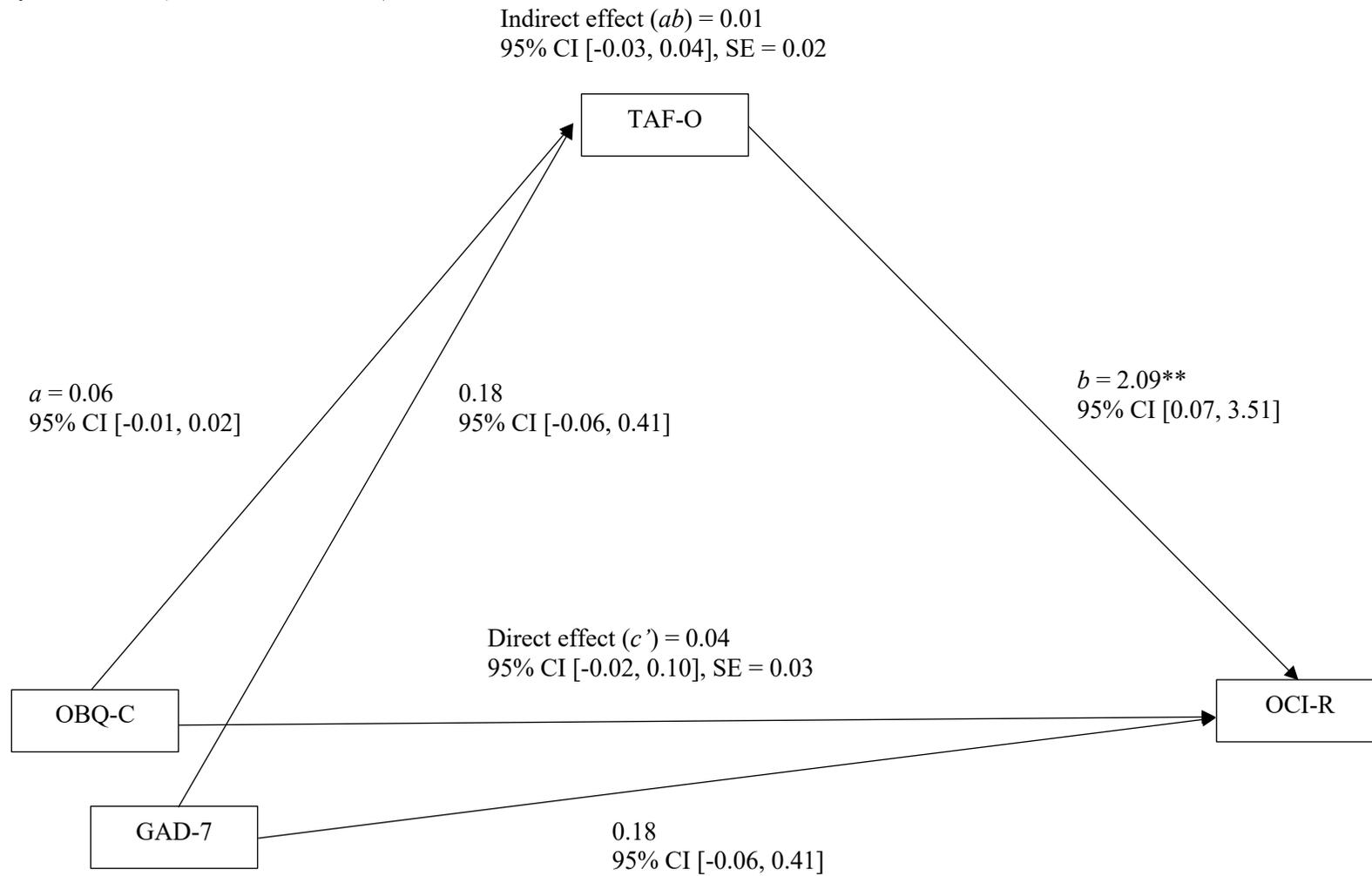
**Figure 2**

*Pathway Analysis for Model 1 (Mediator = TAF-M).*



**Figure 3**

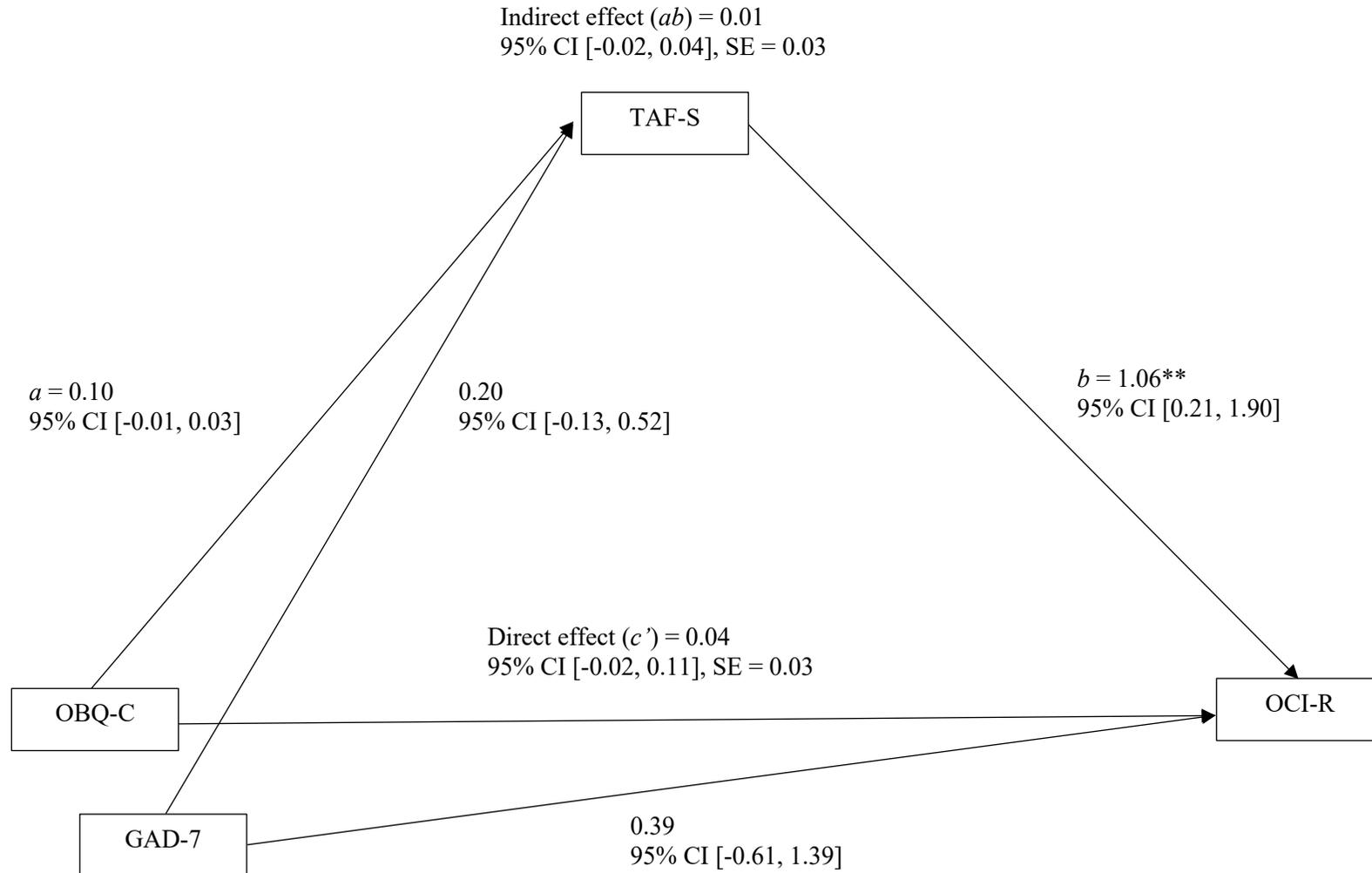
*Pathway Analysis for Model 2 (Mediator = TAF-O).*



\*\* Indicates significance at  $p < 0.01$ .

**Figure 4**

*Pathway Analysis for Model 3 (Mediator = TAF-S).*



\*\* Indicates significance at  $p < 0.01$ .

The total effect of the three models was not statistically significant, with  $c = 0.05$ , 95% CI [-0.01, 0.12], SE= 0.02,  $p = 0.12$ . The results showed a non-significant direct effect ( $c'$ ) of prenatal *OBQ-C* scores on postpartum *OCI-R* scores for each mediation model (see Figures 2-4). Prenatal *GAD-7* scores did not have a significant direct effect on prenatal *TAF-M*, *TAF-O*, *TAF-S*, nor on postpartum *OCI-R* scores. Prenatal *OBQ-C* scores did not have a significant direct effect ( $a_1$ ) on prenatal *TAF-M*, *TAF-O*, or *TAF-S* scores. Prenatal *TAF-O* and *TAF-S*, but not *TAF-M*, had a significant direct effect ( $b_1$ ) on postpartum *OCI-R* scores. No significant indirect effects ( $ab$ ) of prenatal *OBQ-C* scores on postpartum *OCI-R* scores via prenatal *TAF-M*, *TAF-O*, or *TAF-S* were detected, indicating that the effect of prenatal *OBQ-C* is independent of *TAF* scores.

#### 4.4 Discussion

This study aimed to explore the role of metacognitive beliefs (specifically, thought fusion beliefs about the significance of intrusive thoughts) in predicting OCS in a non-clinical community sample of new mothers, a population that has previously been shown to be at increased risk of developing OCD (Fairbrother & Abramowitz, 2016; Russell et al., 2013). The first hypothesis that both OCD-related cognitive beliefs and thought fusion beliefs would prospectively predict OCS (*OCI-R* total scores) in the postpartum after controlling for prenatal worry (*GAD-7* scores) was partially supported. Only prenatal *TAF* beliefs explained a significant proportion of the variance in ppOCS in the sample after prenatal worry symptoms were accounted for. Prenatal thought fusion beliefs explained a significant 6.9% of unique variance in ppOCS after controlling for prenatal worry and cognitive beliefs. Overall, the three predictor (prenatal worry, obsessive beliefs, and thought fusion beliefs) regression model

demonstrated a moderately large effect size and accounted for a quarter of the individual variance in ppOCS.

Process mediation analyses, conducted to establish whether different types of thought fusion beliefs (i.e., thought – moral fusion, thought likelihood – self and other – fusion) have a direct and/or indirect (e.g., via cognitive beliefs) effect on ppOCS, provided a more mixed and nuanced pattern of results. Hypothesis 2, that prenatal cognitive beliefs and thought fusion beliefs would both have a significant direct effect on ppOCS, was also partially supported. Cognitive beliefs were not observed to have a significant direct effect on ppOCS. Both types of thought – likelihood fusion, including beliefs about the risk of negative events happening to self and others due to one thinking about it, had a significant direct effect on ppOCS. However, thought – moral fusion beliefs equating thoughts about immoral deeds with moral character or outcomes, did not. There were no indirect effects of *TAF* on ppOCS, suggesting that thought fusion beliefs do not mediate the effect of cognitive beliefs on ppOCS.

This study adds to a compelling and growing body of longitudinal research that implicates OCD-related beliefs in the development and maintenance of OCD, particularly in the postpartum period. Previous studies have shown that new parents' obsessive beliefs in the prenatal period predict their responses to unwanted, infant-related intrusive thoughts following the birth of their baby (Abramowitz et al., 2007), distress and impairment associated with intrusions of infant harm (Fairbrother et al., 2018), and level of ppOCS (Abramowitz et al., 2006, 2007; Fairbrother et al., 2018). These studies did not retain the subscales of the *OBQ-44* and, instead, used the total scale score as a composite measure of OCD-related beliefs, including both cognitive (i.e., 'Threat/Responsibility' and 'Perfectionism/Intolerance of Uncertainty') and metacognitive (i.e., 'Thought Importance/Control') beliefs. In the present study, however, the cognitive domains of the *OBQ-44* did not contribute to ppOCS after

perinatal worry and scores on a measure of OCD-specific metacognitions (i.e., thought fusion beliefs) were accounted for. In sum, the results of the present study suggest that thought fusion beliefs are particularly important to understanding the onset and maintenance of ppOCS.

It should be noted that thought fusion beliefs closely relate to, or may be a type of, metacognition about thought importance and control (OCCWG, 2001). Indeed, many of the items of the *Thought Importance/Control* subscale of the *OBSQ-44* are highly similar content to items on the *TAF*. Earlier studies did not partial out the contributions of OCD-related cognitions and metacognitions to ppOCS. The results of the present study, which indicate that metacognition may better explain OCS in the perinatal period than cognitive beliefs, are therefore consistent with previous findings, and provide preliminary support for the metacognitive model of OCD. Furthermore, the finding that thought – likelihood, but not thought – moral, fusion beliefs affect ppOCS indicates that the former type of thought fusion beliefs may be more relevant to OCS in the perinatal period. Recent research indicates that the contribution of different OCD-related beliefs to OCS severity may depend on OCS subtype (Myers et al., 2008; Taylor et al., 2005; Timpano et al., 2014). Thus, it is possible thought – likelihood fusion beliefs explain ppOCS, but OCD-related cognitive beliefs did not, in the present study sample because symptoms of OCD tend to be more homogeneous in content and theme among perinatal individuals compared with OCD in the general community (Abramowitz, Schwartz, Moore, et al., 2003; McGuinness et al., 2011). Given the low rates of ppOCS observed and low sensitivity of the *OCI-R* subscales in this study, the relationship between types of thought fusion beliefs (e.g., likelihood and moral) and different types of OCS symptoms was not explored. However, it would be important for future research to consider whether intrusive thoughts of different content themes may

activate different types of thought fusion beliefs, and therefore differentially predict OCD symptom development in the perinatal period.

A notable contribution of this study to the perinatal OCD literature concerns the inclusion of OCD-related metacognitions (i.e., thought fusion beliefs) in a mediation model of OCS. Only one previous study has explored the role of thought fusion beliefs in ppOCS (Abramowitz et al., 2007). Specifically, the researchers found that prenatal thought – likelihood – other fusion, but not thought – likelihood – self fusion or thought – moral fusion, beliefs predicted OCS severity in the postpartum period. Thus, while the finding that prenatal thought – likelihood – other fusion beliefs had a significant direct effect on ppOCS is consistent with prior research, the result that thought – likelihood – self fusion beliefs also significantly contributed to ppOCS is novel.

It may be that new mothers perceive thoughts of harm coming to themselves via illness, misadventure, or injury as indicating risk of harm coming to their baby indirectly by leaving the parent unable to attend to the needs of a wholly dependent new baby. From this standpoint, it is unsurprising that thought – moral fusion beliefs did not explain ppOCS, as the perceived immorality of intrusions may be less likely to cause new parent's distress than the belief that these thoughts may directly or indirectly cause harm to their infant (i.e., thought – likelihood – fusion). In the main, however, the findings of the present study support the widely held view that perinatal OCD is most commonly characterised by obsessions and compulsions focused on concerns about infant safety and wellbeing (Abramowitz, Schwartz, Moore, et al., 2003; Fairbrother & Abramowitz, 2016; McGuinness et al., 2011; Sharma & Mazmanian, 2020).

This study is also the first to show, using a prospective design, that OCD-specific metacognitive (i.e., thought fusion) beliefs may explain more variance in ppOCS when compared with cognitive beliefs. Much of the existing literature on postpartum OCD to date has focused on the role of responsibility in the onset of infant-

related obsessions and compulsions (e.g., Barrett et al., 2016; Fairbrother & Abramowitz, 2007; Leckman et al., 1999). Put another way, it has been proposed that excessive beliefs about responsibility to prevent harm to others may trigger obsessions and compulsions in the postpartum period, when an increased sense of responsibility for the safety and wellbeing of their wholly dependent and highly vulnerable infant is often keenly felt by new parents. However, the results of this study indicate that thought fusion beliefs (specifically, thought – likelihood – fusion beliefs that one’s thoughts may influence the likelihood of harm occurring to oneself or others) should be incorporated in conceptualisations of perinatal OCD.

Additionally, the findings of the present study were partly consistent with the metacognitive model of OCD. This model holds that metacognitive (i.e., thought fusion) beliefs give rise to non-metacognitive obsessive beliefs (e.g., about the threat of and responsibility to prevent harm, and the need for perfectionism in behaviour and certainty of outcomes) and better account for obsessions and compulsions (Fisher, 2009; Rees & Anderson, 2013). For instance, within this conceptual framework, thought fusion beliefs are believed to drive elevated beliefs about responsibility to act to prevent harm from occurring following one’s own intrusive thoughts (Berle & Starcevic, 2005; Rachman, 1993; Wells, 2009). In this way, the metacognitive model contends that *TAF* accounts for the relationship between the increased responsibility (i.e., for the safety and wellbeing of a highly vulnerable and dependent new baby, as well as for oneself as a new caregiver; Abramowitz et al., 2007) that having a child for the first-time confers, and higher ppOCS, observed in previous research (Barrett et al., 2016). While thought fusion beliefs better explained ppOCS relative to cognitive beliefs (including responsibility beliefs), the present study did not find evidence that thought fusion mediated the impact of these beliefs on obsessions and compulsions. The relationship between responsibility and thought fusion beliefs in ppOCS warrants further

investigation. The findings that thought – likelihood, but not thought – moral, fusion affected ppOCS, as thought – moral fusion beliefs may be less likely to compel individuals to act to prevent their intrusive thoughts from eventuating, appear consistent with metacognitive mediation of responsibility beliefs, which may require greater statistical power to be detected. Nonetheless, this study provided a direct preliminary test of the metacognitive model of OCD as it relates to new mothers, and results highlight the relevance of metacognition to postpartum OCD.

Most importantly, the results of this study have implications for the early identification of individuals who may be at particular risk of developing OCD in the postpartum period, and for the development of targeted prevention programs. Timpano et al. (2011) found that a 3-hour, group-based cognitive-behavioural intervention – involving psychoeducation, and cognitive and behavioural restructuring of responsibility and thought – moral fusion beliefs implicated in Rachman’s early cognitive model of OCD (Rachman, 1993, 1998) – was effective at preventing the onset of OCS in the postpartum period in prenatal individuals with elevated *OBQ-44* total scores. Given that the *OBQ-44* captures a range of OCD-related beliefs (including non-metacognitive beliefs), the findings of this study suggest that thought – likelihood – fusion beliefs may be a more precise indicator of risk of OCD among expecting parents and could be an important, specific target for prevention. Identifying clear psychological targets for brief screening of risk of developing OCD should be considered a priority area for further research given both the distress and impairment associated with OCD, and clinician time and resource constraints within perinatal healthcare settings (Austin, 2004; Bayrampour et al., 2018). Such research would also likely lead to the development of briefer forms of OCS prevention that could be more readily implemented for individuals identified as being at increased risk of postpartum OCD.

A major strength of this study was a clear delineation of OCD-related cognitive and metacognitive beliefs which permitted us to assess the relative contribution of both types of beliefs in predicting ppOCS. We included the *TAF* because it provided a specific measure of OCD-specific metacognitions that has been validated in both non-clinical community and clinical OCD samples (Berle & Starcevic, 2005; Shafran et al., 1996; Shafran & Rachman, 2004). A principal limitation of this study was its small sample size ( $N = 54$ ), which only permitted the inclusion of a limited number of variables in predictive model of ppOCS in this study. Relatedly, this study utilised a relatively large window (i.e., 2-6 months follow-up) for participants to respond to the postpartum follow-up survey. This window was based on participants' expected due date (i.e., not the infant's date of birth) in order to avoid contacting participants at an inopportune time when they may have had less capacity to complete the survey (e.g., when caring for a pre-term baby with greater medical needs) and maximise survey completion rates. Despite this, almost a quarter of participants did not complete the study.

Furthermore, the results of our study may not be representative of culturally and linguistically diverse groups. No individuals who identified as Aboriginal or Torres Strait Islander Australians participated in the study (compared with 3.3% of the Australian general population; Australian Bureau of Statistics, 2018), and only 1 New Zealanders in the study identified as Maori (a group that represents 16.7% of the NZ population; New Zealand Government, 2020). Given that OCD symptom presentation has been found to differ significantly across cultures (Williams & Steever, 2015), this is a limitation of the current study and warrants consideration in the design of future perinatal OCD research.

Replication of the present study analyses with the addition of covarying postpartum worry and depressive symptoms, as well as covarying prenatal OCS, would

be particularly valuable. Additional research is also warranted to assess the direct and indirect effects of thought fusion beliefs after accounting for covariates mentioned immediately above. Despite the well-established subscale structure of the *OBQ-44* in the general population (Moulding et al., 2011; OCCWG, 2005), we did not explore the individual contribution of the theoretically distinct threat/ responsibility and perfectionism/ intolerance of uncertainty belief domains to ppOCS. Previous studies have indicated that the underlying factor structure of the *OBQ-44* may be different in the perinatal population and have also used total, rather than subscale, scores (Abramowitz et al., 2006, 2007; Fairbrother et al., 2018). Nonetheless, clearer delineation of the various obsessive-belief domains, including responsibility beliefs, and their contribution to ppOCS, subsequent to validation of the factor structure of the *OBQ-44* in perinatal population, may be a fruitful area for future research.

In sum, prospective study described in this chapter demonstrated that prenatal cognitive and metacognitive beliefs (i.e., thought fusion beliefs) significantly predicted ppOCS in a community sample of first-time mothers after controlling for prenatal worry symptoms. Thought – likelihood – fusion beliefs contributed to ppOCS in a series of mediational analyses that evaluated the relationship between prenatal cognitive belief domains, thought fusion, and ppOCS. This study suggests that prenatal metacognitions play a key role in the aetiology ppOCS, a finding that has important implications for preventing, screening and early intervention for, OCD among new/expecting parents.

**Chapter 5****Does prenatal metacognitive psychoeducation about intrusive thoughts prevent postpartum OCS (Study 2)?****5.1 Introduction**

Since (i) childbirth appears to be a common precipitant for OCD, and (ii) beliefs about intrusive thoughts precede OCS onset (Abramowitz et al., 2006, 2007; Fairbrother et al., 2018), the perinatal period may be an ideal time for primary prevention efforts focused on modifying risk of OCD among women. More specifically, the common occurrence of infant-harm related intrusions in the postpartum indicates that metacognitive beliefs about infant-related intrusive thoughts may be a promising target for OCD prevention intervention. Primary prevention initiatives aimed at reducing known risk factors for the development of OCD may have broad appeal due to the relative ease and low-cost involved in dissemination when compared with secondary (i.e., targeted) or tertiary (i.e., indicated) interventions targeted at those with pre-existing OCS or OCD-risk indicators (Brakoulias et al., 2018).

To date, only one study focused on preventing perinatal OCD has been conducted (Timpano et al., 2011). In this randomised controlled trial, participants identified during pregnancy as being at elevated risk of OCD (based on elevated scores on a measure of OCD-related beliefs, including about intrusive thoughts) received either standard childbirth education or a prevention intervention. The prevention intervention focused on modifying these maladaptive beliefs (e.g., about responsibility for preventing harm and the importance of monitoring and controlling one's intrusive thoughts) in pregnancy. The prevention condition was associated with lower scores on a measure of OCS severity at 1-month, 3-month, and 6-months postpartum, and was therefore effective at preventing postpartum-onset OCS. However, this intervention was a secondary prevention intervention that required identifying individuals within the general perinatal population who were at increased risk of OCD. It also included both

comprehensive psychoeducation and behavioural intervention strategies delivered via three hours of face-to-face clinician contact in a group setting over six weeks. The time and resources involved in both program screening and delivery would potentially limit the implementation of Timpano et al.'s (2011) intervention within the broader community.

No studies to date have investigated a primary prevention intervention for OCD (Brakoulias et al., 2018). However, other research conducted within the general community has shown that brief psychoeducation may be effective in modifying metacognitive beliefs associated with OCD-onset. Specifically, previous studies conducted with non-clinical community samples found that maladaptive metacognitive beliefs, appraisals, and strategies, were reduced following brief corrective information on the nature of intrusive thoughts (Marino-Carper et al., 2010; Rees et al., 2014; Zucker et al., 2002). The information provided in these studies consisted of reading or listening to a brief text (i.e., of no more than a few pages) describing the prevalence and nature of intrusive thoughts, and inaccurate and accurate beliefs about these thoughts (e.g., that intrusive thoughts cannot cause harmful events to occur). The results of these studies suggest that psychoeducation focused on correcting maladaptive metacognitive beliefs about intrusions may be an effective means of preventing postpartum OCS. Such an intervention would be far less intensive than that utilised by Timpano et al. (2011), and therefore highly advantageous in terms of accessibility and resource efficiency, including the relative ease of disseminating this type of information to expecting mothers. It would also provide 'proof of concept' for the use of primary prevention interventions in preventing OCD onset (Brakoulias et al., 2018). However, the effect of brief corrective information on OCS yet to be established.

The present study aimed to establish whether providing brief psychoeducational information intended to correct maladaptive metacognitive beliefs about infant-related

intrusions ('metacognitive education'), to expecting parents in pregnancy, prevents postpartum OCS when compared with a treatment-as-usual (TAU) control condition (i.e., routine monitoring of maternal health by a perinatal health practitioner/s). It was hypothesised that:

- (i) there will be an intervention effect as evidenced by a significant Group x Time interaction for metacognitive and obsessive beliefs. The interaction will reflect a significantly greater decrease in *TAF* and *OBQ-44* scores in the metacognitive education group compared to the TAU-control group;
- (ii) there will be an intervention effect as evidenced by a significant Group x Time interaction for self-reported overall OCS and obsessions. The interaction will reflect a significantly greater decrease in *OCI-R* total and 'Obsessions' subscale scores in the metacognitive education compared to the TAU-control group;
- (iii) the observed effect of Group (metacognitive education; TAU-control) on self-reported OCS at 3- and 6-month postpartum will be independently mediated by changes in metacognitive and obsessive beliefs.

## **5.2 Method**

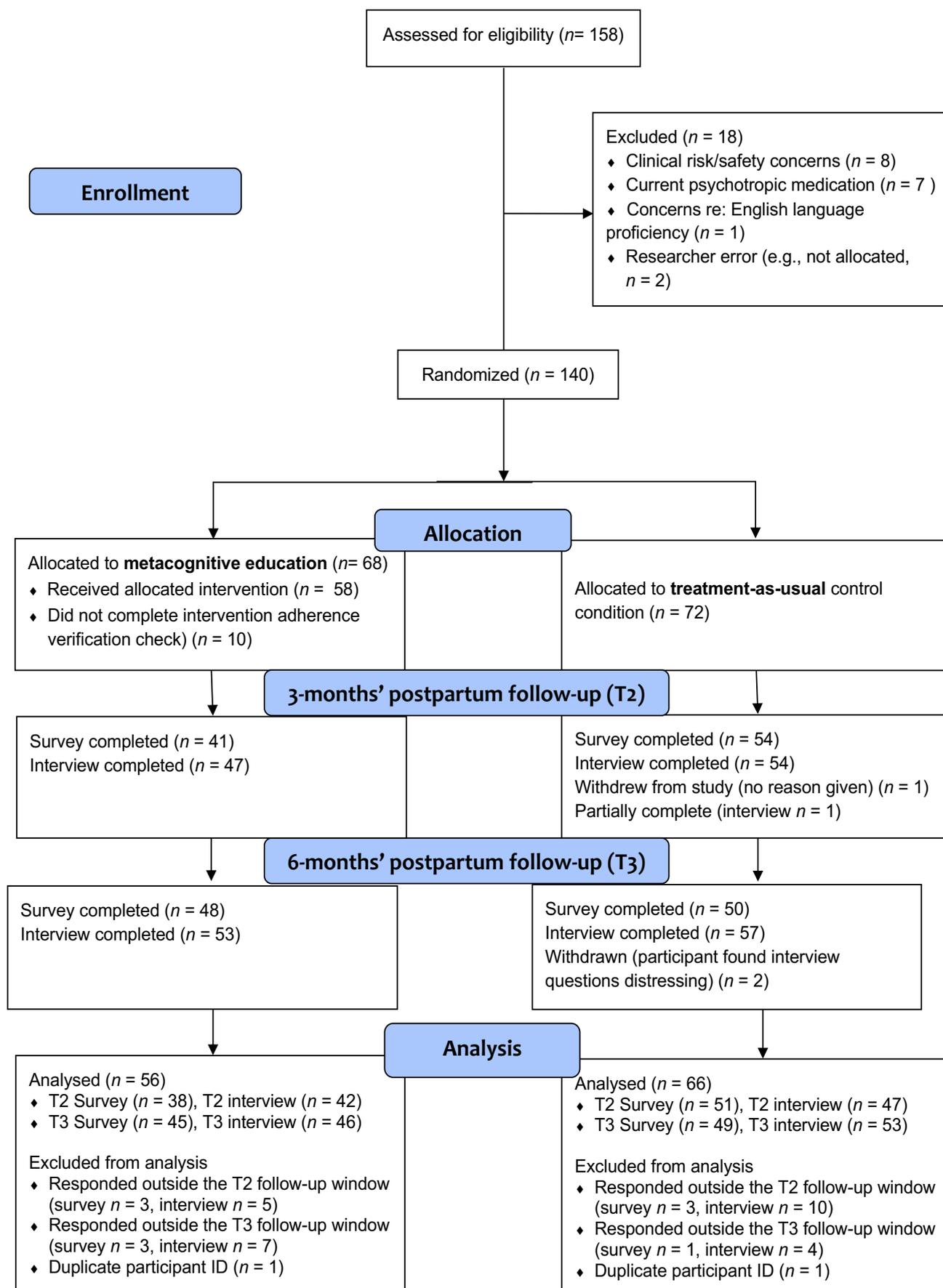
### **5.2.1 Participants**

One-hundred and thirty English-speaking women from Australia and New Zealand who were > 20 and < 33 weeks pregnant with their first child were recruited via social media and community newspaper advertising to trial 'a new potential way of preventing postpartum anxiety'. Participants consented to complete (i) a pre-trial telephone screening interview and two postpartum telephone follow-up assessments, and (ii) a series of three online surveys, including a prenatal survey and two postpartum follow-up surveys. Individuals were excluded from the study at the prenatal survey point if they were less than 18 years of age; currently on psychotropic medication; or

self-reported having been diagnosed with a neurodevelopmental or autism spectrum disorder; or were experiencing current suicidal ideation. They were also excluded if, based on diagnostic screening interview, they met criteria for current OCD, current substance use disorder, current borderline personality disorder (BPD), lifetime anti-social personality disorder (ASPD), current or past psychotic disorder or bipolar disorder, or reported significant clinical risk issues (e.g., suicidal ideation or deliberate self-harm, domestic abuse).

Figure 5

CONSORT Diagram.



A total of 221 women expressed their interest in participating in the study by completing the initial prenatal online survey. Twelve of these individuals disclosed that they were currently taking psychotropic medication in the online survey and were excluded from the study prior to telephone screening; three participants decided not to continue onto complete the prenatal telephone screening interview; and 48 participants did not respond to researcher contact attempts within the relevant timeframe (e.g., before reaching 33 weeks' gestation or study enrolment closed). One-hundred and fifty-eight women were screened for eligibility to enter into the trial via prenatal interview. Eighteen women were excluded from the study following telephone screening, and 140 participants were accepted into the study and were allocated to either the intervention (metacognitive education) or control (treatment-as-usual) group of the study. Ten participants in the metacognitive education group did not complete the knowledge check survey (see section 5.2.4 below) to verify that they had completed the intervention, and were removed from the study, leaving 130 study participants. A flowchart diagram depicting the number of participants who completed each stage of the study, from the prenatal screening interview onwards, is presented in Figure 5 above, using the CONSORT format (Moher et al., 2010). A priori power analyses conducted using G\*Power indicated a minimum required sample size of 76 (38 in each of the metacognitive education and TAU-control groups) to achieve 80% probability of detecting a small to moderate ( $f = 0.18$ ) Time x Group interaction effect (i.e., intervention effect).

Mean maternal age at the time of study commencement (i.e., prenatal survey completion) was 30.13 years ( $SD = 2.98$ ). On average, participants were 25 weeks pregnant ( $M = 25.8$ ,  $SD = 3.43$ ) when they completed the prenatal survey. Other participant self-reported characteristics are detailed in Table 5.

**Table 5***Participant Characteristics (N = 130).*

	<i>N (%)</i>
Country of residence	
Australia	121 (93.08%)
New Zealand	9 (6.92%)
Ethnicity	
Majority groups	
Australian and Australian European	98 (75.38%)
New Zealander and New Zealand European	4 (3.08%)
British and Irish	5 (3.85%)
Other European	7 (5.51%)
Central and Northern American	2 (1.54%)
Minority groups	
Australian Aboriginal	0 (0.00%)
Maori	1 (0.77%)
North African and Middle Eastern	2 (1.54%)
Asian	9 (6.92%)
First language	
English	119 (91.54%)
Other	11 (8.46%)
Relationship status	
Married	93 (71.54%)
Defacto or living with a significant other	35 (26.92%)
Single	1 (0.77%)
First-time pregnancy	
Yes	103 (79.23%)
No – please specify number of previous pregnancies	27 (20.77%)
1 previous pregnancy	20 (15.38%)
More than 1 previous pregnancy	7 (5.51%)
Previous difficulties conceiving	
Yes	31 (23.85%)
No	98 (75.38%)
Received fertility treatment	
Yes	10 (7.69%)
No	120 (92.31%)
Previous psychiatric diagnosis	
Depression	14 (10.77%)
Anxiety disorder (e.g., generalised anxiety, social anxiety, health anxiety)	17 (13.08%)
Post-traumatic stress disorder	2 (1.54%)
Obsessive-compulsive disorder	1 (0.77%)
Eating disorder – unspecified	1 (0.77%)

### 5.2.2 *Ethics*

Ethical approval (HRE2017-0087) was obtained from the Curtin University Human Research Ethics Committee prior to data collection. The trial was retrospectively registered with the Australian New Zealand Clinical Trials Registry (ACTRN12619001588189).

### 5.2.3 *Measures*

*Descriptive measures.* An online sociodemographic questionnaire, developed for the present study, was used to collect relevant participant information, including pregnancy due date/infant's date of birth; parent's country of birth and residence; relevant pregnancy and delivery-related factors (e.g., number of previous pregnancies, difficulties in conceiving, premature delivery status, mode of delivery, complications during childbirth, parity); infant feeding method; and psychiatric history (including current psychological treatment or psychotropic medication). Questions about pregnancy and pre-pregnancy history were administered at >20 and <33 weeks' gestation, while information about delivery and postpartum history was collected at 2-3 months' postpartum. Participants also completed the *Parental Thoughts and Behaviours Checklist (PTBC; Abramowitz et al., 2006)* at each postpartum follow-up assessment point to provide information about the frequency and content of postpartum OCS. The *PTBC* is an adaptation of the *Yale-Brown Obsessive-Compulsive Symptom Checklist* (Goodman et al., 1989) that includes infant-related obsessions and compulsions specific to, and commonly reported by, individuals in the postpartum period. The *PTBC* is a semi-structured interview-based measure. It includes a total of 46-items that requires yes/no responses to indicate the occurrence/absence of each symptom since birth. As a

validation study of the original English-language version of the *PTBC* has yet to be conducted, this measure was used solely as a descriptive measure in the current study.

*Diagnostic measures.* The *MINI Neuropsychiatric Interview 7.0.2 (MINI;* Sheehan et al., 1998) was administered during pregnancy to screen excluded diagnoses (i.e., current OCD, substance use disorder, or current/past psychotic disorder, bipolar disorder, or lifetime history of anti-social personality disorder. Additionally, the OCD module of the *MINI* was readministered at both postpartum follow-up assessment points to determine the proportion of participants in each trial condition who developed OCD since childbirth. The *MINI* has demonstrated reliability and validity in diagnosing OCD and other psychiatric disorders compared with other empirically validated diagnostic tools (e.g., Lecrubier et al., 1997). The Borderline Personality Disorder module of the *Structured Diagnostic Interview for DSM-IV-TR Personality Disorders – Clinician Version (SCID-IV-TR;* First et al., 1997) was also administered during the initial telephone diagnostic screening interview to assess for BPD symptoms that precluded trial participation.

*Dimensional outcome measures.* The *Obsessive-Compulsive Inventory-Revised (OCI-R;* Foa et al., 2002) was used to measure baseline OCS, as well as changes in symptoms across the pregnancy and postpartum assessment points. Participants' ratings for each inventory item were summed to provide a total score for the overall level of OCS, and 3-items on the 'Obsessing' subscale were summed to indicate the level of obsessions. The *Thought Action Fusion (TAF) Scale* assessed OCD-related metacognitive (i.e., thought fusion) beliefs at each assessment point (Shafran et al., 1996). The *Obsessive Beliefs Questionnaire (OBQ-44;* OCCWG, 2005) was administered at each assessment point to evaluate beliefs related to OCS. Participants' scores on each item of the questionnaire were summed to yield a total score for

‘obsessive beliefs’, with higher scores indicating greater OCD-related beliefs. The psychometric properties of these measures were reported in the previous chapter.

*Covariate measures.* Depressive and generalised anxiety symptoms were measured at each time point via the *EPDS* (Cox et al., 1987) and *Generalised Anxiety Disorder 7-item Scale (GAD-7)*; Spitzer et al., 2006), respectively. The internal reliability for each of the dimensional outcome and covariate measures in the current study ranged from ‘acceptable’ to ‘excellent’, as presented in Table 6 below.

**Table 6**

*Cronbach's Alpha ( $\alpha$ ) for Each of the Study Measures.*

Measure	Prenatal	Postpartum	
		3-Months' Follow-up	6-Months' Follow-up
OCI-R total	0.88	0.87	0.82
Obsessing subscale	0.83	0.77	0.64
TAF total	0.93	0.92	0.93
TAF-M	0.92	0.94	0.93
TAF-O	0.96	0.89	0.92
TAF-S	0.90	0.79	0.87
OBQ-44	0.95	0.95	0.95
GAD-7	0.85	0.89	0.81
EPDS	0.84	0.87	0.81

#### 5.2.4 Procedure

Participants completed an online survey consisting of the *TAF*, *OBQ-44*, *OCI-R*, *EPDS*, and *GAD-7* at three assessment points – at 20 to <33 weeks pregnant (i.e., baseline), and at 3 months' and 6 months' post their child's expected due date. After completing the initial online survey and providing written consent to participate, participants were contacted by a researcher and completed a brief structured clinical interview that included that *MINI* and *SCID-IV-TR* module for BPD, as well as

questions about current psychotropic medication or psychological treatment, to verify their eligibility for the study. Participants who, based on the initial survey and clinical screening interview, met criteria for one or more of the excluded diagnoses were advised that they were ineligible for the trial and informed about relevant professional support services. All screening and follow-up interviews were conducted by Registered or Provisionally Registered Psychologists completing a masters or doctoral degree in Clinical Psychology, supervised by a senior clinical psychologist (Rebecca Anderson, hereafter 'R.A.'; Clare Rees, hereafter 'C.R.'). In cases where OCD diagnostic status was unclear to the interviewer, the case was discussed with a supervising senior clinical psychologist to reach an agreement.

Participants accepted into the study were randomly allocated to receive targeted psychoeducation about intrusive thoughts (the 'experimental' intervention) or to a treatment-as-usual (TAU) control group. All participants were required to have attended at least one antenatal care appointment with a perinatal health professional before enrolment in the study. Thus, it was anticipated that those in the TAU condition would have received information about perinatal mental health and screening (e.g., for depressive and anxiety symptoms) as is part of recommended standard care throughout Australia and New Zealand (Australian Government Department of Health, 2019; Royal Australian and New Zealand College of Obstetricians and Gynaecologists, 2015).

The prevention intervention condition consisted of a brief 7-minute online video (see Appendix A for the link to this video) intended to correct maladaptive metacognitive beliefs about infant-related intrusive thoughts. The content of the video was developed by the student researcher (Melissa Mulcahy, hereafter 'M.M.'), in consultation with research supervisors (R.A., C.R., & Megan Galbally, hereafter 'M.G.'). Following review of psychoeducational resources used in previous studies (Marino-Carper et al., 2010; Rees et al., 2014; Zucker et al., 2002) and published or

available in the public domain (Kleiman & Wenzel, 2011; Postpartum Stress Centre, 2017; Rees, 2009). The video was narrated by one of the research supervisors (C.R.) who was introduced at the beginning of the video as a ‘Registered Psychologist’ and ‘Professor of Clinical Psychology’. Key audio messages about intrusive thoughts were illustrated throughout the video using text and a series of animated images for emphasis (e.g., the audio ‘*it is important to know that most mothers have these kinds of thoughts*’ was accompanied by an animated image of a group of women of various ages and ethnic backgrounds; see Appendix 8 for images). The video included psychoeducational information about the nature of intrusions (i.e., the prevalence of intrusions; examples of common postpartum intrusions) to normalise the experience of these types of thoughts; and instruction on how to respond to intrusions using helpful metacognitive appraisals (e.g., ‘*it’s just a thought*’, ‘*intrusions are normal*’, and ‘*they don’t mean anything about me*’, ‘*I don’t need to do anything about these thoughts*’) and strategies (e.g., ‘*don’t distract yourself from or argue with the thought*’, ‘*let the anxiety rise and fall in your body*’). It also provided information on when/and how to access support for those who were particularly concerned or distressed by intrusive thoughts (e.g., speaking with a general medical practitioner or child and maternal health nurse). Participant completion of the intervention was verified via completion of a short-knowledge check survey and/or by a researcher at the conclusion of the final postpartum follow-up telephone interview.

Participants were recontacted via phone 3- and 6-months’ post their child’s expected due date (‘postpartum’) and invited to complete a follow-up interview with a researcher. For practical considerations, including the time taken to reach participants successfully, these interviews occurred between >1 and <4 months’, and >5 and <9 months’, postpartum. The follow-up interview included the *PTBC* and *MINI* (OCD module).

### 5.2.5 *Analysis*

The study hypotheses were tested using a series of seven generalised linear mixed models (GLMM) conducted using the *Statistical Package for the Social Sciences (SPSS)* version 26 GENLINMIXED procedure. GLMM was chosen as the analysis for the longitudinal analysis of the study data. It is a full information estimation procedure that does not rely on participants providing data at every assessment point and is less sensitive to participant attrition. For hypotheses 1 and 2, one GLMM was conducted for each outcome measure. This included one nominal random effect (i.e., Participant), one nominal fixed effect (i.e., Group: intervention, TAU-control), one ordinal fixed effect (i.e., Time: 3-months' postpartum, 6-months' postpartum), and the two-way Group x Time interaction (i.e., the interaction effect). GLMM 'robust statistics' was used to accommodate violations of the homogeneity of variance assumption, as well as for a small departure from a normal distribution for participants' *OBO-44* total scores. The remaining outcomes (i.e., *TAF-T*, *TAF-M*, *TAF-O*, *TAF-S*, *OCI-R* total, and *OCI-R* 'Obsessions' subscale scores) were modelled with a gamma distribution and logit link due to a severe positive skew in score distributions. Violations of sphericity in the data were addressed by changing the covariance matrix from the default of compound symmetry to autoregressive. Pre-test alpha levels were adjusted to control for multiple comparisons using the Bonferroni procedure. Further details about the GLMM analyses are presented by hypothesis in the Results section below.

## 5.3 Results

### 5.3.1 Prenatal baseline values

Initial non-parametric comparisons conducted using Mann-Whitney *U* tests (selected due to the non-normal distribution of scores in each group on all measures apart from the *OBQ-44*) did not show a significant difference between the intervention and TAU-control *OCI-R* total, *GAD-7*, *EPDS*, *OBQ-44* or *TAF* total scores at baseline (i.e., in pregnancy). Descriptive statistics for each of these prenatal measures are presented in Table 7.

**Table 7**

*Mean (M) and Standard Deviation (SD) of Participants' Prenatal Scores on Each of the Study Measures.*

	<i>M (SD)</i>		
	Total sample	Intervention ( <i>n</i> = 58)	TAU-control ( <i>n</i> = 72)
<i>OCI-R</i> total score	11.5 (9.03)	12.69 (10.81)	10.54 (7.21)
Obsessions subscale	1.76 (2.33)	2.14 (2.82)	1.45 (1.81)
<i>GAD-7</i>	4.58 (3.53)	4.88 (4.03)	4.34 (3.07)
<i>EPDS</i>	6.78 (4.38)	7.38 (4.75)	6.3 (4.02)
<i>OBQ-44</i>	142.5 (39.68)	144.52 (41.12)	140.94 (38.97)
<i>TAF</i> total score	14.17 (12.0)	15.09 (12.46)	13.42 (11.65)
Moral	9.95 (8.36)	10.28 (8.47)	9.69 (8.32)
Likelihood – Other	1.78 (3.11)	1.98 (3.3)	1.61 (2.95)
Likelihood - Self	2.44 (2.81)	2.83 (3.0)	2.13 (2.62)

### 5.3.2 Sample characteristics

Four participants met criteria for panic disorder (one for current panic disorder, three for lifetime panic disorder); one met criteria for agoraphobia; one participant met criteria for social anxiety disorder; and three met criteria for generalised anxiety disorder, based on the *MINI* interview completed during pregnancy. Furthermore, three

participants (2 in the metacognitive education group and 1 in the TAU-control group) retrospectively endorsed symptoms consistent with a lifetime history of OCD (i.e., remitted) on the *MINI*. There was no significant difference between the number of participants with a lifetime history of OCD in the groups, as determined by Fisher's exact test,  $p = 0.58$  (2-tailed). No participants met criteria for current OCD on the *MINI* at the time of enrolment into the trial, as this was an exclusion criterion for the study. Participants' baseline (i.e., prenatal) scores on the measures of obsessive beliefs, metacognitive beliefs, OCS, and covarying generalised anxiety and depressive symptoms are contained in Table 8 below.

The relationship between postpartum *OCI-R* total, *OBQ-44* total, and *TAF* total scores and pregnancy- and delivery-related variables was also evaluated using Kendall's tau- $b$ , to accommodate non-normally distributed scores on these measures.

Breastfeeding status (reported at 3-months' postpartum follow-up) was significantly associated with *OCI-R* scores at 6-months', but not at 3-months', postpartum. No other pregnancy- and delivery-related factors were significantly correlated with *OCI-R*, *OBQ-44*, or *TAF* total scores at either 3- or 6-months' postpartum (see Table 8).

**Table 8**

*Kendall's Tau- b Correlation Coefficients ( $\tau_b$ ) for Pregnancy- and Delivery-Related Factors and Postpartum OCI-R Total (OCI-T), OBQ-44, and TAF Total Scores*

Factor	3 months' postpartum			6 months' postpartum		
	OCI-T	OBQ-44	TAF-T	OCI-T	OBQ-44	TAF-T
First pregnancy (yes; no)	0.14	-0.01	-0.07	0.13	-0.01	-0.17
Received fertility treatment (yes; no)	0.1	-0.01	-0.13	0.02	-0.01	0.04
Had pregnancy complications (yes; no)	-0.11	-0.04	-0.11	-0.13	-0.01	-0.04
Pre-term birth (i.e., < 37 weeks' gestation)	-0.15	-0.14	0.04	-0.07	-0.12	0.07
Delivery mode (vaginal birth; c-section)	0.02	0.11	0.10	0.08	0.03	0.07
Had delivery complications (yes; no)	0.02	0.03	0.05	-0.07	-0.01	-0.04
Breastfeeding (yes; no)	0.17	0.10	0.15	0.23*	0.07	0.03

\* Indicates significance at  $p < 0.05$ .

### 5.3.3 *OCD and OCS in the postpartum period*

A total of two participants (2.33%) met criteria for current OCD, and four participants (4.65%) retrospectively reported non-current postpartum symptoms of OCD (i.e., occurring since birth), on the *MINI* at 3-months' postpartum. A further 14 participants (26.28%) endorsed current or non-current subclinical OCS (i.e., subthreshold obsessions and/or compulsions that caused some distress and interference but did not meet full criteria for OCD), occurring since childbirth, on this measure at the 3-month postpartum follow-up assessment. At 6-months' postpartum, two participants (1.98%) reported current symptoms consistent with OCD, and five participants (4.95%) retrospectively reported OCS at a diagnostic level that were experienced in the follow-up period but non-current. Twelve participants (11.88%) also reported experiencing or having experienced subclinical OCS since 3-months' postpartum. The frequency of OCD and subclinical OCS, and the descriptive statistics for total *OCI-R* t scores, at each postpartum assessment point, are presented by condition in Table 9.

**Table 9**

*Number (N) and Percentage (%) of Participants Reporting OCD or Subclinical OCS on the MINI, and Mean and Standard Deviation OCI-R Total Scores, in Each Trial Group at 3-Months' and 6-Months' Postpartum Follow-Up.*

	3-months' postpartum		6-months' postpartum	
	Intervention	TAU-control	Intervention	TAU-control
OCI-R total scores				
Mean	11.24	7.56	7.62	8.08
Standard deviation	8.42	6.56	6.25	6.39
<i>n</i>	29	39	29	39
MINI				
Current				
OCD	1 (2.50%)	1 (2.17%)	2 (4.35%)	2 (3.64%)
Subclinical OCS	3 (7.50%)	6 (13.04%)	3 (6.52%)	5 (9.09%)
Non-current <sup>a</sup>				
OCD	3 (7.50%)	1 (2.17%)	3 (6.52%)	2 (3.64%)
Subclinical OCS	2 (5.00%)	2 (4.35%)	1 (2.17%)	3 (5.45%)
<i>n</i>	40	46	46	55

<sup>a</sup> Refers to reported OCS experienced since the previous assessment point, but that did not occur within the past month.

### **5.3.4 Prevalence of infant-related obsessions and compulsions**

Over 91% of participants reported having experienced infant-related intrusive thoughts since childbirth when interviewed using the *PTBC* at 3- and 6-months' postpartum. Around 93% and 74% of participants endorsed engagement in compulsive/neutralising strategies in response to these intrusions at 3- and 6-months' postpartum, respectively. Infant-related obsessions/intrusive thoughts were grouped into the seven themes identified by Abramowitz et al. (2003), and compulsive/neutralising responses to the intrusions were classified using the categories adopted by Abramowitz et al. (2006). Table 10 shows the number and percentage of participants endorsing obsessions/intrusive thoughts and compulsions/neutralising strategies in each category.

**Table 10**

*Frequency (N) and Percentage (%) of Infant-Related Obsessional/Intrusive Thoughts and Compulsive/Neutralising Responses on the PTBC at Postpartum Follow-Up.*

	3-months' postpartum N (%)	6-months' postpartum N (%)
Obsessions/Intrusive Thoughts	82 (95.35%)	91 (91.92%)
Suffocation (e.g., dying of SIDS, suffocating during sleep, choking on object)	77 (89.53%)	60 (60.61%)
Violence (e.g., screaming at, hitting, shaking, burning, drowning baby)	36 (41.86%)	26 (26.26%)
Accidents (e.g., infant being dropped/falling, animal attack, car accident)	70 (81.40%)	80 (80.81%)
Losing the baby (e.g., leaving baby in a car, leaving baby, baby being abducted)	35 (40.70%)	33 (33.33%)
Sexual (e.g., unwanted thoughts about baby's genitals, sexual orientation)	5 (5.81%)	7 (7.07%)
Illness (e.g., contamination, unrealistic thoughts about infant disease/disability)	35 (40.70%)	38 (38.38%)
Compulsions/Neutralisation Strategies	79 (91.86%)	73 (73.74%)
Self-reassurance (e.g., give self-reassurance, rationalise thought)	78 (90.70%)	73 (73.74%)
Checking infant	55 (63.95%)	41 (41.41%)
Social support (e.g., ask for reassurance, seek social support, confess thoughts)	65 (75.58%)	51 (51.52%)
Cognitive distraction (e.g., thought replacement or suppression)	52 (60.47%)	55 (55.56%)
Prayer	11 (12.79%)	6 (6.06%)
Behavioural distraction	21 (24.41%)	24 (24.24%)
Avoidance (e.g., of situation or infant)	12 (13.95%)	14 (14.14%)
Other	18 (20.93%)	11 (11.11%)
Total N	86	99

Intrusions about the infant suffocating (e.g., dying of sudden infant death syndrome or SIDS) or being in an accident (e.g., a car accident or an animal attack) were the most commonly reported infant-related obsessional thoughts endorsed at 3- and 6-months' postpartum. Sexual-themed intrusions (e.g., unwanted thoughts about the baby's genitals or sexual intrusions during breastfeeding) were the least commonly reported, with less than 8% of participants endorsing having experienced obsessions in this category at each time point. Self-reassurance (including giving oneself reassurance or rationalising the intrusive thought) was the most common, and prayer the least common, compulsion/neutralising strategy used by participants in response to infant-related intrusions. The majority of participants also reported checking on the baby more

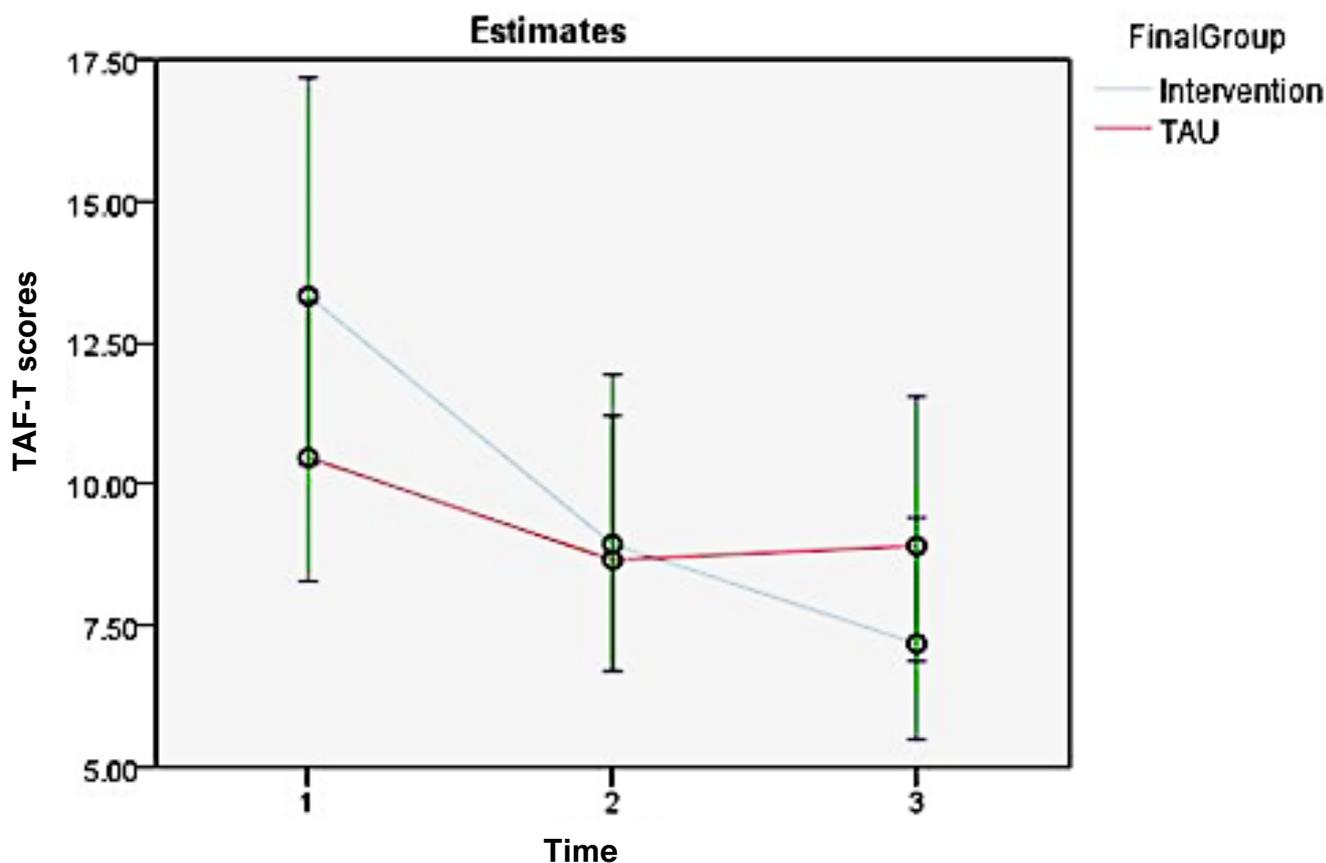
frequently, seeking social support (e.g., confessing the thought or seeking reassurance about the thought from others), or engaging in cognitive distraction (e.g., attempts to suppress the thought by thinking about something else) in response to the intrusions at 3- and 6-months' postpartum. Avoidance behaviours (i.e., avoidance of the infant or specific situations) were reported by <15% of participants during the postpartum.

### 5.3.5 ***Hypothesis 1: Differences in metacognitive and obsessive beliefs at postpartum follow-up***

Five GLMMs were conducted to test the hypothesis that metacognitive education would be associated with lower *TAF* and *OBQ-44* total scores at 3- and 6-months' postpartum follow-up. The GLMM 'robust statistics' feature was used to accommodate both violations of the homogeneity of variance for each of the five outcome measures and non-normal distribution of *OBQ-44* total scores. The *TAF* total (i.e., *TAF-T*) scores and subscale scores were modelled with a gamma distribution due to severe positive skew in the scores. Two outcome groups were used: one with *OBQ-44* total scores, and a second group with the *TAF* outcome variables (i.e., *TAF-T*, *TAF-M*, *TAF-O*, and *TAF-S* scores). The required alpha value was adjusted to  $p < 0.01$ , following the Bonferroni procedure for multiple comparisons, for GLMMs of *TAF* outcomes.

**Figure 6**

*Time (Prenatal; 3-Months' Postpartum Follow-Up; 6 Months' Postpartum Follow-Up) x Group (Metacognitive Education; TAU-Control) Interaction Effect for TAF-T Scores.*



Analysis revealed a statistically significant Time x Group interaction effect for *TAF-T* scores,  $F(2,304) = 4.59, p = 0.01$ , as displayed in Figure 6. However, no such interaction effect was found for *TAF-M*,  $F(2,305) = 3.68, p = 0.03$ ; *TAF-O*,  $F(2,305) = 3.90, p = 0.02$ ; *TAF-S*,  $F(2,304) = 1.36, p = 0.26$ . Examination of the simple main effect of time for each of the two groups on *TAF-T* scores indicated a statistically significant decrease in these scores over time for the intervention group,  $F(2,304) = 10.53, p < 0.001$ , but not the TAU-control group,  $F(2,304) = 1.27, p = 2.84$ . The intervention group displayed a statistically significant decrease in *TAF-T* scores between the prenatal and 3-months' postpartum assessment points ( $p < 0.01$ ), and a non-significant decrease in *TAF-T* scores between 3- and 6-months' postpartum ( $p = 0.12$ ). The main effect of

Group on *TAF-T* scores was maintained at 6-months' postpartum, with the intervention group showing significantly lower *TAF-T* scores at 6-months' postpartum than the prenatal time point ( $p < 0.001$ ). Table 11 presents the mean and standard deviations of each of the metacognitive and obsessive belief measures for the intervention and TAU-control groups at each postpartum follow-up.

**Table 11**

*Mean (M) and Standard Deviation (SD) for Participants' TAF-T, TAF-M, TAF-O, TAF-S, and OBQ-44 Scores at 3-Months' and 6-Months' Postpartum in the Intervention (Metacognitive Education) and TAU-Control Groups.*

Measure	3 months' postpartum		6 months' postpartum	
	Intervention <i>M</i> (SD)	TAU-control <i>M</i> (SD)	Intervention <i>M</i> (SD)	TAU-control <i>M</i> (SD)
<i>TAF</i> total score *	10.69 (10.73)	12.67 (11.03)	8.24 (8.43)	12.15 (10.58)
Moral**	7.38 (8.50)	9.79 (9.19)	5.83 (6.34)	8.97 (8.24)
Likelihood – other	1.59 (2.71)	1.18 (2.35)	0.90 (2.24)	1.23 (2.22)
Likelihood – self**	1.72 (2.12)	1.74 (2.28)	1.52 (2.16)	1.95 (2.67)
<i>OBQ-44</i> total score***	130.72 (39.85)	135.62 (37.38)	125.38 (38.79)	134.9 (38.74)

\* Significant intervention (Time x Group interaction) effect at a Bonferroni-adjusted alpha level of 0.013.

\*\* Significant main effect of time at a Bonferroni-adjusted alpha level of 0.013.

\*\*\* Significant main effect of time at an alpha level of 0.05.

Additionally, there was a significant main effect of Time for *TAF-M* scores,  $F(2,305) = 3.68, p = 0.03$ , and *TAF-S*,  $F(2,304) = 8.76, p < 0.001$  scores, with the scores of both the intervention and TAU-control groups decreasing at the same rate between prenatal assessment and postpartum follow-up. *TAF-O* scores did not change significantly across time for either group,  $F(2,305) = 3.15, p = 0.04$ .

No significant Time x Group interaction effect was detected for *OBQ-44* scores,  $F(2,305) = 0.49, p = 0.62$ , indicating the absence of a significant intervention effect for this outcome variable. However, a significant main effect of time was seen,  $F(2,305) =$

7.94,  $p = 0.001$ . Specifically, participants in both groups reporting a decrease in *OBQ-44* scores from the prenatal to postpartum periods.

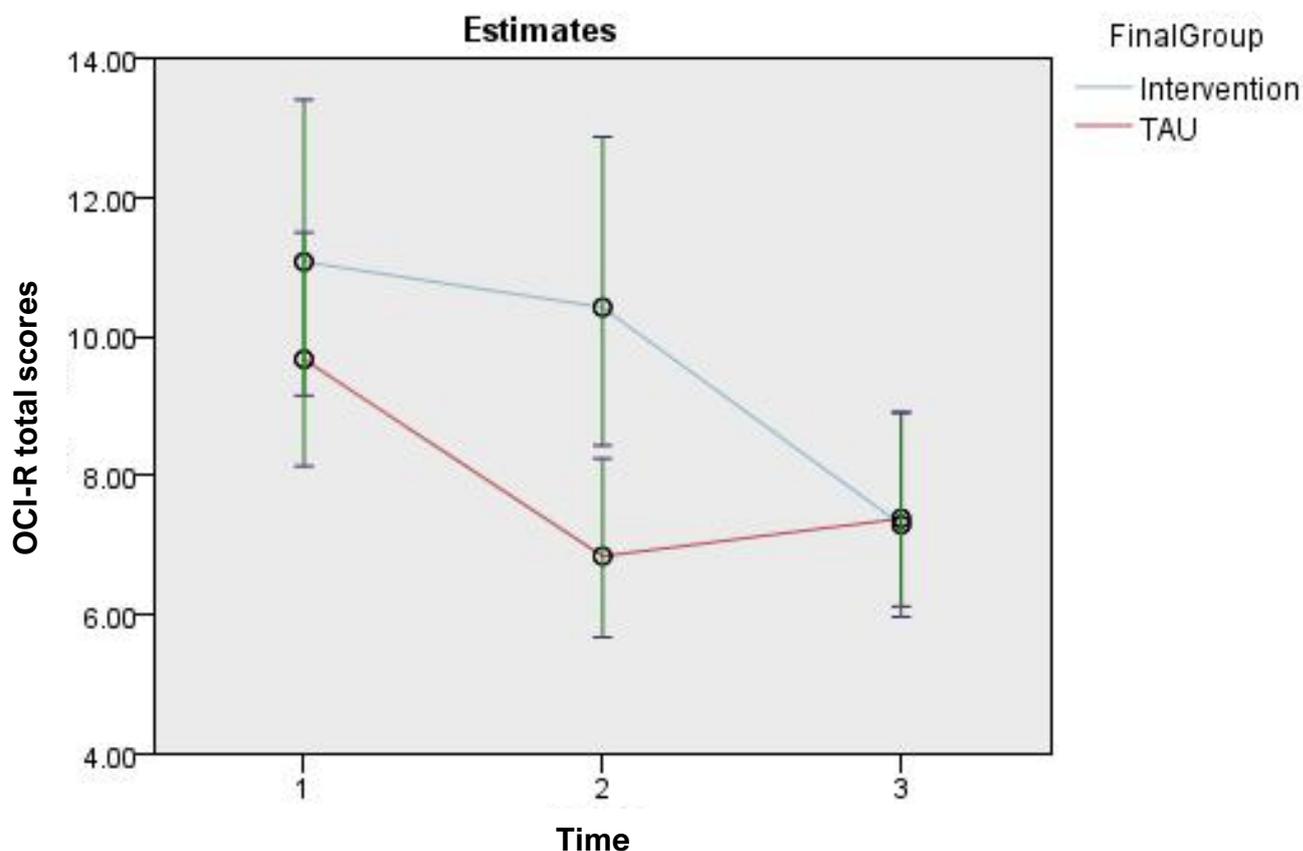
### 5.3.6 *Hypothesis 2: Differences in OCS severity at postpartum follow-up*

Results showed a statistically significant Time x Group interaction for *OCI-R* total scores,  $F(2, 292) = 6.53, p = 0.002$  (see Figure 7 below). No significant main effect of Group was observed,  $F(2, 303) = 2.27, p = 0.133$ . However, there was a significant main effect for Time for both the intervention group,  $F(2, 303) = 12.68, p < 0.001$ , and TAU-control group,  $F(2, 303) = 10.13, p < 0.001$ .

Both groups showed a significant decrease in *OCI-R* total scores between pregnancy and 6-months' postpartum follow-up, with  $t(303) = 4.72, p < 0.002$  for the intervention group, and  $t(303) = 3.42, p = 0.001$  for the TAU-control group. The intervention group did not display a significant change in *OCI-R* total scores between pregnancy to 3-months' postpartum,  $t(303) = 0.71, p = 0.48$ . There was, however, a significant decrease in *OCI-R* total scores between 3- and 6-months' postpartum follow-up,  $t(303) = 3.51, p = 0.001$ . Conversely, *OCI-R* total scores in the TAU-group significantly decreased between pregnancy and 3-months' postpartum,  $t(303) = 4.39, p < 0.001$ , but not between 3-months' and 6-months' postpartum,  $t(303) = 0.92, p = 0.36$ .

**Figure 7**

*Time (Prenatal; 3-Months' Postpartum Follow-Up; 6 Months' Postpartum Follow-Up) x Group (Metacognitive Education; TAU-Control) Interaction Effect for OCI-R Total Scores.*



There was no significant Time x Group interaction effect for participants' scores on the 'Obsessions' subscale of the *OCI-R*,  $F(2, 303) = 0.41, p = 0.67$ , nor a significant main effect for Group,  $F(1, 303) = 2.60, p = 0.11$ . Once again, there was a significant main effect for Time,  $F(1, 303) = 4.66, p = 0.01$ . Since there was no significant main effect for Group, the differences between 'Obsessions' subscale scores at each assessment point were calculated for the entire sample. Participants showed a significant decrease in 'Obsessions' subscale scores between pregnancy and 6-months' postpartum follow-up,  $t(303) = 2.75, p = 0.06$ , and between 3- and 6-months' postpartum,  $t(303) =$

2.54,  $p = 0.01$ . A significant decrease in ‘Obsession’ subscale scores between pregnancy and 3-months’ postpartum was also observed,  $t(303) = 0.01$ ,  $p > 0.99$ .

### 5.3.7 *Hypotheses 3*

The absence of a significant Group x Time interaction effect for *OCI-R* total and ‘Obsession’ subscale scores precluded analysis of Hypotheses 3.

## 5.4 Discussion

This study aimed to evaluate the effectiveness of a novel intervention – specifically, brief corrective information (‘metacognitive education’) about intrusive thoughts delivered during pregnancy – in preventing ppOCS. The overwhelming majority of participants (i.e., > 90%) in both study groups reported experiencing infant-related intrusive intrusions and engaging in thought neutralisation strategies/compulsions. Similar results have been observed in previous studies, and this finding, therefore, supports the assertion that postpartum intrusions are a normative experience in the transition to parenthood (Abramowitz et al., 2006, 2007; Abramowitz, Schwartz, & Moore, 2003; Leckman et al., 1999; Thiséus et al., 2019). However, consistent with CB models of OCD (Rachman, 1993, 1998; Salkovskis, 1985; Taylor et al., 2007), these intrusions or neutralising/compulsive strategies did not appear to occupy a significant amount of time each day, nor were they associated with clinically significant distress or impairment, in most instances.

The first study hypothesis, that metacognitive education would be associated with lower OCD-related metacognitive (i.e., thought fusion) and obsessive beliefs at 3- and 6-months’ postpartum compared with the TAU-control group, after controlling for baseline beliefs, was partially supported. Metacognitive education reduced overall

thought fusion beliefs, indicated by a significant decrease in *TAF-T* scores between pregnancy and 3-months' postpartum follow-up in the intervention group. This reduction was maintained through to 6-months' postpartum. The TAU-control group displayed no such decrease in thought fusion beliefs. Contrary to the study hypotheses, metacognitive education did not impact obsessive beliefs, or the individual types of thought fusion beliefs, namely, thought – moral and thought – likelihood – other and thought – likelihood – self fusion beliefs. These results suggest that the provision of brief psychoeducation, intended to correct maladaptive metacognitive beliefs about intrusive thoughts, had a modest but significant effect on OCD-specific metacognitions (i.e., thought fusion). The second hypothesis that metacognitive education would be associated with a significant decrease in self-reported overall ppOCS and obsessions from pregnancy to 3- and 6-months' postpartum follow-up was not supported. Contrary to previous studies highlighting the increased prevalence of OCS in the postpartum period, participants in the present study displayed a significant decrease in OCS between pregnancy and both 3- and 6-month postpartum follow-up. There was no significant main effect of group allocation on overall OCS (i.e., *OCI-R* total scores) or obsessions (i.e., *OCI-R* 'obsessions' subscale scores) severity.

The results of this study are consistent with previous studies conducted in the general community that show that the provision of corrective psychoeducational information is effective in reducing maladaptive metacognitions associated with OCD (Marino-Carper et al., 2010; Rees et al., 2014; Teachman et al., 2006; Zucker et al., 2002). Marino-Carper et al. (2010) previously demonstrated that the effects of brief psychoeducation about intrusive thoughts on thought – likelihood fusion beliefs were maintained 2-weeks' post-intervention. The present study extends upon this and is the first study that provides evidence that psychoeducation may reduce thought fusion

beliefs in the longer-term (i.e., from <33 weeks' gestation through to approximately 6-months' postpartum).

The finding there was not a significant intervention effect for metacognitive education on ppOCS was surprising, given that prenatal thought fusion beliefs have previously been shown, including in Chapter 4 of this thesis, to prospectively predict ppOCS (see also Abramowitz et al., 2007). Perhaps more unexpectedly, participants' level of OCS *decreased* between pregnancy and the postpartum, a finding which is inconsistent with past research showing a definitive increase in OCS in the postpartum period (Abramowitz et al., 2006, 2007; Fairbrother et al., 2018; Russell et al., 2013; Timpano et al., 2011). It may be that both groups showed an improvement in OCS over time due to sampling bias combined with non-specific factors. Participants were recruited via convenience sampling to a study 'trailing a new potential way of preventing postnatal anxiety'. Therefore, it is not possible to rule out the occurrence of a selection bias whereby participants who were concerned that they would develop anxiety symptoms enrolled in the study and were reassured by follow-up contact with a clinician-researcher to 'monitor their mental health' during the postpartum, prompting a decrease in OCS over this time. There was a non-significant trend in the metacognitive intervention group towards higher OCS at 3-months' postpartum follow-up compared with the TAU-control group. Thus, also possible that metacognitive education may have increased monitoring of intrusive thoughts in the early postpartum period in the intervention group. However, the lack of a significant main effect for Group on ppOCS indicates that this difference was not meaningful. It is important to note that neither participants nor the researcher were blind to participants' group allocation.

Another limitation of the present study, which may account for the observed pattern of results, relates to the use of the *OCI-R* as the measure of OCS severity. This

measure was chosen for this study due to its brevity, thereby minimising participant burden, and use in previous, seminal prospective studies of perinatal OCS (Abramowitz et al., 2006; Fairbrother et al., 2018). However, other researchers have highlighted that the *OCI-R* may not be as sensitive to detecting some OCS subtypes, including primary harming obsessions, that are more prevalent in postpartum OCD (Fairbrother et al., 2018; Starcevic et al., 2020). Instead, several items on the *OCI-R* assess compulsions that are less common among postpartum women (Starcevic et al., 2020), including washing/cleaning compulsions and checking household objects (i.e., doors, taps, light switches). Thus, it may be that the *OCI-R* is not sufficiently sensitive to detect individual differences in ppOCS, which may have affected the study results.

While metacognitive education significantly decreased overall thought fusion beliefs, there was no significant effect on thought – likelihood fusion beliefs, which were found to predict ppOCS in Chapter 4 of this thesis. This result was unexpected given that previous research demonstrated a more robust effect of corrective information on thought – likelihood fusion beliefs compared with thought – moral fusion beliefs (Marino-Carper et al., 2010). However, in addition to providing information about the prevalence and nature of postpartum infant-related intrusions, the metacognitive education video used in the present study emphasised neutral beliefs about and appraisals of intrusions (e.g., ‘thoughts like these are normal’; ‘they do not mean anything about you as a person’; ‘they are not a sign of psychosis or that you are losing touch with reality’) that may be more closely related to thought – moral fusion than thought – likelihood fusion. In contrast, the corrective information utilised by Marino-Carper et al. (2010), derived from Zucker et al.'s (2002) study, included more specific statements addressing thought – likelihood fusion (e.g., ‘by simply thinking about a family member or friend becoming seriously ill, you will not increase the chance that they will become sick’; ‘these thoughts have no influence over outside

events’). Therefore, it appears likely that metacognitive education did not have a significant effect on ppOCS in the present study, because the intervention did not adequately correct for maladaptive thought – likelihood fusion beliefs.

Some additional limitations of the study must also be noted. It may be that a larger sample size would have been required to detect effects on OCS in our study population. The participant sample in this study was non-clinical and, unlike Timpano et al.'s (2011) prevention trial, was not limited to pregnant women with psychological indicators (i.e., high obsessive beliefs) of elevated risk of ppOCS onset. Therefore, it could therefore be expected intervention effects would be more modest in size. Furthermore, only the ‘obsessions’ subscale, and not the other symptom subtype subscales, of the *OCI-R* was examined, because this study specifically concerned the specific theorised relationship between beliefs about intrusions, appraisals of infant-related intrusions, and the onset of obsessions in the postpartum. Conclusions also cannot be drawn more broadly about the impacts of the intervention on other OCD symptom presentations.

Lastly, several months elapsed between participants receiving the intervention and postpartum follow-up. The metacognitive education video was provided to participants during pregnancy to maximise the likelihood that participants would complete the intervention and remain in the study. However, the intervention might be more effective if targeted in the early postpartum, or that ‘refresher’ information could be delivered at this time, when participants (a) would more likely experience intrusions at the heightened level characteristic of the postpartum period, and (b) may better retain the information during a challenging time of significant psychosocial transition. In support of this, Abramowitz et al. (2007) found that the relationship between expecting parents’ thought – likelihood – other fusion beliefs and ppOCS was mediated by their

appraisals of infant-related intrusions, measured via the *III* (OCCWG, 2001), in the first few weeks following childbirth. This suggests that new parents' may be more readily able to apply the neutral metacognitive appraisals of, and strategies for managing, postpartum intrusions included in the metacognitive education video to their own intrusive thoughts when the information is delivered in the early postpartum period. Therefore, the timing and dosage of the metacognitive education intervention are another potential limitation of the present study worthy of further investigation.

The findings of the present study have key implications for the prevention of OCD during the postpartum period, as well as other life periods/events associated with an increased risk of OCD onset. Specifically, the study provides preliminary evidence that an ultra-brief, 7-minute primary prevention intervention – namely, psychoeducation about intrusive thoughts – can modify thought fusion beliefs, a psychological factor that has been shown to have a role in the development of ppOCS (Abramowitz et al., 2007; see also Chapter 4). Timpano et al. (2011) previously demonstrated that a cognitive-behavioural intervention that included a focus on modifying maladaptive beliefs and appraisals of intrusive thoughts was effective in preventing ppOCS. However, this intervention involved 3-hours of face-to-face clinician contact, in a group setting, over six weekly sessions, as well as participant pre-group mental health screening, and was therefore far more resource intensive than the metacognitive education intervention. The present study also differs from Timpano et al.'s (2011) study in that the metacognitive education was delivered as a primary/universal intervention to first-time expectant mothers, rather than as secondary/selective prevention for a sub-group of pregnant women identified as having elevated pre-existing OCD-related (i.e., obsessive) beliefs. Thus, the present study represents a valuable, and significant contribution to both the literature, as it provides the first, albeit tentative, evidence of the feasibility of universal-delivered prevention for OCD (Brakoulias et al., 2018).

There are several advantages of such an intervention over more targeted and intensive approaches, including its resource-efficiency and the ease with which it could be disseminated to new/expecting parents (e.g., online). The metacognitive education intervention may also be scalable, providing the opportunity to add additional psychoeducational or therapist-assisted components to the intervention, or may be used as a component of more comprehensive intervention packages, as indicated. Scalability of prevention interventions for perinatal OCD may be of particular importance in light of Timpano et al.'s (2011) previous findings that a more comprehensive, face-to-face and clinician delivered, prevention intervention had a significant effect on ppOCS, whereas an overall effect of the intervention on ppOCS was not detected in the current study. Furthermore, the intervention developed for and evaluated in this study may also be effective in reducing another barrier to prevention and early intervention for perinatal OCD, specifically, under-recognition of OCS among both clinicians and the general community (Brakoulias et al., 2018).

Nonetheless, there is a need for further research to evaluate the usefulness of metacognitively-focused psychoeducation about intrusive thoughts in preventing perinatal OCD. Given that OCD has an estimated prevalence of 2.43% in postpartum females (Russell et al., 2013), future studies should utilise a larger sample size to increase statistical power to detect prevention effects for OCS in non-clinical samples. Dimensional OCS measures, such as the *Dimensional Obsessive-Compulsive Scale* (DOCS; Abramowitz, Deacon, Olatunji, et al., 2010) may also be a more appropriate outcome measure of ppOCS, pending the development of perinatal-specific OCS measures. Research is also required to develop the intervention to address thought – likelihood fusion beliefs more effectively and determine the optimal timing and dosage of the intervention.

The present study evaluated the effectiveness of a novel prevention intervention – specifically, psychoeducation about postpartum intrusive thoughts – based on the MC model of OCD, in preventing ppOCS among first-time mothers. Results indicated that the intervention, delivered in pregnancy, was effective in reducing an established risk factor for ppOCS, thought fusion beliefs, through to postpartum follow-up (see Chapter 4 for further discussion). However, metacognitive education did not, have a significant effect on ppOCS, which may be accounted for by the study limitations. Overall, the study provides initial proof-of-concept for primary prevention of ppOCS and indicates that metacognitively-focused psychoeducation about intrusions warrants further investigation as a potential means of preventing perinatal OCD.



## Chapter 6                      **Health practitioners' recognition and management of postpartum obsessive-compulsive thoughts of infant harm (Study 3)**

*Note: the following chapter has been published in The Archives of Women's Mental Health. <https://doi.org/10.1007/s00737-020-01026-y>*

Only minor edits have been made to the present chapter (e.g., Australian spelling, formatting, referencing style) to ensure consistency within the present thesis. Appendix B contains the published article.

Contributions to the publication were as follows; Melissa Mulcahy (M.M.) was the lead author on the paper; M.M., Rebecca Anderson (R.A.), Clare Rees (C.R.), and Megan Galbally (M.G.) designed the research study and methodology; M.M. recruited participants and implemented the survey design and analysed the data with input from R.A.; M.M. drafted the manuscript; all authors reviewed, edited, and approved the final version of the article.

### **6.1 Introduction**

Obsessive-compulsive disorder (OCD) is a common mental health problem in the perinatal period, with an estimated prevalence of 2-9% among postpartum women (Fairbrother & Abramowitz, 2016). OCD is characterised by the experience of obsessions (e.g., intrusive thoughts, images, impulses) and/or compulsions (e.g., repetitive checking, cleaning, re-assurance-seeking). Obsessions typically cause marked distress with compulsions often utilised by the individual to reduce distress. A meta-analysis of 19 studies found perinatal women were around twice as likely to have OCD when compared with age, gender, and region matched controls (Russell et al., 2013). More than 12% of postpartum women experience clinically significant obsessive-compulsive symptoms (OCS) that, whilst potentially distressing, may not meet full criteria for OCD diagnosis (Chaudron & Nirodi, 2010; Miller et al., 2015). The high prevalence of obsessive-compulsive symptoms in the postpartum is

concerning given that OCD is a complex and severe disorder associated with significant psychological distress (APA, 2013). OCD can have detrimental effects on mothers' parenting style, confidence, and the self-perceived quality of their relationship with their child/ren and other family members (Challacombe et al., 2016; Challacombe & Salkovskis, 2011). The condition may be unremitting and follow a deteriorating course postpartum, without appropriate treatment (Miller et al., 2013). It is therefore imperative that women with postpartum OCD are detected and receive appropriate intervention.

Research has clearly established that intrusive thoughts concerning infant harm are experienced by the overwhelming majority, if not all, parents during the postpartum (Brok et al., 2017; Fairbrother & Woody, 2008). OCD can develop when individuals come to fear that the presence and persistence of such thoughts may mean they desire and/or may cause harm to their baby despite having no intention to do this (Abramowitz et al., 2007; Barrett et al., 2016). In this way, they become highly distressed by and preoccupied with the intrusions and may attempt to neutralise them (or the perceived danger associated with the thoughts) by engaging in physical or mental compulsions. Common postpartum compulsions include mental ritualising (e.g. suppressing, replacing, analysing, or distracting oneself from the thoughts), repeatedly disclosing the content of their intrusive thoughts to obtain reassurance from others, or avoiding being alone with the child or activities such as feeding, bathing, or dressing the baby (Abramowitz, Schwartz, Moore, et al., 2003).

Unfortunately, research indicates that both clinicians and individuals in the community often fail to recognise intrusions of deliberate harm as a potential symptom of OCD. For instance, Wahl and colleagues (Wahl et al., 2010) found that almost 70% of psychiatric outpatients who met criteria for OCD had not received this diagnosis, nor appropriate treatment for this condition, by their treating clinician. OCD symptom subtype may also play a role, with aggressive, violent or sexual obsessions being the

most frequently mischaracterised by health practitioners as indicating the presence of a disorder other than OCD (e.g., impulse control disorder, paraphilic disorder). Glazier et al. (2013) surveyed a large group of American Psychological Association members ( $N = 2550$ ) on their diagnostic impressions on a series of OCD case vignettes. Once again, results indicated lower OCD recognition rates for harm obsessions than either scrupulosity (i.e., religious) or contamination obsessions. Similar findings have been produced in studies of community (i.e. non-practitioner, non-clinical) samples (García-Soriano & Roncero, 2017; Simonds & Thorpe, 2003; Warman et al., 2015). There is some evidence from community samples that harming obsessions are commonly identified as symptoms of psychosis (specifically, schizophrenia; García-Soriano & Roncero, 2017; Warman et al., 2015), a misattribution which, if present among clinicians, may lead to inappropriate and potentially damaging intervention approaches (Challacombe & Wroe, 2013). Fortunately, the provision of brief corrective education on OCD to community lay persons has been found to be associated with correct identification of harm obsessions on re-presentation (Warman et al., 2015). It may be that education and training on OCD may also be effective in increasing detection rates for harm obsessions among health practitioners.

There is limited information available to guide perinatal health professionals who work with women affected by postpartum OCD (Sharma & Sommerdyk, 2015). Existing perinatal mental health practice guidelines subsume OCD under more general guidance for perinatal anxiety (Austin et al., 2017; NICE, 2005), and do not provide targeted evidence-based guidance on OCD (Lawrence et al., 2017). Clinician knowledge of obsessive-compulsive symptoms (OCS) is particularly relevant to perinatal care, as OCD predominantly presents postpartum as unrelenting, distressing thoughts of accidental or deliberate harm to one's baby (Abramowitz, Schwartz, Moore, et al., 2003; McGuinness et al., 2011).

Given the high rates of mortality associated with infant abuse (Jenny & Isaac, 2006), and mandatory child abuse reporting requirements in many jurisdictions (Mathews & Kenny, 2008), clinicians working with expecting and new parents are often concerned to ensure that potential cases of infant harm are not overlooked. However, practitioners' ability to distinguish thoughts that indicate actual risk to infant's safety from intrusions that are driven by the parent's anxious concerns about their baby's safety and wellbeing has significant implications for the provision of clinical care to individuals with postpartum OCD (Lawrence et al., 2017). Psychological treatments for OCD (NICE, 2005), including postpartum OCD (Challacombe et al., 2017), specifically, Cognitive Behavioural Therapy (CBT), typically involve exposing the mother to situations that evoke her obsessional fears (while preventing accompanying compulsions or avoidance) in order to decrease the perceived importance and dangerousness of the intrusive thoughts. Misidentification of postpartum OCD or OCS may lead clinicians to offer interventions that do not effectively target these underlying concerns, prolonging the parent's distress and delaying access to more appropriate treatment (Sharma & Sommerdyk, 2015; Storch, 2015). More concerning still, health professionals may respond in ways that inadvertently reinforce the parent's very worst fears about the meaning of their intrusive thoughts, including conducting inappropriately detailed risk assessments, unnecessary psychiatric admissions, referring the case to protective agencies, or removing the infant from the parent's care (Veale et al., 2009). Far from being helpful, these interventions are likely to exacerbate their OCS and distress, interfere with their ability to bond with and care for their baby, and to needlessly invoke feelings of shame and stigma in the parent that may deter future help-seeking behaviour (Gupta & Kiran, 2019).

Given the prevalence of OCD, and infant-related harm intrusions in particular, in the postpartum, and the potentially deleterious consequences of misdiagnosis, it is

important that frontline health professionals who work with new/expecting parents have an accurate understanding of postpartum OCS (Challacombe & Wroe, 2013). To our knowledge, however, no studies to date have explored practitioners' knowledge of postpartum obsessions, and how the accuracy of identification of OCS may influence clinician responses, including the selection of management strategies. The present study used an online survey based on a case vignette to assess frontline health professionals' recognition of OCS in a perinatal case and clinically-indicated management strategies. We hypothesised that (i) participants with greater experience and those with training in mental health would be more accurate than other health practitioners in recognizing OCS as the presenting problem. We also expected that (ii) participants who correctly identified OCS as the presenting problem would be more likely to select clinically indicated patient management strategies, and less likely to select contraindicated strategies, than those health practitioners who did not identify OCS.

## **6.2 Materials and Methods**

### **6.2.1 *Participants***

Ninety-four health practitioners were recruited to participate in a survey from relevant online social media pages and professional registers (e.g., email LISTSERVS), and by word-of-mouth. Participants were English-speaking; working as a nurse, midwife, medical practitioner, or allied health professional within Australia, New Zealand (NZ), the United Kingdom (UK), or the United States of America (USA); and currently or recently (i.e., within the last 12 months) worked with patients who were expecting or had recently given birth to a child in either a generalist or specialist setting. Practicum students from the above disciplines who were in their final year of study or training and who met the other study eligibility criteria were also included and comprised 18.1% of the final sample. The majority of participants had worked for 2 or

more years in clinical practice with new and/or expecting parents. Seventy-six participants (80.9% of the sample) completed all parts of the survey.

### **6.2.2            *Survey Materials***

The survey consisted of two components; a series of questions about a hypothetical case vignette, and, a series of questions about participants' relevant professional training and experience. The case vignette (see Table 12) was developed by the study authors – including Senior Clinical Psychologists with expertise in OCD (R.A. & C.R.), a Perinatal Consultant Psychiatrist (M.G.), and a clinical psychology doctoral student (M.M.) – to ensure the presenting symptoms were consistent with the *Diagnostic and Statistical Manual of Mental Disorders – 5<sup>th</sup> edition (DSM-5)* criteria for OCD (APA, 2013). It described an individual ('Sally') experiencing a common postpartum symptom of OCD – intrusive thoughts about intentional infant harm – and engaging in related compulsions (e.g., verbal repetition of a neutralising phrase, reassurance-seeking) and avoidance behaviours. Care was taken to include sufficient information in the vignette to allow for the exclusion of other presenting problems (e.g., post-traumatic stress, psychosis, depressive disorder).

**Table 12***Hypothetical Case Vignette.*

---

**Please read the following case scenario and consider how you might respond as a health professional to this kind of clinical presentation:**

You are seeing a client named Sally, who is 26 years old, for the first-time in your clinical practice. Sally gave birth to her first child, named Mia, 9 weeks ago. Sally's husband, James, sits in the waiting room with Mia while you meet.

You have a good rapport with Sally, and during your consultation, she discloses that she is experiencing repeated thoughts about harming Mia that are unwanted and very frightening to her. When she experiences these thoughts, she becomes very anxious and tries to think of other thoughts or do activities to distract herself. Most often, these thoughts are about her violently shaking Mia, or of strangling the baby or stabbing her with a kitchen knife, along with the phrase "I want to do it" running through her mind. She sees herself doing these things to Mia. When she has these thoughts, she repeats "No, I love Mia" out aloud to reassure herself that she is in control of herself. Sally is visibly distraught when discussing these thoughts of harming Mia with you. The thoughts became particularly intense and frequent after she read an online news article about a mother who attempted suicide and killed her newborn baby. Sally tells you that she is scared that her repeated thoughts about hurting Mia mean that she "is a bad mother" and that she, like the mother in the article, is "capable of doing something awful." She told James about the thoughts she was having and, since then, has repeatedly asked him whether he thinks she is a "danger to Mia."

Because of these fears, Sally has recently begun avoiding close contact with Mia or going into the kitchen/being around knives unless James is present. She also tells you that she is experiencing difficulty getting sufficient sleep. She awakens and checks Mia many times each night to make sure that the baby is okay and that she has not harmed Mia without remembering doing so. James has currently taken personal leave from work to help Sally look after Mia. Sally says that she feels guilty about "burdening" James with more responsibilities for looking after Mia.

You ask Sally if you can speak with James, and he joins you in the consultation room. When you ask him how he would describe Sally, he says that she is a "gentle" and "very responsible" person but that she has become "very stressed" since the birth. He also reports that Sally "seems mostly okay" to him and describes her as having good days and bad days. According to James, on her good days, Sally has less of these thoughts and feels more in control, and seems to enjoy being with Mia. She continues to take appropriate care of herself and Mia (when she is able to engage with Mia). She has no reported history of trauma and no apparent history of engaging in aggressive or violent behavior. James tells you that while he initially told Sally that she was "a great mother" in response to her repeated requests for reassurance, but he is feeling worried that it does not seem to be making much difference to her distress.

---

### **6.2.3 Procedure**

The University's Human Research Ethics Committee approved the study (No. HRE2017-0087). The survey was administered between July and November 2017, using the Qualtrics Online Survey Tool. After reading the hypothetical case vignette, participants were asked to respond to a series of questions about the case by selecting the response(s) they considered to be appropriate from a short list of potential options or answering in free-text. The survey included 1) questions eliciting participants' identification of the presenting symptoms (i.e., 'what would you consider to be the primary presenting issue in this case?'), where participants selected from common mental health symptom types, or could select "Unsure, I'd need more information" or "Other, please specify", and 2) their endorsement of various clinical management strategies (e.g., 'what step or step/s would you take next?'). Free text responses regarding symptom type and management strategies were coded and reclassified into either an existing or novel category by three authors and based on the consensus of at least two. Lastly, participants indicated their profession, qualifications and experience, including in working with new/expecting parents with mental health problems, and individuals with OCD.

## **6.3 Results**

### **6.3.1 Identification of OCS**

Almost 70% of the sample did not correctly identify OCS as the primary presenting issue. Among the incorrect responses, psychotic symptoms ( $N = 20$ ) was the most common response followed by depressive symptoms ( $N = 11$ ). The number and frequency of selection of each response is shown in Table 13.

**Table 13**

*Primary Presenting Issue Selected By Participants Based on the Case Vignette.*

<b>Was OCS correctly identified as the primary presenting issue?</b>	<b>%</b>
Yes ( <i>n</i> = 29)	30.9
No ( <i>n</i> = 65)	69.1
Psychotic symptoms	30.8
Depressive symptoms	16.9
Adjustment disorder symptoms	9.2
Generalised anxiety symptoms	7.7
Post-traumatic stress symptoms	3.1
Dissociative symptoms	3.1
Child protection issues	3.1
Panic symptoms	1.5
Impulse control problems	0
Munchausen's by proxy symptoms	0
Unsure, I'd need more information	24.6

### **6.3.2            *Formal training, experience, and professional development***

A series of chi-squared tests were conducted to determine whether there was a significant difference in OCS identification between various participant groups (see Table 14). Where the relevant cross-tabulations had cells with an expected participant count of less than 5, the Fisher-Freeman-Halton test was used instead. Association strength was measured using Cramer's V. Being a mental health practitioner, professional discipline, working in a specialist mental health setting, and formal training were strongly associated with an increased likelihood of accurately identifying OCS. Neither years in clinical practice nor years in perinatal practice were significantly associated with OCS identification.

**Table 14**

*Associations Between Training and Experience Variables and Correct OCS Identification of OCS.*

	Correctly identified OCS	Test value	Significance (2-tailed)	Cramer's V
<b>Mental Health Practitioner</b>				
Yes ( <i>n</i> = 44)	26			
No ( <i>n</i> = 32)	1	25.33	<0.001 <sup>#</sup>	0.58
<b>Discipline</b>				
Psychiatrists & psychologists ( <i>n</i> = 29)	18			
Other allied health practitioners ( <i>n</i> = 20)	8			
Nurses & midwives ( <i>n</i> = 29)	2	19.38	<0.001 <sup>#</sup>	0.5
<b>Practice Setting</b>				
Specialised mental health service ( <i>n</i> = 31)	18			
Non-mental health service ( <i>n</i> = 28)	4	12.06	0.001 <sup>#</sup>	0.45
<b>Years in Clinical Practice</b>				
0-1 years ( <i>n</i> = 18)	5			
2-8 years ( <i>n</i> = 27)	9			
9 or more years ( <i>n</i> = 31)	14	1.7	0.43	-
<b>Years in Perinatal Practice</b>				
0-1 years ( <i>n</i> = 16)	5			
2-8 years ( <i>n</i> = 39)	16			
9 or more years ( <i>n</i> = 21)	7	0.62	0.73	-
<b>Areas of formal training</b>				
Perinatal mental health in general ( <i>n</i> = 23)	2			
Perinatal anxiety in general ( <i>n</i> = 1)	0			
OCD in general ( <i>n</i> = 5)	2			
All of the above ( <i>n</i> = 33)	21			
None of the above ( <i>n</i> = 14)	3	20.41	<0.001* <sup>#</sup>	0.51
<b>Perinatal OCD training specifically</b>				
Yes ( <i>n</i> = 17)	12			
No or unsure ( <i>n</i> = 59)	16	10.72	0.001 <sup>#</sup>	0.38

\* Comparison conducted with Fisher-Freeman-Halton exact test.

<sup>#</sup> Significant test result at  $\alpha = 0.05$  (unless otherwise denoted).

### 6.3.3 *Selection of management strategies*

Management strategies were coded as either contraindicated, neither indicated nor contraindicated, or indicated. Participants could offer any number of strategies. The average number of strategies selected was 3.68 ( $SD = 2.01$ ). As shown in Table 15, 58% of the sample selected a management strategy that was contraindicated. Of these the most common strategy selected was to complete a violence risk assessment.

**Table 15***Management Strategies.*

	<i>n</i> (%) <sup>*</sup>
Likely contraindicated strategies	
Complete a violence risk assessment <sup>a</sup>	39 (44.3)
Arrange for the child to be cared for by another person <sup>a</sup>	6 (6.8)
Refer to child protective services <sup>a</sup>	8 (9.1)
Do not allow the mother to be alone with the child <sup>a</sup>	16 (18.2)
Other step/s – please specify <sup>b</sup>	-
Arrange an urgent assessment	3
Increase the frequency of case monitoring	2
Develop/implement a plan to ensure the infant's safety	3
Neither indicated nor contraindicated strategies	
Reassure the parent (i.e. on initial presentation) <sup>a</sup>	60 (68.2)
Consider inpatient admission <sup>a</sup>	27 (30.7)
Refer the client to someone else – please specify <sup>b</sup>	-
Perinatal support group	1
Other step/s – please specify <sup>b</sup>	-
Provide unspecified psychoeducation	2
Provide unspecified psychological intervention	5
Likely indicated strategies	
Refer to mental health practitioner <sup>a</sup>	72 (81.8%)
Prescribe medication <sup>a</sup>	22 (25%)
Refer the client to someone else – please specify <sup>b</sup>	-
Mental health service	3
Other step/s – please specify <sup>b</sup>	-
Complete a more comprehensive assessment	5
Provide psychoeducation specific to OCS	5

\* Number (*n*) and percentage (%) of participants who selected the listed strategy.

<sup>a</sup> Indicates pre-fixed response options provided to participants.

<sup>b</sup> Indicates survey response options where participants were permitted to enter a free text response.

Hotelling's  $T^2$  revealed a large significant main effect of OCS identification on selection of clinical management strategies,  $F(3, 83) = 6.72, p < 0.001$ , Pillai's  $\Lambda = 0.2$ ; partial  $\eta^2 = 0.2$ . Post-hoc comparisons using Welch's *t*-test showed that accurate OCS identification was associated with endorsement of fewer 'likely contraindicated' clinical

management strategies in response to the case vignette. Participants who did and did not correctly identify the OCS did not significantly differ in the number of ‘likely indicated’ and ‘neither indicated nor contraindicated’ strategies selected.

#### **6.4 Discussion**

To our knowledge, this is the first study to examine both perinatal health practitioners’ recognition and their clinical responses to postpartum OCS. Consistent with the previous literature which identified under-recognition of OCS and OCD (García-Soriano & Roncero, 2017; Wahl et al., 2010; Warman et al., 2015), we found that the vast majority of practitioners did not accurately recognise the symptoms presented – specifically, obsessions of deliberate infant harm – as being OCS. Our first hypothesis, that greater experience and training would be associated with more accurate recognition of OCS, was partially supported. Being a mental health practitioner, having experience working in a mental health setting, and having formal training in mental health was associated with accurate identification of infant harm-related OCS, whereas years of clinical experience (including perinatal experience) was not. This latter finding is likely attributable to the study’s inclusion of perinatal practitioners from a wide range of professional backgrounds (including both mental health and non-mental health practitioners) with varying levels of clinical experience.

Our second hypothesis, that accurate identification of infant harm-related OCS would be associated with selection of clinical management strategies, was also partially supported. Specifically, correct identification of infant harm-related OCS was associated with the selection of fewer contraindicated strategies. Contrary to our hypothesis, accurate infant harm-related OCS recognition was not associated with practitioner endorsement of clinically indicated strategies. This finding is nonetheless unsurprising in light of current evidence-based practice guidelines for the treatment of

perinatal mental health disorders. On the one hand, the clinically indicated strategies that were provided as response options (e.g., prescribe medication, refer to a mental health practitioner) in the survey were broad and appropriate for a range of disorders (NICE, 2014). On the other hand, however, the contraindicated strategies that we chose to include were purposely more focused on protective interventions that, whilst potentially aggravating in the context of OCS, would likely be indicated in the case of parental thoughts of infant-harm that are non-obsessional in nature, such as those that may occur in perinatal depression or psychosis (Sharma & Sommerdyk, 2015).

Our findings have important implications for clinical practice. It is clear that health professionals who work in the perinatal field would benefit from formal training in how OCS present in this population. In particular, such education should emphasise that intrusive thoughts of infant-related harm are common in the postpartum period, and guide practitioners as to how these can be distinguished from those that indicate potential risk of child abuse and the need for protective intervention to ensure the infant's safety (such as that described in Lawrence et al., 2017). Information regarding how these can escalate into OCD if they are misinterpreted by the parent and, importantly, how practitioner responses may influence parents' appraisals of intrusions in a way that may either alleviate or exacerbate OCS should also be provided (Challacombe & Wroe, 2013). The findings of this study clearly show that training in mental health is associated with more accurate recognition of infant harm-related OCS. This is consistent with findings of community studies of non-practitioners demonstrating that brief education on OCD led to more accurate recognition of OCS on re-presentation of a case describing deliberate harm obsessions (Warman et al., 2015).

Furthermore, we found evidence that accurate recognition of infant harm-related OCS was associated with selection of management strategies. Specifically, less contraindicated strategies were selected by health professionals who accurately

identified the symptoms presented in the case vignette as OCS. This is an important finding because the use of contraindicated strategies such as conducting detailed risk assessments can reinforce the parent's misinterpretation of their intrusions as important and dangerous (Veale et al., 2009).

It should be acknowledged that the use of a hypothetical case scenario meant that participants were not able to ask further questions or gather more information about the case as might occur in clinical practice. It is possible that some participants who answered 'I don't know' may have been able to accurately identify OCS if presented in a clinical setting. As the study included a single vignette (describing OCS only), it is not possible to determine whether the findings reflect practitioners' difficulty in identifying OCS specifically, or in recognising psychiatric symptoms (e.g., of perinatal anxiety disorders) more generally. Relatedly, our study included both students on final year placements and practitioners from disciplines that may traditionally have less of a formal role and/or less of an emphasis in clinical education and training on mental health diagnosis (e.g., nursing and midwifery, non-psychology allied health). We also note that our study conducted in English-speaking, developed countries may limit the generalisability of the results, as it is recognised that OCD symptom presentation, as well as professional training standards, may differ across countries and cultures (McGuinness et al., 2011). Nonetheless, our findings illustrate the importance of diagnostic clarity in relation to perinatal infant harm-related OCS. The distribution of health professionals who came from a wide range of backgrounds and levels of experience is a particular strength of the study, although a larger sample size would have allowed more nuanced comparisons across disciplines which, in turn, could impact professional training standards.

To conclude, this study highlights the importance of improving the accurate recognition of infant harm-related OCS in the postpartum. A logical extension of the current study would be to explore whether this finding is representative of a broader issue of recognising perinatal OCS by including multiple vignettes reflecting additional OCD symptom subtypes. This would provide guidance on the need for specific versus broader training for health practitioners in the assessment of perinatal OCS. If indicated, such training should be interdisciplinary in focus and include non-mental health practitioners (e.g., general medical practitioners, obstetricians, midwives, and maternal and child health nurses) who may be the first point-of-contact for many individuals with postpartum OCD.

## **Chapter 7**                      **Are health practitioners' metacognitive beliefs related to their responses to postpartum obsessions of infant harm? (Study 4)**

### **7.1**                      **Introduction**

A significant issue affecting the provision of appropriate care for women with postpartum OCD is the misidentification of symptoms (Brandes et al., 2004; Challacombe & Wroe, 2013). Additionally, the postpartum period is more commonly associated with aggressive or violent obsessions (e.g., concerns about deliberate infant harm; Abramowitz et al., 2003; Fairbrother & Abramowitz, 2016; McGuinness et al., 2011; Uguz et al., 2007; Uguz & Ayhan, 2011). Harm-focused OCD has been shown to be more frequently mischaracterised when compared with other manifestations of OCD such as contamination and checking concerns in a large survey of mental health practitioners (Glazier et al., 2013). Mulcahy et al. (2020) surveyed perinatal health practitioners from a range of disciplines using a hypothetical case vignette describing a clinical presentation of postpartum infant-related harm obsessions and found that almost 70% of practitioners did not recognise the intrusive thoughts of infant harm as potentially being OCS (see the previous chapter). Although this was the first published study to investigate health practitioner identification of perinatal OCD, findings were consistent with the previous literature on OCD symptom subtype recognition (García-Soriano & Roncero, 2017; Glazier et al., 2013; Warman et al., 2015).

Accurate recognition of postpartum OCS (ppOCS) has important implications for delivering treatment to perinatal individuals experiencing OCD. There is no evidence that individuals with OCD act upon their intrusive or obsessional thoughts (Gupta & Kiran, 2019; Hudak & Wisner, 2012; Lawrence et al., 2017; Veale et al., 2009); instead, these symptoms may reflect hyperactivation of the neurobiological and psychosocial maternal caregiving systems, characterised by an anxious preoccupation

with both real and imagined threats to infant safety (Feygin et al., 2006; Leckman et al., 1999; Leckman & Mayes, 1999). Harm-intrusions must be accurately distinguished from violent/aggressive ideation or impulses associated with an actual risk of direct (i.e., primary) infant harm and may necessitate early and/or immediate intervention to prevent child maltreatment (Lawrence et al., 2017). The importance of assessing secondary risks of harm that may arise in cases where the ppOCS leads to extensive avoidance of the infant or interference in caregiving (e.g., refraining from holding, changing or bathing the baby to a severe degree) must also be acknowledged (Veale et al., 2009). However, misidentification of ppOCS may lead not only to delays in accessing effective, evidence-based intervention, but also to potentially harmful clinical interventions including unnecessary child safeguarding measures (e.g., child protection referrals, restricting the mother's access to the child, inappropriately lengthy risk assessments) that are based on an inaccurate assessment of primary risk (Challacombe & Wroe, 2013). These interventions are likely to markedly increase the mother's distress and exacerbate the OCS, by reinforcing unhelpful metacognitive beliefs and appraisals of the intrusive thoughts. They may also prevent disclosure of symptoms to healthcare providers and engagement in treatment in the future.

Understanding of practitioner factors that may influence recognition of and responses to OCS is severely limited. Mulcahy et al. (2020) reported that practitioners whose primary area of practice was mental health, with experience working in a specialist mental health setting, and/or who had received formal training in perinatal OCD were more likely to identify ppOCS accurately. The number of years in clinical practice or perinatal practice was not associated with OCS recognition. Relatedly, mental health practitioners who reported that their practice was orientated in Cognitive Behaviour Therapy (CBT) identified OCS (including harming obsessions) more

accurately in another study, although none of the included case vignettes featured perinatal symptoms (Glazier et al., 2013).

Practitioner thinking, including their beliefs and appraisals of obsessional thoughts (i.e., metacognitive beliefs and appraisals), may also play a role. Metacognitive (MC) beliefs include the belief that one's thoughts may influence external events and/or one's actions, or that having an unacceptable thought is morally equivalent to engaging in an immoral deed; these have been termed 'thought fusion' beliefs (Wells, 2009). OCD-related metacognitions also include beliefs about the importance of and need to monitor and control one's thoughts ('thought importance/control beliefs'; Obsessive Compulsive Cognitions Working Group, 'OCCWG', 2001). Within cognitive-behavioural conceptualisations of OCD, thought fusion and thought importance/control beliefs purportedly lead to unhelpful MC appraisals of intrusive thoughts (i.e., as immoral, dangerous, or indicating the threat of harm), resulting in heightened psychological distress and attempts to reduce or neutralise the thoughts by engaging in physical or mental compulsions (OCCWG, 2001; Rachman, 1998; Taylor et al., 2007; Wells, 2009).

While the majority of parents report experiencing intrusions of infant-related harm in the postpartum (Abramowitz, Schwartz, Moore, et al., 2003), prospective studies of new/expecting parents indicate that maladaptive metacognitive beliefs about the meaning and significance of intrusive thoughts mediate the relationship between intrusive thoughts and the distress and functional impairment that accompanies these thoughts in the context of ppOCS (Abramowitz et al., 2006, 2007; Fairbrother et al., 2018). For instance, a mother who believes that the mere presence of such violent thoughts means that she may actually harm her baby may become highly distressed by the thoughts and engage in ritualised attempts to avoid, suppress, or eliminate the thoughts. Avoidance of the infant and caregiving behaviours may also occur. These

behaviours may decrease short-term distress but are likely to paradoxically increase the frequency of, and preoccupation with the thoughts, thereby increasing the OCS (Larsen et al., 2006; Purdon, 2004).

It is possible that health practitioners own metacognitive beliefs and appraisals may also influence their responses to individuals presenting with ppOCS of infant harm in much the same way. Past research indicates that most individuals in the community experience unwanted intrusive thoughts that are similar in theme to those reported by individuals with OCD (Moulding et al., 2014; Radomsky et al., 2014). Practitioners who believe that it is important to monitor and control their thoughts in to prevent feared events may also be more likely to misappraise the significance of intrusive thoughts reported by others. Consequently, they may be more likely to assess mothers reporting recurrent intrusive thoughts of deliberate infant harm as being at increased risk of perpetrating infant harming or abuse, misidentify the OCS, and to utilise contraindicated interventions (e.g., referral to child protective services) to minimise this perceived risk.

There is some evidence from recent research in the general community that beliefs about and appraisals of intrusive, obsessional thoughts may influence individuals' responses to OCS. Levine and Warman (2016) found that undergraduate students rated aggressive obsessions as more significant – that is, in a more negative way – than sexual or blasphemous obsessions when they were asked to imagine either themselves experiencing, or a close friend disclosing, these obsessions. Importantly, thought fusion beliefs, measured by total score on the *Thought Action Fusion Scale* (TAF; Shafran et al., 1996) were related to more negative appraisals of aggressive, sexual, and blasphemous obsessions. Both higher *TAF* total scores and higher significance ratings were significantly associated with endorsing the use of more unhelpful strategies to manage the intrusive thoughts (e.g., 'tell yourself to stop thinking about it'). Higher significance was also associated with endorsement of fewer helpful

strategies for managing intrusive thoughts (e.g., ‘accept that the thought is just a thought’) for violent and sexual, but not blasphemous obsessions.

Another case vignette study asked undergraduate students to review a series of case vignettes describing individuals with violent, paedophilic, checking, or contamination obsessions, and to evaluate the validity of the individuals’ obsessive fear (e.g., that they are in actuality violent, a paedophile, or contaminated; Warman, 2020). Participants were able to request clarifying information about each case before reaching this decision and completed measures of desired social distance for each vignette. Results indicated that participants requested significantly less case information about, and desired greater social distance from, individuals experiencing violent or paedophilic obsessions compared with checking or contamination obsessions. Participants also evaluated individuals with violent or paedophilic obsessions more negatively (i.e., as violent or as a paedophile, respectively). These two studies suggest that harm-related obsessions may be appraised more negatively than other OCS subtypes, and individuals’ attitudes toward, and metacognitive beliefs about intrusive thoughts, may negatively influence their recognition of and responses to harm-related OCS disclosed by others. Given the potentially deleterious consequences associated with the misidentification and inappropriate management of ppOCS, there is a need for research exploring whether health practitioners’ responses to obsessions of infant harm may be similarly related to their metacognitive beliefs about and appraisals of intrusions.

The present study aimed to further investigate factors related to perinatal health practitioners’ recognition of and responses to ppOCS; specifically, practitioners’ metacognitive (MC) beliefs about intrusive thoughts. To this end, the present study used an online survey using a hypothetical vignette depicting a clinical presentation of postpartum obsessions of deliberate infant harm (Mulcahy et al., 2020). It was hypothesised that elevated MC beliefs among practitioners would:

- (i) be associated with misidentification of ppOCS, and
- (ii) be positively associated with unhelpful appraisals of, and negatively associated with neutral appraisals of, ppOCS.
- (iii) be positively associated with practitioners' self-reported anxiety, and negatively associated with self-reported anticipated confidence, in managing ppOCS.
- (iv) positively associated with practitioners' endorsement of contraindicated, and inversely associated with selection of indicated, clinical management strategies for ppOCS.

## **7.2 Method**

### **7.2.1 *Participants***

At a per-test alpha-level of .05, a priori power calculations indicated that a sample size of 57 participants would provide the multiple regression analyses (used to test Hypotheses 2 and 3) with an 80% likelihood of detecting 'moderate' effect sizes. For the same per-test alpha-level and the same level of power, the binary logistic regression analyses (used to test Hypotheses 1 and 4) would require a sample size of 50. This sample size estimation was based on a formula developed by Peduzzi et al. (1996) and an expectation that approximately 40% of participants would not correctly identify ppOCS and thus endorse likely indicated/not endorse likely contraindicated strategies for managing ppOCS. This estimation is consistent with prior studies reporting OCS misidentification rates of 30-50% (Glazier et al., 2013; Wahl et al., 2010) which predicts clinical management strategy selection (Mulcahy et al., 2020). The study included 78 health practitioners (92% of whom reached the end of the survey) from a variety of professional disciplines (including nursing, midwifery, medicine, psychology, social work, and counselling) who were recruited concurrently with another study (Mulcahy et al., 2020) to participate in a study on "professional knowledge and practice

in perinatal mental health”. Participants were English-speaking, currently or recently (i.e., within the last 12 months) engaged in clinical practice in any setting with expecting and/or postpartum parents (i.e., perinatal individuals) in Australia, New Zealand, the United Kingdom, or the United States of America, and were recruited via social media pages (e.g., Facebook Professional Groups) and LISTSERVs of relevant professional associations. The study also included nursing, medical, and allied health practicum students in the final year of their professional degree who met the other survey eligibility criteria. Students made up a minority (less than 20%) of the overall study sample; most participants reported two or more years of clinical experience working with perinatal individuals. On average, participants reported that they had seen more than 13 perinatal individuals with OCD in their clinical practice. Participant characteristics are summarised in Table 16.

**Table 16***Participant Characteristics.*

	<i>N (%)</i>
Professional grouping	
Psychiatry & psychology	29 (37.18%)
Nursing & midwifery	29 (37.18%)
Other allied health	20 (5.64%)
Primary practice setting ('practice setting')	
Specialist mental health	31 (39.74%)
Non-specialist mental health	28 (35.90%)
Not specified	19 (24.36%)
Years in clinical practice	
0 to 1 years	18 (23.08%)
2 to 8 years	27 (34.62%)
9 or more years	31 (39.74%)
Not specified	2 (2.56%)
Years in perinatal practice	
0 to 1 years	16 (20.51%)
2 to 8 years	39 (50.00%)
9 or more years	21 (26.92%)
Not specified	2 (2.56%)
Received perinatal OCD ('pnOCD') training	
Yes	17 (21.79%)
No or unsure	59 (75.64%)
Not specified	2 (2.56%)

**7.2.2 Materials**

*Case vignette and survey materials.* The survey included a series of questions based on a hypothetical case vignette of a first-time mother presenting with postpartum OCS, including obsessions of violently harming her baby and related compulsions (mental rituals and avoidance) that were consistent with the *Diagnostic and Statistical Manual of Mental Disorders – Fifth Edition (DSM-5; APA, 2013)* criteria for OCD. Information allowing for differential diagnosis from other relevant disorders (e.g., psychosis, depression, post-traumatic stress disorder) according to *DSM-5* criteria was

also included. This vignette, and further information about its development, was included in Mulcahy et al. (2020), reproduced in Chapter 6.

The survey included a list of statements representing unhelpful and neutral metacognitive appraisals of the infant harming obsessions described in the case vignette (see Table 18). Metacognitive appraisals of idiographic intrusions are believed to arise from underlying metacognitive beliefs about the importance and power of one's own thoughts (i.e., including thought importance/control and thought fusion beliefs; Abramowitz et al., 2007; Wells, 2009). Unhelpful metacognitive appraisals of the harming obsessions, therefore, reflected the belief that experiencing such intrusive thoughts indicate that one is 'mad, bad, or dangerous' (Rachman, 1998; Whittal et al., 2005). Neutral appraisals, on the other hand, included recognition of the intrusive thoughts as normatively occurring postpartum phenomena, involuntary in nature and inconsistent with the parent's actions and true desires, and amenable to change following treatment, as per a cognitive behavioural account of OCD (Bream et al., 2017; Taylor et al., 2007). An expert panel comprised of a Consultant Perinatal Psychiatrist (M.G.), Clinical Psychologists whose primary area of clinical and research expertise includes OCD (R.A. & C.R.), and a Clinical Psychology student conducting doctoral research on perinatal OCD (M.M.), developed the statements. Each statement was rated on a scale of 1 ('strongly agree') to 5 ('strongly disagree'). Participants also rated their level of anticipated anxiety and confidence in responding to the hypothetical case scenario on a scale of 1 ('very anxious' or 'very confident') to 5 ('not at all anxious' or 'completely confident').

*Measures.* The survey included two measures of OCD-related metacognitive beliefs toward intrusive thoughts; the *Thought Fusion Instrument (TFI)* (Gwilliam et al., 2004) and the 'Importance and Control of Thoughts' subscale of the *Obsessive Beliefs Questionnaire – Short Form (OBQ-IC)* (Moulding et al., 2011). The *TFI* measures

individuals' 'thought fusion' beliefs about the power of thoughts to influence outcomes (including events, actions, and to contaminate or otherwise change the nature of objects). This includes the belief that intrusive thoughts increase the likelihood of engaging in unwanted actions, indicated by the items 'If I have thoughts about harming someone it means I will act on them' and 'When I have bad thoughts it must mean I want to have them'. Participants rated each of the 14-items that form the *TFI* on a scale of 0 ('I do not believe this at all') to 100 ('I am completely convinced this is true'), with a higher score representing greater unhelpful thought fusion beliefs. The *TFI* has been found to reliably measure thought fusion beliefs when completed by a community and an OCD clinical sample (Gwilliam et al., 2004). Cronbach's alpha for the *TFI* in the present sample fell in the 'good' range, with  $\alpha = 0.89$ .

The *OBQ-IC* included 5-items that evaluated participants' beliefs about the importance of, and need to control, intrusive thoughts (e.g., 'Having an intrusive thought means I am out of control'). Response options for items ranged from 1 ('disagree very much') to 7 ('agree very much'), yielding a total score indicating the strength of participants' thought importance/control beliefs. Past research indicates that the *OBQ-IC* has strong reliability ( $\alpha = 0.86$ ) when administered to a large multi-national non-clinical sample (Moulding et al., 2011), and reliability in the current study was acceptable ( $\alpha = 0.74$ ).

### **7.2.3 Procedure**

The study was approved by the Curtin University Human Research Ethics Committee (HRE2017-0087). Participants provided informed written consent. Data was collected using the Qualtrics online survey platform from July to November 2017. Participants read the hypothetical case vignette and responded to questions assessing their identification of the OCS and endorsement of clinical management strategies for

OCD. Strategies were coded by three of the authors as either indicated (i.e., likely to be helpful in the management of ppOCS) or contraindicated (i.e., likely to exacerbate ppOCS), following review and consensus of all three authors (see Table 20).

Contraindicated strategies included those that represented an escalation in risk management or child safeguarding procedures (e.g., referral to child protective services). After this, participants completed the *TFI*, *OBQ-IC*, and answered questions about their relevant professional training and experience.

## 7.3 Results

### 7.3.1 Analyses

Data analysis was performed using the General linear mixed modelling (GLMM) procedure in the *Statistical Package for the Social Sciences (SPSS) version 26*. In testing each hypothesis, we controlled for variables previously shown to be related to practitioners' identification of, and endorsement of management strategies for, ppOCS (Mulcahy et al., 2020). Specifically, these covariates included primary practice setting (specialist mental health setting; non-specialist mental health setting), having received formal training in perinatal OCD (yes; no or unsure). In line with previous findings that being a mental health practitioner was associated with accurate recognition of ppOCS (Mulcahy et al., 2020), participants were grouped in the current study based on whether or not training in their respective discipline traditionally includes the provision of differential psychiatric diagnosis (i.e., psychiatrists, psychologists) or a less formal role in psychiatric diagnosis (i.e., nurses and midwives, other allied health practitioners). Professional grouping (diagnostically trained; non-diagnostically trained) was also therefore included as a binary covariate in the analyses.

### 7.3.2 Hypothesis 1: Metacognitive beliefs and ppOCS misidentification

GLMM binary logistic regression was used to investigate whether higher OCD-related MC beliefs predicted misidentification of ppOCS (i.e., selection of a response other than ‘obsessive-compulsive symptoms’ as the primary presenting issue) in the case vignette. Neither *TFI* ( $M = 293.11$ ,  $SD = 125.85$ ,  $b = -0.001$ ,  $p = 0.078$ ) nor *OBQ-IC* ( $M = 8.67$ ,  $SD = 4.20$ ,  $b = 0.09$ ,  $p = 0.426$ ) scores were significantly associated with ppOCS misidentification after controlling for professional grouping, primary practice setting, and perinatal OCD training. As reported in the previous chapter, having received pnOCD training was associated with lower rates of ppOCS misidentification. Professional grouping (i.e., participant discipline recoded into a dichotomous variable reflecting diagnostic training) once again accounted for a substantial proportion of the variance in OCS misidentification. Statistics are presented in Table 17.

**Table 17**

*Mean and Standard Deviation (SD) of TFI and OBQ-IC Scores by ppOCS Identification, and Results of the GLMM Binary Logistic Regression for ppOCS Identification.*

	<i>M (SD)</i>			
	TFI	OBQ-IC		
Identified ppOCS				
No ( $N = 50$ )	330.85 (133.73)	9.52 (4.60)		
Yes ( $N = 28$ )	219.50 (64.99)	7.14 (2.86)		
	Regression coefficient ( $b$ )	95% CI	Log odds	$p$ -value
Primary Predictors				
TFI	-0.01	-0.01, 0.01	0.99	0.08
OBQ-IC	0.09	-0.08, 0.26	1.09	0.43
Covariates				
Practice setting	0.51	-0.95, 1.97	1.67	0.49
Professional grouping	1.91	-0.01, 3.82	6.74	0.05
pnOCD training	2.60*	0.44, 4.76	13.46	0.02

\* Significant at an alpha level of  $p < 0.05$ .

### 7.3.3 *Hypothesis 2: MC beliefs and appraisals of ppOCS*

The hypothesis that higher MC beliefs would predict greater unhelpful, and lower neutral, MC appraisals of ppOCS was evaluated via a GLMM regression analysis using robust statistics. *TFI* and *OBQ-IC* scores did not contribute significant variance to participants' level of unhelpful MC appraisals of ppOCS, including that '[i]t is wrong for a parent to have thoughts like these about harming their baby' ('wrong'), '[t]he parent should stop having these thoughts about their baby' ('stop'), and that '[h]aving these thoughts means the parent wants to harm their baby' ('desire'), after accounting for the covariates of professional grouping, practice setting, and pnOCD training (see Table 18).

**Table 18**

*Results of the GLMM Regression Using Robust Statistics for Unhelpful and Neutral MC Appraisals (N=58)<sup>#</sup>*

MC Appraisal	Variables	Regression coefficient ( <i>b</i> )	95% Confidence Interval	Part-correlation ( <i>sr</i> )	<i>p</i> -value
Unhelpful appraisals					
'It's wrong for a parent to have thoughts like these about harming their baby' ('wrong') ( <i>M</i> = 3.53, <i>SD</i> = 1.14)	Practice setting	-0.16	-0.86, 0.54	-.05	0.64
	Professional grouping	-0.17	-0.89, 0.56	-.05	0.65
	pnOCD training	-0.58	-1.39, 0.22	-0.19	0.15
	TFI	<0.01	-0.01, 0.01	-.04	0.76
	OBQ-IC	-0.07	-0.17, 0.03	-.19	0.15
'The parent should stop having thoughts like these about their baby' ('stop') ( <i>M</i> = 3.16, <i>SD</i> = 1.09)	Practice setting	-0.18	-0.84, 0.48	-0.62	0.58
	Professional grouping	-0.52	-1.25, 0.23	-0.18	0.16
	pnOCD training	-0.29	-1.12, 0.54	-0.98	0.49
	TFI	<0.01	-0.01, 0.01	-.03	0.82
	OBQ-IC	-0.02	-0.12, 0.08	-.05	0.72
'Having these thoughts means the parent wants to harm their baby' ('desire') ( <i>M</i> = 4.27, <i>SD</i> = 0.65)	Practice setting	-0.13	-0.50, 0.50	-0.81	0.49
	Professional grouping	0.11	-0.21, 0.24	-.07	0.48
	pnOCD training	-0.50*	-0.80, 0.21	-.31	0.01
	TFI	-0.01	-0.01, 0.01	-.09	0.54
	OBQ-IC	0.02	-0.04, 0.08	.12	0.44
Neutral appraisals					
'Thoughts like these are normal' ('normal') ( <i>M</i> = 3.41, <i>SD</i> = 1.07)	Practice setting	0.54	0.01, 0.80	.19	0.05
	Professional grouping	0.11	0.59, 0.59	.04	0.76
	pnOCD training	-0.06	-0.77, 0.65	-.02	0.86
	TFI	-0.01	-0.01, 0.01	-.07	0.56
	OBQ-IC	0.10*	0.02, 0.17	.26	0.02
'Thoughts like these are often meaningless' ('meaningless') ( <i>M</i> = 3.53, <i>SD</i> = 1.13)	Practice setting	0.14	-0.70, 0.98	.05	0.73
	Professional grouping	0.85*	0.03, 1.67	.27	0.04
	pnOCD training	-0.14	-0.96, 0.68	-.04	0.74
	TFI	-0.01	-0.01, 0.01	-.17	0.12
	OBQ-IC	0.07	-0.01, 0.15	.18	0.08

MC Appraisal	Variables	Regression coefficient ( <i>b</i> )	95% Confidence Interval	Part-correlation ( <i>sr</i> )	<i>p</i> -value
Neutral appraisals					
'Thoughts like these are common in the postnatal period' ('common') ( <i>M</i> = 2.73, <i>SD</i> = 1.04)	Practice setting	0.61	-0.02, 1.23	.22	0.06
	Professional grouping	-0.07	-0.61, 0.04	-.02	0.81
	pnOCD training	0.37	-0.28, 1.03	0.13	0.26
	TFI	<0.01	-0.01, 0.01	-.04	0.74
	OBQ-IC	0.07	-0.01, 0.15	.19	0.11
'Thoughts like these can be reduced with treatment' ('treatable') ( <i>M</i> = 1.43, <i>SD</i> = 0.55)	Practice setting	0.23	-0.10, 0.56	.16	0.17
	Professional grouping	-0.28	-0.72, 0.03	-.16	0.08
	pnOCD training	0.06	-0.33, 0.46	.04	0.75
	TFI	<0.01	-0.01, 0.01	-.03	0.80
	OBQ-IC	0.01	-0.03, 0.05	.05	0.62

# Participants included in the analysis were those who completed all the relevant parts of the survey.

\* Significant at a Bonferroni-adjusted alpha level of  $p < 0.05$ .

After controlling for these two primary predictors (*TFI* and *OBQ-IC*) and professional grouping and practice setting, having pnOCD training explained a significant 10.96% of the variance in participant's endorsement of 'desire' appraisals of ppOCS. Clinicians who had received training in pnOCD were more likely to disagree with the statement that "[h]aving these thoughts means the parent wants to harm their baby" compared to clinicians who have not/were unsure if they have had pnOCD training. None of the included covariates contributed significant variance in 'wrong' or 'stop' appraisals of ppOCS, and neither professional grouping nor practice setting contributed to 'desire' appraisals of ppOCS.

MC beliefs did not significantly predict the level of neutral MC appraisals of ppOCS with one exception – the *OBQ-IC* explained a significant 7% of the variance in the strength of appraisals of ppOCS as 'normal' ( $sr^2 = 0.07$ ,  $p = 0.17$ ), after controlling for *TFI*, professional grouping, practice setting, and pnOCD training (see Table 18).

Clinicians with higher *OBQ-IC* scores were more likely to disagree with the statement ‘[t]houghts like these are normal’ compared to clinicians with lower *OBQ-IC* scores. Participants from disciplines that emphasise formal training in differential diagnosis were more likely to agree that ‘[t]houghts like these are often meaningless’ when compared with participants from less diagnostically-orientated disciplines ( $s^2 = 0.073$ ,  $p = 0.04$ ); with professional grouping contributing (7.29%) to the variance in the strength of agreement with this statement. None of the variables significantly predicted clinician MC appraisals of ppOCS as ‘common’ (“Thoughts like these are common in the postnatal period”) or ‘treatable’ (“Thoughts like these can be reduced with treatment). Neither practice setting nor pnOCD training significantly predicted agreement with the neutral MC appraisals of ppOCS.

#### **7.3.4 Hypothesis 3: MC beliefs and scenario anxiety and confidence**

Two GLMM regression analyses were conducted using robust statistics to investigate the hypotheses that higher MC beliefs would be associated with greater self-reported anticipated anxiety, and lower confidence, in managing ppOCS as described in the hypothetical case scenario. Neither *TFI* nor *OBQ-IC* scores, nor any of the covariates (professional grouping, practice setting, pnOCD training), were significantly associated with participants’ anticipated anxiety or confidence. The results of these analyses are summarised in Table 19.

**Table 19**

*Results of the GLMM Regression Using Robust Statistics for Anticipated Anxiety and Confidence (N=58)<sup>#</sup>*

Outcome variable	Predictor variables	Regression coefficient (b)	95% Confidence Interval	Part-correlation (sr)	p-value
Scenario anxiety (M = 2.54, SD = 1.10)	Practice setting	-0.24	-0.93, 0.45	-.08	0.49
	Professional grouping	-0.41	-1.12, 0.30	-.14	0.25
	pnOCD training	-0.72	-1.52, 0.08	-.25	0.08
	TFI	<0.01	-0.01, 0.01	.04	0.67
	OBQ-IC	-0.05	-0.13, 0.03	-.14	0.19
Scenario Confidence (M = 1.93, SD = 0.88)	Practice setting	-0.03	-0.53, 0.47	-0.02	0.91
	Professional grouping	0.17	-0.32, 0.65	.09	0.50
	pnOCD training	0.38	-0.15, 0.91	0.21	0.15
	TFI	<0.01	-0.01, 0.01	0.81	0.62
	OBQ-IC	-0.01	-0.06, 0.05	-0.21	0.87

<sup>#</sup> Participants included in the analysis were those who completed all the relevant parts of the survey.

\* Significant at a Bonferroni-adjusted alpha level of  $p < 0.05$ .

### 7.3.5 Hypothesis 4: MC beliefs and management strategies for ppOCS

The relationship between MC beliefs and clinician endorsement of likely contraindicated and likely indicated strategies for managing ppOCS was investigated using GLMM binary logistic regression. Results are presented in Table 20. After controlling for *TFI* scores, professional grouping, practice setting, and pnOCD training, higher *OBQ-IC* scores significantly predicted endorsement of ‘refer to child protective services’ ( $p = 0.001$ ) and ‘supervise mother with child’ ( $p = 0.001$ ). Clinicians with higher *OBQ-IC* scores were 1.25 times and 1.32 times more likely to endorse these likely contraindicated strategies for managing ppOCS. Practice setting was associated with the endorsement of ‘conduct a comprehensive assessment of violence risk’ (‘risk assessment’;  $p = 0.04$ ), ‘refer to child protective services’ (‘CP referral’;  $p < 0.01$ ), and

‘do not allow the mother to be alone with the child’ (‘supervise mother’;  $p = 0.001$ ), with clinicians who worked primarily in a specialist mental health service being less likely to select these strategies than clinicians in non-mental health specialist settings (see Table 20). pnOCD training significantly predicted responding ‘no’ to the item ‘risk’. Clinicians who had received training in pnOCD were 5.31 times more likely to not select this strategy compared to clinicians who did not report such training. None of the predictor variables or covariates significantly predicted endorsement of ‘arrange for the child to be cared for by someone else’ (‘arrange childcare’) as a strategy for managing ppOCS.

**Table 20**

*Results of the GLMM Binary Logistic Regression for Likely Contraindicated and Likely Indicated Strategies (N = 58)<sup>#</sup>*

Clinical management strategy	Variables	Regression coefficient (b)	95% Confidence Interval	Log odds	p-value
Likely contraindicated 'Complete a violence risk assessment' (‘risk assessment’)	Practice setting	-1.68*	-3.26, -0.09	0.19	0.04
	Professional grouping	0.15	-1.49, 1.79	1.16	0.86
	pnOCD training	1.67*	-1.49, 1.79	5.31	0.04
	TFI	0.01	-0.01, 0.01	1.01	0.09
	OBQ-IC	<0.01	-0.16, 0.16	1.01	0.98
'Arrange for the child to be cared for by someone else' (‘arrange childcare’)	Practice setting	-0.12	-2.78, 2.54	0.89	0.93
	Professional grouping	-0.16	-2.21, 1.88	0.85	0.87
	pnOCD training	-0.38	-2.51, 1.76	0.69	0.72
	TFI	<0.01	-0.01, 0.01	1.01	0.44
	OBQ-IC	0.17	-0.04, 0.38	1.19	0.10
'Refer to child protective services' (‘CP referral’)	Practice setting	1.74*	0.55, 2.93	5.70	0.01
	Professional grouping	0.09	-0.95, 1.14	1.10	0.86
	pnOCD training	0.18	-0.92, 1.28	1.20	0.74
	TFI	-0.01	-0.01, 0.01	1.00	0.82
	OBQ-IC	0.22*	0.05, 0.39	1.25	0.01
'Do not allow the mother to be alone with the child' (‘arrange childcare’)	Practice setting	2.18*	0.84, 3.52	8.82	<0.01
	Professional grouping	-0.56	-2.22, 1.12	0.57	0.50
	pnOCD training	-0.57	-2.93, 1.80	0.57	0.63
	TFI	<0.01	-0.01, 0.01	1.00	0.94
	OBQ-IC	0.27*	0.12, 0.43	1.32	<0.01
Likely indicated					
'Refer to a mental health practitioner' (‘MHP referral’)	Practice setting	0.54	-1.20, 2.28	1.71	0.54
	Professional grouping	2.65*	1.19, 4.12	14.17	<0.01
	pnOCD training	-2.55*	-3.52, -1.58	0.08	<0.01
	TFI	<0.01	-0.01, 0.01	1.00	0.10
	OBQ-IC	-0.04	-0.23, 0.14	0.96	0.65

Clinical management strategy	Variables	Regression coefficient (b)	95% Confidence Interval	Log odds	p-value
'Prescribe medication' ('medicate')	Practice setting	-0.99	0.07, 0.56	0.37	0.30
	Professional grouping	-0.14	-1.84, 1.56	0.87	0.87
	pnOCD training	-2.44*	-4.24, -0.64	0.09	0.01
	TFI	-0.01	-0.01, 0.01	0.10	0.42
	OBQ-IC	0.31*	0.07, 0.56	1.37	0.01

# Participants included in the analysis were those who completed all relevant parts of the survey.

\*Significant at a Bonferroni-adjusted alpha level of  $p < 0.05$ .

pnOCD training was associated with the endorsement of 'refer to a mental health practitioner' ('MHP referral') and 'prescribe medication' ('medicate') as strategies for managing ppOCS after controlling for the predictor variables (*TFI* and *OBQ-IC* scores) and the other covariates (professional grouping, primary practice setting; see Table 20). Specifically, clinicians who reported they had received formal training in pnOCD were 12.82 times, and 11.49 times, more likely to select 'MHP referral' ( $p < .001$ ) or 'medicate' ( $p = 0.01$ ), respectively, as an appropriate management strategy in the hypothetical case scenario. Compared with those less diagnostically-orientated disciplines, clinicians from a discipline that emphasises training in differential diagnosis were 14.17 times less likely to select 'no' to the strategy 'MHP referral' in response to ppOCS. *OBQ-IC* significantly predicted endorsement of 'medicate' as a clinical management strategy for ppOCS ( $p = 0.01$ ). However, the non-significance of the bivariate correlation between these two variables indicates that this result reflects a suppressor effect in the model and is an invalid result.

## 7.4 Discussion

This study aimed to investigate whether health practitioners' MC beliefs about intrusive thoughts would be related to their appraisals of and responses to a hypothetical clinical presentation of ppOCS, namely, obsessions of deliberate infant harm. The first

hypothesis that higher levels of maladaptive MC beliefs (i.e., thought fusion and thought importance/control beliefs) would predict ppOCS misidentification was not supported. Although training is associated with accurate recognition of OCS (Mulcahy et al., 2020), the hypothesis that health practitioners' MC beliefs would be associated with ppOCS misidentification was not supported in the current study. This indicates that practitioners' beliefs about their own intrusive thoughts did not influence their ability to identify ppOCS in the hypothetical case scenario; professional training may be more important in this regard.

The second hypothesis that elevated MC beliefs would predict higher levels of unhelpful, and lower levels of neutral, appraisals of ppOCS, was partially supported. Neither thought fusion nor thought importance/control beliefs were associated with unhelpful metacognitive appraisals of ppOCS as morally wrong, something the mother 'should stop', or as indicating a desire to cause infant harm. MC beliefs were also not associated with the level of agreement/disagreement with neutral appraisals of ppOCS as common or treatable. However, higher thought importance/control beliefs predicted greater disagreement with the neutral appraisal of infant harming intrusions as 'normal' after controlling for thought fusion beliefs, professional grouping, primary practice setting, and having received training in pnOCD. The finding that thought importance/control beliefs were inversely related to appraisals of infant harming intrusions as 'normal' may indicate that practitioners who recognise their own intrusive thoughts as normatively occurring cognitive phenomena are more likely to appraise intrusions reported by others in a similarly neutral way. Once again, training and experience were related to responses to ppOCS. Specifically, practitioners from diagnostically orientated disciplines were more likely to appraise infant harming intrusions as 'meaningless', and those with formal training in pnOCD were less likely to

view these thoughts as indicating that the mother wished to cause harm to her child (contrary to the mother's actions and desires).

The third hypothesis was that MC beliefs would predict practitioners' self-reported level of anticipated anxiety or confidence in managing ppOCS. This hypothesis was not supported; indeed, none of the primary predictor variables or covariates included in the model contributed significantly to anticipated anxiety or confidence. It may be that the survey, which was based on a hypothetical case scenario, did not capture participants' likely affective responses should they encounter the presentation of ppOCS of infant-related harm in actuality in their clinical practice. It is also possible that the study might have attracted participants who were less anxious and more confident in managing ppOCS. In support of this, a number of potential participants ( $N = 41$ ) did not continue with the survey beyond reading the case vignette, which may indicate a potential bias in sampling.

Finally, it was hypothesised that higher MC beliefs would be positively associated with practitioners' endorsement of clinical management strategies that would likely be contraindicated for ppOCS, and negatively associated with likely indicated strategies. This hypothesis was partially supported. Practitioners with higher thought importance/control beliefs were significantly more likely to indicate that they would respond to the ppOCS described in the case by making a referral to child protective services or preventing the mother from being with the child unsupervised. However, unnecessary child safeguarding procedures such as these would likely exacerbate ppOCS. Thought fusion beliefs did not predict practitioner endorsement of clinical strategies for managing ppOCS.

The finding that maladaptive metacognitive beliefs about thought importance and control uniquely predicted practitioners' endorsement of potentially aggravating clinical procedures, including referring the mother-child to child protective services and

not permitting the mother to be alone with the child, is concerning. When accurately assessed, there is no evidence that mothers experiencing obsessional thoughts of deliberate infant harm are more likely to harm their baby than mothers without such thoughts (Challacombe & Wroe, 2013; Gupta & Kiran, 2019; Hudak & Wisner, 2012; Lawrence et al., 2017). Thus, implementing child safeguarding procedures would be unnecessary and likely to reinforce the mother's unhelpful MC beliefs that may be driving her distress and OCS. This further highlights the importance of accurate and careful assessment to differentiate OCS from symptoms of other psychiatric disorders (e.g., postpartum depression, psychosis, borderline personality disorder) that may better account for and/or co-occur with OCD and include thoughts of infant-related harm that may be acted upon. Other indirect risks (e.g., to parenting capacity, maternal risk of suicide and self-harm) that may also be relevant to the child's safety and wellbeing must also be considered (Palombini et al., 2020; Veale et al., 2009). What is notable about the current study is that the findings suggest practitioner beliefs about their own intrusive thoughts may also play an (inadvertent) role and potentially cloud the clinical assessment of risk of direct infant harm.

Consistent with the earlier findings of Mulcahy et al. (2020), which were reproduced in Chapter 6, practitioners who had received formal training in pnOCD were significantly less likely to endorse clinically non-indicated child safeguarding interventions (i.e., conducting a comprehensive violence risk assessment, referral to child protective services, supervising the mother with the child). They were also more likely to endorse management strategies typically indicated for ppOCS (i.e., referral to a mental health practitioner, prescribing medication). Other aspects of training and experience (i.e., working primarily in a specialist mental health setting, professional grouping) also predicted practitioner selection of appropriate management strategies and non-selection of likely contraindicated management strategies. This finding implies that

training and education may play an essential role in mitigating the effects of practitioners' own OCD-related metacognitive beliefs and appraisals on their professional responses to ppOCS.

The finding that thought importance/control beliefs, but not thought fusion beliefs, were related to practitioner responses to ppOCS was unexpected, given that the relationship between these two MC belief domains is well-established in the OCD literature (OCCWG, 2005). It is also inconsistent with the results of Levine and Warman's (2016) study of undergraduate students. The former study found that higher *TAF* and *OBQ-44* total scores were related to more negative appraisals of blasphemous, sexual, and violent obsessions. However, students' scores on the *OBQ-44* 'thought importance/control' subscale were not significantly related to their appraisals of either type of intrusion, or to their endorsement of strategies for managing violent obsessions. Whilst Levine & Warman's (2016) findings were mixed, it is interesting that the present study found a relationship between thought importance/control, but not thought fusion, and participants' responses to harming obsessions, when the opposite was the case in the earlier study. Further research is required to explore reasons for these inconsistent findings between studies; including possible explanations as to why the relationship between personal MC beliefs and responses to harm-related OCS may be different for health practitioners' versus individuals in the general community.

There are some limitations to the study that need to be acknowledged. First, the design of this study does not permit conclusions about the direction of the observed relationships between practitioner factors (thought importance/control beliefs and training and experience) and their responses to ppOCS. Second, given that responses were based on a hypothetical clinical case, it is also possible that practitioners' actual responses may differ in clinical practice settings. Lastly, while the present study used a convenience sample to allow the inclusion of practitioners of as many different

disciplines as possible, the extent to which this is representative of clinicians who work with new/expecting parents with OCD is unclear.

Nonetheless, this study was the first to explore the relationship between practitioner beliefs and appraisals and their responses to ppOCS and represents a unique contribution to the OCD and maternal mental health literature. It provides preliminary evidence that practitioner metacognitions may influence the clinical management of ppOCS. The results add support to Mulcahy et al.'s (2020) call for targeted education and training on the detection and management of ppOCD to improve frontline perinatal health practitioners' ability to identify, and respond effectively to, individuals with ppOCS. Findings further suggest that training and supervision in working with ppOCD should address practitioners' individual beliefs about the importance and significance of intrusive thoughts. This may be achieved by providing practitioners with psychoeducation about the frequency, nature, and prevalence of intrusive thoughts in both the general community and perinatal population, as is typically included in CBT for OCD (e.g., Bream et al., 2017). Further research should evaluate the impact of targeted training in ppOCD on practitioner responses to ppOCS and investigate whether this may be mediated in part by changes in OCD-related metacognitions. Given that OCD is a highly heterogeneous condition in the general OCD population (McGuinness et al., 2011), additional research should consider whether the finding that practitioner MC beliefs are related to responses to postpartum OCS also extends to other OCD symptom presentations.



### 8.1 Thesis overview

In recent decades the focus of research and clinical care in perinatal mental health has been predominately on postpartum depression, and there has been increasing awareness of the elevated prevalence of anxiety disorders in the perinatal period (Austin, 2004; Howard et al., 2014). However, far less is known about the experience of perinatal OCD (Fairbrother & Abramowitz, 2016), despite accumulating evidence that women are more likely to experience OCD in the perinatal period than during other life periods (Russell et al., 2013). Research indicates that first-time mothers in the postpartum period may be at particular risk of experiencing OCD (Fairbrother et al., 2016). Furthermore, postpartum OCD (ppOCD) appears to have a more distinctive symptom profile than OCD in pregnancy or the non-perinatal period. ppOCD is more frequently characterised by harm-related obsessions, including concerns of deliberate or accidental harm to the infant (Starcevic et al., 2020). Together, these findings have led some researchers to consider whether perinatal OCD may represent a distinctive subtype of OCD (McGuinness et al., 2011; Sharma & Mazmanian, 2020; Starcevic et al., 2020).

This thesis aimed to extend understanding of perinatal OCD, including its aetiology and effective approaches to addressing postpartum OCS (ppOCS), to inform prevention, identification, early intervention, and treatment for this problem. More specifically, this thesis investigated whether metacognitive beliefs about intrusive, obsessional thoughts (i.e., thought fusion beliefs) that have previously been associated with OCD (see Chapter 1) may explain, and can be modified to prevent, the onset of obsessive-compulsive symptoms (OCS) in the postpartum period. In light of the significant potential negative outcomes associated with the misdiagnosis of perinatal

OCD (Challacombe & Wroe, 2013; Lawrence et al., 2017; Shakespeare et al., 2018; Sharma & Sommerdyk, 2015), this thesis also explored health practitioners' recognition of, and responses to, ppOCS, including a range of factors that may impact on practitioner attitudes towards infant harm-related obsessions and compulsions.

The metacognitive (MC) model of OCD was chosen as the overarching conceptual framework for this thesis. This model proposes that OCS arise from maladaptive beliefs about the ability of thoughts to influence one's character and actions (termed thought – moral fusion) or to affect the likelihood of harmful events occurring (termed thought – likelihood fusion; Shafran et al., 1996; Wells, 2008, 2009). These beliefs are purported to lead individuals with OCD to appraise unwanted intrusive thoughts in a threatening manner, leading to distress and compulsive attempts to suppress the thoughts or neutralise the perceived danger associated with them (e.g., by engaging in behavioural avoidance or performing physical or mental rituals). Some of the earliest psychological models of OCD included the concept of thought fusion (e.g., Rachman, 1993, 1998). However, the MC model of OCD asserts that thought fusion beliefs drive other psychological beliefs (e.g., the threat of/responsibility to prevent harm and perfectionism/intolerance of uncertainty) implicated in OCD, and therefore better explain the development of OCS (Fisher, 2009; Rees & Anderson, 2013; Wells, 2008, 2009).

While several studies supporting the MC model of OCD have been conducted in the general population (Gwilliam et al., 2004; Hansmeier et al., 2016; Myers et al., 2009; Solem et al., 2010), only one study has specifically examined thought fusion in relation to ppOCS (Abramowitz et al., 2007). The MC model of OCD may be particularly relevant to perinatal OCD, given that the majority of parents experience infant-related intrusions in the postpartum period (Abramowitz, Schwartz, & Moore,

2003; Puryear et al., 2017), and that beliefs about the significance of intrusive thoughts appear to precede ppOCS onset (Abramowitz et al., 2006, 2007; Fairbrother et al., 2018; Timpano et al., 2011). It is also possible that beliefs about the meaning of intrusive thoughts may influence healthcare providers' attitudes towards, and responses to, ppOCS (e.g., obsessions of infant-related harm) when new/expecting parents disclose them, and thereby affect access to effective treatment and support for individuals who develop ppOCD. Importantly, there is some research conducted within the general community that suggests that thought fusion beliefs may be modified via the provision of brief psychoeducation information about the nature and prevalence of intrusive thoughts (Marino-Carper et al., 2010; Rees et al., 2014; Zucker et al., 2002). Thought fusion beliefs might, therefore, represent a specific, but modifiable, psychological risk factor for perinatal OCD. Psychoeducation about infant-related intrusive thoughts may be a valuable tool for both decreasing risk of OCS in the postpartum period and enhancing health practitioners' ability to effectively support perinatal individuals with OCD.

The results of this thesis support the role of metacognitive beliefs in perinatal OCS. Surprisingly, and inconsistent with previous research, OCS were significantly lower in the postpartum period than in pregnancy, in the sample of first-time mothers who participated in the prospective studies described in Chapters 4 and 5. Nonetheless, the results outlined in Chapter 4 indicate that overall thought fusion beliefs (*TAF-T* scores), measured in pregnancy, were the only significant and independent predictor of OCS (*OCI-R* scores) at 2-6 months' postpartum follow-up after accounting for prenatal cognitive beliefs (threat/responsibility and perfectionism/intolerance of uncertainty) and generalised worry symptoms. Follow-up mediational analyses indicated that prenatal thought – likelihood – fusion beliefs (i.e., thought – likelihood – other fusion and thought – likelihood – self fusion) directly contributed to ppOCS, whereas prenatal

thought – moral fusion and cognitive beliefs did not, after controlling for prenatal worry. These findings suggest that prenatal thought fusion beliefs better explain ppOCS when compared with cognitive beliefs. In particular, elevated thought – likelihood – fusion beliefs may be an important indicator of increased risk of developing OCD in the perinatal period.

Furthermore, the results of the prevention randomised-controlled trial (RCT) described in Chapter 5 demonstrated that the provision of brief corrective information, based on the MC model of OCD, about infant-related intrusive thoughts, delivered to first-time expectant mothers in pregnancy, was effective in reducing thought fusion beliefs assessed in the postpartum period. While this intervention did not demonstrate specific effects on thought – likelihood or thought – moral fusion beliefs, the effects on overall thought fusion beliefs (i.e., *TAF-T* scores) were maintained for a number of months post-intervention. Metacognitive education was not observed to significantly affect ppOCS, which may be attributable to some aspects of the study design, including limited sample size and possible selection bias, as well as the absence of a perinatal-specific measure of OCS severity. In sum, it was concluded that the study provides evidence of the feasibility of metacognitively-focused psychoeducation in modifying risk of ppOCD, although further research is required before stronger conclusions can be drawn. However, the findings from the prospective studies (Chapters 3 & 4) presented in this thesis underscore the importance of metacognitive beliefs in understanding and identifying risk of, and preventing, perinatal OCD.

The second arm of this thesis (Chapters 6 and 7) presented novel investigations into health practitioners' recognition of and responses to perinatal OCD, including MC factors that may impact practitioners' understanding of ppOCS. Given the current lack of empirical research on the topic, Chapter 6 contained a novel exploration of health

practitioners' identification of and strategies for managing a hypothetical clinical presentation of ppOCS involving obsessions of deliberate infant harm (Mulcahy et al., 2020). Consistent with anecdotal observations and narrative accounts in the clinical literature, the large majority of participants, who were frontline health practitioners currently or recently engaged in clinical practice with new/expecting parents, did not accurately identify ppOCS within the case scenario. The infant harm-related obsessions described in the case vignette were most commonly mischaracterised as psychotic or depressive symptoms. Consistent with this, most practitioners endorsed the use of clinical management strategies (e.g., unnecessary child protective interventions) that would potentially exacerbate the ppOCS. Formal education or training in perinatal OCD was associated with accurate recognition of ppOCS.

Further exploration did not reveal a significant association between practitioners' own MC beliefs (i.e., thought fusion and thought importance/control beliefs) and recognition of ppOCS. Thought importance/control beliefs were, however, negatively associated with less neutral appraisals of the infant harm-related intrusions (i.e., as 'meaningless' and 'normal'), and with the endorsement of likely contraindicated clinical risk management strategies, including referral to child protective services, and ensuring the mother was supervised when with the child. Training and education in perinatal OCD, and some aspects of practitioner training and experience (e.g., being from a diagnostically orientated discipline or working in a specialist mental health setting), were associated with the selection of fewer likely contraindicated management strategies. Taken together, the findings of this thesis indicate that ppOCS are frequently mischaracterised by frontline perinatal mental health practitioners, which may have significant implications for the clinical management of individuals with perinatal OCD. Moreover, health practitioners' own MC beliefs about thought importance/control may influence their attitudes towards and clinical management of postpartum women

experiencing OCD, including their use of potentially aggravating child protective interventions. Training and education may play a role in mitigating the effect of practitioner beliefs on their responses to ppOCS.

Overall, the results of this thesis provide compelling support for the view that beliefs about intrusive thoughts play a key role in conceptualising perinatal OCD across the continuum of care, from risk screening and prevention, to case identification, assessment, and clinical management. Accordingly, this thesis also highlights the potential role of education about postpartum infant-related intrusions in effectively supporting women at risk of, or who have developed, perinatal OCD.

## **8.2 Theoretical implications of the thesis**

Although empirical research on perinatal OCD is in its infancy, some of the earlier conceptualisations of this disorder have focused on the role of increased responsibility that comes with new parenthood (e.g., taking care of an infant) in the development of ppOCS (Barrett et al., 2016; Fairbrother & Abramowitz, 2007). However, in the present research, OCD-related cognitive beliefs (including overvalued ideas about the threat of, and responsibility to, prevent harm) did not contribute to ppOCS after controlling for thought fusion beliefs. This finding suggests that conceptualisations of perinatal OCD should move beyond increased responsibility to incorporate OCD-specific thought fusion beliefs. Increased beliefs about responsibility for preventing harm may, much like the experience of infant-related intrusive thoughts, be a characteristic and mostly adaptive feature of the psychosocial transition to parenthood that is experienced by most parents in the postpartum period (Feygin et al., 2006; Kim et al., 2013; Leckman et al.,

1999). Therefore, it stands to reason that thought – likelihood – fusion beliefs may be a more specific predictor of postpartum-onset OCS.

Cognitive-behavioural models of OCD in the general community have long included metacognitive beliefs about, and appraisals of, intrusive thoughts, including thought fusion beliefs, in accounts of the development and maintenance of OCS (OCCWG, 2001; Purdon & Clark, 2002; Rachman, 1993, 1998; Shafran et al., 1996). This thesis adds to previous prospective findings that indicate that these same beliefs also play a role in OCS within the perinatal population (Abramowitz et al., 2006, 2007; Fairbrother et al., 2018; Timpano et al., 2011). This thesis also adds empirical support for recent advances that have extended the role of metacognition in understanding OCD. It was found that OCD-specific metacognitions (i.e., thought fusion beliefs) better accounted for ppOCS than OCD cognitions, including threat/responsibility and perfectionism/intolerance of uncertainty beliefs. The findings that thought – moral fusion beliefs did not contribute to ppOCS, and that the effect of OCD-related cognitive beliefs on ppOCS was not mediated by thought fusion, is less consistent with the metacognitive model of OCD and warrants further investigation. Importantly, the evidence presented in this thesis also suggests that the MC model of OCD may be of value in conceptualising how health practitioners' who support new parents respond to and manage clinical presentations of ppOCS.

Lastly, the results of this thesis may have broader theoretical implications for identifying the causes of OCD in the general community (i.e., in non-perinatal individuals). Longitudinal studies that have examined factors that precede OCS onset have been few, but growing, in number (e.g., Abramowitz et al., 2006, 2007; Cox & Olatunji, 2021; Fairbrother et al., 2018; Osnes et al., 2019, 2020). Most of these prospective studies conducted to date have been conducted with new/expecting parents.

Thus, this thesis adds to a growing body of crucial research that directly implicates psychosocial factors, specifically OCD-related beliefs, in the origin of OCD (Abramowitz et al., 2006, 2007; Fairbrother et al., 2018; Timpano et al., 2011).

### **8.3 Clinical implications of the thesis**

The findings of this thesis also have implications for clinical practice with new/expecting parents at risk of, or who have developed, OCD. Chapters 6 and 7 show the significant contribution of thought fusion beliefs to ppOCS, and the effectiveness of brief prenatal psychoeducation about intrusive thoughts is effective in modifying postpartum thought fusion beliefs, providing further evidence of the feasibility of both early screening to detect and also interventions to prevent the risk of ppOCD. Measures of thought fusion beliefs may be of value in screening parents in the prenatal period for increased risk of OCD in the postpartum period. Additionally, psychoeducational interventions that reduce thought fusion beliefs might help ppOCS onset and reduce OCD rates among postpartum women. Timpano et al. (2011) conducted a prevention RCT in which pregnant mothers were screened for elevated risk of ppOCD using the *OBQ-44*. Following this, the mothers received either 3-hours of clinician delivered prenatal group psychoeducation focused on modifying OCD-related cognitions and metacognitions (i.e., thought importance/control) or an active control intervention. Results indicated that this selective intervention prevented the onset of OCS in the perinatal period. Only thought importance/control beliefs changed from pre- to post-intervention at a significantly greater rate than in the control group, suggesting that the

mechanisms underlying the intervention effect relate to reduced maladaptive beliefs about intrusive thoughts.

The present thesis adds to these previous findings by providing initial evidence that the use of briefer and less resource-intensive tools – specifically, measures of thought fusion and corrective psychoeducation about intrusive thoughts – may also be effective in addressing perinatal OCD. It also contains the first empirical evaluation of an ultra-brief primary intervention, consisting of a 7-minute online video, for the prevention of ppOCD. The findings are consistent with previous research conducted in non-clinical community samples showing metacognitions about intrusive thoughts can be corrected in the general community (Marino-Carper et al., 2010; Rees et al., 2014; Teachman et al., 2006). The thesis is also the first to demonstrate the durability of these changes in MC beliefs for a number of months (i.e., from pregnancy through to the postpartum period), beyond the two weeks shown by Marino-Carper et al. (2010).

The central conclusion of this thesis in relation to the relevance of the MC model of OCD to perinatal OCD also supports the potential value of this model guiding treatment and enhancing support for individuals with ppOCD. As discussed in Chapter 2, there has been very limited research to date on the treatment of perinatal OCD to guide health practitioners' in clinical practice with new/expecting parents with this disorder. One previous open pilot trial found that metacognitive therapy (MCT), which focuses on modifying maladaptive beliefs about and responses to obsessions, was effective in treating women with postpartum onset/exacerbation of OCD (Ramunno, 2017). Other studies have evaluated CBT protocols for perinatal OCD that include interventions to address thought/importance control beliefs, with promising results (Challacombe et al., 2017; Challacombe & Salkovskis, 2011). The present thesis adds

further weight to these studies that indicate the importance of addressing OCD specific metacognitions in psychotherapy for perinatal OCD.

Chapters 6 and 7 indicate that practitioners' understanding of, and beliefs about, infant harm-related intrusions have potential implications for service engagement for new/expecting parents experiencing OCD. Formal education and training about the symptoms of ppOCS and prevalence and nature of infant-related intrusive thoughts may enhance the quality of care that practitioners can provide to individuals with perinatal OCD. Furthermore, it may help reduce the stigma associated with harm-related intrusions that may prevent parents from disclosing ppOCS to their healthcare providers, which may discourage future healthcare-seeking behaviours. Previous literature indicates that individuals in the general community more accurately recognised, and had lower stigmatising attitudes (e.g., of perceived dangerousness) towards individuals with, violent and paedophilic obsessions when provided with education about the symptoms of OCD (Snethen & Warman, 2018; Warman et al., 2015). Another recent study conducted with participants from the general community found that an explanation of OCD that emphasised that intrusive thoughts are experienced on a continuum in the general population was more effective, compared with biogenetic explanations of intrusions (i.e., that emphasised underlying biological differences seen in OCD), in reducing negative attitudes towards violent obsessions (Cole & Warman, 2019). Addressing practitioners' MC beliefs about their own intrusive thoughts within clinical education and supervision may, therefore, be helpful in increasing understanding of perinatal OCD.

In summary, this thesis provides novel evidence supporting delivery of targeted education, to new/expecting parents and the perinatal health practitioners who support them, to increase (a) awareness of the prevalence and nature of intrusive thoughts and

(b) understanding of OCS, in the perinatal period. The emphasis of the MC model of OCD on the role of unhelpful MC beliefs about the meaning of intrusive thoughts in driving the distress caused by OCD provides a conceptually rich and empirically supported framework for such psychoeducation interventions. Improved recognition and understanding of perinatal OCD across the community may help to prevent and reduce the distress associated with ppOCS and facilitate greater access to effective treatment for individuals with the disorder.

#### **8.4 Strengths of the thesis**

This thesis has notable overall strengths that support its contribution to the empirical literature on perinatal OCD. The first relates to the use of the MC model of OCD to integrate the findings of the thesis across a varied set of studies. The role of MC beliefs, such as thought fusion, is well established in the body of OCD research. However, metacognitive understandings of OCD were also applied to the conceptualisation of clinician responses to ppOCS. The present thesis thereby illustrates how metacognition relates to clinical practice with perinatal OCD at various levels – specifically, screening and prevention, clinical intervention, and clinical education and supervision. A number of the studies in this thesis also measured MC beliefs separate to cognitive beliefs; thus, providing for a clearer examination of the contribution of metacognition to the topic of perinatal OCD.

A key strength of this thesis is the inclusion of two prospective, longitudinal studies that followed individuals over the perinatal period, a time known to be associated with increased rates of OCD. Much of the empirical literature on the factors involved in OCD are cross-sectional in nature, limiting the conclusions that may be drawn about the

causes of OCD (Abramowitz et al., 2006). On the other hand, prospective studies are far more informative in identifying factors that cause and maintain OCD. This thesis also partially replicated and application of past, well-designed research studies in perinatal OCD. The field of psychological science has encountered significant criticism in recent years relating to the lack of replicability of previously accepted empirical findings (Pashler & Wagenmakers, 2012). Clinical psychology and psychopathology research has not been exempted from these concerns (Tackett et al., 2019). This thesis partially replicated and extended findings from seminal prospective studies on the role of psychological beliefs in explaining and preventing ppOCS (Abramowitz et al., 2006, 2007; Fairbrother et al., 2018; Timpano et al., 2011), including using well-established measures of OCD-related beliefs (i.e., the *OBQ-44* and *TAF*) and OCS (i.e., the *OCI-R*) used in these previous studies. This relative consistency of methodology and findings strengthens the reliability of the findings of the thesis, which have important implications for understanding the aetiology of perinatal OCD.

The development and prospective evaluation of a short, psychoeducational video about infant-related intrusions as a universal prevention intervention for ppOCS in the present thesis was also novel. Although OCD has been identified as a leading cause of illness-related disability burden globally, with many cases becoming severe and persisting for many years after onset (see Chapter 1 for further discussion), no studies to date have investigated primary prevention interventions for OCD (Brakoulias et al., 2018). Efforts at developing and evaluating approaches for preventing the onset of OCD have previously been hampered by the considerable heterogeneity of, and a lack of prospectively identified risk factors for, the condition. Accordingly, efforts at preventing OCD are best targeted at life periods associated with an increased onset of OCS (e.g., the perinatal period and adolescence; Brakoulias et al., 2018).

Prior to this thesis, only one prevention program for OCD had been evaluated; specifically, Timpano et al. (2011) developed a cognitive-behavioural intervention for the selective/secondary prevention of ppOCS. The intervention was targeted at first-time expecting parents who were identified, based on their prenatal *OBQ-44* scores, as being at particular risk of developing OCD in the postpartum period. As such, a key strength of this thesis is its first-of-a-kind evaluation of a universal, ultra-brief (i.e., 7-minute) intervention for the prevention of OCS among first-time mothers. While clinical input was involved in participant screening and follow-up assessments to enable empirical evaluation of the metacognitive education intervention, the intervention itself was delivered online without therapist assistance. Such an approach has clear advantages in terms of the low-cost involved in both developing the intervention and in its ongoing delivery. Furthermore, psychoeducation-based prevention for perinatal OCD could be disseminated with relative ease to new/expecting parents developing ppOCD (e.g., via an online mental health promotion campaigns, or integration with existing antenatal psychoeducation resources).

However, given that primary prevention effects are likely to be very modest in size, and the absence of a significant reduction in ppOCS following the prevention intervention evaluated in this thesis (Chapter 4), further trials of ultra-brief interventions such as these are required to determine effectiveness for perinatal OCD. It is also possible that psychoeducation about intrusive thoughts may be best embedded within a stepped model of care, or would more effective if incorporated into a more comprehensive prevention intervention, such as that utilised by Timpano et al. (2011), for mothers with elevated, pre-existing OCD-related metacognitions. Likewise, perinatal individuals who do go on to develop OCS despite receiving prevention intervention could be supported early in the course of symptom development to access more comprehensive support (e.g., group or individual CBT). In this way, the

metacognitive education video intervention presented in this thesis may be scalable and has potential utility as a standalone prevention and early intervention for perinatal OCS, or as a component of a more comprehensive intervention package for perinatal OCD.

## **8.5 Limitations of the thesis**

The findings of this thesis also need to be considered in the context of the limitations of the program of study it describes. All of the studies utilised convenience sampling to maximise potential participant numbers and may not be representative of the relevant population. Participants' OCS in the longitudinal sample used in Chapters 4 and 5 decreased from pregnancy to postpartum follow-up, a surprising finding given that previous studies have consistently shown an increase in OCS in the postpartum period (see discussion on the prevalence of ppOCS in Chapter 2). As such, this particular sample of first-time mothers may not be representative of the broader perinatal population, potentially limiting the generalisability of the findings. While each of the studies in this thesis were sufficiently powered to test the relevant hypotheses, the sample size was small to moderate in each instance. This limited the number of variables that could be considered in each study. For instance, replicating the prospective studies detailed in Chapters 4 and 5 with a larger number of participants would be warranted to allow for the inclusion of a wider range of covariates (e.g., secondary measures of anxiety and depression; inclusion of distinct subscales of the *OBQ-44*).

This thesis did not include fathers and/or partners of the pregnant women in our study. Including fathers/partners may have been valuable, given that there is some evidence that rates of OCD might also be increased among the male partners of postpartum women with OCD (Coelho et al., 2014). Past research indicates that the

majority of new fathers also experience postpartum infant-related intrusions (Abramowitz et al., 2006; Abramowitz, Schwartz, & Moore, 2003), and the perinatal OCD literature contains notable case examples of men who experienced acute onset OCD with infant harm-related obsessions in the few weeks following the birth of their child (e.g., Abramowitz et al., 2001). Indeed, fathers and partners may experience many of the same factors that have been implicated in perinatal OCD such as increased responsibility, metacognitive beliefs, and sleep disturbance (e.g., Fairbrother & Abramowitz, 2007). However, the present thesis was limited to first-time mothers' due to clear evidence that OCD is more prevalent among women in the postpartum period (Russell et al., 2013), to increase the likelihood that predictive factors and prevention intervention effects could be detected within the studies. Nonetheless, it may be useful to include fathers/partners in future perinatal OCD research. A number of the participants in the intervention group of the prevention RCT described in Chapter 7 remarked that they had shown the metacognitive psychoeducation video to their partners during the trial and that both had found this information helpful to reflect on in the postpartum period. Therefore, it is possible that psychoeducation focused on modifying metacognitive beliefs about intrusive thoughts may be more effective in preventing perinatal OCD when both expectant mothers and fathers/partners have the opportunity to participate in the intervention.

It has previously been proposed that the primary outcome measure used to assess ppOCS in this thesis, the *OCI-R*, may not be sufficiently sensitive to detect some symptoms of OCD, namely harming obsessions (Fairbrother et al., 2018; Moulding et al., 2011); thereby, potentially decreasing the ability to detect significant effects in Chapters 4 and 5. These obsessions appear to be more common in ppOCD when compared with OCD in the general community, and it may be that the *OCI-R* is less sensitive as a measure of OCS in the perinatal population. However, on balance, the

*OCI-R* was used in this thesis due to its brevity and previous use in studies of perinatal OCS, which found significant effects on postpartum symptoms (Abramowitz et al., 2007; Fairbrother et al., 2018).

This thesis also did not consider other components of the MC model of OCD that may be relevant to perinatal OCD. These include other types of metacognitive belief included in Wells' (2008, 2009) contemporary model of the onset and maintenance of OCS; specifically, beliefs about rituals and stop signals, and decreased attentional control. These other aspects of metacognition are, however, believed to be activated and drive OCS as a response to the occurrence of unwanted intrusive thoughts, which are appraised in a threatening way due to elevated pre-existing metacognitive beliefs about intrusions (see Section 1.3.2.3 for a discussion of the 'cognitive attentional syndrome', or CAS, in OCD). Given the focus of this thesis on explaining and preventing OCS onset in the perinatal period, these other aspects of metacognition were deemed less relevant to the research questions than thought fusion beliefs and not included in the study designs. Lastly, recent research indicates that maternal sleep disturbance and fatigue may play an important role in the development of ppOCS (Osnes et al., 2019, 2020). These variables were not considered in the prospective studies in this thesis, the design and ethics approval of which predated the publication of these novel studies.

## **8.6 Future directions**

### **8.6.1 *Sleep disruption and metacognition***

In light of findings that sleep disturbance in pregnancy predicts postpartum OCS (Osnes et al., 2019, 2020), an important research area could be the relationship between sleep and processing of infant-related intrusions in the postpartum period. Fairbrother et

al. (2018)'s prospective study examining prenatal obsessive beliefs and level of postpartum obsessions in new mothers' found that sleep difficulties were positively associated with increased obsessions, greater frequency of intrusive thoughts, and higher distress and perceived interference with parenting in response to thoughts of infant harm. However, this study only examined correlations between a measure of sleep quality and *OCI-R* 'Obsessions' subscale scores, and no studies to date have investigated the relationship between sleep disruption and obsessive beliefs in ppOCS. Therefore, further research is required to investigate the mechanisms by which sleep disruption may lead to the development of OCS, including potential interactions between sleep and OCD-specific metacognitive beliefs.

There are a number of ways in which sleep disturbance may affect OCS via metacognitive beliefs and processes, including in the perinatal period. Sleep disturbance may decrease control over attentional focusing (Cox et al., 2018) and increase repetitive negative thinking (Cox et al., 2018; Nota & Coles, 2015), both of which may increase obsessional preoccupation and have been implicated in the CAS for OCD (see discussion in Section 1.3.2.3). However, other research has found that beliefs about the impact of insomnia on mental functioning may mediate the relationship between insomnia and OCS (Hellberg et al., 2019; Raines et al., 2015). Research conducted in the general community indicates that individuals tend to underestimate their reasoning and memory performance when sleep-deprived, suggesting that sleep disruption impacts self-monitoring of and confidence in cognition (Blagrove & Akehurst, 2000; Boardman et al., 2018). At the same time, individuals with OCD report lower metacognitive beliefs in the accuracy of their memory (i.e., 'metamemory') and decision-making compared with the general population (Nedeljkovic & Kyrios, 2007), and maladaptive beliefs

about memory ('meta-memory') have been shown to be associated with OCS severity (Nedeljkovic et al., 2009).

Therefore, changes in sleep quality and duration in pregnancy and the postpartum period may interact with meta-memory and cognitive confidence beliefs, and beliefs about the need to engage in rituals, to increase some individuals' drive to engage in OCS, to compensate for actual and/or perceived decreases in cognitive performance. Similarly, it is also possible that sleep disruption may modify the internal criteria or 'stop signals' that must be satisfied in order for individuals to cease compulsive/neutralising behaviours (e.g., repeatedly checking on the infant until all doubts about memory are removed). As such, OCD-related metacognition may hold particular promise as a means of integrating current findings on the contribution of both obsessive beliefs and sleep disruption to the development of OCD and is a promising area for future research aimed at improving understanding of perinatal OCD.

#### 8.6.2 *Assessment of perinatal OCS*

The potential limitations of the *OCI-R*, based on validation studies conducted with the general community, highlights the need for assessment tools for perinatal OCD. The considerable evidence that perinatal OCD typically has a more heterogeneous symptom presentation characterised by obsessions and compulsions focused on fears of infant-related harm suggests the need to develop or adapt empirically validated measures of OCS severity to ensure they adequately capture symptoms occurring in the perinatal period. A number of existing measures of OCS severity, including the *OCI-R* (Foa et al., 2002) and *DOCS* (Abramowitz, Deacon, Olatunji, et al., 2010), have reported adequate internal consistency in previous perinatal studies (Abramowitz et al., 2006, 2007; Fairbrother et al., 2018; Timpano et al., 2011). However, a more comprehensive

evaluation of the psychometric properties, including the identification of clinically indicative cut-off scores for OCD, of these measures in the perinatal population is warranted.

Other measures have been developed to specifically measure perinatal OCS. The *Perinatal Obsessive-Compulsive Scale*, developed by Lord et al. (2011) assesses common symptoms of OCD in pregnancy and the postpartum period, including foetus or infant-focused symptoms, and displayed high internal reliability, adequate convergent validity with the *YBOCS* (Goodman et al., 1989), and satisfactory validity in discriminating perinatal women with a primary diagnosis of OCD from women with a primary depression or anxiety disorder diagnosis. However, the primary limitation of this measure lies in its inclusion of two different subscales: one for assessment of symptoms in pregnancy, and the other for postpartum symptoms. While this is consistent with previous research indicating that the content of obsessional concerns differs in frequency in pregnancy compared with the postpartum, the measure's structure does not permit assessment of changes in OCS across the perinatal period. The *PTBC* (Abramowitz, Schwartz, & Moore, 2003) is another measure of perinatal OCS and utilises the structure of the *YBOCS*, including a symptom checklist and severity scale, whilst containing perinatal specific items. The *PTBC* has been used in a number of perinatal OCD studies, and a Swedish language translation of the measure had strong reliability and validity in a recent validation study (Thiséus et al., 2019). However, the English language version of the measure has yet to be empirically validated. The current lack of specific, validated, self-reported and clinician-rated measures of perinatal OCS means that the development of assessment tools for the screening and assessment of perinatal OCD should be considered an important area of focus for future research (Fairbrother & Abramowitz, 2016).

### **8.6.3**                    *Cultural differences in perinatal OCS*

One significant area that has yet to be explored within the emerging literature on perinatal OCD is possible differences in OCS phenomenology and symptom presentation between cultures. Research concerning OCD in the general population indicates that lifetime rates of OCD are comparable across cultures (Williams & Steever, 2015); significant cultural differences have, however, been observed in the prevalence of different OCD symptom subtypes (Williams et al., 2017). Likewise, whilst a high prevalence of unwanted intrusive thoughts has been reported across cultures, there may be significant difference in the primary thematic content and the level of distress associated with different kinds of intrusions between cultures (Clark & Radomsky, 2014; Radomsky et al., 2014). These differences in the thematic content of unwanted, distressing intrusive thoughts likely reflects cultural differences in social norms and values, religious and spiritual beliefs, and standards for moral behaviour (Williams et al., 2017). Given that culture has a fundamental influence on social norms regarding, adjustment to, and individuals' experience of, pregnancy and the postpartum period (Onoye et al., 2016), it is vital for future research to establish whether differences in the prevalence of symptom presentation of perinatal OCD differs between cultural and ethnic groups. The cross-cultural phenomenology of perinatal OCD may have important implications for the prevention, assessment, and treatment of this problem in different cultural contexts (Williams et al., 2020).

### **8.6.4**                    *Prevention, treatment, and support*

As discussed throughout this thesis, the perinatal period is a common precipitant for OCD and represents a unique window of opportunity for preventing the disorder, particularly among women (Abramowitz et al., 2006; Timpano et al., 2011). To reduce

the distress and impairment associated with OCD in the community, there is an imperative for further research to develop and evaluate interventions at the primary, secondary, and tertiary levels of prevention in the perinatal period. Future research should investigate ways to better target thought – likelihood fusion beliefs via preventative psychoeducation about intrusive thoughts, and its potential effectiveness in reducing the onset of ppOCS. Other ways to enhance the effectiveness of this potential prevention approach, including the optimal dose, format, and timing for delivery of metacognitively-focused psychoeducation on postpartum intrusions, and any additive effects of other intervention components should also be considered in further studies. For instance, Timpano et al. (2011)'s protocol provided new/expecting parents with psychological skills in restructuring OCD-related beliefs via Socratic questioning, behavioural experiments, and exposure techniques. Other potential targets for OCD prevention worthy of empirical investigation may include attentional control training (Wells, 2009), and CB strategies for improving sleep in pregnancy and the postpartum (Osnes et al., 2019). Lastly, empirically supported prevention interventions for perinatal OCD may also prove highly informative in developing population-level prevention strategies for OCD. These could be used to prevent OCS at other times that may be associated with increased community rates of the disorder, such as during adolescence (Brakoulias et al., 2018) and global infectious disease outbreaks (Cox & Olatunji, 2021; Shafran et al., 2020).

Further research must also be undertaken to guide the development of evidence-based standards and clinical practice approaches in perinatal OCD. It is clear from the existing literature, and the findings of this thesis, that low recognition of ppOCS among healthcare practitioners working with new/expecting parents is a problem that must be addressed via targeted education and training. Research should be completed to evaluate professional education and training on perinatal OCD, to determine and refine the

effectiveness of such programs in improving the identification, treatment, and management of perinatal OCD. Further research studies could investigate whether providing targeted education on the nature and prevalence of postpartum intrusions is sufficient to improve practitioner recognition of and responses to ppOCS, and whether such training may be more effective with the addition of brief intervention (e.g., Socratic dialogue, behavioural experiments) focused on modifying practitioners' own maladaptive beliefs about intrusive thoughts. Some unpublished research has been conducted in this area. Rumball (2015) found that providing maternal community health visitors (i.e., nurses and midwives) with training on postpartum intrusions and OCS, based on the CBT model of OCD, increased practitioner's consideration of OCD as diagnosis for postpartum women experiencing mental health difficulties, and was associated with lower intrusion-related distress reported by the mothers under their care. Other practitioner factors (e.g., stigma and attitudes towards OCS) that may impact the care provided to new/expecting parents with OCD should also be explored.

Much is yet to be learned about effective treatments and management strategies for perinatal OCD, and the barriers – including at the consumer, familial, practitioner, and systemic level – that may prevent new/expecting parents with OCD from requesting or obtaining effective support. While current treatment recommendations for perinatal OCD are often derived from clinical practice guidelines for OCD in general (e.g., NICE, 2005), or perinatal anxiety and depression more broadly (Austin et al., 2017; NICE, 2014), there is a current lack of clinical practice guidelines specific to perinatal OCD. This likely reflects the severely limited empirical literature on the treatment and clinical management of OCD within the perinatal period. Excepting case studies, only three studies to date have examined psychological treatments for OCD (Challacombe et al., 2017; Challacombe & Salkovskis, 2011; Ramunno, 2017), including a single RCT (Challacombe et al., 2017). However, each of these studies has indicated that cognitive

behavioural interventions – specifically, CBT and MCT – are effective in treating perinatal OCD. The literature on pharmacological treatments for perinatal OCD is also sparse and, furthermore, is confounded by the inclusion of perinatal women with primary diagnoses other than OCD (e.g., major depressive disorder), and/or with OCD-related disorders only (e.g., TTM), significantly limiting the conclusions that may be drawn (Brakoulias et al., 2020; Misri et al., 2004; Misri & Milis, 2004; Sharma, 2018). Thus, further research must be conducted into both psychological and biological interventions for perinatal OCD to improve treatment recommendations and options for perinatal OCD. Research is also required to inform the development of clinical practice guidelines and standards to support health practitioners working with this vulnerable population.

With the recognition of perinatal OCD and the development of specialised clinical approaches for the condition still currently in early stages, there is also increased opportunity for the involvement of consumers in the design of both research and clinical services to best meet the needs of new/expecting parents with OCD. Consumer co-design of both research and interventions may be valuable in identifying barriers to engaging new/expecting parents with OCD in clinical services and facilitating optimal treatment outcomes. Co-design initiatives may also assist in translating empirical research into the development of clinical programs approaches, to improve the accessibility and efficacy of clinical services for perinatal OCD (Kühne et al., 2019). Models such as *experience-based co-design* (Robert, 2013) may be useful in bridging the research-practice gap and combining consumer priorities with evidence-based practice guidelines in the design of services to enhance collaborative care (Larkin et al., 2015).

## 8.7 Conclusion

Previous research has linked the perinatal period with an increased vulnerability to developing OCD for women (Russell et al., 2013), and with increased rates of OCS characterised by excessive concerns about deliberate or accidental infant harm (Starcevic et al., 2020). Prior research on perinatal OCD focused largely on the role of obsessive beliefs, including both metacognitive and cognitive beliefs, in the development of ppOCS (Abramowitz et al., 2006, 2007; Fairbrother et al., 2018; Timpano et al., 2011). Some researchers have proposed that increased responsibility may have a central role in perinatal OCD (Barrett et al., 2016; Fairbrother & Abramowitz, 2007). Recent research on the role of metacognition in OCD in the general community indicates that OCD-specific metacognitive beliefs, such as thought fusion beliefs, may activate the elevated cognitive beliefs (e.g., about threat/responsibility and perfectionism/intolerance of uncertainty) seen in OCD, and therefore better predict OCS (Fisher, 2009; Gwilliam et al., 2004; Hansmeier et al., 2016; Myers et al., 2009; Rees & Anderson, 2013; Solem et al., 2010). At the same time, little is known about how health practitioners working with new/expecting parents recognise and respond to ppOCS, including new parents' concerns about infant-related harm. The aim of this thesis was therefore two-fold; (a) to investigate whether metacognitive beliefs prospectively predicted, and could be modified to prevent, ppOCS after controlling for cognitive beliefs, and (b) to explore factors that may be involved in practitioners' recognition and clinical management of OCS, including practitioners' own metacognitive beliefs and exposure to training on perinatal OCD.

The findings of this thesis highlighted the potential relevance of metacognition to perinatal OCD, including in conceptualising how OCD may develop in the perinatal period, preventing the onset of OCS via metacognitive psychoeducation about infant-

related intrusions, and in delivering practitioner training and supervision on perinatal OCS. Future research should investigate how metacognitive beliefs may interact with other factors, including sleep disturbance, to better explain why the postpartum period confers an increased risk of OCD for some women. Further empirical development and evaluation of prevention and treatment interventions for perinatal OCD, and multidisciplinary clinician education and resource initiatives to improve detection and management of ppOCS within a variety of clinical practice settings, are also greatly needed.

## References

- Abramovitch, A., Abramowitz, J. S., & Mittelman, A. (2013). The neuropsychology of adult obsessive-compulsive disorder: A meta-analysis. *Clinical Psychology Review, 33*(8), 1163–1171. <https://doi.org/10.1016/j.cpr.2013.09.004>
- Abramowitz, J. S. (1998). Does cognitive-behavioral therapy cure obsessive-compulsive disorder? A meta-analytic evaluation of clinical significance. *Behavior Therapy, 29*(2), 339–355. [https://doi.org/10.1016/S0005-7894\(98\)80012-9](https://doi.org/10.1016/S0005-7894(98)80012-9)
- Abramowitz, J. S., Blakey, S. M., Reuman, L., & Buchholz, J. L. (2018). New directions in the cognitive-behavioral treatment of OCD: Theory, research, and practice. *Behavior Therapy, 49*(3), 311–322. <https://doi.org/10.1016/j.beth.2017.09.002>
- Abramowitz, J. S., Deacon, B. J., Olatunji, B. O., Wheaton, M. G., Berman, N. C., Losardo, D., Timpano, K. R., McGrath, P. B., Riemann, B. C., Adams, T., Björgvinsson, T., Storch, E. A., & Hale, L. R. (2010). Assessment of obsessive-compulsive symptom dimensions: Development and evaluation of the dimensional obsessive-compulsive scale. *Psychological Assessment, 22*(1), 180–198. <https://doi.org/10.1037/a0018260>
- Abramowitz, J. S., Deacon, B. J., & Whiteside, S. P. (2010). *Exposure therapy for anxiety: Principles and practice*. Guilford Publications.
- Abramowitz, J. S., Franklin, M. E., Zoellner, L. A., & Dibernardo, C. L. (2002). Treatment compliance and outcome in obsessive-compulsive disorder. *Behavior Modification, 26*(4), 447–463. <https://doi.org/10.1177/0145445502026004001>
- Abramowitz, J. S., Khandker, M., Nelson, C. A., Deacon, B. J., & Rygwall, R. (2006). The role of cognitive factors in the pathogenesis of obsessive-compulsive symptoms: A prospective study. *Behaviour Research and Therapy, 44*(9), 1361–1374. <https://doi.org/10.1016/j.brat.2005.09.011>
- Abramowitz, J. S., Moore, K., Carmin, C., Wiegartz, P., & Purdon, C. (2001). Acute onset of obsessive-compulsive disorder in males following childbirth. *Psychosomatics, 42*(5), 429–431. <https://doi.org/10.1176/appi.psy.42.5.429>
- Abramowitz, J. S., Nelson, C. A., Rygwall, R., & Khandker, M. (2007). The cognitive

- mediation of obsessive-compulsive symptoms: A longitudinal study. *Journal of Anxiety Disorders*, 21(1), 91–104. <https://doi.org/10.1016/j.janxdis.2006.05.003>
- Abramowitz, J. S., Schwartz, S. A., & Moore, K. M. (2003). Obsessional thoughts in postpartum females and their partners: Content, severity, and relationship with depression. *Journal of Clinical Psychology in Medical Settings*, 10(3), 157–164. <https://doi.org/10.1023/A:1025454627242>
- Abramowitz, J. S., Schwartz, S. A., Moore, K. M., & Luenzmann, K. R. (2003). Obsessive-compulsive symptoms in pregnancy and the puerperium: A review of the literature. *Journal of Anxiety Disorders*, 17(4), 461–478. [https://doi.org/10.1016/S0887-6185\(02\)00206-2](https://doi.org/10.1016/S0887-6185(02)00206-2)
- Adam, Y., Meinschmidt, G., Gloster, A. T., & Lieb, R. (2012). Obsessive-compulsive disorder in the community: 12-month prevalence, comorbidity and impairment. *Social Psychiatry and Psychiatric Epidemiology*, 47(3), 339–349. <https://doi.org/10.1007/s00127-010-0337-5>
- Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. N. (2015). *Patterns of attachment: A psychological study of the strange situation*. Taylor & Francis.
- Albert, U., Carmassi, C., Cosci, F., De Cori, D., Di Nicola, M., Ferrari, S., Poloni, N., Tarricone, I., & Fiorillo, A. R. (2016). Role and clinical implications of atypical antipsychotics in anxiety disorders, obsessive-compulsive disorder, trauma-related, and somatic symptom disorders. *International Clinical Psychopharmacology*, 31(5), 249–258. <https://doi.org/10.1097/YIC.0000000000000127>
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). American Psychiatric Press.
- Angelakis, I., Gooding, P., Tarrier, N., & Panagioti, M. (2015). Suicidality in obsessive compulsive disorder (OCD): A systematic review and meta-analysis. *Clinical Psychology Review*, 39, 1–15. <https://doi.org/10.1016/j.cpr.2015.03.002>
- Angst, J., Gamma, A., Endrass, J., Goodwin, R., Ajdacic, V., Eich, D., & Rössler, W. (2004). Obsessive-compulsive severity spectrum in the community: Prevalence, comorbidity, and course. *European Archives of Psychiatry and Clinical Neuroscience*, 254(3), 156–164. <https://doi.org/10.1007/s00406-004-0459-4>

- Arch, J. J., & Abramowitz, J. S. (2015). Exposure therapy for obsessive-compulsive disorder: An optimizing inhibitory learning approach. *Journal of Obsessive-Compulsive and Related Disorders*, 6, 174–182.  
<https://doi.org/10.1016/j.jocrd.2014.12.002>
- Austin, M. P. (2004). Antenatal screening and early intervention for “perinatal” distress, depression and anxiety: Where to from here? *Archives of Women’s Mental Health*, 7(1), 1–6. <https://doi.org/10.1007/s00737-003-0034-4>
- Austin, M. P., Hight, N., & Group, E. W. (2017). *Mental health care in the perinatal period: Australian clinical practice guideline*. <https://www.cope.org.au/health-professionals/health-professionals-3/review-of-new-perinatal-mental-health-guidelines/>
- Australian Bureau of Statistics. (2018). *Estimates of Aboriginal and Torres Strait Islander Australians*.
- Australian Government Department of Health. (2019). *Clinical practice guidelines: Pregnancy care*. <https://www.health.gov.au/resources/pregnancy-care-guidelines>
- Australian Psychological Society. (2018). *Evidence-based psychological interventions: Fourth edition*. <https://www.psychology.org.au/getmedia/23c6a11b-2600-4e19-9a1d-6ff9c2f26fae/Evidence-based-psych-interventions.pdf>
- Barr, J. A., & Beck, C. T. (2008). Infanticide secrets: Qualitative study on postpartum depression. *Canadian Family Physician*, 54(12), 1716–1717.  
<https://www.cfp.ca/content/54/12/1716.short>
- Barrett, R., Wroe, A. L., & Challacombe, F. L. (2016). Context is everything: An investigation of responsibility beliefs and interpretations and the relationship with obsessive-compulsive symptomatology across the perinatal period. *Behavioural and Cognitive Psychotherapy*, 44(3), 318–330.  
<https://doi.org/10.1017/S1352465815000545>
- Batelaan, N. M., Bosman, R. C., Muntingh, A., Scholten, W. D., Huijbregts, K. M., & van Balkom, A. J. L. M. (2017). Risk of relapse after antidepressant discontinuation in anxiety disorders, obsessive-compulsive disorder, and post-traumatic stress disorder: systematic review and meta-analysis of relapse

- prevention trials. *BMJ*, 358, j3927. <https://doi.org/10.1136/bmj.j3927>
- Bayrampour, H., Hapsari, A. P., & Pavlovic, J. (2018). Barriers to addressing perinatal mental health issues in midwifery settings. *Midwifery*, 59, 47–58. <https://doi.org/10.1016/j.midw.2017.12.020>
- Bell, A. F., Erickson, E. N., & Carter, C. S. (2014). Beyond labor: The role of natural and synthetic oxytocin in the transition to motherhood. *Journal of Midwifery and Women's Health*, 59(1), 35–42. <https://doi.org/10.1111/jmwh.12101>
- Benito, K. G., & Walther, M. (2015). Therapeutic process during exposure: Habituation model. *Journal of Obsessive-Compulsive and Related Disorders*, 6, 147–157. <https://doi.org/10.1016/j.jocrd.2015.01.006>
- Berle, D., & Starcevic, V. (2005). Thought-action fusion: Review of the literature and future directions. *Clinical Psychology Review*, 25(3), 263–284. <https://doi.org/10.1016/j.cpr.2004.12.001>
- Berman, N. C., Wheaton, M. G., & Abramowitz, J. S. (2012). The “ Arnold Schwarzenegger Effect”: Is strength of the “ victim” related to misinterpretations of harm intrusions? *Behaviour Research and Therapy*, 50(12), 761–766. <https://doi.org/10.1016/j.brat.2012.09.002>
- Berman, N. C., Wheaton, M. G., Fabricant, L. E., Jacobson, S. R., & Abramowitz, J. S. (2011). The effects of familiarity on thought-action fusion. *Behaviour Research and Therapy*, 49(10), 695–699. <https://doi.org/10.1016/j.brat.2011.07.010>
- Black, D. W., Gaffney, G. R., Schlosser, S., & Gabel, J. (2003). Children of parents with obsessive-compulsive disorder – a 2-year follow-up study. *Acta Psychiatrica Scandinavica*, 107, 305–313.
- Blagrove, M., & Akehurst, L. (2000). Effects of sleep loss on confidence - Accuracy relationships for reasoning and eye witness memory. *Journal of Experimental Psychology: Applied*, 6(1), 59–73. <https://doi.org/10.1037//0278-7393.6.1.5>
- Bloch, M. H., Landeros-Weisenberger, A., Rosario, M. C., Pittenger, C., & Leckman, J. F. (2008). Meta-analysis of the symptom structure of obsessive-compulsive disorder. *American Journal of Psychiatry*, 165(12), 1532–1542. <https://doi.org/10.1176/appi.ajp.2008.08020320>

- Boardman, J. M., Bei, B., Mellor, A., Anderson, C., Sletten, T. L., & Drummond, S. P. A. (2018). The ability to self-monitor cognitive performance during 60 h total sleep deprivation and following 2 nights recovery sleep. *Journal of Sleep Research, 27*(4), 1–8. <https://doi.org/10.1111/jsr.12633>
- Bobes, J., González, M. P., Bascarán, M. T., Arango, C., Sáiz, P. A., & Bousoño, M. (2001). Quality of life and disability in patients with obsessive compulsive disorder. *European Psychiatry, 16*(4), 239–245. [https://doi.org/10.1016/S0924-9338\(01\)00571-5](https://doi.org/10.1016/S0924-9338(01)00571-5)
- Brakoulias, V., Perkes, I. E., & Tsalamaniotis, E. (2018). A call for prevention and early intervention in obsessive-compulsive disorder. *Early Intervention in Psychiatry, 12*, 572–577. <https://doi.org/10.1111/eip.12535>
- Brakoulias, V., Starcevic, V., Belloch, A., Brown, C., Ferrao, Y. A., Fontenelle, L. F., Lochner, C., Marazziti, D., Matsunaga, H., Miguel, E. C., Reddy, Y. C. J., do Rosario, M. C., Shavitt, R. G., Shyam Sundar, A., Stein, D. J., Torres, A. R., & Viswasam, K. (2017). Comorbidity, age of onset and suicidality in obsessive-compulsive disorder (OCD): An international collaboration. *Comprehensive Psychiatry, 76*, 79–86. <https://doi.org/10.1016/j.comppsy.2017.04.002>
- Brakoulias, V., Viswasam, K., Dwyer, A., Raine, K. H., & Starcevic, V. (2020). Advances in the pharmacological management of obsessive-compulsive disorder in the postpartum period. *Expert Opinion on Pharmacotherapy, 21*(2), 163–165. <https://doi.org/10.1080/14656566.2019.1700229>
- Brandes, M., Soares, C. N., & Cohen, L. S. (2004). Postpartum onset obsessive-compulsive disorder: Diagnosis and management. *Archives of Women's Mental Health, 7*(2), 99–110. <https://doi.org/10.1007/s00737-003-0035-3>
- Bream, V., Challacombe, F. L., Palmer, A., & Salkovskis, P. M. (2017). *Cognitive behaviour therapy for OCD*. Oxford University Press.
- Bretherton, I. (2013). Revisiting Mary Ainsworth's conceptualization and assessments of maternal sensitivity-insensitivity. *Attachment and Human Development, 15*(5–6), 460–484. <https://doi.org/10.1080/14616734.2013.835128>
- Brok, E. C., Lok, P., Oosterbaan, D. B., Schene, A. H., Tendolkar, I., & Eij. (2017).

- Infant-related intrusive thoughts of harm in the postpartum period: A critical review. *Journal of Clinical Psychiatry*, 78(8), e913–e923.  
<https://doi.org/10.4088/JCP.16r11083>
- Brown, L. A., Wakschal, E., Russman-Block, S., Boisseau, C. L., Mancebo, M. C., Eisen, J. L., & Rasmussen, S. A. (2019). Directionality of change in obsessive compulsive disorder (OCD) and suicidal ideation over six years in a naturalistic clinical sample. *Journal of Affective Disorders*, 245, 841–847.  
<https://doi.org/10.1016/j.jad.2018.11.006>
- Burguière, E., Monteiro, P., Mallet, L., Feng, G., & Graybiel, A. M. (2015). Striatal circuits, habits, and implications for obsessive-compulsive disorder. *Current Opinion in Neurobiology*, 30, 59–65. <https://doi.org/10.1016/j.conb.2014.08.008>
- Campbell, A. (2008). Attachment, aggression and affiliation: The role of oxytocin in female social behavior. *Biological Psychology*, 77(1), 1–10.  
<https://doi.org/10.1016/j.biopsycho.2007.09.001>
- Challacombe, F. L., & Salkovskis, P. M. (2009). A preliminary investigation of the impact of maternal obsessive-compulsive disorder and panic disorder on parenting and children. *Journal of Anxiety Disorders*, 23(7), 848–857.  
<https://doi.org/10.1016/j.janxdis.2009.04.002>
- Challacombe, F. L., & Salkovskis, P. M. (2011). Intensive cognitive-behavioural treatment for women with postnatal obsessive-compulsive disorder: A consecutive case series. *Behaviour Research and Therapy*, 49(6–7), 422–426.  
<https://doi.org/10.1016/j.brat.2011.03.006>
- Challacombe, F. L., Salkovskis, P. M., Woolgar, M., Wilkinson, E. L., Read, J., & Acheson, R. (2016). Parenting and mother-infant interactions in the context of maternal postpartum obsessive-compulsive disorder: Effects of obsessional symptoms and mood. *Infant Behavior and Development*, 44, 11–20.  
<https://doi.org/10.1016/j.infbeh.2016.04.003>
- Challacombe, F. L., Salkovskis, P. M., Woolgar, M., Wilkinson, E. L., Read, J., & Acheson, R. (2017). A pilot randomized controlled trial of time-intensive cognitive-behaviour therapy for postpartum obsessive-compulsive disorder: Effects on maternal symptoms, mother-infant interactions and attachment. *Psychological*

*Medicine*, 47, 1478–1488. <https://doi.org/10.1017/S0033291716003573>

- Challacombe, F. L., & Wroe, A. L. (2013). A hidden problem: Consequences of the misdiagnosis of perinatal obsessive-compulsive disorder. *British Journal of General Practice*, 63(610), 275–276. <https://doi.org/10.3399/bjgp13X667376>
- Chaudhry, S. K., & Susser, L. C. (2018). Considerations in treating insomnia during pregnancy: A literature review. *Psychosomatics*, 59(4), 341–348. <https://doi.org/10.1016/j.psych.2018.03.009>
- Chaudron, L. H., & Nirodi, N. (2010). The obsessive-compulsive spectrum in the perinatal period: A prospective pilot study. *Archives of Women's Mental Health*, 13(5), 403–410. <https://doi.org/10.1007/s00737-010-0154-6>
- Christian, L. M., Kowalsky, J. M., Mitchell, A. M., & Porter, K. (2018). Associations of postpartum sleep, stress, and depressive symptoms with LPS-stimulated cytokine production among African American and White women. *Journal of Neuroimmunology*, 316, 98–106. <https://doi.org/10.1016/j.jneuroim.2017.12.020>
- Christian, Lisa M., & Storch, E. A. (2009). Cognitive behavioral treatment of postpartum onset: Obsessive compulsive disorder with aggressive obsessions. *Clinical Case Studies*, 8(1), 72–83. <https://doi.org/10.1177/1534650108326974>
- Clark, D. A. (2004). *Cognitive behaviour therapy for OCD*. Guildford Press.
- Clark, D. A., Abramowitz, J. S., Alcolado, G. M., Alonso, P., Belloch, A., Bouvard, M., Coles, M. E., Doron, G., Fernández-Álvarez, H., Garcia-Soriano, G., Ghisi, M., Gomez, B., Inozu, M., Moulding, R., Radomsky, A. S., Shams, G., Sica, C., Simos, G., & Wong, W. (2014). Part 3. A question of perspective: The association between intrusive thoughts and obsessionality in 11 countries. *Journal of Obsessive-Compulsive and Related Disorders*, 3(3), 292–299. <https://doi.org/10.1016/j.jocrd.2013.12.006>
- Clark, D. A., & Radomsky, A. S. (2014). Introduction: A global perspective on unwanted intrusive thoughts. *Journal of Obsessive-Compulsive and Related Disorders*, 3(3), 265–268. <https://doi.org/10.1016/j.jocrd.2014.02.001>
- Clark, D. A., & Rhyno, S. (2005). Unwanted intrusive thoughts in nonclinical individuals: Implications for clinical disorders. In D. A. Clark (Ed.), *Intrusive*

*thoughts in clinical disorders: Theory, research, and treatment* (pp. 1–29).

Guildford Press.

- Coban, D., & Tan, O. (2019). The predictors of occupational disability in obsessive-compulsive disorder in a large clinical sample. *Annals of Medical Research*, *26*(7), 1320–1325. <https://doi.org/10.5455/annalsmedres.2019.05.262>
- Coelho, F. M., da Silva, R. A., Quevedo, L. de Á., Souza, L. D., Pinheiro, K. A., & Pinheiro, R. T. (2014). Obsessive-compulsive disorder in fathers during pregnancy and postpartum. *Revista Brasileira de Psiquiatria*, *36*(3), 271–273. <https://doi.org/10.1590/1516-4446-2013-1312>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Erlbaum.
- Cole, J. L., & Warman, D. M. (2019). An examination of continuum beliefs versus biogenetic beliefs in reducing stigma toward violent intrusive thoughts in OCD. *Journal of Obsessive-Compulsive and Related Disorders*, *23*, 100478. <https://doi.org/10.1016/j.jocrd.2019.100478>
- Coles, M. E., Wirshba, C. J., Nota, J., Schubert, J., & Grunthal, B. A. (2018). Obsessive compulsive disorder prevalence increases with latitude. *Journal of Obsessive-Compulsive and Related Disorders*, *18*, 25–30. <https://doi.org/10.1016/j.jocrd.2018.04.001>
- Collardeau, F., Corbyn, B., Abramowitz, J. S., Janssen, P. A., Woody, S., & Fairbrother, N. (2019). Maternal unwanted and intrusive thoughts of infant-related harm, obsessive-compulsive disorder and depression in the perinatal period: Study protocol. *BMC Psychiatry*, *19*(1), 1–15. <https://doi.org/10.1186/s12888-019-2067-x>
- Cowen, E. L. (1998). Changing concepts of prevention in mental health. *Journal of Mental Health*, *7*, 451–461. <https://doi.org/10.1080/09638239817833>
- Cowen, E. L. (2000). Now that we all know that primary prevention in mental health is great, what is it? *Journal of Community Psychology*, *28*(1), 5–16. [https://doi.org/10.1002/\(SICI\)1520-6629\(200001\)28:1<5::AID-JCOP3>3.0.CO;2-H](https://doi.org/10.1002/(SICI)1520-6629(200001)28:1<5::AID-JCOP3>3.0.CO;2-H)

- Cox, J. L., Holden, J. M., & Sagovsky, R. (1987). Detection of postnatal depression: Development of the 10-item Edinburgh Postnatal Depression scale. *British Journal of Psychiatry, 150*, 782–786. <https://doi.org/10.1192/bjp.150.6.782>
- Cox, R. C., Cole, D. A., Kramer, E. L., & Olatunji, B. O. (2018). Prospective associations between sleep disturbance and repetitive negative thinking: The mediating roles of focusing and shifting attentional control. *Behavior Therapy, 49*(1), 21–31. <https://doi.org/10.1016/j.beth.2017.08.007>
- Cox, R. C., & Olatunji, B. O. (2021). Linking insomnia and OCD symptoms during the coronavirus pandemic: Examination of prospective associations. *Journal of Anxiety Disorders, 77*, 102341. <https://doi.org/10.1016/j.janxdis.2020.102341>
- Craske, M. G., Treanor, M., Conway, C. C., Zbozinek, T., & Vervliet, B. (2014). Maximizing exposure therapy: An inhibitory learning approach. *Behaviour Research and Therapy, 58*, 10–23. <https://doi.org/10.1016/j.brat.2014.04.006>
- Cuijpers, P., Sijbrandij, M., Koole, S. L., Andersson, G., Beekman, A. T., & Reynolds, C. F. (2014). Adding psychotherapy to antidepressant medication in depression and anxiety disorders: A meta-analysis. *World Psychiatry, 13*(1), 56–67. <https://doi.org/10.1002/wps.20089>
- De Bruijn, C., Beun, S., De Graaf, R., Ten Have, M., & Denys, D. (2010). Subthreshold symptoms and obsessive-compulsive disorder: Evaluating the diagnostic threshold. *Psychological Medicine, 40*, 989–997. <https://doi.org/10.1017/S0033291709991012>
- Denys, D., Van Der Wee, N., Janssen, J., De Geus, F., & Westenberg, H. G. M. (2004). Low level of dopaminergic D2 receptor binding in obsessive-compulsive disorder. *Biological Psychiatry, 55*(10), 1041–1045. <https://doi.org/10.1016/j.biopsych.2004.01.023>
- Dold, M., Aigner, M., Lanzenberger, R., & Kasper, S. (2013). Antipsychotic augmentation of serotonin reuptake inhibitors in treatment-resistant obsessive-compulsive disorder: A meta-analysis of double-blind, randomized, placebo-controlled trials. *International Journal of Neuropsychopharmacology, 16*(3), 557–574. <https://doi.org/10.1017/S1461145712000740>

- Dollard, J., & Miller, N. L. (1950). *Personality and psychotherapy: An analysis in terms of learning, thinking, and culture* (1st ed.). McGraw-Hill.
- Doucet, S., Jones, I., Letourneau, N., Dennis, C. L., & Blackmore, E. R. (2011). Interventions for the prevention and treatment of postpartum psychosis: A systematic review. *Archives of Women's Mental Health, 14*(2), 89–98. <https://doi.org/10.1007/s00737-010-0199-6>
- Dougherty, D. D., Rauch, S. L., & Jenike, M. A. (2002). Pharmacological treatments for obsessive compulsive disorder. In P. E. Nathan & J. M. Gorman (Eds.), *A guide to treatments that work* (2nd ed., pp. 387–410). Oxford University Press.
- Emmelkamp, P. M., Haan, E. De, & Hoogduin, C. A. (1990). Marital adjustment and obsessive-compulsive disorder. *The British Journal of Psychiatry, 156*, 55–60. <https://doi.org/10.1192/bjp.156.1.55>
- Fairbrother, N., & Abramowitz, J. S. (2007). New parenthood as a risk factor for the development of obsessional problems. *Behaviour Research and Therapy, 45*(9), 2155–2163. <https://doi.org/10.1016/j.brat.2006.09.019>
- Fairbrother, N., & Abramowitz, J. S. (2016). Obsessions and compulsions during pregnancy and the postnatal period. In Amy Wenzel (Ed.), *The Oxford handbook of perinatal psychology* (pp. 167–181). Oxford University Press.
- Fairbrother, N., Barr, R. G., Pauwels, J., Brant, R., & Green, J. (2015). Maternal thoughts of harm in response to infant crying: an experimental analysis. *Archives of Women's Mental Health, 18*(3), 447–455. <https://doi.org/10.1007/s00737-014-0471-2>
- Fairbrother, N., Janssen, P., Antony, M. M., Tucker, E., & Young, A. H. (2016). Perinatal anxiety disorder prevalence and incidence. *Journal of Affective Disorders, 200*, 148–155. <https://doi.org/10.1016/j.jad.2015.12.082>
- Fairbrother, N., Thordarson, D. S., Challacombe, F. L., & Sakaluk, J. K. (2018). Correlates and predictors of new mothers' responses to postpartum thoughts of accidental and intentional harm and obsessive compulsive symptoms. *Behavioural and Cognitive Psychotherapy, 46*(4), 437–453. <https://doi.org/10.1017/S1352465817000765>

- Fairbrother, N., & Woody, S. R. (2008). New mothers' thoughts of harm related to the newborn. *Archives of Women's Mental Health, 11*(3), 221–229.  
<https://doi.org/10.1007/s00737-008-0016-7>
- Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G\*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*(2), 175–191.  
<https://doi.org/10.3758/BF03193146>
- Feygin, D. L., Swain, J. E., & Leckman, J. F. (2006). The normalcy of neurosis: Evolutionary origins of obsessive-compulsive disorder and related behaviors. *Progress in Neuro-Psychopharmacology and Biological Psychiatry, 30*(5), 854–864. <https://doi.org/10.1016/j.pnpbp.2006.01.009>
- First, M. B., Gibbon, M., Spitzer, R. L., & Williams, J. B. (1997). *Structured clinical interview for DSM-IV axis II personality disorders SCID-II*. American Psychiatric Publications.
- Fisher, P. L. (2009). Obsessive compulsive disorder: A comparison of CBT and the metacognitive approach. *International Journal of Cognitive Therapy, 2*(2), 107–122. <https://doi.org/10.1521/ijct.2009.2.2.107>
- Fisher, P. L., & Wells, A. (2008). Metacognitive therapy for obsessive-compulsive disorder: A case series. *Journal of Behavior Therapy and Experimental Psychiatry, 39*(2), 117–132. <https://doi.org/10.1016/j.jbtep.2006.12.001>
- Fitt, S., & Rees, C. S. (2012). Metacognitive therapy for obsessive compulsive disorder by videoconference: A preliminary study. *Behaviour Change, 29*(4), 213–229.  
<https://doi.org/10.1017/bec.2012.21>
- Foa, E. B., Huppert, J. D., Leiberg, S., Langner, R., Kichic, R., Hajcak, G., & Salkovskis, P. M. (2002). The obsessive-compulsive inventory: Development and validation of a short version. *Psychological Assessment, 14*(4), 485–496.  
<https://doi.org/10.1037/1040-3590.14.4.485>
- Foa, E. B., & Kozak, M. J. (1996). Psychological treatment for obsessive-compulsive disorder. In M. R. Mavissakalian & R. F. Prien (Eds.), *Long-term treatments of anxiety disorders* (pp. 285–309). American Psychiatric Association.

- Foa, E. B., Liebowitz, M. R., Kozak, M. J., Davies, S., Campeas, R., Franklin, M. E., Huppert, J. D., Kjernisted, K., Rowan, V., Schmidt, A. B., Simpson, H. B., & Tu, X. (2005). Randomized, placebo-controlled trial of exposure and ritual prevention, clomipramine, and their combination in the treatment of obsessive-compulsive disorder. *American Journal of Psychiatry*, *162*(1), 151–161.  
<https://doi.org/10.1176/appi.ajp.162.1.151>
- Fontenelle, L. F., Countinho, E. S., Lins-Martins, N. M., Fitzgerald, P. B., & Yücel, M. (2015). Electroconvulsive therapy for obsessive-compulsive disorder: a systematic review. *The Journal of Clinical Psychiatry*, *76*(7), 949–957.  
<https://doi.org/10.4088/jcp.14r09129>
- Ford, E., Shakespeare, J., Elias, F., & Ayers, S. (2017). Recognition and management of perinatal depression and anxiety by general practitioners: A systematic review. *Family Practice*, *34*(1), 11–19. <https://doi.org/10.1093/fampra/cmw101>
- Franklin, M. E., & Foa, E. B. (2014). Obsessive-Compulsive Disorder. In D. H. Barlow (Ed.), *Clinical handbook of psychological disorders: A step-by-step treatment manual* (5th ed., pp. 155–205). Guildford Press.
- Gao, L.-L., Chan, S. W. C., Li, X., Chen, S., & Hao, Y. (2010). Evaluation of an interpersonal-psychotherapy-oriented childbirth education programme for Chinese first-time childbearing women: A randomised controlled trial. *International Journal of Nursing Studies*, *47*(10), 1208–1216.  
<https://doi.org/10.1016/j.ijnurstu.2010.03.002>
- García-Soriano, G., & Roncero, M. (2017). What do Spanish adolescents think about obsessive-compulsive disorder? Mental health literacy and stigma associated with symmetry/order and aggression-related symptoms. *Psychiatry Research*, *250*, 193–199. <https://doi.org/10.1016/j.psychres.2017.01.080>
- Gershkovich, M. (2003). Exposure and response prevention for postpartum obsessive-compulsive disorder. *Journal of Cognitive Psychotherapy*, *33*(3), 174–184.  
<https://doi.org/10.1891/0889-8391.33.3.174>
- Glazier, K., Calixte, R. M., Rothschild, R., & Pinto, A. (2013). High rates of OCD symptom misidentification by mental health professionals. *Annals of Clinical Psychiatry*, *25*(3), 201–209.

- Goodman, W. K., Barr, L. C., McDougle, C. J., & Price, L. H. (1993). Beyond the serotonin hypothesis of OCD. *European Neuropsychopharmacology*, *3*(3), 229. [https://doi.org/10.1016/0924-977X\(93\)90042-K](https://doi.org/10.1016/0924-977X(93)90042-K)
- Goodman, W. K., Price, L. H., Rasmussen, S. A., Mazure, C., Fleischmann, R. L., Hill, C. L., Heninger, G. R., & Charney, D. S. (1989). The Yale-Brown Obsessive Compulsive Scale: I. Development, use, and reliability. *Archives of General Psychiatry*, *46*(11), 1006–1011. <https://doi.org/10.1001/archpsyc.1989.01810110048007>
- Gupta, S., & Kiran, S. (2019). Obsessive–compulsive disorder and child safeguarding. *BJPsych Advances*, *25*(3), 185–186. <https://doi.org/10.1192/bja.2018.60>
- Gwilliam, P., Wells, A., & Cartwright-Hatton, S. (2004). Does meta-cognition or responsibility predict obsessive-compulsive symptoms: A test of the metacognitive model. *Clinical Psychology and Psychotherapy*, *11*(2), 137–144. <https://doi.org/10.1002/cpp.402>
- Hakanen, H., Flykt, M., Sinervä, E., Nolvi, S., Kataja, E. L., Pelto, J., Karlsson, H., Karlsson, L., & Korja, R. (2019). How maternal pre- and postnatal symptoms of depression and anxiety affect early mother-infant interaction? *Journal of Affective Disorders*, *257*, 83–90. <https://doi.org/10.1016/j.jad.2019.06.048>
- Hale, L., Strauss, C., & Taylor, B. L. (2013). The effectiveness and acceptability of mindfulness-based therapy for obsessive compulsive disorder: A review of the literature. *Mindfulness*, *4*(4), 375–382. <https://doi.org/10.1007/s12671-012-0137-y>
- Hansmeier, J., Exner, C., Rief, W., & Glombiewski, J. A. (2016). A test of the metacognitive model of obsessive-compulsive disorder. *Journal of Obsessive-Compulsive and Related Disorders*, *10*, 42–48. <https://doi.org/10.1016/j.jocrd.2016.05.002>
- Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Publications.
- Hazell Raine, K., Nath, S., Howard, L. M., Cockshaw, W., Boyce, P., Sawyer, E., & Thorpe, K. (2020). Associations between prenatal maternal mental health indices and mother–infant relationship quality 6 to 18 months’ postpartum: A systematic

- review. *Infant Mental Health Journal*, 41(1), 24–39.  
<https://doi.org/10.1002/imhj.21825>
- Hellberg, S. N., Buchholz, J. L., & Abramowitz, J. S. (2019). Insomnia and obsessive-compulsive symptom dimensions: The mediating role of anxiety and depression. *Journal of Obsessive-Compulsive and Related Disorders*, 23, 100482.  
<https://doi.org/10.1016/j.jocrd.2019.100482>
- Howard, L. M., Molyneaux, E., Dennis, C. L., Rochat, T., Stein, A., & Milgrom, J. (2014). Non-psychotic mental disorders in the perinatal period. *The Lancet*, 384(9956), 1775–1788. [https://doi.org/10.1016/S0140-6736\(14\)61276-9](https://doi.org/10.1016/S0140-6736(14)61276-9)
- Hudak, R., & Wisner, K. L. (2012). Diagnosis and treatment of postpartum obsessions and compulsions that involve infant harm. *American Journal of Psychiatry*, 169(4), 360–363. <https://doi.org/10.1176/appi.ajp.2011.11050667>
- Huppert, J. D., Simpson, H. B., Nissenson, K. J., Liebowitz, M. R., & Foa, E. B. (2009). Quality of life and functional impairment in obsessive-compulsive disorder: A comparison of patients with and without comorbidity, patients in remission, and healthy controls. *Depression and Anxiety*, 26(1), 39–45.  
<https://doi.org/10.1002/da.20506>
- Huppert, J. D., Walther, M. R., Hajcak, G., Yadin, E., Foa, E. B., Simpson, H. B., & Liebowitz, M. R. (2007). The OCI-R: Validation of the subscales in a clinical sample. *Journal of Anxiety Disorders*, 21(3), 394–406.  
<https://doi.org/10.1016/j.janxdis.2006.05.006>
- Jacoby, R. J., & Abramowitz, J. S. (2016). Inhibitory learning approaches to exposure therapy: A critical review and translation to obsessive-compulsive disorder. *Clinical Psychology Review*, 49, 28–40. <https://doi.org/10.1016/j.cpr.2016.07.001>
- Jenny, C., & Isaac, R. (2006). The relation between child death and child maltreatment. *Archives of Disease in Childhood*, 91(3), 265–269.  
<https://doi.org/10.1136/adc.2004.066696>
- Jobst, A., Krause, D., Maiwald, C., Härtl, K., Myint, A. M., Kästner, R., Obermeier, M., Padberg, F., Brücklmeier, B., Weidinger, E., Kieper, S., Schwarz, M., Zill, P., & Müller, N. (2016). Oxytocin course over pregnancy and postpartum period and the

association with postpartum depressive symptoms. *Archives of Women's Mental Health*, 19(4), 571–579. <https://doi.org/10.1007/s00737-016-0644-2>

- Kamath, P., Reddy, Y. C. J., & Kandavel, T. (2007). Suicidal behavior in obsessive-compulsive disorder. *Journal of Clinical Psychiatry*, 68(11), 1741–1750. <https://doi.org/10.4088/JCP.v68n1114>
- Karam, F., Sheehy, O., Huneau, M. C., Chambers, C., Fraser, W. D., Johnson, D., Kao, K., Martin, B., Riordan, S. H., Roth, M., St-André, M., Lavigne, S. V., Wolfe, L., & Bérard, A. (2016). Impact of maternal prenatal and parental postnatal stress on 1-year-old child development: Results from the OTIS antidepressants in pregnancy study. *Archives of Women's Mental Health*, 19(5), 835–843. <https://doi.org/10.1007/s00737-016-0624-6>
- Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K. R., & Walters, E. E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, 62(6), 593–602. <https://doi.org/10.1001/archpsyc.62.6.593>
- Kessler, R. C., Wai, T. C., Demler, O., & Walters, E. E. (2005). Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, 62(6), 617–627. <https://doi.org/10.1001/archpsyc.62.6.617>
- Key, B. L., Rowa, K., Bieling, P., McCabe, R., & Pawluk, E. J. (2017). Mindfulness-based cognitive therapy as an augmentation treatment for obsessive–compulsive disorder. *Clinical Psychology and Psychotherapy*, 24(5), 1109–1120. <https://doi.org/10.1002/cpp.2076>
- Kim, P., Mayes, L., Feldman, R., Leckman, J. F., & Swain, J. E. (2013). Early postpartum parental preoccupation and positive parenting thoughts: Relationship with parent-infant interaction. *Infant Mental Health Journal*, 34(2), 104–116. <https://doi.org/10.1002/imhj.21359>
- Kinney, D. K., Munir, K. M., Crowley, D. J., & Miller, A. M. (2008). Prenatal stress and risk for autism. *Neuroscience and Biobehavioral Reviews*, 32(8), 1519–1532. <https://doi.org/10.1016/j.neubiorev.2008.06.004>

- Kleiman, K., & Wenzel, A. (2011). *Dropping the baby and other scary thoughts: Breaking the cycle of unwanted thoughts in motherhood*. Routledge.
- Kobori, O., & Salkovskis, P. M. (2013). Patterns of reassurance seeking and reassurance-related behaviours in OCD and anxiety disorders. *Behavioural and Cognitive Psychotherapy, 41*(1), 1–23.  
<https://doi.org/10.1017/S1352465812000665>
- Kozinszky, Z., Dudas, R. B., Devosa, I., Csatordai, S., Tóth, É., Szabó, D., Sikovanyecz, J., Barabás, K., & Pál, A. (2012). Can a brief antepartum preventive group intervention help reduce postpartum depressive symptomatology? *Psychotherapy and Psychosomatics, 81*(2), 98–107.  
<https://doi.org/10.1159/000330035>
- Kühne, F., Brütt, A. L., Otterbeck, M. J., & Weck, F. (2019). Research priorities set by people with OCD and OCD researchers: Do the commonalities outweigh the differences? *Health Expectations*. <https://doi.org/10.1111/hex.13005>
- Külz, A. K., Landmann, S., Cludius, B., Rose, N., Heidenreich, T., Jelinek, L., Alsleben, H., Wahl, K., Philipsen, A., Voderholzer, U., Maier, J. G., & Moritz, S. (2019). Mindfulness-based cognitive therapy (MBCT) in patients with obsessive–compulsive disorder (OCD) and residual symptoms after cognitive behavioral therapy (CBT): a randomized controlled trial. *European Archives of Psychiatry and Clinical Neuroscience, 269*(2), 223–233. <https://doi.org/10.1007/s00406-018-0957-4>
- Labad, J., Vilella, E., Reynolds, R. M., Sans, T., Cavallé, P., Valero, J., Alonso, P., Menchón, J. M., Labad, A., & Gutiérrez-Zotes, A. (2011). Increased morning adrenocorticotrophin hormone (ACTH) levels in women with postpartum thoughts of harming the infant. *Psychoneuroendocrinology, 36*(6), 924–928.  
<https://doi.org/10.1016/j.psyneuen.2010.11.006>
- Laios, L., Rio, I., & Judd, F. (2013). Improving maternal perinatal mental health: Integrated care for all women versus screening for depression. *Australasian Psychiatry, 21*(2), 171–175. <https://doi.org/10.1177/1039856212466432>
- Larkin, M., Boden, Z. V. R., & Newton, E. (2015). On the brink of genuinely collaborative care. *Qualitative Health Research, 25*(11), 1463–1476.

<https://doi.org/10.1177/1049732315576494>

- Larsen, K. E., Schwartz, S. A., Whiteside, S. P., Khandker, M., Moore, K. M., & Abramowitz, J. S. (2006). Thought control strategies used by parents reporting postpartum obsessions. *Journal of Cognitive Psychotherapy, 20*(4), 435–445. <https://doi.org/10.1891/jcpiq-v20i4a007>
- Law, C., & Boisseau, C. L. (2019). Exposure and response prevention in the treatment of obsessive-compulsive disorder: Current perspectives. *Psychology Research and Behavior Management, 12*, 1167–1174. <https://doi.org/10.2147/PRBM.S211117>
- Lawrence, P. J., Craske, M. G., Kempton, C., Stewart, A., & Stein, A. (2017). Intrusive thoughts and images of intentional harm to infants in the context of maternal postnatal depression, anxiety, and OCD. *British Journal of General Practice, 67*(661), 376–377. <https://doi.org/10.3399/bjgp17X692105>
- Leckman, J. F., & Mayes, L. C. (1999). Preoccupations and behaviors associated with romantic and parental love: Perspectives on the origin of obsessive-compulsive disorder. *Child and Adolescent Psychiatric Clinics of North America, 8*(3), 635–665. [https://doi.org/10.1016/s1056-4993\(18\)30172-x](https://doi.org/10.1016/s1056-4993(18)30172-x)
- Leckman, J. F., Mayes, L. C., Feldman, R., Evans, D. W., King, R. A., & Cohen, D. J. (1999). Early parental preoccupations and behaviors and their possible relationship to the symptoms of obsessive-compulsive disorder. *Acta Psychiatrica Scandinavica, 100*(Suppl. 396), 1–26. <https://doi.org/10.1111/j.1600-0447.1999.tb10951.x>
- Lecrubier, Y., Sheehan, D. V., Weiller, E., Amorim, P., Bonora, I., Sheehan, K. H., Janavs, J., & Dunbar, G. C. (1997). The Mini International Neuropsychiatric Interview (MINI). A short diagnostic structured interview: Reliability and validity according to the CIDI. *European Psychiatry, 12*(5), 224–231. [https://doi.org/10.1016/S0924-9338\(97\)83296-8](https://doi.org/10.1016/S0924-9338(97)83296-8)
- Lee, E., Steinberg, D., Phillips, L., Hart, J., Smith, A., & Wetterneck, C. (2015). Examining the effects of accommodation and caregiver burden on relationship satisfaction in caregivers of individuals with OCD. *Bulletin of the Menninger Clinic, 79*(1), 1–13. <https://doi.org/10.1521/bumc.2015.79.1.1>

- Levine, A. Z., & Warman, D. M. (2016). Appraisals of and recommendations for managing intrusive thoughts: An empirical investigation. *Psychiatry Research*, *245*, 207–216. <https://doi.org/10.1016/j.psychres.2016.08.040>
- Levitzky, S., & Cooper, R. (2000). Infant colic syndrome - Maternal fantasies of aggression and infanticide. *Clinical Pediatrics*, *39*(7), 395–400. <https://doi.org/10.1177/000992280003900703>
- Lochner, C., Mogotsi, M., Du Toit, P. L., Kaminer, D., Niehaus, D. J., & Stein, D. J. (2003). Quality of life in anxiety disorders: A comparison of obsessive-compulsive disorder, social anxiety disorder, and panic disorder. *Psychopathology*, *36*(5), 255–262. <https://doi.org/10.1159/000073451>
- Lochner, C., & Stein, D. J. (2001). Gender in obsessive-compulsive disorder and obsessive-compulsive spectrum disorders. *Archives of Women's Mental Health*, *4*(1), 19–26. <https://doi.org/10.1007/s007370170004>
- Lord, C., Hall, G., Soares, C. N., & Steiner, M. (2011). Physiological stress response in postpartum women with obsessive-compulsive disorder: A pilot study. *Psychoneuroendocrinology*, *36*(1), 133–138. <https://doi.org/10.1016/j.psyneuen.2010.04.014>
- Lord, C., Rieder, A., Hall, G. B. C., Soares, C. N., & Steiner, M. (2011). Piloting the Perinatal Obsessive-Compulsive Scale (POCS): Development and validation. *Journal of Anxiety Disorders*, *25*(8), 1079–1084. <https://doi.org/10.1016/j.janxdis.2011.07.005>
- Maina, G., Albert, U., Bogetto, F., Vaschetto, P., & Ravizza, L. (1999). Recent life events and obsessive-compulsive disorder (OCD): The role of pregnancy/delivery. *Psychiatry Research*, *89*(1), 49–58. [https://doi.org/10.1016/S0165-1781\(99\)00090-6](https://doi.org/10.1016/S0165-1781(99)00090-6)
- Mantz, S. C., & Abbott, M. J. (2017). The relationship between responsibility beliefs and symptoms and processes in obsessive compulsive disorder: A systematic review. *Journal of Obsessive-Compulsive and Related Disorders*, *14*, 13–26. <https://doi.org/10.1016/j.jocrd.2017.04.002>
- Mao, H. J., Li, H. J., Chiu, H., Chan, W. C., & Chen, S. L. (2012). Effectiveness of

- Antenatal Emotional Self-Management Training Program in Prevention of Postnatal Depression in Chinese Women. *Perspectives in Psychiatric Care*, 48(4), 218–224. <https://doi.org/10.1111/j.1744-6163.2012.00331.x>
- Marazziti, D., Baroni, S., Giannaccini, G., Catena-Dell'Osso, M., Piccinni, A., Massimetti, G., & Dell'Osso, L. (2015). Plasma oxytocin levels in untreated adult obsessive-compulsive disorder patients. *Neuropsychobiology*, 72(2), 74–80. <https://doi.org/10.1159/000438756>
- Marcks, B. A., Weisberg, R. B., Dyck, I., & Keller, M. B. (2011). Longitudinal course of obsessive-compulsive disorder in patients with anxiety disorders: A 15-year prospective follow-up study. *Comprehensive Psychiatry*, 52(6), 670–677. <https://doi.org/10.1016/j.comppsy.2011.01.001>
- Marino-Carper, T., Negy, C., Burns, G., & Lunt, R. A. (2010). The effects of psychoeducation on thought-action fusion, thought suppression, and responsibility. *Journal of Behavior Therapy and Experimental Psychiatry*, 41(3), 289–296. <https://doi.org/10.1016/j.jbtep.2010.02.007>
- Marino, T. L., Lunt, R. A., & Negy, C. (2008). Thought-action fusion: A comprehensive analysis using structural equation modeling. *Behaviour Research and Therapy*, 46(7), 845–853. <https://doi.org/10.1016/j.brat.2008.03.005>
- Mathews, B., & Kenny, M. C. (2008). Mandatory reporting legislation in the United States, Canada, and Australia: A cross-jurisdictional review of key features, differences, and issues. *Child Maltreatment*, 13(1), 50–63. <https://doi.org/10.1177/1077559507310613>
- Mathur, S., Sharma, M. P., Balachander, S., Kandavel, T., & Reddy, Y. C. J. (2021). A randomized controlled trial of mindfulness-based cognitive therapy vs stress management training for obsessive-compulsive disorder. *Journal of Affective Disorders*, 28, 58–68. <https://doi.org/10.1111/acps.12033>
- Mavrogiorgou, P., Akyol, M., Siebers, F., Kienast, T., & Juckel, G. (2015). Low psychosocial functioning in obsessive-compulsive disorder and its clinical implications. *Journal of Obsessive-Compulsive and Related Disorders*, 5, 87–92. <https://doi.org/10.1016/j.jocrd.2015.03.004>

- McGuinness, M., Blissett, J., & Jones, C. (2011). OCD in the perinatal period: Is postpartum OCD (ppOCD) a distinct subtype? A review of the literature. *Behavioural and Cognitive Psychotherapy*, *39*(3), 285–310. <https://doi.org/10.1017/S1352465810000718>
- McKay, D., Sookman, D., Neziroglu, F., Wilhelm, S., Stein, D. J., Kyrios, M., Matthews, K., & Veale, D. (2015). Efficacy of cognitive-behavioral therapy for obsessive-compulsive disorder. *Psychiatry Research*, *225*(3), 236–246. <https://doi.org/10.1016/j.psychres.2014.11.058>
- Melchior, K., Franken, I., Deen, M., & Van Der Heiden, C. (2019). Metacognitive therapy versus exposure and response prevention for obsessive-compulsive disorder: Study protocol for a randomized controlled trial. *Trials*, *20*(1), 1–11. <https://doi.org/10.1186/s13063-019-3381-9>
- Miller, E. S., Chu, C., Gollan, J., & Gossett, D. R. (2013). Obsessive-compulsive symptoms during the postpartum period. *Journal of Reproductive Medicine*, *58*(3–4), 115–122.
- Miller, E. S., Hoxha, D., Wisner, K. L., & Gossett, D. R. (2015). Obsessions and compulsions in postpartum women without obsessive compulsive disorder. *Journal of Women's Health*, *24*(10), 825–830. <https://doi.org/10.1089/jwh.2014.5063>
- Miller, L. J. (2016). Psychological, behavioral, and cognitive changes during pregnancy and the postpartum period. In Amy Wenzel (Ed.), *The Oxford handbook of perinatal psychology* (pp. 7–25). Oxford University Press.
- Misri, S., & Milis, L. (2004). Obsessive-compulsive disorder in the postpartum: Open-label trial of quetiapine augmentation. *Journal of Clinical Psychopharmacology*, *24*(6), 624–627. <https://doi.org/10.1097/01.jcp.0000144892.52858.7d>
- Misri, S., Reebye, P., Corral, M., & Milis, L. (2004). The use of paroxetine and cognitive-behavioral therapy in postpartum depression and anxiety: A randomized controlled trial. *The Journal of Clinical Psychiatry*, *65*(9), 1236–1241. <https://doi.org/10.4088/JCP.v65n0913>
- Moher, D., Hopewell, S., Schulz, K. F., Montori, V., Gøtzsche, P. C., Devereaux, P. J., Elbourne, D., Egger, M., & Altman, D. G. (2010). CONSORT 2010 explanation

and elaboration: updated guidelines for reporting parallel group randomised trials. *BMJ*, 340, 869–896. <https://doi.org/10.1136/bmj.c869>

Moritz, S., Jelinek, L., Hauschildt, M., & Naber, D. (2010). How to treat the untreated: effectiveness of a self-help metacognitive training program (myMCT) for obsessive-compulsive disorder. *Dialogues in Clinical Neuroscience*, 12(2), 209–220.  
<http://www.ncbi.nlm.nih.gov/pubmed/20623925>  
<http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=PMC3181961>

Moulding, R., Anglim, J., Nedeljkovic, M., Doron, G., Kyrios, M., & Ayalon, A. (2011). The obsessive beliefs questionnaire (OBQ): Examination in nonclinical samples and development of a short version. *Assessment*, 18(3), 357–374.  
<https://doi.org/10.1177/1073191110376490>

Moulding, R., Coles, M. E., Abramowitz, J. S., Alcolado, G. M., Alonso, P., Belloch, A., Bouvard, M., Clark, D. A., Doron, G., Fernández-Álvarez, H., García-Soriano, G., Ghisi, M., Gómez, B., Inozu, M., Radomsky, A. S., Shams, G., Sica, C., Simos, G., & Wong, W. (2014). Part 2. They scare because we care: The relationship between obsessive intrusive thoughts and appraisals and control strategies across 15 cities. *Journal of Obsessive-Compulsive and Related Disorders*, 3(3), 280–291.  
<https://doi.org/10.1016/j.jocrd.2014.02.006>

Moulding, R., & Kyrios, M. (2006). Anxiety disorders and control related beliefs: the exemplar of Obsessive-Compulsive Disorder (OCD). *Clinical Psychology Review*, 26(5), 573–583. <https://doi.org/10.1016/j.cpr.2006.01.009>

Mowrer, O. H. (1960). *Learning theory and behavior*. Wiley.

Mrazek, P. J., & Haggerty, R. J. (1994). *Reducing risks for mental disorders: Frontiers for preventive intervention research* (Committee on Prevention of Mental Disorders (ed.)). National Academy Press.

Mulcahy, M., Rees, C. S., Galbally, M., & Anderson, R. (2020). Health practitioners' recognition and management of postpartum obsessive-compulsive thoughts of infant harm. *Archives of Women's Mental Health*, 23, 719–726.  
<https://doi.org/10.1007/s00737-020-01026-y>

- Muris, P., Merckelbach, H., & Clavan, M. (1997). Abnormal and normal compulsions. *Behaviour Research and Therapy*, 35(3), 249–252. [https://doi.org/10.1016/S0005-7967\(96\)00114-3](https://doi.org/10.1016/S0005-7967(96)00114-3)
- Murphy, T. K., Evelyn Stewart, S., & Obregon, D. (2016). Obsessive compulsive disorder. In S. Hossein Fatemi & P. J. Clayton (Eds.), *The medical basis of psychiatry* (4th ed., pp. 169–193). Springer. [https://doi.org/10.1007/978-1-4939-2528-5\\_10](https://doi.org/10.1007/978-1-4939-2528-5_10)
- Myers, S. G., Fisher, P. L., & Wells, A. (2008). Belief domains of the Obsessive Beliefs Questionnaire-44 (OBQ-44) and their specific relationship with obsessive-compulsive symptoms. *Journal of Anxiety Disorders*, 22(3), 475–484. <https://doi.org/10.1016/j.janxdis.2007.03.012>
- Myers, S. G., Fisher, P. L., & Wells, A. (2009). An empirical test of the metacognitive model of obsessive-compulsive symptoms: Fusion beliefs, beliefs about rituals, and stop signals. *Journal of Anxiety Disorders*, 23(4), 436–442. <https://doi.org/10.1016/j.janxdis.2008.08.007>
- Naesström, M., Blomstedt, P., & Bodlund, O. (2016). A systematic review of psychiatric indications for deep brain stimulation, with focus on major depressive and obsessive-compulsive disorder. *Nordic Journal of Psychiatry*, 70(7), 483–491. <https://doi.org/10.3109/08039488.2016.1162846>
- Namouz-Haddad, S., & Nulman, I. (2014). Safety of treatment of obsessive compulsive disorder in pregnancy and puerperium. *Canadian Family Physician*, 60(2), 133–136.
- National Health and Medical Research Council. (1998). *A guide to the development, implementation and evaluation of clinical practice guidelines*. Commonwealth of Australia.
- National Institute for Health and Care Excellence. (2005). *Obsessive-compulsive disorder and body dysmorphic disorder: Treatment (CG31)*. <https://www.nice.org.uk/guidance/cg31>
- National Institute for Health and Care Excellence. (2014). *Antenatal and postnatal mental health: Clinical management and service guidance (CG192)*.

<https://www.nice.org.uk/guidance/cg192>

- Nedeljkovic, M., & Kyrios, M. (2007). Confidence in memory and other cognitive processes in obsessive-compulsive disorder. *Behaviour Research and Therapy*, 45(12), 2899–2914. <https://doi.org/10.1016/j.brat.2007.08.001>
- Nedeljkovic, M., Moulding, R., Kyrios, M., & Doron, G. (2009). The relationship of cognitive confidence to OCD symptoms. *Journal of Anxiety Disorders*, 23(4), 463–468. <https://doi.org/10.1016/j.janxdis.2008.10.001>
- New Zealand Government. (2020). *Māori population estimates: At 30 June 2020*.
- Newton, J. (1992). *Preventing mental illness in practice*. Routledge.
- Nota, J. A., & Coles, M. E. (2015). Duration and timing of sleep are associated with repetitive negative thinking. *Cognitive Therapy and Research*, 39(2), 253–261. <https://doi.org/10.1007/s10608-014-9651-7>
- Nota, J. A., Schubert, J. R., & Coles, M. E. (2016). Sleep disruption is related to poor response inhibition in individuals with obsessive-compulsive and repetitive negative thought symptoms. *Journal of Behavior Therapy and Experimental Psychiatry*, 50, 23–32. <https://doi.org/10.1016/j.jbtep.2015.04.011>
- Nota, J. A., Sharkey, K. M., & Coles, M. E. (2015). Sleep, arousal, and circadian rhythms in adults with obsessive-compulsive disorder: A meta-analysis. *Neuroscience and Biobehavioral Reviews*, 51, 100–107. <https://doi.org/10.1016/j.neubiorev.2015.01.002>
- O'Connor, T. G., Heron, J., & Glover, V. (2002). Antenatal anxiety predicts child behavioral/emotional problems independently of postnatal depression. *Journal of the American Academy of Child and Adolescent Psychiatry*, 41(12), 1470–1477. <https://doi.org/10.1097/00004583-200212000-00019>
- O'Hara, M. W., & Wisner, K. L. (2014). Perinatal mental illness: Definition, description and aetiology. *Best Practice and Research: Clinical Obstetrics and Gynaecology*, 28(1), 3–12. <https://doi.org/10.1016/j.bpobgyn.2013.09.002>
- Obsessive Compulsive Cognitions Working Group. (2001). Development and initial validation of the Obsessive Beliefs Questionnaire and the Interpretation of

Intrusions Inventory. *Behaviour Research and Therapy*, 39(8), 987–1006.

[https://doi.org/10.1016/S0005-7967\(00\)00085-1](https://doi.org/10.1016/S0005-7967(00)00085-1)

Obsessive Compulsive Cognitions Working Group. (2003). Psychometric validation of the Obsessive Beliefs Questionnaire and the Interpretation of Intrusions Inventory: Part I. *Behaviour Research and Therapy*, 41(8), 863–878.

[https://doi.org/10.1016/S0005-7967\(02\)00099-2](https://doi.org/10.1016/S0005-7967(02)00099-2)

Obsessive Compulsive Cognitions Working Group. (2005). Psychometric validation of the obsessive belief questionnaire and interpretation of intrusions inventory - Part 2: Factor analyses and testing of a brief version. *Behaviour Research and Therapy*, 43(11), 1527–1542. <https://doi.org/10.1016/j.brat.2004.07.010>

Olatunji, B. O., Davis, M. L., Powers, M. B., & Smits, J. A. J. (2013). Cognitive-behavioral therapy for obsessive-compulsive disorder: A meta-analysis of treatment outcome and moderators. *Journal of Psychiatric Research*, 47(1), 33–41. <https://doi.org/10.1016/j.jpsychires.2012.08.020>

Ong, C. W., Clyde, J. W., Bluett, E. J., Levin, M. E., & Twohig, M. P. (2016). Dropout rates in exposure with response prevention for obsessive-compulsive disorder: What do the data really say? *Journal of Anxiety Disorders*, 40, 8–17.

<https://doi.org/10.1016/j.janxdis.2016.03.006>

Onoye, J. M., Goebert, D. A., & Morland, L. A. (2016). Cross-cultural differences in adjustment to pregnancy and the postpartum period. In A. Wenzel (Ed.), *The Oxford Handbook of Perinatal Psychology* (pp. 632–664). Oxford University Press.

Osnes, R. S., Eberhard-Gran, M., Follestad, T., Kallestad, H., Morken, G., & Roaldset, J. O. (2020). Mid-pregnancy insomnia is associated with concurrent and postpartum maternal anxiety and obsessive-compulsive symptoms: A prospective cohort study. *Journal of Affective Disorders*, 266, 319–326.

<https://doi.org/10.1016/j.jad.2020.01.140>

Osnes, R. S., Roaldset, J. O., Follestad, T., & Eberhard-Gran, M. (2019). Insomnia late in pregnancy is associated with perinatal anxiety: A longitudinal cohort study. *Journal of Affective Disorders*, 248, 155–165.

<https://doi.org/10.1016/j.jad.2019.01.027>

- Öst, L. G., Havnen, A., Hansen, B., & Kvale, G. (2015). Cognitive behavioral treatments of obsessive-compulsive disorder. A systematic review and meta-analysis of studies published 1993-2014. *Clinical Psychology Review, 40*, 156–169. <https://doi.org/10.1016/j.cpr.2015.06.003>
- Palombini, E., Richardson, J., McAllister, E., Veale, D., & Thomson, A. B. (2020). When self-harm is about preventing harm: emergency management of obsessive-compulsive disorder and associated self-harm. *BJPsych Bulletin, 1*–6. <https://doi.org/10.1192/bjb.2020.70>
- Papageorgiou, C., Carlile, K., Thorgaard, S., Waring, H., Haslam, J., Horne, L., & Wells, A. (2018). Group cognitive-behavior therapy or group metacognitive therapy for obsessive-compulsive disorder? Benchmarking and comparative effectiveness in a routine clinical service. *Frontiers in Psychology, 9*, 1–11. <https://doi.org/10.3389/fpsyg.2018.02551>
- Parkinson, L., & Rachman, S. (1981a). Part II. The nature of intrusive thoughts. *Advances in Behaviour Research and Therapy, 3*(3), 101–110. [https://doi.org/10.1016/0146-6402\(81\)90008-4](https://doi.org/10.1016/0146-6402(81)90008-4)
- Parkinson, L., & Rachman, S. (1981b). Part III - Intrusive thoughts: The effects of an uncontrived stress. *Advances in Behaviour Research and Therapy, 3*(3), 111–118. [https://doi.org/10.1016/0146-6402\(81\)90009-6](https://doi.org/10.1016/0146-6402(81)90009-6)
- Pashler, H., & Wagenmakers, E. J. (2012). Editors' introduction to the special section on replicability in psychological science: A crisis of confidence? *Perspectives on Psychological Science, 7*(6), 528–530. <https://doi.org/10.1177/1745691612465253>
- Pato, M. T., Zohar-Kadouch, R., Zohar, J., & Murphy, D. L. (1988). Return of symptoms after discontinuation of clomipramine in patients with obsessive-compulsive disorder. *American Journal of Psychiatry, 145*(12), 1521–1525. <https://doi.org/10.1176/ajp.145.12.1521>
- Pearcy, C. P., Anderson, R. A., Egan, S. J., & Rees, C. S. (2016). A systematic review and meta-analysis of self-help therapeutic interventions for obsessive-compulsive disorder: Is therapeutic contact key to overall improvement? *Journal of Behavior Therapy and Experimental Psychiatry, 51*, 74–83. <https://doi.org/10.1016/j.jbtep.2015.12.007>

- Peduzzi, P., Concato, J., Kemper, E., Holford, T. R., & Feinstein, A. R. (1996). A simulation study of the number of events per variable in logistic regression analysis. *Journal of Clinical Epidemiology*, *49*(12), 1373–1379.  
[https://doi.org/10.1016/S0895-4356\(96\)00236-3](https://doi.org/10.1016/S0895-4356(96)00236-3)
- Postpartum Stress Centre. (2017). *What if I'm having scary thoughts?*  
<https://postpartumstress.com/get-help-2/are-you-having-scary-thoughts/>
- Pozza, A., & Dèttore, D. (2014). The specificity of inflated responsibility beliefs to OCD: A systematic review and meta-analysis of published cross-sectional case-control Studies. *Research in Psychology and Behavioral Sciences*, *2*(4), 75–85.  
<https://doi.org/10.12691/rpbs-2-4-1>
- Purdon, C. (2004). Empirical investigations of thought suppression in OCD. *Journal of Behavior Therapy and Experimental Psychiatry*, *35*(2), 121–136.  
<https://doi.org/10.1016/j.jbtep.2004.04.004>
- Purdon, C., & Clark, D. A. (2002). The need to control thoughts. In R. Frost & G. Steketee (Eds.), *Cognitive approaches to obsessions and compulsions: Theory, assessment, and treatment* (pp. 29–44). Elsevier Science & Technology.
- Puryear, L. J., Treece, C. A., & Asso-, A. P. (2017). Postpartum obsessive-compulsive disorder. In E. A. Storch, D. McKay, & J. S. Abramowitz (Eds.), *Advanced casebook of obsessive-compulsive and related disorders: Conceptualizations and treatment* (pp. 123–136). Elsevier Science & Technology.
- Rachman, S. (1993). Obsessions, responsibility and guilt. *Behaviour Research and Therapy*, *31*(2), 149–154. [https://doi.org/10.1016/0005-7967\(93\)90066-4](https://doi.org/10.1016/0005-7967(93)90066-4)
- Rachman, S. (1998). A cognitive theory of obsessions: Elaborations. *Behaviour Research and Therapy*, *36*(4), 385–401. [https://doi.org/10.1016/S0005-7967\(97\)10041-9](https://doi.org/10.1016/S0005-7967(97)10041-9)
- Rachman, S., & de Silva, P. (1978). Abnormal and normal obsessions. *Behaviour Research and Therapy*, *16*(4), 233–248. [https://doi.org/10.1016/0005-7967\(78\)90022-0](https://doi.org/10.1016/0005-7967(78)90022-0)
- Radomsky, A. S., Alcolado, G. M., Abramowitz, J. S., Alonso, P., Belloch, A., Bouvard, M., Clark, D. A., Coles, M. E., Doron, G., Fernández-Álvarez, H.,

- Garcia-Soriano, G., Ghisi, M., Gomez, B., Inozu, M., Moulding, R., Shams, G., Sica, C., Simos, G., & Wong, W. (2014). Part 1-You can run but you can't hide: Intrusive thoughts on six continents. *Journal of Obsessive-Compulsive and Related Disorders*, 3(3), 269–279. <https://doi.org/10.1016/j.jocrd.2013.09.002>
- Radomsky, A. S., Giraldo-O'Meara, M., Wong, S. F., Dugas, M. J., Gelfand, L. A., Rachman, S., Schell, S., Senn, J. M., Shafran, R., & Whittal, M. L. (2020). Cognitive therapy for compulsive checking in obsessive-compulsive disorder: A pilot trial. *Psychiatry Research*, 286, 112850. <https://doi.org/10.1016/j.psychres.2020.112850>
- Raines, A. M., Short, N. A., Sutton, C. A., Oglesby, M. E., Allan, N. P., & Schmidt, N. B. (2015). Obsessive-compulsive symptom dimensions and insomnia: The mediating role of anxiety sensitivity cognitive concerns. *Psychiatry Research*, 228(3), 368–372. <https://doi.org/10.1016/j.psychres.2015.05.081>
- Ramunno, S. (2017). *The effectiveness of a brief metacognitive intervention for postpartum obsessive-compulsive disorder: A pilot study*. Curtin University.
- Rees, C. S. (2009). *Obsessive-compulsive disorder: A practical guide to treatment*. IP Communications.
- Rees, C. S., & Anderson, R. A. (2013). A review of metacognition in psychological models of obsessive-compulsive disorder. *Clinical Psychologist*, 17(1), 1–8. <https://doi.org/10.1111/cp.12001>
- Rees, C. S., Austen, T., Anderson, R. A., & Egan, S. J. (2014). Can corrective information reduce negative appraisals of intrusive thoughts in a community sample. *Behavioural and Cognitive Psychotherapy*, 42(4), 502–507. <https://doi.org/10.1017/S1352465813000994>
- Rees, C. S., & van Koesveld, K. E. (2008). An open trial of group metacognitive therapy for obsessive-compulsive disorder. *Journal of Behavior Therapy and Experimental Psychiatry*, 39(4), 451–458. <https://doi.org/10.1016/j.jbtep.2007.11.004>
- Renshaw, K. D., Steketee, G., & Chambless, D. L. (2005). Involving family members in the treatment of OCD. *Cognitive Behaviour Therapy*, 34(3), 164–175.

<https://doi.org/10.1080/16506070510043732>

- Riggs, D. S., Hiss, H., & Foa, E. B. (1992). Marital distress and the treatment of obsessive compulsive disorder. *Behavior Therapy*, 23(4), 585–597.  
[https://doi.org/10.1016/S0005-7894\(05\)80223-0](https://doi.org/10.1016/S0005-7894(05)80223-0)
- Riva Crugnola, C., Ierardi, E., Ferro, V., Gallucci, M., Parodi, C., & Astengo, M. (2016). Mother-infant emotion regulation at three months: The role of maternal anxiety, depression and parenting stress. *Psychopathology*, 49(4), 285–294.  
<https://doi.org/10.1159/000446811>
- Robbins, T. W., Vaghi, M. M., & Banca, P. (2019). Obsessive-compulsive disorder: Puzzles and respects. *Neuron*, 102(1), 27–47.  
<https://doi.org/10.1016/j.neuron.2019.01.046>
- Robert, G. (2013). Participatory action research: Using experience-based co-design to improve the quality of healthcare services. In S. Ziebland, A. Coulter, J. D. Calabrese, & L. Locock (Eds.), *Understanding and using health experiences: Improving patient care*. (pp. 1–3). Oxford University Press.  
<https://doi.org/10.1093/acprof:oso/9780199665372.003.0014>
- Robertson Blackmore, E., Heron, J., & Jones, I. (2016). Severe psychopathology during pregnancy and the postpartum period. In Amy Wenzel (Ed.), *The Oxford Handbook of Perinatal Psychology* (pp. 216–230). Oxford University Press.
- Rossen, L., Hutchinson, D., Wilson, J., Burns, L., A Olsson, C., Allsop, S., J Elliott, E., Jacobs, S., Macdonald, J. A., & Mattick, R. P. (2016). Predictors of postnatal mother-infant bonding: the role of antenatal bonding, maternal substance use and mental health. *Archives of Women's Mental Health*, 19(4), 609–622.  
<https://doi.org/10.1007/s00737-016-0602-z>
- Royal Australian and New Zealand College of Obstetricians and Gynaecologists. (2015). *Perinatal anxiety and depression*.  
[https://www.ranzcog.edu.au/component/docman/cat\\_view/656-college-statements/668-obstetrics/705-perinatal-mental-health.html?Itemid=946](https://www.ranzcog.edu.au/component/docman/cat_view/656-college-statements/668-obstetrics/705-perinatal-mental-health.html?Itemid=946)
- Rumball, K. (2015). *Training health visitors in perinatal Obsessive Compulsive Disorder : does it help mothers ? Research submitted in partial fulfilment of the*

*requirements for the degree of Doctor in Clinical Psychology ( DClinPsy ), Royal Holloway , University of.* 1–230.

- Rus, O. G., Reess, T. J., Wagner, G., Zimmer, C., Zaudig, M., & Koch, K. (2017). Functional and structural connectivity of the amygdala in obsessive-compulsive disorder. *NeuroImage: Clinical, 13*, 246–255.  
<https://doi.org/10.1016/j.nicl.2016.12.007>
- Ruscio, A. M., Stein, D. J., Chiu, W. T., & Kessler, R. C. (2010). The epidemiology of obsessive-compulsive disorder in the National Comorbidity Survey Replication. *Molecular Psychiatry, 15*(1), 53–63. <https://doi.org/10.1038/mp.2008.94>
- Russell, E. J., Fawcett, J. M., & Mazmanian, D. (2013). Risk of obsessive-compulsive disorder in pregnant and postpartum women: A meta-analysis. *Journal of Clinical Psychiatry, 74*(4), 377–385. <https://doi.org/10.4088/JCP.12r07917>
- Salkovskis, P. M. (1985). Obsessional-compulsive problems: A cognitive-behavioural analysis. *Behaviour Research and Therapy, 23*(5), 571–583.  
[https://doi.org/10.1016/0005-7967\(85\)90105-6](https://doi.org/10.1016/0005-7967(85)90105-6)
- Salkovskis, P. M., & Harrison, J. (1984). Abnormal and normal obsessions: A replication. *Behaviour Research and Therapy, 22*(5), 549–552.  
[https://doi.org/10.1016/0005-7967\(84\)90057-3](https://doi.org/10.1016/0005-7967(84)90057-3)
- Salkovskis, P. M., Wroe, A. L., Gledhill, A., Morrison, N., Forrester, E., Richards, C., Reynolds, M., & Thorpe, S. (2000). Responsibility attitudes and interpretations are characteristic of obsessive compulsive disorder. *Behaviour Research and Therapy, 38*(4), 347–372. [https://doi.org/10.1016/S0005-7967\(99\)00071-6](https://doi.org/10.1016/S0005-7967(99)00071-6)
- Schaffir, J. (2016). Biological changes during pregnancy and the postpartum period. In Amy Wenzel (Ed.), *The Oxford Handbook of Perinatal Psychology* (pp. 26–37). Oxford University Press.
- Selchen, S., Hawley, L. L., Regev, R., Richter, P., & Rector, N. A. (2018). Mindfulness-based cognitive therapy for OCD: Stand-alone and post-CBT augmentation approaches. *International Journal of Cognitive Therapy, 11*(1), 58–79.  
<https://doi.org/10.1007/s41811-018-0003-3>
- Shafran, R., Coughtrey, A., & Whittal, M. (2020). Recognising and addressing the

impact of COVID-19 on obsessive-compulsive disorder. *The Lancet Psychiatry*, 7(7), 570–572. [https://doi.org/10.1016/S2215-0366\(20\)30222-4](https://doi.org/10.1016/S2215-0366(20)30222-4)

- Shafran, R., & Rachman, S. (2004). Thought-action fusion: A review. *Journal of Behavior Therapy and Experimental Psychiatry*, 35(2), 87–107. <https://doi.org/10.1016/j.jbtep.2004.04.002>
- Shafran, R., Thordarson, D. S., & Rachman, S. (1996). Thought-action fusion in obsessive compulsive disorder. *Journal of Anxiety Disorders*, 10(5), 379–391. [https://doi.org/10.1016/0887-6185\(96\)00018-7](https://doi.org/10.1016/0887-6185(96)00018-7)
- Shakespeare, J., Challacombe, F. L., & Bavetta, M. (2018). Intrusive thoughts of intentional harm to infants. *British Journal of General Practice*, 68(669), 175. <https://doi.org/10.3399/bjgp18X695393>
- Sharma, E., Thennarasu, K., & Reddy, Y. C. J. (2014). Long-term outcome of obsessive-compulsive disorder in adults: A meta-analysis. *Journal of Clinical Psychiatry*, 75(9), 1019–1027. <https://doi.org/10.4088/JCP.13r08849>
- Sharma, V. (2018). Pharmacotherapy of postpartum obsessive–compulsive disorder: a systematic review. *Expert Review of Neurotherapeutics*, 18(12), 925–931. <https://doi.org/10.1080/14737175.2018.1549991>
- Sharma, V. (2019). Role of sleep deprivation in the causation of postpartum obsessive-compulsive disorder. *Medical Hypotheses*, 122, 58–61. <https://doi.org/10.1016/j.mehy.2018.10.016>
- Sharma, V., & Corpse, C. (2008). Lithium treatment of trichotillomania with comorbid bipolar II disorder. *Archives of Women's Mental Health*, 11(4), 305–306. <https://doi.org/10.1007/s00737-008-0026-5>
- Sharma, V., & Mazmanian, D. (2020). Are we overlooking obsessive-compulsive disorder during and after pregnancy? Some arguments for a peripartum onset specifier. *Archives of Women's Mental Health*. <https://doi.org/10.1007/s00737-020-01038-8>
- Sharma, V., & Sharma, P. (2015). Peripartum-onset of obsessive-compulsive disorder in women with bipolar disorder – A case series. *Journal of Obsessive-Compulsive and Related Disorders*, 6, 120–123. <https://doi.org/10.1016/j.jocrd.2015.07.002>

- Sharma, V., & Sommerdyk, C. (2015). Obsessive-compulsive disorder in the postpartum period: Diagnosis, differential diagnosis and management. *Women's Health, 11*(4), 543–552. <https://doi.org/10.2217/whe.15.20>
- Sheehan, D. V., Lecrubier, Y., Sheehan, K. H., Amorim, P., Janavs, J., Weiller, E., Hergueta, T., Baker, R., & Dunbar, G. C. (1998). The Mini-International Neuropsychiatric Interview (MINI): The development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. *The Journal of Clinical Psychiatry, 59*(suppl 20), 22–33.
- Sichel, D. A., Cohen, L. S., Dimmock, J. A., & Rosenbaum, J. F. (1993). Postpartum obsessive compulsive disorder: a case series. *The Journal of Clinical Psychiatry, 54*(4), 156–159.
- Sichel, D. A., Cohen, L. S., Rosenbaum, J. F., & Driscoll, J. (1993). Postpartum onset of obsessive-compulsive disorder. *Psychosomatics, 34*(3), 277–279. [https://doi.org/10.1016/S0033-3182\(93\)71893-9](https://doi.org/10.1016/S0033-3182(93)71893-9)
- Simonds, L. M., & Thorpe, S. J. (2003). Attitudes toward obsessive-compulsive disorders - An experimental investigation. *Social Psychiatry and Psychiatric Epidemiology, 38*(6), 331–336. <https://doi.org/10.1007/s00127-003-0637-0>
- Simons, M., Schneider, S., & Herpertz-Dahlmann, B. (2006). Metacognitive therapy versus exposure and response prevention for pediatric obsessive-compulsive disorder: A case series with randomized allocation. *Psychotherapy and Psychosomatics, 75*(4), 257–264. <https://doi.org/10.1159/000092897>
- Simpson, H. B., Franklin, M. E., Cheng, J., Foa, E. B., & Liebowitz, M. R. (2005). Standard criteria for relapse are needed in obsessive-compulsive disorder. *Depression and Anxiety, 21*(1), 1–8. <https://doi.org/10.1002/da.20052>
- Simpson, H. B., Liebowitz, M. R., Foa, E. B., Kozak, M. J., Schmidt, A. B., Rowan, V., Petkova, E., Kjernisted, K., Huppert, J. D., Franklin, M. E., Davies, S. O., & Campeas, R. (2004). Post-treatment effects of exposure therapy and clomipramine in obsessive-compulsive disorder. *Depression and Anxiety, 19*(4), 225–233. <https://doi.org/10.1002/da.20003>
- Simpson, W., Glazer, M., Michalski, N., Steiner, M., & Frey, B. N. (2014).

- Comparative efficacy of the generalized anxiety disorder 7-item scale and the Edinburgh Postnatal Depression Scale as screening tools for generalized anxiety disorder in pregnancy and the postpartum period. *Canadian Journal of Psychiatry*, 59(8), 434–440. <https://doi.org/10.1177/070674371405900806>
- Sit, D., Rothschild, A. J., & Wisner, K. L. (2006). A review of postpartum psychosis. *Journal of Women's Health*, 15(4), 352–368. <https://doi.org/10.1089/jwh.2006.15.352>
- Skoog, G., & Skoog, I. (1999). A 40-year follow-up of patients with obsessive-compulsive disorder. *Archives of General Psychiatry*, 56(2), 121–127. <https://doi.org/10.1001/archpsyc.56.2.121>
- Slikboer, R., Nedeljkovic, M., Bowe, S. J., & Moulding, R. (2017). A systematic review and meta-analysis of behaviourally based psychological interventions and pharmacological interventions for trichotillomania. *Clinical Psychologist*, 21(1), 20–32. <https://doi.org/10.1111/cp.12074>
- Snethen, C., & Warman, D. M. (2018). Effects of psychoeducation on attitudes towards individuals with pedophilic sexual intrusive thoughts. *Journal of Obsessive-Compulsive and Related Disorders*, 19, 92–98. <https://doi.org/10.1016/j.jocrd.2018.10.001>
- Solem, S., Håland, Å. T., Vogel, P. A., Hansen, B., & Wells, A. (2009). Change in metacognitions predicts outcome in obsessive-compulsive disorder patients undergoing treatment with exposure and response prevention. *Behaviour Research and Therapy*, 47(4), 301–307. <https://doi.org/10.1016/j.brat.2009.01.003>
- Solem, S., Myers, S. G., Fisher, P. L., Vogel, P. A., & Wells, A. (2010). An empirical test of the metacognitive model of obsessive-compulsive symptoms: Replication and extension. *Journal of Anxiety Disorders*, 24(1), 79–86. <https://doi.org/10.1016/j.janxdis.2009.08.009>
- Sookman, D. (2016). *Specialized cognitive behavior therapy for obsessive compulsive disorder: An expert clinician guide*. Routledge.
- Sookman, Debbie, Abramowitz, J. S., Calamari, J. E., Wilhelm, S., & McKay, D. (2005). Subtypes of obsessive-compulsive disorder: Implications for specialized

cognitive behavior therapy. *Behavior Therapy*, 36(4), 393–400.

[https://doi.org/10.1016/S0005-7894\(05\)80121-2](https://doi.org/10.1016/S0005-7894(05)80121-2)

Spitzer, R. L., Kroenke, K., Williams, J. B. W., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: The GAD-7. *Archives of Internal Medicine*, 166(10), 1092–1097. <https://doi.org/10.1001/archinte.166.10.1092>

Starcevic, V., Eslick, G. D., Viswasam, K., & Berle, D. (2020). Symptoms of obsessive-compulsive disorder during pregnancy and the postpartum period: A systematic review and meta-analysis. *Psychiatric Quarterly*, 91(4), 965–981.

<https://doi.org/10.1007/s11126-020-09769-8>

Stein, D. J., Costa, D. L. C., Lochner, C., Miguel, E. C., Janardhan Reddy, Y. C., Shavitt, R. G., van den Heuvel, O. A., & Simpson, H. B. (2019). Obsessive-compulsive disorder. *Nature Reviews*, 5(1), 52–72. <https://doi.org/10.1038/s41572-019-0102-3>

Steinberg, D. S., & Wetterneck, C. T. (2017). OCD taboo thoughts and stigmatizing attitudes in clinicians. *Community Mental Health Journal*, 53(3), 275–280.

<https://doi.org/10.1007/s10597-016-0055-x>

Stengler-Wenzke, K., Kroll, M., Matschinger, H., & Angermeyer, M. C. (2006). Subjective quality of life of patients with obsessive-compulsive disorder. *Social Psychiatry and Psychiatric Epidemiology*, 41(8), 662–668.

<https://doi.org/10.1007/s00127-006-0077-8>

Storch, E. A. (2015). What to make of misidentification rates in obsessive-compulsive disorder. *Journal of Clinical Psychiatry*, 76(6), e820–e821.

<https://doi.org/10.4088/JCP.14com09430>

Strauss, C., Lea, L., Hayward, M., Forrester, E., Leeuwerik, T., Jones, A. M., & Rosten, C. (2018). Mindfulness-based exposure and response prevention for obsessive compulsive disorder: Findings from a pilot randomised controlled trial. *Journal of Anxiety Disorders*, 57, 39–47. <https://doi.org/10.1016/j.janxdis.2018.04.007>

Tackett, J. L., Brandes, C. M., King, K. M., & Markon, K. E. (2019). Psychology's replication crisis and clinical psychological science. *Annual Review of Clinical Psychology*, 15, 579–604. <https://doi.org/10.1146/annurev-clinpsy-050718-095710>

- Taylor, S. (2011). Etiology of obsessions and compulsions: A meta-analysis and narrative review of twin studies. *Clinical Psychology Review, 31*, 1361–1372. <https://doi.org/10.1016/j.cpr.2011.09.008>
- Taylor, S., Abramowitz, J. S., & McKay, D. (2007). Cognitive-behavioral models of obsessive-compulsive disorder. In M. M. Antony, C. Purdon, & L. J. Summerfeldt (Eds.), *Psychological treatment of obsessive-compulsive disorder: Fundamentals and beyond* (pp. 9–29). American Psychological Association. <https://doi.org/10.1037/11543-001>
- Taylor, S., & Jang, K. L. (2011). Biopsychosocial etiology of obsessions and compulsions: An integrated behavioral-genetic and cognitive-behavioral analysis. *Journal of Abnormal Psychology, 120*(1), 174–186. <https://doi.org/10.1037/a0021403>
- Taylor, S., McKay, D., & Abramowitz, J. S. (2005). Hierarchical structure of dysfunctional beliefs in obsessive-compulsive disorder. *Cognitive Behaviour Therapy, 34*(4), 216–228. <https://doi.org/10.1080/16506070510041167>
- Teachman, B. A., Woody, S. R., & Magee, J. C. (2006). Implicit and explicit appraisals of the importance of intrusive thoughts. *Behaviour Research and Therapy, 44*(6), 785–805. <https://doi.org/10.1016/j.brat.2005.05.005>
- Thiséus, J., Perrin, S., & Cervin, M. (2019). Intrusive thoughts and compulsive behaviors in postpartum women: Psychometric properties of the Parental Thoughts and Behaviors Checklist. *Psychiatry Research, 278*, 194–198. <https://doi.org/10.1016/j.psychres.2019.06.015>
- Thompson, E. M., Torres, A. R., Albertella, L., Ferrão, Y. A., Tiego, J., Shavitt, R. G., Conceição do Rosario, M., Miguel, E. C., & Fontenelle, L. F. (2020). The speed of progression towards obsessive-compulsive disorder. *Journal of Affective Disorders, 264*, 181–186. <https://doi.org/10.1016/j.jad.2019.12.016>
- Thorsen, A. L., Hagland, P., Radua, J., Mataix-Cols, D., Kvale, G., Hansen, B., & van den Heuvel, O. A. (2018). Emotional processing in obsessive-compulsive disorder: A systematic review and meta-analysis of 25 functional neuroimaging studies. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging, 3*(6), 563–571. <https://doi.org/10.1016/j.bpsc.2018.01.009>

- Thorsen, A. L., van den Heuvel, O. A., Hansen, B., & Kvale, G. (2015). Neuroimaging of psychotherapy for obsessive-compulsive disorder: A systematic review. *Psychiatry Research - Neuroimaging*, *233*(3), 306–313. <https://doi.org/10.1016/j.psychresns.2015.05.004>
- Timpano, K. R., Abramowitz, J. S., Mahaffey, B. L., Mitchell, M. A., & Schmidt, N. B. (2011). Efficacy of a prevention program for postpartum obsessive-compulsive symptoms. *Journal of Psychiatric Research*, *45*, 1511–1517. <https://doi.org/10.1016/j.jpsychires.2011.06.015>
- Timpano, K. R., Rasmussen, J. L., Exner, C., Rief, W., & Wilhelm, S. (2014). The association between metacognitions, the obsessive compulsive symptom dimensions and hoarding: A focus on specificity. *Journal of Obsessive-Compulsive and Related Disorders*, *3*(2), 188–194. <https://doi.org/10.1016/j.jocrd.2013.10.001>
- Torres, A. R., Ramos-Cerqueria, A. T. A., Ferraro, Y. A., Fontenelle, L. F., do Rosario, M. C., & Miguel, E. C. (2011). Suicidality in obsessive-compulsive disorder: Prevalence and relation to symptom dimensions and comorbid conditions. *Journal of Clinical Psychiatry*, *72*(1), 17–26. <http://www.psychiatrist.com/privatepdf/2011/v72n01/v72n0103.pdf%5Cnhttp://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=emed10&NEWS=N&AN=2011070991>
- Twohig, M. P., Abramowitz, J. S., Bluett, E. J., Fabricant, L. E., Jacoby, R. J., Morrison, K. L., Reuman, L., & Smith, B. M. (2015). Exposure therapy for OCD from an acceptance and commitment therapy (ACT) framework. *Journal of Obsessive-Compulsive and Related Disorders*, *6*, 167–173. <https://doi.org/10.1016/j.jocrd.2014.12.007>
- Uguz, F., Akman, C., Kaya, N., & Cilli, A. S. (2007). Postpartum-onset obsessive-compulsive disorder: incidence, clinical features, and related factors. *The Journal of Clinical Psychiatry*, *68*(1), 132–138. <https://doi.org/10.4088/jcp.v68n0118>
- Uguz, F., & Ayhan, M. (2011). Epidemiology and clinical features of obsessive-compulsive disorder during pregnancy and postpartum period: a review. *Journal of Mood Disorders*, *1*(4), 178–184. <https://doi.org/10.5455/jmood.20111219111846>
- Uguz, F., Yuksel, G., Karsidag, C., Guncu, H., & Konak, M. (2015). Birth weight and

- gestational age in newborns exposed to maternal obsessive-compulsive disorder. *Psychiatry Research*, 226(1), 396–398.  
<https://doi.org/10.1016/j.psychres.2014.12.063>
- van den Heuvel, O. A., van Wingen, G., Soriano-Mas, C., Alonso, P., Chamberlain, S. R., Nakamae, T., Denys, D., Goudriaan, A. E., & Veltman, D. J. (2016). Brain circuitry of compulsivity. *European Neuropsychopharmacology*, 26(5), 810–827.  
<https://doi.org/10.1016/j.euroneuro.2015.12.005>
- van der Heiden, C., van Rossen, K., Dekker, A., Damstra, M., & Deen, M. (2016). Metacognitive therapy for obsessive-compulsive disorder: A pilot study. *Journal of Obsessive-Compulsive and Related Disorders*, 9, 24–29.  
<https://doi.org/10.1016/j.jocrd.2016.02.002>
- Veale, D., Freeston, M., Krebs, G., Heyman, I., & Salkovskis, P. M. (2009). Risk assessment and management in obsessive-compulsive disorder. *Advances in Psychiatric Treatment*, 15(5), 332–343. <https://doi.org/10.1192/apt.bp.107.004705>
- Veale, D., Miles, S., Smallcombe, N., Ghezai, H., Goldacre, B., & Hodsoll, J. (2014). Atypical antipsychotic augmentation in SSRI treatment refractory obsessive-compulsive disorder: A systematic review and meta-analysis. *BMC Psychiatry*, 14(1), 1–13. <https://doi.org/10.1186/s12888-014-0317-5>
- Vicheva, P., Butler, M., & Shotbolt, P. (2020). Deep brain stimulation for obsessive-compulsive disorder: A systematic review of randomised controlled trials. *Neuroscience and Biobehavioral Reviews*, 109, 129–138.  
<https://doi.org/10.1016/j.neubiorev.2020.01.007>
- Wahl, K., Kordon, A., Kuelz, K. A., Voderholzer, U., Hohagen, F., & Zurowski, B. (2010). Obsessive-Compulsive Disorder (OCD) is still an unrecognised disorder: A study on the recognition of OCD in psychiatric outpatients. *European Psychiatry*, 25(7), 374–377. <https://doi.org/10.1016/j.eurpsy.2009.12.003>
- Warman, D. M. (2020). Decision-making about intrusive thoughts: Relationships to attitudes towards them. *Journal of Behavior Therapy and Experimental Psychiatry*, 68, 101571. <https://doi.org/10.1016/j.jbtep.2020.101571>
- Warman, D. M., Phalen, P. L., & Martin, J. M. (2015). Impact of a brief education

- about mental illness on stigma of OCD and violent thoughts. *Journal of Obsessive-Compulsive and Related Disorders*, 5, 16–23.  
<https://doi.org/10.1016/j.jocrd.2015.01.003>
- Wells, A. (2008). Metacognitive therapy: Cognition applied to regulating cognition. *Behavioural and Cognitive Psychotherapy*, 36(6), 651–658.  
<https://doi.org/10.1017/S1352465808004803>
- Wells, A. (2009). *Metacognitive therapy for anxiety and depression*. Guilford Publications.
- Wells, A., & Davies, M. I. (1994). The thought control questionnaire: A measure of individual differences in the control of unwanted thoughts. *Behaviour Research and Therapy*, 32(8), 871–878. [https://doi.org/10.1016/0005-7967\(94\)90168-6](https://doi.org/10.1016/0005-7967(94)90168-6)
- Wenzel, Amy, Haugen, E. N., Jackson, L. C., & Brendle, J. R. (2005). Anxiety symptoms and disorders at eight weeks postpartum. *Journal of Anxiety Disorders*, 19(3), 295–311. <https://doi.org/10.1016/j.janxdis.2004.04.001>
- Werner, E., Miller, M., Osborne, L. M., Kuzava, S., & Monk, C. (2015). Preventing postpartum depression: review and recommendations. *Archives of Women's Mental Health*, 18(1), 41–60. <https://doi.org/10.1007/s00737-014-0475-y>
- Wheaton, M. G., Galfalvy, H., Steinman, S. A., Wall, M. M., Foa, E. B., & Simpson, H. B. (2016). Patient adherence and treatment outcome with exposure and response prevention for OCD: Which components of adherence matter and who becomes well? *Behaviour Research and Therapy*, 85, 6–12.  
<https://doi.org/10.1016/j.brat.2016.07.010>
- Whittal, M. L., Thordarson, D. S., & McLean, P. D. (2005). Treatment of obsessive-compulsive disorder: Cognitive behavior therapy vs. exposure and response prevention. *Behaviour Research and Therapy*, 43(12), 1559–1576.  
<https://doi.org/10.1016/j.brat.2004.11.012>
- Wilcox, H. C., Grados, M., Samuels, J., Riddle, M. A., Bienvenu, O. J., Pinto, A., Cullen, B., Wang, Y., Shugart, Y. Y., Liang, K. Y., & Nestadt, G. (2008). The association between parental bonding and obsessive compulsive disorder in offspring at high familial risk. *Journal of Affective Disorders*, 111(1), 31–39.

<https://doi.org/10.1016/j.jad.2008.01.025>

Williams, M. T., Chapman, L. K., Simms, J. V., & Tellawi, G. (2017). Cross-Cultural Phenomenology of Obsessive-Compulsive Disorder. *The Wiley Handbook of Obsessive Compulsive Disorders, I*, 56–74.

<https://doi.org/10.1002/9781118890233.ch4>

Williams, M. T., Rouleau, T. M., la Torre, J. T., & Sharif, N. (2020). Cultural competency in the treatment of obsessive-compulsive disorder: Practitioner guidelines. *Cognitive Behaviour Therapist*.

<https://doi.org/10.1017/S1754470X20000501>

Williams, M. T., & Steever, A. (2015). Cultural manifestations of obsessive-compulsive disorder. In *Obsessive-compulsive disorder: etiology, phenomenology, and treatment* (pp. 63–84). Onus Books.

Winnicott, D. W. (2012). Primary maternal preoccupation. In P. Mariotti (Ed.), *The maternal lineage: identification, desire, and transgenerational issues* (pp. 59–66). Routledge.

Wisner, K. L., Peindl, K. S., Gigliotti, T., & Hanusa, B. H. (1999). Obsessions and compulsions in women with postpartum depression. *The Journal of Clinical Psychiatry*, 60(3), 176–180. <https://doi.org/10.4088/jcp.v60n0305>

World Health Organisation. (2020). *International statistical classification of diseases and related health problems* (11th ed.). <https://icd.who.int/>

Zambaldi, C. F., Cantilino, A., Montenegro, A. C., Paes, J. A., de Albuquerque, T. L. C., & Sougey, E. B. (2009). Postpartum obsessive-compulsive disorder: prevalence and clinical characteristics. *Comprehensive Psychiatry*, 50(6), 503–509.

<https://doi.org/10.1016/j.comppsy.2008.11.014>

Zucker, B. G., Craske, M. G., Barrios, V., & Holguin, M. (2002). Thought action fusion: Can it be corrected? *Behaviour Research and Therapy*, 40(6), 653–664.

[https://doi.org/10.1016/S0005-7967\(01\)00054-7](https://doi.org/10.1016/S0005-7967(01)00054-7)



**Video Script, Example Screenshots, and Access**

**Link:** <https://vimeo.com/user82746531/perinatalstudy>

**Access Password:** s3EYLyb4

**Duration:** 6 minutes 33 seconds

**Title:** Inside the mind of a new mother: thoughts to expect when you're expecting.



Thanks for your interest in our research study on postnatal anxiety in new mothers. My name is Clare Rees, and I'm a Registered Psychologist and Professor of Clinical Psychology at Curtin University.



Having a baby and becoming a parent for the first-time can be an exciting time filled with lots of new experiences but it can also be a challenging and scary time. We've put together this short video to tell you about some common intrusive thoughts that you might expect to have after your baby is born. These thoughts can seem bizarre and feel distressing or even frightening, particularly to people having a baby for the first-time. But it is important to know that most mothers have these types of thoughts. In most cases, they are just a normal response to the unique challenges and uncertainty that comes with taking care of a brand new baby.



We'll give you some examples of types of intrusive thoughts and will tell you about how and why they occur, and what to do about them.

### **What are intrusive thoughts?**

Intrusive thoughts, sometimes called intrusions, often pop into people's minds 'out of the blue' and may be strange or not make any sense. They are unwanted and disturbing thoughts or mental pictures or uncomfortable urges about something bad happening to you or someone else you love, such as a terrible accident, sickness, or violence.



Everybody experiences intrusive thoughts sometimes. But they tend to happen more often and are more vivid or intense when people are stressed, such as when they have a new baby. When people become parents, the intrusive thoughts often become about the new baby in their life. Stress can also make new parents worry about, and get stuck on, their thoughts.



They can be upsetting because they may go against your morals or values and who you think you are as a person and are about the things that scare you the most, such as your baby being hurt.

Past research studies have shown that up to 92% of first-time parents, including both Mums and Dads, have intrusive thoughts about their newborn babies.



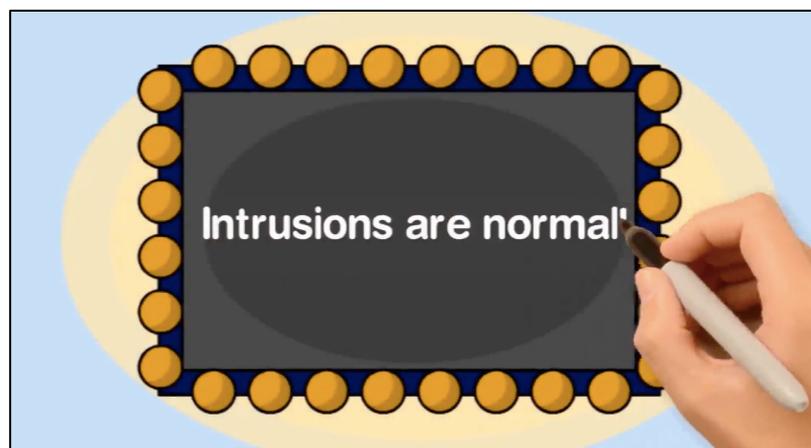
Common intrusive thoughts include:

- An unwanted image of throwing your baby across the room
- An image of your baby stopping breathing during the night or falling from their cot
- A sudden and senseless urge to smother your baby with a pillow
- An unwanted image of you strangling your baby
- An upsetting image of your baby in a coffin or being at your baby's funeral
- An unwelcome image of your baby becoming very sick and dying
- Unwanted impulses to violently shake or hit the baby when he or she is crying
- An upsetting image of stabbing the baby or hitting them with a blunt object
- A sudden urge to crash your car when driving with the baby
- Frightening impulses to hold your baby's head under water during bathing or to throw a saucepan of boiling water at your baby
- A vivid image of stuffing your baby in the oven, microwave, dishwasher, fridge, or washing machine.
- Unwanted impulses to touch your baby's genitals while changing them
- The thought that you may have sexually molested your baby
- Unwanted sexual thoughts or urges towards your baby during breastfeeding



### **What do intrusive thoughts mean?**

The short answer is that intrusive thoughts mean nothing. Even though the thoughts are scary and can feel very strange to have, they are normal and do not mean anything about you as a person or that anything bad has or will happen. Everyone has intrusive thoughts like these. They are not a sign of psychosis or that you are losing touch with reality.



Intrusive thoughts cannot cause you to lose control of yourself or do things that are against your morals or character, no matter how strong the thoughts are, how long they last, or how much you focus on them.

Intrusive thoughts happen because of mothers' instincts to try and keep their children safe from all kinds of threats, including imagined dangers. You don't need to worry about your intrusive thoughts or do anything to get rid of them. In fact, decades of research has shown that the more people try to push these thoughts out of your mind, the more they will come back.

### **What should I do to cope with intrusive thoughts?**

Now you know about the types of intrusive thoughts that people commonly have about their babies. You may have thoughts that are similar to these after your baby is born. So what can you do about your own intrusive thoughts when they come up? Remind yourself that it's just a thought and that most new mothers experience similar thoughts. Intrusive thoughts are a normal part of becoming a parent.

Remember that they do not mean anything about you as a person or a mother. They do not mean that anything bad is happening. The mind plays tricks and comes up with all kinds of peculiar things, particularly when we are stressed or down.



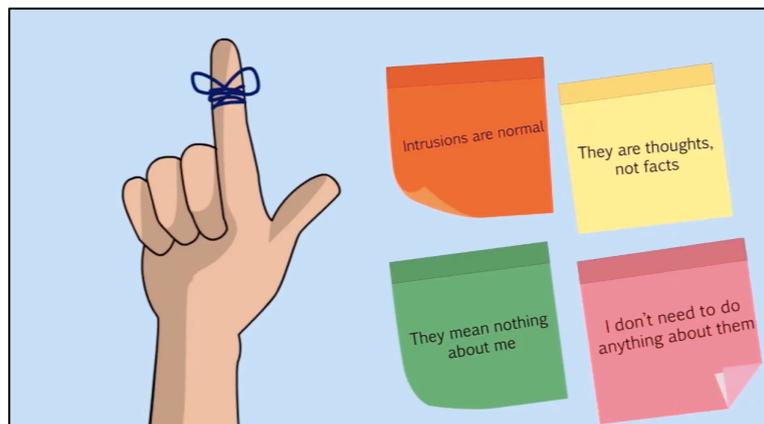
Let the thoughts be there and come and go on their own. Don't try to control the thought, push it away, argue with the thought, or distract yourself from it. The thought can't hurt you or anyone else. If the thought makes you anxious, let the anxiety rise and

fall in your body. Let it follow its natural course and go on with whatever you were doing.



For most people, just learning about intrusive thoughts, and reminding themselves about what they have learnt about these type of thoughts is enough. Remember that:

- Intrusive thoughts are normal, no matter how horrific or bizarre they seem
- Intrusions are just thoughts, not facts
- They don't mean anything about you as a person



Intrusive thoughts are normal. But trying to push them away or control them can bring on more distress and become a problem. It's important to remember that you don't need to do anything in response to them.

If your distress about your thoughts is stopping you from being able to do things or bond with your baby, it is important to reach out and get more support.



Talk with a professional who you feel comfortable with, like a psychologist, or your general practitioner, or midwife or child health nurse.



On behalf of our research team, thank you so much for your interest in our study. Visit our Facebook page to stay up to date with our progress.

**Video understanding/knowledge check survey (intervention adherence check)**

Thank you for watching our short video, '*Inside the Mind of a New Mother: thoughts to expect when you're expecting*'.

Please complete the following multiple choice questions to confirm that you have watched the video and understood what it was about.

This quick survey will take 1-2 minutes to complete.

***The educational video was about which type of thoughts?***

Please select the answer that BEST reflects the topic of the information you were given.

- Parenting thoughts
- Depressed thoughts
- Reflective thoughts
- Intrusive thoughts
- Funny thoughts

***According to past research, what percentage of first-time parents experience intrusive thoughts about their newborn babies?***

- 1-2% of parents
- Over 90% of parents
- Just under 50% of parents
- Around 10% of parents
- None of these answers

***Which of the following statements about intrusive thoughts are correct, based on the information you received in the video?***

Select ALL answers that apply.

- Intrusions are normal
- People may have more intrusions when they are stressed
- Intrusions are often meaningless
- The best way to deal with intrusions is to do nothing about them
- New parents often have intrusions about something bad happening to their baby

**Appendix B Published article (Study 3)**

This content has been redacted due to copyright restrictions. The final published version of this article is available online at:

Mulcahy, M., Rees, C., Galbally, M., & Rebecca, A. (2020). Health practitioners' recognition and management of postpartum obsessive-compulsive thoughts of infant harm. *Archives of Womens' Mental Health*, 23, 719-736.

<https://doi.org/10.1007/s00737-020-01026-y>



## Statement of co-author contributions

Rebecca Anderson <rebecca.anderson@curtin.edu.au>

Thu 2/4/2021 6:05 PM

To: M.Galbally <M.Galbally@murdoch.edu.au>; Melissa Mulcahy <melissa.mulcahy@postgrad.curtin.edu.au>;  
Clare Rees <C.Rees@curtin.edu.au>

Dear Melissa,

I, as Co-Author, endorse that this level of contribution as indicated below by the candidate is appropriate. As co-author, I contributed to the development of the research, statistical analyses, and interpretation of the data, and the drafting and editing of the resulting manuscript.

Kind regards,  
Rebecca

Dr Rebecca Anderson

**Deputy Director, Senior Lecturer & Practicum Coordinator | Clinical Psychology Program**  
**Psychology Clinic Director | Curtin Health and Wellness Centre**  
**Co-founder | OCD? Not Me! ocdnotme.com.au**  
**Mental Health Research Group | Clinical Psychology Stream**  
School of Psychology, Curtin University

**Director | Australian Association for Cognitive and Behaviour Therapy**

Tel | [REDACTED]

Fax | [REDACTED]

Email | [rebecca.anderson@curtin.edu.au](mailto:rebecca.anderson@curtin.edu.au)

Web | <http://oasisapps.curtin.edu.au/staff/profile/view/Rebecca.Anderson>



**Curtin University**

CRICOS Provider Code 00301J

---

**From:** Megan Galbally <M.Galbally@murdoch.edu.au>

**Date:** Thursday, 4 February 2021 at 2:21 pm

**To:** Melissa Mulcahy <melissa.mulcahy@postgrad.curtin.edu.au>, Rebecca Anderson <rebecca.anderson@curtin.edu.au>, Clare Rees <C.Rees@curtin.edu.au>

**Subject:** Re: REVIEW THIS ONE: This statement of co-author contributions

Dear Melissa

I, as Co-Author, endorse that this level of contribution as indicated below by the candidate is appropriate. As co-author, I contributed to the development of the research, statistical analyses, and interpretation of the data, and the drafting and editing of the resulting manuscript.

Kind regards

Megan

## Professor Megan Galbally

Foundation Chair in Perinatal Psychiatry

Murdoch University

& School of Medicine, University of Notre Dame

Medical Co-Director, Womens Health, Genetics and Mental Health

KEMH, WNHS

Phone [REDACTED] Mobile [REDACTED] | Email [m.galbally@murdoch.edu.au](mailto:m.galbally@murdoch.edu.au)

Murdoch University, 90 South Street, MURDOCH WA 6150

---

## School of Population Health

Faculty of Health Sciences

Curtin University

Perth, Western Australia

To whom it may concern,

I, Melissa Mulcahy, was the major contributor to the conceptualisation, coordination, implementation, and written reporting of my PhD project, *Understanding perinatal obsessive-compulsive disorder (OCD): From prevention to clinical practice*.

This project resulted in the following publication:

**Health practitioners' recognition and management of postpartum obsessive-compulsive thoughts of infant harm.** By Mulcahy, M., Rees, C., Galbally, M., & Anderson, R. (2020). Published in the journal *Archives of Women's Mental Health*, 23, 719-726. doi: 10.1007/s00737-020-01026-y

I am the lead author on this publication and had primary responsibility for designing the study and the survey and materials used therein. I implemented the survey using the Qualtrics online platform, recruited first-line perinatal health professionals to the study, and collected data. I completed data analysis using the *Statistical Package for Social Sciences (SPSS) version 26*, as well draft writing and editing of the paper reporting on the results of the study, with input from Dr Rebecca Anderson, Dr Clare Rees, and Dr Megan Galbally.

Yours Sincerely

*Melissa Mulcahy*  
**PhD Candidate**



CRICOS Provider Code 00301J

## **Appendix D Permission to use copyright material**

### **Parental thoughts and behaviours checklist (PTBC)**

Documents commence on the following page.

**RE: Postpartum Thoughts and Behaviours Checklist - Access and permissions**

Abramowitz, Jon &lt;jabramowitz@unc.edu&gt;

Fri 12/16/2016 3:55 AM

To: Melissa Mulcahy &lt;melissa.mulcahy@postgrad.curtin.edu.au&gt;

Cc: rebecca.anderson@curtin.edu.au &lt;rebecca.anderson@curtin.edu.au&gt;

2 attachments (93 KB)

Abramowitz form.pdf; PTBC.pdf;

Sure thing—the measure and form are attached.

Best wishes with your research!

Jon Abramowitz

\*\*\*\*\*

**Jonathan S. Abramowitz, PhD**

Professor and Associate Chair of Psychology

University of North Carolina at Chapel Hill

Editor-in-Chief, *Journal of Obsessive-Compulsive and Related Disorders*

ph: [REDACTED]

<http://jonabram.web.unc.edu/>[www.jabramowitz.com](http://www.jabramowitz.com)

---

**From:** Melissa Mulcahy [mailto:melissa.mulcahy@postgrad.curtin.edu.au]**Sent:** Wednesday, December 14, 2016 11:24 PM**To:** Abramowitz, Jon <jabramowitz@unc.edu>**Cc:** rebecca.anderson@curtin.edu.au**Subject:** Postpartum Thoughts and Behaviours Checklist - Access and permissions

Dear Professor Abramowitz,

It is my understanding that you are the copyright holder for the following materials:

**The Postpartum Thoughts and Behaviours Checklist ('PTBC'; Abramowitz, Khander, Nelson, Deacon, & Rygwall, 2006)**

I am interested in using this measure in research that I am looking at undertaking as a doctoral student at Curtin University in Perth, Western Australia. I wanted to enquire as to how I might obtain the checklist, and whether there are any costs and/or terms and conditions associated with its use for research and educational purposes?

I am carrying out this research in my own right and have no association with any commercial organisation or sponsor.

If you consent to use of the checklist in my research, I would also like to reproduce it as an appendix in a doctoral thesis for examination. The subject of my proposed research is **postnatal obsessive-compulsive disorder**. Once completed, the thesis will be made available in online form via Curtin University's Institutional Repository [espace@Curtin](mailto:espace@Curtin) (<http://espace.library.curtin.edu.au>). The material will be provided strictly for educational purposes and on a non-commercial basis.

I would be most grateful for your consent to the use, copying and communication of the material as proposed. If you are willing to grant this consent, please complete and sign the attached approval slip and return it to me at the address shown. Full acknowledgement of the ownership of the copyright and the source of the material will be provided with the material.

If you are not the copyright owner of the material in question, I would be grateful for any information you can provide as to who is likely to hold the copyright.

I look forward to hearing from you and thank you in advance for your consideration of my request.

I have cc'd my supervisor, Dr Rebecca Anderson, into this email as well. Please feel free to contact her directly if you have any questions or concerns.

Yours sincerely,

**Melissa Mulcahy**

Doctor of Philosophy (Clinical Psychology) Student

School of Psychology and Speech Pathology, Faculty of Health Sciences, Curtin University  
Perth, Western Australia

15 December 2016

Professor Jonathan Abramowitz  
Department of Psychology  
University of North Carolina – Chapel Hill  
[jabramowitz@unc.edu](mailto:jabramowitz@unc.edu)

**PERMISSION TO USE COPYRIGHT MATERIAL AS SPECIFIED BELOW:**

**The Postpartum Thoughts and Behaviours Checklist (Abramowitz, Khander, Nelson, Deacon, & Rygwall, 2006)**

I hereby give permission for **Melissa Mulcahy** to use the abovementioned material in her doctoral research and to include it in her higher degree thesis for Curtin University, and to communicate this material via the [espace@Curtin](mailto:espace@Curtin) institutional repository. This permission is granted on a non-exclusive basis and for an indefinite period.

I confirm that I am the copyright owner of the specified material.

Signed:

Name:

Position:

Date:

If possible, please return signed form to **Ms Melissa Mulcahy** via return email ([melissa.mulcahy@postgrad.curtin.edu.au](mailto:melissa.mulcahy@postgrad.curtin.edu.au)).

15 December 2016

Professor Jonathan Abramowitz  
 Department of Psychology  
 University of North Carolina – Chapel Hill  
[jabramowitz@unc.edu](mailto:jabramowitz@unc.edu)

**PERMISSION TO USE COPYRIGHT MATERIAL AS SPECIFIED BELOW.**

The Postpartum Thoughts and Behaviours Checklist (Abramowitz, O'Conder, Nelson, Hessean, & Rypwall, 2006)

I hereby give permission for Melissa Mulcahy to use the above-mentioned material in her doctoral research and to include it in her higher degree thesis for Curtin University, and to communicate this material via the [ospace@Curtin](mailto:ospace@Curtin.edu.au) institutional repository. This permission is granted on a non-exclusive basis and for an indefinite period.

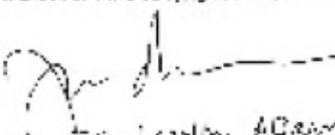
I confirm that I am the copyright owner of the specified material.

Signed:

Name:

Position:

Date:

  
 Jonathan Abramowitz  
 Professor of Psychology  
 15 DEC 16

If possible, please return signed form to Ms Melissa Mulcahy via return email  
[melissa.mulcahy@postgrad.curtin.edu.au](mailto:melissa.mulcahy@postgrad.curtin.edu.au)

## **Parental Thoughts and Behaviors Checklist**

***Please review the following directions before completing this questionnaire:***

We are interested in your experiences with *unpleasant, unrealistic, disturbing, or unwanted* thoughts, images or impulses about your new baby that pop into your mind when you least want them there. Nearly everyone has such experiences, but people vary in how frequently these kinds of thoughts occur and how distressing they are. Some examples of negative baby-related thoughts that other people have reported are:

- an unwanted thought about intentionally hurting the baby even though you would never actually do it,
- the idea that you could drop the baby from a high place,
- an unwanted urge to touch the baby's genitals, and
- repeated thoughts about the baby choking or dying tragically

Remember that we are NOT asking about general worries about the baby's general health or other family matters. Rather, we ARE interested in SENSELESS thoughts, mental images or impulses that pass through your mind.

We realize that you might feel uncomfortable describing these kinds of thoughts. For example, you may be concerned that you are a bad parent if you have some of these thoughts. It is important for you to realize that most people have these kinds of experiences from time to time—and they are quite common among new parents. Also, your answers will be kept completely confidential.

*Thank you*

Please indicate whether or not you have experienced each kind of thought listed below by placing a check mark in the YES or NO column. If you have had the thoughts in the past, but not anymore, please place a check in the PAST column. Even if you have only briefly had these thoughts it is important for you to let us know.

**Have you had any of these thoughts about your infant?**

	YES	NO	PAST
1. Thought that he/she might stop breathing			
2. Thought about the infant being smothered			
3. Thought that the infant could suffocate while sleeping			
4. Thought that the infant could die of SIDS			
5. Thought of hitting the infant too hard when burping him/her			
6. Unwanted thoughts of screaming, shaking, or slapping the infant			
7. Thoughts of purposely drowning the baby			
8. Thoughts of stabbing the infant			
9. Thoughts of burning the infant with hot water			
10. Thoughts about mistakenly puncturing the baby's soft spot			
11. Thoughts about the baby dying because of an accident			
12. Fears of dropping the infant while holding him/her			
13. Thoughts of dropping the infant from a high place			
14. Fears that the infant will be injured if picked up wrong			
15. Fears that the infant will choke on something (e.g., toy, food)			
16. Thoughts that an animals (i.e a dog) might attack baby			
17. Thoughts about the baby drowning during a bath			
18. Thoughts about a car accident involving the infant			
19. Thoughts of something happening to you (or spouse/partner) and you can't care for the baby			
20. Fear that you will forget the infant in the car seat			
21. Unwanted thoughts that you could give the infant away			
22. Fear that someone might take the infant			
23. Unwanted thoughts about leaving the baby somewhere when he/she is crying			
24. Thought about the baby getting sick from the floor or unclean surfaces			
25. Thoughts about the baby getting sick from bodily waste			
26. Concerns about household items (cleansers/solvents/bleaches)			
27. Concerns about animals or insects coming into contact with the baby			
28. Concerns that you or someone else will somehow contaminate the baby			
29. Unacceptable thoughts about the baby's genitals			
30. Thoughts about the baby's sexuality or future sexual orientation			
31. Unacceptable sexual thoughts during breastfeeding (Females only)			
32. Other senseless and unwanted sexual thoughts about the baby			
33. Unrealistic fears that the baby has a serious medical illness or disease (cerebral palsy, MS, developmental disability)			

**On the next page there are several questions about the thoughts that you marked as YES. Please review the thoughts you marked as YES and then complete the next page**

**Directions:** Please answer the following questions based on the senseless unwanted thoughts that you indicated having on the previous page. Please consider **THE PAST WEEK** when choosing your answer. Circle one answer under each question.

1. How much of your time is occupied by the senseless, unwanted thoughts about your new baby? How frequently do these thoughts or ideas occur? (Consider both the number of times and the duration of the thoughts)

0 = None  
 1 = Mild, less than 1 hour/day or occasional thoughts  
 2 = Moderate, 1-3 hours/day or frequent thoughts  
 3 = Severe, 3-8 hours/day or very frequent thoughts  
 4 = Extreme, greater than 8 hours/day or near constant thoughts

2. How much do these thoughts interfere with your family, social or work (or other role) functioning? Are there things you can't do because of the thoughts?

0 = None  
 1 = Mild, slight interference, but overall performance not impaired  
 2 = Moderate, definite interference, but still manageable  
 3 = Severe, causes substantial impairment in performance  
 4 = Extreme, incapacitating

3. How much distress do these senseless and unwanted thoughts cause you?

0 = None  
 1 = Mild, not too disturbing  
 2 = Moderate, disturbing but still manageable  
 3 = Severe, very disturbing  
 4 = Extreme, near constant disabling distress

4. How much of an effort do you make to resist these thoughts? How often do you try to turn your attention away, or disregard them? (Rate only your *effort* to resist, not success or failure).

0 = I always make an effort to resist, or I don't need to make an effort  
 1 = I try to resist most of the time  
 2 = I make some effort to resist  
 3 = I yield to the thoughts without attempting to resist, but with reluctance  
 4 = I completely and willingly yield to all of the thoughts

5. How much control do you have over the thoughts? How successful are you at stopping or diverting them when they occur? Can you dismiss them?

0 = I have complete control over the thoughts  
 1 = Much control, I am usually able to stop or divert thoughts  
 2 = Moderate control, I am sometimes able to stop or divert the thoughts  
 3 = Little control, I'm rarely successful in stopping or dismissing thoughts  
 4 = No control, I am unable to even temporarily alter them

**Directions:** Again, consider the senseless, unwanted thoughts that you indicated on the previous pages. Please indicate whether any of these thoughts lead you to engage in the following strategies or activities...

<b>Do/did any of the intrusive thoughts on the previous pages lead you to...</b>	<b>YES</b>	<b>NO</b>	<b>PAST ONLY</b>
1. Give yourself reassurance that things are OK?			
2. Spend time trying to rationalize or make sense of the thought?			
3. Check on the baby more frequently?			
4. Distract yourself with other activities?			
5. Distract yourself with other thoughts?			
6. Try to suppress or stop the unwanted intrusive thoughts as quickly as possible?			
7. Avoid situations in which the thought comes up? 8. Examples:			
9. Avoid your infant?			
10. Get social support (such as by talking to your spouse or parent)?			
11. Ask other people if the thoughts are "OK" or "normal"?			
12. Confess to others that you've had the thoughts?			
13. Pray about the thoughts?			
14. Other strategies used to respond to the thoughts?			

**On the next page you will be asked several questions about the strategies and activities that you marked as YES on this page. Please review the strategies you marked as YES above and then complete the questions on the next page.**

**Directions:** Please answer the following questions based on the strategies and activities that you indicated using on the previous page. Please consider THE PAST WEEK in choosing your answer. Circle one answer under each question.

1. How much time do you spend engaged in the strategies? How often do you use them in response to unwanted thoughts? (Consider both the number of times and how much time you spend)
  - 0 = None
  - 1 = Mild, less than 1 hour/day or occasional performance
  - 2 = Moderate, 1-3 hours/day or frequent performance
  - 3 = Severe, 3-8 hours/day or very frequent performance
  - 4 = Extreme, greater than 8 hours/day or near constant performance
  
2. How much do these strategies interfere with your family, social or work (or other role) functioning? Are there things you can't do because of the strategies?
  - 0 = None
  - 1 = Mild, slight interference, but overall performance not impaired
  - 2 = Moderate, definite interference, but still manageable
  - 3 = Severe, causes substantial impairment in performance
  - 4 = Extreme, incapacitating
  
3. How would you feel if you were prevented from performing these strategies when you felt as if you needed to perform them? That is, how anxious/worried would you become?
  - 0 = None
  - 1 = Mild, not too disturbing
  - 2 = Moderate, disturbing but still manageable
  - 3 = Severe, very disturbing
  - 4 = Extreme, near constant disabling distress
  
4. How much of an effort do you make to resist performing these strategies?
  - 0 = Always makes an effort to resist, or doesn't need to make effort
  - 1 = Tries to resist most of the time
  - 2 = Makes some effort to resist
  - 3 = Yields to fears without attempting to resist, but with reluctance
  - 4 = Completely and willingly yields to all fears
  
5. How strong is the drive to perform these strategies when an unwanted thought comes to mind?
  - 0 = Complete control
  - 1 = Much control, usually able to stop or divert behaviors
  - 2 = Moderate control, sometimes able to stop or divert behaviors
  - 3 = Little control, rarely successful in stopping or diverting behaviors
  - 4 = No control, drive to perform behaviors is overpowering, rarely able to even delay performance

**Thought Fusion Instrument (TFI)**

Document commences on the following page.

**RE: Enquiry re: Thought Fusion Instrument and Beliefs About Rituals Inventory**

Adrian Wells &lt;adrian.wells@manchester.ac.uk&gt;

Tue 12/20/2016 1:04 AM

To: Melissa Mulcahy &lt;melissa.mulcahy@postgrad.curtin.edu.au&gt;

Cc: rebecca.anderson@curtin.edu.au &lt;rebecca.anderson@curtin.edu.au&gt;

1 attachments (32 KB)

BELIEFS ABOUT RITUALS INVENTORY.doc;

Dear Melissa,

I hereby grant permission for you to use the TFI and BARI in your research. There is no fee attached, but please do not make them generally available on the internet. Attached you will find a copy of the BARI.

Good luck with your studies.

bw

Adrian

Adrian Wells, Ph.D  
 Professor of Clinical and Experimental Psychopathology  
 University of Manchester  
 School of Psychological Sciences  
 Section of Clinical and Health Psychology  
 Rawnsley Building  
 MRI  
 Manchester  
 M13 9WL

---

**From:** Melissa Mulcahy [melissa.mulcahy@postgrad.curtin.edu.au]
**Sent:** 16 December 2016 07:48**To:** Adrian Wells**Cc:** rebecca.anderson@curtin.edu.au**Subject:** Enquiry re: Thought Fusion Instrument and Beliefs About Rituals Inventory

Dear Professor Wells,

It is my understanding that you are the copyright holder for the following measures:

**Wells, A., Gwilliam, P., & Cartwright-Hatton, S. (2001). *The Thought Fusion Instrument (unpublished self-report scale)*. University of Manchester, UK.**

and

**Wells, A., & McNicol, K. (2004). *The Beliefs About Rituals Inventory (unpublished self-report scale)*. University of Manchester, UK.**

I am interested in using these two measures in research that I am looking at undertaking as a doctoral student at Curtin University in Perth, Western Australia. I am very interested

in role of metacognitive beliefs in obsessive-compulsive disorder (OCD) and think that the *Thought Fusion Instrument (TFI)* and *Beliefs About Rituals Inventory (BARI)* may be most suitable for my project.

I am writing to enquire as to how I might access the *BARI* (I have a copy of the *TFI* in my purchased copy of *Metacognitive Therapy for Depression and Anxiety*), and to seek your permission to use both of these measures in my doctoral research. Are there any costs and/or terms and conditions associated with the use of the *TFI* and/or *BARI* for research and educational purposes?

I will be carrying out this research in my own right and have no association with any commercial organisation or sponsor. Full acknowledgement of the ownership of the copyright and source of the measures will be provided in my research.

If you are not the copyright owner of these two measures, I would be grateful for any information you can provide as to who is able to grant me access and permission to use these measures.

I look forward to hearing from you. I have cc'd my supervisor, Dr Rebecca Anderson, into this email. Please feel free to contact her directly if you have any questions about my request.

Yours sincerely,

**Melissa Mulcahy**

Doctor of Philosophy (Clinical Psychology) Student

School of Psychology and Speech Pathology, Faculty of Health Sciences, Curtin University

**Permission to reproduce publication (Chapter 6) in thesis**

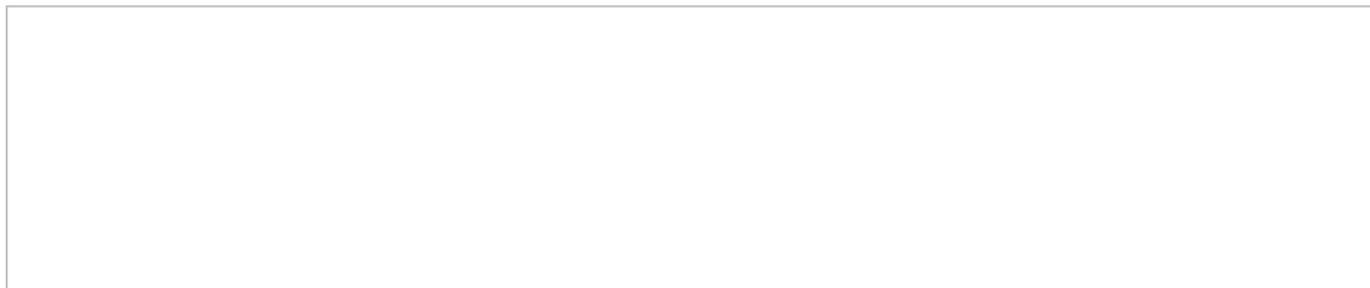
Document commences on the following page.

## Copyright Transfer Statement (CTS) for your article in Archives of Women's Mental Health (1026)

Springer <springerauthorquery@springeronline.com>

Mon 3/2/2020 4:32 PM

To: Melissa Mulcahy <melissa.mulcahy@postgrad.curtin.edu.au>



*Copyright Transfer*

02.03.2020

visit us at [springer.com](http://springer.com)

---

## Confirmation of your Copyright Transfer

---

Dear Author,

Please note: This e-mail is a confirmation of your copyright transfer and was sent to you only for your own records.

### 1. Publication

The copyright to this article, (including any supplementary information and graphic elements therein (e.g. illustrations, charts, moving images) (the 'Article'), is hereby assigned for good and valuable consideration to Springer-Verlag GmbH Austria, part of Springer Nature (the 'Assignee'). Headings are for convenience only.

### 2. Grant of Rights

In consideration of the Assignee evaluating the Article for publication, the Author(s) grant the Assignee without limitation the exclusive (except as set out in clauses 3, 4 and 5 a) iv), assignable and sub-licensable right, unlimited in time and territory, to copy-edit, reproduce, publish, distribute, transmit, make available and store the Article, including abstracts thereof, in all forms of media of expression now known or developed in the future, including pre- and reprints, translations, photographic reproductions and extensions. Furthermore, to enable additional publishing services, such as promotion of the Article, the Author(s) grant the Assignee the right to use the Article (including the use of any graphic elements on a stand-alone basis) in whole or in part in electronic form, such as for display in databases or data networks (e.g. the Internet), or for print or download to stationary or portable devices. This includes interactive and multimedia use as well as posting the Article in full or in part or its abstract on social media, and the right to alter the Article to the extent necessary for such use. The Assignee may also let third parties share the Article in full or in part or its abstract on social media and may in this context sub-license the Article and its abstract to social media users. Author(s) grant to Assignee the right to re-license Article metadata without

restriction (including but not limited to author name, title, abstract, citation, references, keywords and any additional information as determined by Assignee).

### 3. Self-Archiving

Author(s) are permitted to self-archive a pre-print and an author's accepted manuscript version of their Article.

- a. A pre-print is the author's version of the Article before peer-review has taken place ("Pre-Print"). Prior to acceptance for publication, Author(s) retain the right to make a Pre-Print of their Article available on any of the following: their own personal, self-maintained website; a legally compliant, non-commercial pre-print server such as but not limited to arXiv and bioRxiv. Once the Article has been published, the Author(s) should update the acknowledgement and provide a link to the definitive version on the publisher's website: "This is a pre-print of an article published in [insert journal title]. The final authenticated version is available online at: [https://doi.org/\[insert DOI\]](https://doi.org/[insert DOI])".
- b. An Author's Accepted Manuscript (AAM) is the version accepted for publication in a journal following peer review but prior to copyediting and typesetting that can be made available under the following conditions:
  - a. Author(s) retain the right to make an AAM of their Article available on their own personal, self-maintained website immediately on acceptance,
  - b. Author(s) retain the right to make an AAM of their Article available for public release on any of the following 12 months after first publication ("Embargo Period"): their employer's internal website; their institutional and/or funder repositories. AAMs may also be deposited in such repositories immediately on acceptance, provided that they are not made publicly available until after the Embargo Period.

An acknowledgement in the following form should be included, together with a link to the published version on the publisher's website: "This is a post-peer-review, pre-copyedit version of an article published in [insert journal title]. The final authenticated version is available online at: [http://dx.doi.org/\[insert DOI\]](http://dx.doi.org/[insert DOI])".

### 4. Authors' Retained Rights

Author(s) retain the following non-exclusive rights for the published version provided that, when reproducing the Article or extracts from it, the Author(s) acknowledge and reference first publication in the Journal:

- a. to reuse graphic elements created by the Author(s) and contained in the Article, in presentations and other works created by them;
- b. they and any academic institution where they work at the time may reproduce the Article for the purpose of course teaching (but not for inclusion in course pack material for onward sale by libraries and institutions); and
- c. to reproduce, or to allow a third party Assignee to reproduce the Article in whole or in part in any printed volume (book or thesis) written by the Author(s).

### 5. Warranties

The Author(s) warrant and represent that:

- a. (i) the Author(s) are the sole copyright owners or have been authorised by any additional copyright owner(s) to assign the rights defined in clause 2, (ii) the Article does not infringe any intellectual property rights (including without limitation copyright, database rights or trade mark rights) or other third party rights and no licence from or payments to a third party are required to publish the Article, (iii) the Article has not been previously published or licensed, (iv) if the Article contains material from other sources (e.g. illustrations, tables, text quotations), Author(s) have obtained written permissions to the extent necessary from the copyright holder(s), to license to the Assignee the same rights as set out in Clause 2 but on a non-exclusive basis and without the right to use any graphic elements on a stand-alone basis and have cited any such material correctly;

- b. all of the facts contained in the Article are according to the current body of science true and accurate;
- c. nothing in the Article is obscene, defamatory, violates any right of privacy or publicity, infringes any other human, personal or other rights of any person or entity or is otherwise unlawful and that informed consent to publish has been obtained for all research participants;
- d. nothing in the Article infringes any duty of confidentiality which any of the Author(s) might owe to anyone else or violates any contract, express or implied, of any of the Author(s). All of the institutions in which work recorded in the Article was created or carried out have authorised and approved such research and publication; and
- e. the signatory (the Author or the employer) who has signed this agreement has full right, power and authority to enter into this agreement on behalf of all of the Author(s).

## 6. Cooperation

The Author(s) shall cooperate fully with the Assignee in relation to any legal action that might arise from the publication of the Article, and the Author(s) shall give the Assignee access at reasonable times to any relevant accounts, documents and records within the power or control of the Author(s). The Author(s) agree that the distributing entity is intended to have the benefit of and shall have the right to enforce the terms of this agreement.

## 7. Author List

After signing, changes of authorship or the order of the authors listed will not be accepted unless formally approved in writing by the Assignee.

## 8. Edits & Corrections

The Author(s) agree(s) that the Assignee may retract the Article or publish a correction or other notice in relation to the Article if the Assignee considers in its reasonable opinion that such actions are appropriate from a legal, editorial or research integrity perspective.

This is an automated e-mail; please do not reply to this account. If you have any questions, please go to our [help pages](#).

Thank you very much.

Kind regards,

Springer Author Services

---

## Article Details

---

### Journal title

Archives of Women's Mental Health

### Article title

Health practitioners' recognition and management of postpartum obsessive-compulsive thoughts of infant harm

### DOI

### Corresponding Author

10.1007/s00737-020-01026-y

Melissa Mulcahy

**Copyright transferred to**

**Transferred on**

Springer-Verlag GmbH Austria, part of  
Springer Nature

Mon Mar 02 09:32:42 CET 2020

---

## Service Contacts

---

### **Springer Nature Customer Service Center**

Tiergartenstr. 15-17  
69121 Heidelberg  
Germany  
phone: +49 6221 345 0  
fax: +49 6221 345 4229  
[customerservice@springernature.com](mailto:customerservice@springernature.com)

### **Springer New York, LCC**

233 Spring Street  
New York, NY 10013  
USA  
phone: +1 212 460 1500 or 800-SPRINGER  
(Weekdays 8:30am - 5:30pm ET)  
fax: +1 212-460-1700  
[customerservice@springernature.com](mailto:customerservice@springernature.com)

---

## Appendix E

## Participant Information Sheet and Consent Forms

## Prospective studies (Study 1 &amp; 2)

<b>HREC Project Number:</b>	HRE2017-0087
<b>Project Title:</b>	The role of beliefs about thinking in the mental health of new mothers
<b>Principal Investigators:</b>	Professor Clare Rees School of Psychology & Speech Pathology, Faculty of Health Sciences  Dr Rebecca Anderson, Senior Lecturer – Clinical Psychology Program School of Psychology & Speech Pathology, Faculty of Health Sciences
<b>Co-investigator:</b>	Professor Megan Galbally Consultant Psychiatrist, Fiona Stanley Hospital Foundational Chair in Perinatal Psychiatry, Murdoch University
<b>Student researcher:</b>	Ms Melissa Mulcahy, PhD (Clinical Psychology) Candidate School of Psychology & Speech Pathology, Faculty of Health Sciences
<b>Version Number:</b>	1.0
<b>Version Date:</b>	02/08/2017

**What is the Project About?**

- Past research has shown that women are more likely to experience mental health problems, including depression and anxiety, during pregnancy or in the postnatal period, than at other times in their life.
- In recent years, a large amount of research has been done to identify the factors that may make some women more vulnerable to developing postnatal depression.
- However, there is far less research on other common postnatal mental health problems, such as anxiety disorders.
- We are doing this research to investigate, firstly, whether psychological factors may help us to predict whether or not someone is more likely to develop postnatal anxiety.
- Our second goal is to find out whether we can prevent some postnatal mental health problems by reducing risk factors associated with psychological distress in pregnancy. In this research study, we will be trialling a new potential way of preventing postnatal anxiety.

- This research will be the biggest study of its kind, to date! We hope that the results of our research will help us to better prevent postnatal mental illness, and to identify pregnant women who may need more support during their transition to becoming a parent, in the future.
- We are looking for around 300 pregnant women who are expecting their first child to participate in our research.

### **Who is doing the Research?**

- Ms Melissa Mulcahy, a PhD student in Clinical Psychology, is conducting this research project under the supervision of Dr Rebecca Anderson and Professor Clare Rees from the School of Psychology and Speech Pathology at Curtin University, and Professor Megan Galbally from Murdoch University and Fiona Stanley Hospital.
- The results of this research project will be used by Ms Mulcahy to obtain a Doctor of Philosophy (PhD) degree in Clinical Psychology at Curtin University and is funded by the University.
- There will be no costs to you. If you chose to participate in this study, you will have the opportunity to enter a random prize draw but will not be paid for participating in this project.

### **Why am I being asked to take part?**

- We are looking for pregnant women who:
  - Are 18 years old or over,
  - Speak English,
  - Between **20 to 32 weeks pregnant** with their **first child**,
  - Living in Australia, New Zealand (NZ), the United Kingdom (UK), or the United States of America (USA),
  - Have had at least one antenatal visit with a health professional (e.g. Family Doctor, Obstetrician, or Midwife) during their pregnancy, and
  - Are willing to give us a personal email address and/or telephone number so that we can follow them up during pregnancy and up to 6 months after birth of their baby.
- Unfortunately, you are **not eligible** to take part in this research if:
  - You currently have one of the following conditions, diagnosed by a qualified health professional:
    - A neurodevelopmental or autism spectrum disorder, or
    - Substance-dependency disorder
  - You have, either now or in the past, been diagnosed by a qualified health professional with one of the following conditions:
    - A schizophrenia spectrum disorder (including delusional disorder, schizophreniform disorder, schizophrenia, or schizoaffective disorder), or
  - Are currently having thoughts of suicide.
- If you meet these criteria, we invite you to take part in this important research study.

### **What will I have to do?**

- We are recruiting two groups of women for our study – one group who we will **monitor** throughout their pregnancy and through to the postnatal period, and the other group who will be part of a small **clinical prevention trial** that we are running.
- You will be asked to do up to three online surveys and telephone interviews as part of our study. The first telephone interview will be a screening questionnaire to decide whether you will be in the prevention part of our study (and have further telephone contact with the researchers) or whether you will be in the monitoring group (with no extra telephone interviews).
- If you chose to participate, you can click on the next arrow button at the bottom of this page to access the first survey in our study. In this survey, you will be asked to provide some information about yourself (e.g. your age, ethnicity) and your pregnancy (e.g. your expected due date) and to respond to a series of standard questions about your thoughts, feelings, or beliefs by reflecting on your experience and provide a rating on a scale. There are no right or wrong answers to these questions – we are interested in your experience. The survey will take around 20-30 minutes to complete and you can complete it at a location that is best for you.
- At the end of the survey, you will be asked to enter your email or phone number. A researcher will then contact you to organise a mutually convenient time for a telephone/Skype/FaceTime screening interview. The purpose of this interview is to decide whether or not the prevention trial part of our study is suitable for you. The interview will last for around 20-30 minutes and will be completed by a researcher who is doing postgraduate training in clinical psychology. The researcher will ask you a series of structured questions about different kinds of thoughts, feelings, and experiences that people sometimes have. You will be asked to give either a yes or no answer to most of the questions – there are no right or wrong answers.
- You will be contacted and asked to fill in a similar survey at around 3-months and (if you are in the prevention part of the study) at around 6-months after the birth of your baby to see how things may have changed for you over time. If you are in the prevention part of the study, you will also be contacted at these times to arrange a 20-40 minute follow-up telephone interview with the researcher. In these interviews, you will be asked a very similar set of standard questions to the interview you did in pregnancy. You will also be asked some additional questions about thoughts and feelings that some new parents have after they have a baby.
- We will make a digital audio/video recording of each interview so we can concentrate on what you have to say and not distract ourselves with taking notes. The recordings will be destroyed once a written record is made of the interview.
- **If you are in the prevention trial**, you will either sent an email with a link to watch a short (i.e. 5-10 minute) online video about being a new parent, or you will be placed on the waitlist to receive a link to the video after the six month follow-up.
- There will be no cost to you for taking part in this research and you will not be paid for participating.

**Are there any benefits to being in the research project?**

- If you participate in our prevention study and view our information video (either during pregnancy or when you are sent the link after the study), it is possible that you may benefit psychologically or emotionally from learning about some of the thoughts and feelings that new mothers often experience.
- It is also possible that there may be no direct benefit to you from participating in this research. However, sometimes people appreciate the opportunity to talk about their thoughts and feelings about becoming a mother.
- By sharing your experiences as a new parent you may contribute to the results of our research, which we hope will allow us to learn more about postnatal mental illness and ways to prevent these problems for new mothers in the future.

**Are there any risks, side-effects, discomforts or inconveniences from being in the research project?**

- While the questions in the online surveys or telephone interviews are not intended cause you any distress, you will be asked to provide potentially sensitive personal information and recall some thoughts, feelings, and experiences you may have had that may have been difficult for you. It is therefore possible that you may have experience some discomfort from participating in the study. However, sometimes people find it reassuring to be asked about their thoughts and feelings, so it is also possible that you will benefit from being able to share your experiences as part of the research.
- If you feel anxious or upset by any of the questions in the online survey/s, you do not need to answer them; you can skip the question or come back to the survey to finish it at another time.
- Sometimes, just thinking about difficult thoughts and feelings can be upsetting. If you are distressed by reading this study information, or when completing the online survey, please contact a counsellor by calling:

<b>Australia</b>	Lifeline – <b>13 11 14</b> (Available 24 hours a day, 7 days a week)
<b>New Zealand</b>	Lifeline – <b>09 5222 999</b> (Auckland) or <b>0800 543 354</b> (outside Auckland) (Available 24 hours a day, 7 days a week)
<b>United Kingdom</b>	Samaritans UK – <b>116 123</b> (Available 24 hours a day, 7 days a week)
<b>USA</b>	National Suicide Prevention Lifeline – <b>1-800-273-8255</b> (Available 24 hours a day, 7 days a week)

- During each interview, the researcher will closely monitor you throughout the call/video-chat to make sure you are comfortable to continue the interview. If you feel anxious about any of the questions you can choose not to answer them, or to take a break or stop the interview. If the interview questions cause any concerns or upset you, we may talk with you to make sure you are safe from harm and can give you information to help you access support from a mental health professional in your local area.
- However, apart from giving up your time, we do not expect there will be any other risks (i.e. other than those listed above) or inconveniences associated with taking part in this study.

### **How will the prize draw work?**

- To thank you for volunteering your time and sharing your experiences, if you participate in our study by completing an online survey/s, you can choose to go into a random prize draw to **win one of two \$200 gift cards** or eCards, **two \$100 gift cards** or eCards, or **four \$50 gift cards** or eCards for your choice of the following stores: Westfield (Australia and NZ), Coles Myer Group (Australia), Babys 'R' Us (Australia and the USA), Tesco (UK), Mothercare (UK), JC Penney (USA), or Nordstrom (USA).
- If you participate in our study by completing a telephone interview/s, you can choose to also go into a **second, separate random prize draw** to win one of two \$200 gift cards or eCards, two \$100 gift cards or eCards, or six \$50 gift cards or eCards for the stores listed above.
- Prize values will be in Australian Dollars (AUD), but may be converted to the local current equivalent (i.e. NZD, USD, or GBP) at the time of the prize draw. The total prize pool is valued at \$1800 AUD.
- If you would like to be included in the prize draw/s, you will receive **one additional entry** in the online participation draw for each time you complete an online survey, and **one additional entry** in the telephone participation draw each time you complete a telephone interview. **This means that the more you participate, the more chances you have to win.**
- Prizes will be randomly drawn and winners will be contacted via email or phone within one month of the study finishing, or 1 December 2018 (whichever comes soonest). By entering the prize draw/s, you agree to our terms and conditions (which you can read here - [https://curtin.au1.qualtrics.com/CP/File.php?F=F\\_cUX51faiEr3ERud](https://curtin.au1.qualtrics.com/CP/File.php?F=F_cUX51faiEr3ERud)).

### **Who will have access to my information?**

- The information we collect from you in this research will be re-identifiable (coded). This means that the stored information will be re-identifiable which means we will remove personally identifying information on any data and replace it with a code. Only the research team will have access to the code to match your name if it is necessary to do so. Any information we collect will be treated as confidential and used only in this project unless otherwise specified. The following people will have access to the information we collect in this

research: the research team and, in the event of an audit or investigation, staff from the Curtin University Office of Research and Development.

- The interviewer may share your confidential information outside the research team only in exceptional circumstances where there is a specific and immediate risk that you may seriously harm yourself or someone else. In a crisis situation, we may share your information with others (e.g. emergency services in your local area) if it is necessary to make sure you or others are safe from harm. However, if this happens, we will always try to talk to you first, so that, where possible, you can be involved in deciding who you want to share the information with and how we will share it.
- Electronic data will be password-protected and hard copy data (including video or audio tapes of interviews) will be kept in locked storage.
- The information we collect in this study will be kept under secure conditions at Curtin University for 50 years after the research has ended and then it will be destroyed.
- You have the right to access, and request correct of, your information in accordance with relevant privacy laws.
- The results of this research may be presented at conferences or published in professional or scientific journals, and in Ms Mulcahy's PhD dissertation/thesis. You will not be personally identified in any results that are published or presented.

#### **Will you tell me the results of the research?**

- If you provide us with your email address at the end of the first survey, we will send you a summary of the project's overall results once they are available. You can also get a summary of the results by contacting us directly (see contact information below) or visiting the Facebook page (<http://fb.me/perinatalstudy>) for our study.
- As our research project is a long-term study, we expect that the overall results of our study will be available by June 2020.
- Results will not be individual but based on all the information we collect and review as part of the research.

#### **Do I have to take part in the research project?**

- Taking part in a research project is voluntary. It is your choice to take part or not. You do not have to agree if you do not want to. If you decide to take part and then change your mind, that is okay, you can withdraw from the project. You do not have to give us a reason; just tell us that you want to stop. Please let us know you want to stop so we can make sure you are aware of any thing that needs to be done so you can withdraw safely. If you choose not to take part or start and then stop the study, it will not affect your relationship with the University, staff or colleagues.
- If you chose to leave the study we will use any information collected from you unless you tell us not to.
- If you chose not to participate or decide to leave the study, the alternative is to continue to receive whatever assessment or treatment your health care provider (e.g. your family medical practitioner, obstetrician, midwife, child health nurse) recommends to you.

**What happens next and who can I contact about the research?**

- If you have any questions or concerns or would like further information about this study, you can contact Ms Melissa Mulcahy, PhD Candidate, or the Research Supervisor, Professor Clare Rees, by calling +61 (08) 9266 1717 or emailing [melissa.mulcahy@postgrad.curtin.edu.au](mailto:melissa.mulcahy@postgrad.curtin.edu.au) or [c.rees@curtin.edu.au](mailto:c.rees@curtin.edu.au). If you are an international participant from New Zealand, the UK, or the USA, please leave a message and we can call you back to answer your questions during business hours in your local time zone.
- On the survey page, there is a checkbox to indicate that you have understood the information and meet the study eligibility criteria provided on this page. Checking this box indicates that you agree to be in the research project, confirm your eligibility for the study, and have your information used as described. Please take your time and contact us to ask any questions you have before you decide what to do. You can also contact us if you want to have a copy of this information to keep.
- Once you have checked this box, please click the 'next' button to go to the start of the survey.
- At the end of the survey, you will be asked to provide your email address and phone number so that we can contact you to arrange a telephone screening interview and follow-up.

**Curtin University Human Research Ethics Committee (HREC) has approved this study (HRE 2017-0087). Should you wish to discuss the study with someone not directly involved, in particular, any matters concerning the conduct of the study or your rights as a participant, or you wish to make a confidential complaint, you may contact the Ethics Officer on (08) 9266 9223 or the Manager, Research Integrity on (08) 9266 7093 or email [hrec@curtin.edu.au](mailto:hrec@curtin.edu.au).**

### Health practitioner studies (Study 3 & 4)

<b>HREC Project Number:</b>	HRE2017-0087
<b>Project Title:</b>	Professional knowledge and practice in perinatal mental health
<b>Principal Investigator:</b>	Professor Clare Rees School of Psychology & Speech Pathology, Faculty of Health Sciences  Dr Rebecca Anderson, Senior Lecturer – Clinical Psychology Program School of Psychology & Speech Pathology, Faculty of Health Sciences
<b>Student researcher:</b>	Ms Melissa Mulcahy, PhD (Clinical Psychology) Candidate School of Psychology & Speech Pathology, Faculty of Health Sciences

#### What is the Project About?

- In recent years, there has been a considerable amount of research published on mental health problems in the perinatal period (defined, for the purpose of this study, as the period from pregnancy through to 6-months post-childbirth).
- As a result of this, professionals' awareness of perinatal mental health issues has increased.
- However, there is limited research available on how practitioners identify and respond to new/expecting parents with possible mental health problems in clinical practice.
- We are doing this study to investigate professionals' understanding and views on working with new/expecting parents who are potentially experiencing mental health problems.
- We are looking for around 85 medical, nursing, and allied health professionals (including practicum students nearing the end of their training) to participate in our online study.
- We hope that the results of our survey will provide us with greater insight into the way professionals may make decisions when working with perinatal individuals in clinical practice, including the factors that influence these decisions, to help us to identify clinicians' training and development needs.

#### Who is doing the Research?

- Ms Melissa Mulcahy, a PhD student in Clinical Psychology, is conducting this research project under the supervision of Professor Clare Rees and Dr Rebecca Anderson from the School of Psychology and Speech Pathology at Curtin University.
- The results of this research project will be used by Ms Mulcahy to obtain a Doctor of Philosophy (PhD) degree in Clinical Psychology at Curtin University and is funded by the University.
- There will be no costs to you. If you chose to participate in this study, you will have the opportunity to enter a random prize draw but will not be paid for participating in this project.

### **Why am I being asked to take part and what will I have to do?**

- We are looking for volunteers who speak English, are a medical, nursing and midwifery, or allied health professional (e.g. psychologist, occupational therapist) who have currently or recently (i.e. within the last 12 months) been engaged in **clinical practice with expecting and/or new parents** in either a general or specialist setting, to participate in our study. Practicum students who are nearing the end of their training in one of the health professions listed above, and have worked with expecting/new parents, also invited to participate.
- If you choose to participate, you can click on the next arrow at the bottom of this page to go to the survey. We will ask you to read a short vignette (of 100-200 words) describing an individual who is experiencing personal difficulties following the birth of their newborn baby. You will then be asked to use your **clinical judgment** to respond to a series of questions (e.g. *‘What would you consider to be the primary presenting issue in this case?’*) by selecting the answer that you believe would be most appropriate if you were working with the person described in the vignette from a list of options. We will also ask you to rate your agreement with a series of statements on a scale from 1 (‘very much disagree’) to 7 (‘very much agree’), and will ask you some questions about your training and experience (e.g. what qualifications you have).
- The survey will take around 20-30 minutes to complete. As this is an online study, you can complete the survey at a time and place that is best for you. If you are not able to finish the survey in one sitting, you may return to it to complete it at a later time. However, you will only need to complete it once.
- There will be no cost to you for taking part in this research and you will not be paid for participating.
- We would like you to consider allowing us to send you information about other projects being conducted by this research team by ticking a box stating ‘yes, please send me information about other research projects I may be interested in’ and providing your name and email address at the end of the survey. If you choose to receive this information, your name and information will be stored separately from the other information you gave us in the survey. Once you receive the information it is your choice if you decide to take part of not.

### **Are there any benefits’ to being in the research project?**

- There may be no direct benefit to you from participating in this research. However, sometimes people appreciate the opportunity to contribute their professional clinical experience to research in the field.
- We hope the results of this project will add to the knowledge we have about clinical practice with expecting and new parents.

### **Are there any risks, side-effects, discomforts or inconveniences from being in the research project?**

- In this survey, we will be asking you about both your professional experiences and personal thoughts and feelings. Apart from giving up your time, we do not expect that there will be any other risks or inconveniences associated with taking part in this study.
- At the end of the survey, you can provide your email address to receive feedback on the aims of the study and a list of resources where you can find relevant professional information on perinatal mental health once the survey has closed.

### **How will the prize draw work?**

- To thank you for volunteering your time, if you participate in our study by completing the online survey, you can choose to go into a random prize draw to **win one of two \$50 iTunes or Prepaid Visa gift cards**. At the end of the survey, you will be asked to give us your name and email address if you wish to enter the prize draw. Your name and contact information will be stored separately from the information you give us in the survey so that your survey responses remain anonymous. Prizes will be in Australian dollars (AUD) or the local currency equivalent (e.g. NZD, USD, GBP), converted at the time of the prize draw.
- Prizes will be randomly drawn and winners will be contacted via email or phone within one month of the study finishing, or 1 February 2018 (whichever comes soonest). By entering the prize draw/s, you agree to our terms and conditions (which you can read [here](#)).

### **Who will have access to my information?**

- The information we collect from you in this research will be non-identifiable (anonymous). This means that we do not need to collect individual names or information is anonymous and will not include a code number or name. An exception to this is if you choose to enter your email address at the end of the survey to enter the prize draw or receive a summary of the study results. If you tell us your email, we will store this information separately to the other information you have provided us with in the survey (it will not be linked to your survey responses in any way).
- This means that no one, not even the research team, will be able to identify your information. Any information we collect and use during this research will be treated as confidential. The following people will have access to the information we collect in this research: the research team and, in the event of an audit or investigation, staff from the Curtin University Office of Research and Development.
- Electronic data will be password-protected and hard copy data will be kept in locked storage.
- The information we collect in this study will be kept under secure conditions at Curtin University for 7 years after the research has ended and then it will be destroyed.
- You have the right to access, and request correction of, your personally identifying information in accordance with relevant privacy laws. Because survey responses will be collected in an anonymous way, we will be unable to follow requests to access or correct this information.
- The results of this research may be presented at conferences or published in professional or scientific journals, and in Ms Mulcahy's PhD dissertation/thesis. You will not be personally identified in any results that are published or presented.

### **Will you tell me the results of the research?**

- If you provide us with your email address to enter the prize draw at the end of the survey, we will send you a summary of the study's overall results once they are available. For those who do not wish to enter the prize draw, a summary of the results by contacting us directly (see contact information below) or visiting our Facebook page (<http://fb.me/perinatalstudy>).
- We expect that the overall results of our study will be available by March 2018.

- Results will not be individual but based on all the information we collect and review as part of the research.

### **Do I have to take part in the research project?**

- Taking part in a research project is voluntary. It is your choice to take part or not. You do not have to agree if you do not want to. If you decide to take part and then change your mind, that is okay, you can withdraw from the study. You do not have to give us a reason; just stop the survey. If you choose not to take part or start and then stop the study, it will not affect your relationship with the University, staff or colleagues.
- If you chose to leave the study we will be unable to destroy your information because it has been collected in an anonymous way.

### **What happens next and who can I contact about the research?**

- If you have any questions or concerns, or would like further information about this study, you can contact Ms Melissa Mulcahy, PhD Candidate, or the Research Supervisor, Professor Clare Rees, by calling the Curtin Psychology Clinic on +61 (08) 9266 1717 or emailing [melissa.mulcahy@postgrad.curtin.edu.au](mailto:melissa.mulcahy@postgrad.curtin.edu.au) or [c.rees@curtin.edu.au](mailto:c.rees@curtin.edu.au). If you are an international participant from New Zealand, the UK, or the USA, please leave a message and we can call you back to answer your questions during business hours in your local time zone.
- On the first page of the online survey, there is a checkbox to indicate that you have understood the information and meet the study eligibility criteria provided on this page. Checking this box indicates that you agree to be in the research project, confirm your eligibility for the study, and have your information used as described. Please take your time and contact us to ask any questions you have before you decide what to do.
- Once you have checked this box, please click the 'next' button to go to the start of the survey.

**Curtin University Human Research Ethics Committee (HREC) has approved this study (HRE2017-0087). Should you wish to discuss the study with someone not directly involved, in particular, any matters concerning the conduct of the study or your rights as a participant, or you wish to make a confidential complaint, you may contact the Ethics Officer on +61 (08) 9266 9223 or the Manager, Research Integrity on +61 (08) 9266 7093 or email [hrec@curtin.edu.au](mailto:hrec@curtin.edu.au).**

## Appendix F Survey Packages

### Prospective studies (Study 1 & 2)

#### *Prenatal survey (Study 1 & 2)*

Are you 18 years old or over?

- Yes
- No

Are you female?

- Yes
- No

Are you **currently** pregnant?

- Yes
- No

In this study, we will be tracking participants' mental health until up to six months after their baby's expected due date. Are you willing to give us your current email address and phone number so that we can contact you for follow-up? (You will be asked for these at the **end** of this survey so we can keep your contact information separate from the answers you give us here).

- Yes
- No

Will this baby be your first child?

**Please note:** If you have been pregnant before and have had a miscarriage or non-live birth, you can choose 'yes' or 'no'. As this is a study of first-time mothers, we welcome you to choose either answer, but note that those with prior children will not be eligible to participate in this study.

- Yes
- No

Are you less than 32 weeks pregnant **AND** due on or before 15 April 2019?

- Yes
- No

What country do you currently live in?

- Australia
- New Zealand
- Other country

Do you speak English?

- Yes
- No

Since you found out that you are pregnant, have you had a least one visit/appointment with a perinatal health professional (e.g. family medical practitioner, obstetrician, or midwife) to discuss health during pregnancy?

- Yes
- No

Have you been diagnosed by a health professional as **currently** having a **neurodevelopmental disorder** or an **autism spectrum disorder** or **Asperger syndrome**?

- Yes
- No

Do you **currently** have an **alcohol use** or other **substance use disorder**?

- Yes
- No

Have you been diagnosed by health professional as having, either **now** or **in the past**, a psychotic disorder, including **schizophrenia, schizoaffective, schizotypal, schizophreniform, brief delusional disorder, or bipolar disorder with psychotic symptoms?**

- Yes
- No

Are you currently on psychotropic medication (e.g. antidepressants, mood stabilisers, or anti-psychotic medication/s)?

- Yes
- No

Are you **currently** having thoughts of suicide or of killing yourself?

- Yes
- No

Thank you for agreeing to participate in our study. An anonymous Personal ID Code will be used to link your telephone interview and/or online survey responses throughout the study, so that we can see how things may change for you over time. This Code will also allow us to keep your responses separate from your personal contact information (that we will use to contact you for follow-up), so that our records of the surveys/interviews do not identify you personally.

Your Personal ID Code is made up of:  
the *first* two (2) letters of your first name,  
the *last* two (2) letters of your surname  
the date of the month on which you were born.

For example, for a person named Jane Smith, born on 12 February 1989, her Personal ID code would be JATH12.

Please enter your own Personal ID Code (created using the above instructions) and enter it into the textbox below.

---

**General information about you**

We would like to know some more general information about you.

What is your age (i.e. in years)?

---

What country were you born in?

---

Is English your first language?

Yes

No - please specify \_\_\_\_\_

Where do you currently live?

Australia

New Zealand

United Kingdom (UK)

United States of America (USA)

***[If 'Australia' was selected for the previous question]*** With which cultural/ethnic group do you most closely identify?

- Australian
- Australian Aboriginal
- Australian South Sea Islander
- Torres Strait Islander
- Maori
- New Zealander
- British
- Irish
- Melanesian and Papuan
- Micronesian
- Polynesian
- Western European
- Northern European
- Southern and Eastern European
- North African and Middle Eastern
- South-East Asian
- North-East Asian
- Southern and Central Asian
- North American
- South American
- Central American
- Caribbean Islander
- Sub-Saharan African

***[If 'Australia' was selected for the previous question]*** With which cultural/ethnic group do you most closely identify?

- New Zealand European

- Maori
- British or Irish
- European – other
- Australian European
- Australian Aboriginal or Torres Strait Islander
- American
- Canadian
- Pacific Peoples
- Asian
- Middle Eastern
- African
- Other ethnicity – see specify on next page

You selected 'other ethnicity' for the previous question. Please specify the cultural/ethnic group you most closely identify with below...

---

You selected 'other' for the above question. Please specify your current relationship status in the textbox below.

---

**General information about your pregnancy and health history**    How many weeks pregnant are you currently? Please specify...

---

Have you ever been diagnosed with a psychiatric or psychological or mental health disorder? Examples include depression, anxiety disorders, eating disorders, posttraumatic stress disorder.

- Yes - please specify \_\_\_\_\_
- No
- Not sure
- Prefer not to say

Are you **currently** receiving any type of treatment or therapy for a psychiatric or psychological or mental health disorder from a healthcare professional? Please choose all the answers that apply.

- Yes – counselling or psychological therapy - please specify \_\_\_\_\_
- Yes – medication - please specify \_\_\_\_\_
- Yes – other type of treatment - please specify \_\_\_\_\_
- No
- Not sure
- Prefer not to say

On what date is your baby due to be born? Please respond in Date-Month-Year format – e.g. 10 February 2017 would become 10/02/2017.

\_\_\_\_ / \_\_\_\_ / \_\_\_\_\_

**[Obsessive Beliefs Questionnaire – 44-item version]**

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

In making your ratings, try to avoid using the middle part of the scale (*'neither agree nor disagree'*), but rather indicate whether you usually disagree or agree with the statements about your own beliefs and attitudes.

	<b>Disagree very much</b>	<b>Disagree moderately</b>	<b>Disagree a little</b>	<b>Neither agree nor disagree</b>	<b>Agree a little</b>	<b>Agree moderately</b>	<b>Agree very much</b>
I often think things around me are unsafe.							
If I'm not absolutely sure of something, I'm bound to make a mistake							
Things should be perfect according to my own standards.							
In order to be a worthwhile person, I must be perfect at everything I do.							
When I see any opportunity to do so, I must act to prevent bad things from happening.							
Even if harm is very unlikely, I should try to prevent it at any cost.							
For me, having bad urges is as bad as actually carrying them out.							
If I don't act when I foresee danger, then I am to blame for any consequences.							

	<b>Disagree very much</b>	<b>Disagree moderately</b>	<b>Disagree a little</b>	<b>Neither agree nor disagree</b>	<b>Agree a little</b>	<b>Agree moderately</b>	<b>Agree very much</b>
If I can't do something perfectly, I shouldn't do it at all.							
I must work to my full potential at all times.							
It is essential for me to consider all possible outcomes of a situation.							
Even minor mistakes mean a job is not complete.							
If I have aggressive thoughts or impulses about my loved ones, this means I may secretly want to hurt them.							
I must be certain of my decisions.							
In all kinds of situations, failing to prevent harm is just as bad as deliberately causing harm.							
Avoiding serious problems (for example, illness or accidents) requires constant effort on my part.							
For me, not preventing harm is as bad as causing harm.							
I should be upset if I make a mistake							
I should make sure others are protected from any negative consequences of my decisions or actions.							

	<b>Disagree very much</b>	<b>Disagree moderately</b>	<b>Disagree a little</b>	<b>Neither agree nor disagree</b>	<b>Agree a little</b>	<b>Agree moderately</b>	<b>Agree very much</b>
For me, things are not right if they are not perfect.							
Having nasty thoughts means I am a terrible person.							
If I do not take extra precautions, I am more likely than others to have or cause a serious disaster.							
In order to feel safe, I have to be as prepared as possible for anything that could go wrong.							
I should not have bizarre or disgusting thoughts.							
For me, making a mistake is as bad as failing completely.							
It is essential for everything to be clear cut, even in minor matters.							
Having a blasphemous thought is as sinful as committing a sacrilegious act.							
I should be able to rid my mind of unwanted thoughts.							
I am more likely than other people to accidentally cause harm to myself or others.							
Having bad thoughts means I am weird or abnormal.							
I must be the best at things that are important to me.							

	<b>Disagree very much</b>	<b>Disagree moderately</b>	<b>Disagree a little</b>	<b>Neither agree nor disagree</b>	<b>Agree a little</b>	<b>Agree moderately</b>	<b>Agree very much</b>
Having an unwanted sexual thought or image means I really want to do it.							
If my actions could have even a small effect on a potential misfortune, I am responsible for the outcome.							
Even when I am careful, I often think that bad things will happen.							
Having intrusive thoughts means I'm out of control.							
Harmful events will happen unless I am very careful.							
I must keep working at something until it's done exactly right.							
Having violent thoughts means I will lose control and become violent.							
To me, failing to prevent disaster is as bad as causing it.							
If I don't do a job perfectly, people won't respect me.							
Even ordinary experiences in my life are full of risk.							
Having a bad thought is morally no different than doing a bad deed.							

	<b>Disagree very much</b>	<b>Disagree moderately</b>	<b>Disagree a little</b>	<b>Neither agree nor disagree</b>	<b>Agree a little</b>	<b>Agree moderately</b>	<b>Agree very much</b>
No matter what I do, it won't be good enough.							
If I don't control my thoughts, I'll be punished.							

***[Thought Action Fusion Scale]***

For each statement, choose the answer matching the answer that best describes **how you think**.

	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neither agree nor disagree</b>	<b>Agree</b>	<b>Strongly agree</b>
When I have a nasty thought about someone else, it is almost as bad as carrying out a nasty action.					
If I have a jealous thought, it is almost the same as making a jealous remark.					
When I think unkindly about a friend, it is almost as disloyal as doing an unkind act.					
If I think about making an obscene gesture to someone else, it is almost as bad as doing it. When I think about making an obscene remark or gesture in church, it is almost as sinful as actually doing it.					
If I think of a friend/relative losing their job, this increases the risk that they will lose their job.					
Thinking about swearing at someone else is almost as unacceptable to me as actually swearing.					
Having violent thoughts is almost as unacceptable to me as violent acts.					
If I think of a friend/relative falling ill, this increases the risk that he/she will fall ill.					

	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neither agree nor disagree</b>	<b>Agree</b>	<b>Strongly agree</b>
If I wish harm on someone, it is almost as bad as doing harm.					
If I think of myself falling ill, it increases the likelihood that I will fall ill.					
If I think of a friend/relative being injured in a fall, this increases the risk that he/she will have a fall and be injured.					
If I think of a friend/relative being in a car accident, this increases the risk that he/she will have a car accident.					
Thinking of cheating in a personal relationship is almost as immoral as actually cheating.					
Having a blasphemous thought is almost as sinful to me as a blasphemous action.					
Thinking of making an extremely critical remark to a friend is almost as unacceptable to me as actually saying it.					
Having obscene thoughts in a church is unacceptable to me.					
If I think of myself being injured in a fall, this increases the risk that I will have a fall and be injured.					
If I think of myself being injured in a car accident, this increases the risk that I will have a car accident.					

***[Obsessive-Compulsive Inventory – Revised]***

The following statements refer to experiences that many people have in their everyday lives.

Select the answer that best describes **how much** that experience has **distressed** or **bothered** you during the **past month**.

	<b>Not at all</b>	<b>A little</b>	<b>Moderately</b>	<b>A lot</b>	<b>Extremely</b>
I have saved up so many things that they get in the way.					

	<b>Not at all</b>	<b>A little</b>	<b>Moderately</b>	<b>A lot</b>	<b>Extremely</b>
I check things more often than necessary.					
I get upset if objects are not arranged properly.					
I feel compelled to count while I am doing things.					
I find it difficult to touch an object when I know it has been touched by strangers or certain people.					
I find it difficult to control my own thoughts.					
I collect things I don't need.					
I repeatedly check doors, windows, drawers etc.					
I get upset if others change the way I have arranged things.					
I feel I have to repeat certain numbers.					
I sometimes have to wash or clean myself simply because I feel contaminated.					
I am upset by unpleasant thoughts that come into my mind against my will.					
I avoid throwing things away because I am afraid I might need them later.					
I repeatedly check gas and water taps and light switches after turning them off.					
I need things to be arranged in a particular order.					
I feel that there are good and bad numbers.					
I wash my hands more often and longer than necessary.					
I frequently get nasty thoughts and have difficulty getting rid of them.					

***[Generalised Anxiety Disorder – 7-item Scale]***

Over the last 2 weeks, how often have you been bothered by the following problems?

	<b>Not at all</b>	<b>Several days</b>	<b>More than half the days</b>	<b>Nearly everyday</b>
Feeling nervous, anxious, or on edge.				
Not being able to stop worrying.				

	<b>Not at all</b>	<b>Several days</b>	<b>More than half the days</b>	<b>Nearly everyday</b>
Worrying too much about different things.				
Trouble relaxing.				
Being so restless that it is hard to sit still.				
Becoming easily annoyed or irritable.				
Feeling afraid as if something reasonable might happen.				

If you checked off **any** problems, how **difficult** have these problems made it for you to do your work, take care of things at home, or get along with other people? Circle one answer.

- Not difficult at all
- Somewhat difficult
- Very difficult
- Extremely difficult

***[Edinburgh Postnatal Depression Scale]***

As you have recently had a baby, we would like to know how you are feeling. Please select the answer which comes closest to how you have felt **in the past 7 days**, not just how you feel today. Here is an example, already completed:

I have felt happy:

- Yes, all the time
- Yes, most of the time (selected)**
- No, not very often
- No, not at all

This would mean “I have felt happy most of the time” during the past week. Please complete the other questions in the same way.

**In the past 7 days...**

I have been able to laugh and see the funny side of things.

- As much as I always could
- Not quite as much now
- Definitely not so much now
- Not at all

I have looked forward with enjoyment to things.

- As much as I ever did
- Rather less than I used to
- Definitely less than I used to
- Hardly at all

I have blamed myself unnecessarily when things went wrong.

- Yes, most of the time
- Yes, some of the time
- Not very often
- No, never

I have been anxious or worried for no good reason.

- No, not at all
- Hardly ever
- Yes, sometimes
- Yes, very often

I have felt scared or panicky for no very good reason.

- Yes, quite a lot
- Yes, sometimes
- No, not much
- No, not at all

Things have been getting on top of me.

- Yes, most of the time I haven't been able to cope at all
- Yes, sometimes I haven't been coping as well as usual
- No, most of the time I have coped quite well
- No, I have been coping as well as ever

I have been so unhappy that I have had difficulty sleeping.

- Yes, most of the time
- Yes, sometimes
- Not very often
- No, not at all

I have felt sad or miserable.

- Yes, most of the time
- Yes, quite often
- Not very often
- No, not at all

I have been so unhappy that I have been crying.

- Yes, most of the time
- Yes, quite often
- Only occasionally
- No, never

The thought of harming myself has occurred to me.

- Yes, quite often
- Sometimes
- Hardly ever
- Never

*[If participants' indicated current thoughts of suicide or selected answer other than 'never' to the final question of the Edinburgh Postnatal Depression Scale, the following information was presented]*

Having a baby can be a difficult time for many people. When people are very distressed, they often have suicidal thoughts and/or feelings of hopelessness.

If you are having thoughts of suicide, we know that acknowledging that you are having these thoughts can take a lot of courage. We would like to thank you for your honesty in recognising these thoughts within yourself and answering our questions.

**Support is available to help you work out the difficult thoughts and feelings you are having, and to help you feel better. It is important that you reach out and tell someone that you trust that you are having thoughts of suicide, and that you get professional help as soon as possible.**

**If you are currently having suicidal thoughts or feelings, we encourage you to call your General Practitioner/Primary Care Doctor and ask for an urgent appointment or to call a counsellor on one of the following 24-hour numbers:**

**Australia** Lifeline – **13 11 14**  
(Available 24 hours a day, 7 days a week)

**New Zealand** Lifeline – **09 5222 999** (Auckland) or **0800 543 354** (outside Auckland)  
(Available 24 hours a day, 7 days a week)

**UK** Samaritans UK – **116 123**  
(Available 24 hours a day, 7 days a week)

**USA** National Suicide Prevention Lifeline – **1-800-273-8255**  
(Available 24 hours a day, 7 days a week)

**If you are in an emergency situation or feel unsafe, call emergency services straight away:**

Australia	Fire, Police, and Ambulance – <b>000</b>
New Zealand	Fire, Police, and Ambulance – <b>111</b>
UK	Ambulance – <b>999</b>

**We also encourage you to try some of the following self-help strategies until you can reach help:**

- Try to distract yourself from your thoughts by doing something you would normally enjoy - calling a friend or family member, sitting outside or going for a short walk, writing or painting or drawing, reading, watching television or listening to music.
- Call a family member or friend and talk with them on the phone until you are safe.
- Do something that you normally find soothing such as having a bath or shower, or playing with a pet, or taking lots of deep breaths.
- Do something that reconnects you to a sense of purpose - e.g. looking after a pet, calling friends or family, doing work, or if you are a religious or spiritual person you may wish to pray for strength or courage, read scripture/a sacred text, or meditate.
- Think about the last time you felt a little bit better than you do now. Remind yourself that difficult thoughts and feelings can come and go without you needing to act on them.
- Focus on the present/moment using your senses. What can you touch, feel, taste, hear, and smell around you? Feel the breath coming in and out of your body.

Remind yourself that you can take things moment by moment until you feel at least a little bit better.

- Think about a past stressful time in your life and what you did to cope. Can you do some of those things now? Use that memory to remind yourself that you have been through hard times before and that this time will also pass.
  - If a self-help strategy doesn't work (or stops working), keep trying other strategies until you find one that is helpful to you and you get professional help.
-

***Three-month postnatal follow-up survey (Study 1 & 2)***

What is your Personal ID Code?

This code will be used link your responses in this survey to the previous survey, so that we can see how things may have changed for you over time. This Code will also allow us to keep your responses separate from personally identifying information, so that our records of the surveys do not identify you as an individual.

Your Personal ID Code is made up of:

- the first two (2) letters of your first name,
- the last two (2) letters of your surname, and
- the date of the month on which you were born.

For example, for a person named Jane Smith, born on 12 February 1989, her Personal ID code would be JATH12.

Please enter your own Personal ID Code (created using the above instructions) and enter it into the textbox below.

---

We would now like to ask you some questions about your baby/babies and their birth. Did you have a multiple-birth (for example, twins or triplets)?

- Yes
- No

What type of multiple birth did you have?

- Twins
- Triplets
- Quadruplets
- Quintuplets
- Other – please specify
- Prefer not to say

You answered 'other' for the above question. Please specify the type of multiple birth you have had in the text box below.

---

What is your baby's/babies' date of birth? Please respond in date-month-year format – for example, 10 February 2017 would become 10/2/2017. If you had a multi-birth and your babies were born on different dates, please list the date for your first born.

\_\_\_\_ / \_\_\_\_ / \_\_\_\_\_

What is your baby's sex?

- Male
- Female

What sex/saxes are your babies? Select all answers that apply.

- Number of males \_\_\_\_\_
- Number of females \_\_\_\_\_

Did you have any complications during pregnancy? Select all the answers that apply.

- Pregnancy related high blood pressure/hypertension
- Gestational diabetes
- Pregnancy-related anaemia
- Hyperemesis gravidarum – i.e. severe, persistent nausea/vomiting requiring medical care
- Fetal problems – i.e. your unborn baby/babies had growth or health problems
- Placental abruption
- Preeclampsia
- Placenta previa
- Other - please specify \_\_\_\_\_
- Prefer not to say
- I did not have any pregnancy complications

Was your baby/were your babies born before you were full term in your pregnancy (i.e. before 37 weeks gestation)?

- Yes
- No

At how many weeks gestation was your baby/were your babies born? \_\_\_\_\_ weeks

How did you give birth to your baby/babies?

- Spontaneous vaginal delivery
- Induced vaginal delivery
- Planned caesarean section (C-section)
- Unplanned caesarean section (e.g. emergency C-section)
- Vaginal delivery after C-section

If you had a vaginal birth, were any of the following used to help deliver your baby/babies? Select all that apply.

- Forceps
- Vacuum extraction
- Episiotomy/perineotomy - i.e. surgical incision to/cutting of the perineum to enlarge the vaginal opening
- Other type of intervention - please specify \_\_\_\_\_
- I do not know or prefer not to say
- I did not have a vaginal delivery
- None of the above

Did you and/or your baby/babies experience any complications during childbirth?  
Please choose all the answers that apply.

- Premature rupture of membranes
- Prolonged labour/failure to progress
- Delivery in the breech or transverse lie positions
- Umbilical cord prolapse
- Umbilical cord compression
- Uterine bleeding/postpartum hemorrhage
- Amniotic fluid embolism
- Other - please specify \_\_\_\_\_
- Prefer not to say
- I did not have any complications in childbirth

Do you currently breastfeed your baby/babies?

- Yes
- No
- I use mixed feeding
- Prefer not to say

### Questions about the healthcare you have received

Have you been diagnosed with a psychiatric or psychological or mental health disorder/s **in pregnancy or the postnatal period**? Examples include depression, anxiety, posttraumatic stress disorder, puerperal psychosis, or eating disorders.

- Yes
- No
- Not sure
- Prefer not to say

What psychiatric or psychological or mental health disorder/s have you been diagnosed with?

\_\_\_\_\_

Are you **currently** receiving any type of treatment or therapy for a psychiatric or psychological or mental health disorder from a healthcare professional? Select all that apply.

- Yes – counselling or psychological therapy (please specify) - \_\_\_\_\_
- Yes – medication (please specify) - \_\_\_\_\_
- Yes – other type of treatment (please specify) - \_\_\_\_\_
- No
- Not sure
- Prefer not to say

**[Obsessive Beliefs Questionnaire – 44-item version]**

	<b>Disagree very much</b>	<b>Disagree moderately</b>	<b>Disagree a little</b>	<b>Neither agree nor disagree</b>	<b>Agree a little</b>	<b>Agree moderately</b>	<b>Agree very much</b>
I often think things around me are unsafe.							
If I'm not absolutely sure of something, I'm bound to make a mistake							
Things should be perfect according to my own standards.							
In order to be a worthwhile person, I must be perfect at everything I do.							
When I see any opportunity to do so, I must act to prevent bad things from happening.							

	<b>Disagree very much</b>	<b>Disagree moderately</b>	<b>Disagree a little</b>	<b>Neither agree nor disagree</b>	<b>Agree a little</b>	<b>Agree moderately</b>	<b>Agree very much</b>
Even if harm is very unlikely, I should try to prevent it at any cost.							
For me, having bad urges is as bad as actually carrying them out.							
If I don't act when I foresee danger, then I am to blame for any consequences.							
If I can't do something perfectly, I shouldn't do it at all.							
I must work to my full potential at all times.							
It is essential for me to consider all possible outcomes of a situation.							
Even minor mistakes mean a job is not complete.							
If I have aggressive thoughts or impulses about my loved ones, this means I may secretly want to hurt them.							
I must be certain of my decisions.							
In all kinds of situations, failing to prevent harm is just as bad as deliberately causing harm.							

	<b>Disagree very much</b>	<b>Disagree moderately</b>	<b>Disagree a little</b>	<b>Neither agree nor disagree</b>	<b>Agree a little</b>	<b>Agree moderately</b>	<b>Agree very much</b>
Avoiding serious problems (for example, illness or accidents) requires constant effort on my part.							
For me, not preventing harm is as bad as causing harm.							
I should be upset if I make a mistake							
I should make sure others are protected from any negative consequences of my decisions or actions.							
For me, things are not right if they are not perfect.							
Having nasty thoughts means I am a terrible person.							
If I do not take extra precautions, I am more likely than others to have or cause a serious disaster.							
In order to feel safe, I have to be as prepared as possible for anything that could go wrong.							
I should not have bizarre or disgusting thoughts.							
For me, making a mistake is as bad as failing completely.							
It is essential for everything to be clear cut, even in minor matters.							

	<b>Disagree very much</b>	<b>Disagree moderately</b>	<b>Disagree a little</b>	<b>Neither agree nor disagree</b>	<b>Agree a little</b>	<b>Agree moderately</b>	<b>Agree very much</b>
Having a blasphemous thought is as sinful as committing a sacrilegious act.							
I should be able to rid my mind of unwanted thoughts.							
I am more likely than other people to accidentally cause harm to myself or others.							
Having bad thoughts means I am weird or abnormal.							
I must be the best at things that are important to me.							
Having an unwanted sexual thought or image means I really want to do it.							
If my actions could have even a small effect on a potential misfortune, I am responsible for the outcome.							
Even when I am careful, I often think that bad things will happen.							
Having intrusive thoughts means I'm out of control.							
Harmful events will happen unless I am very careful.							
I must keep working at something until it's done exactly right.							

	<b>Disagree very much</b>	<b>Disagree moderately</b>	<b>Disagree a little</b>	<b>Neither agree nor disagree</b>	<b>Agree a little</b>	<b>Agree moderately</b>	<b>Agree very much</b>
Having violent thoughts means I will lose control and become violent.							
To me, failing to prevent disaster is as bad as causing it.							
If I don't do a job perfectly, people won't respect me.							
Even ordinary experiences in my life are full of risk.							
Having a bad thought is morally no different than doing a bad deed.							
No matter what I do, it won't be good enough.							
If I don't control my thoughts, I'll be punished.							

***[Thought Action Fusion Scale]***

For each statement, choose the answer matching the answer that best describes **how you think**.

	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neither agree nor disagree</b>	<b>Agree</b>	<b>Strongly agree</b>
When I have a nasty thought about someone else, it is almost as bad as carrying out a nasty action.					
If I have a jealous thought, it is almost the same as making a jealous remark.					
When I think unkindly about a friend, it is almost as disloyal as doing an unkind act.					

	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neither agree nor disagree</b>	<b>Agree</b>	<b>Strongly agree</b>
If I think about making an obscene gesture to someone else, it is almost as bad as doing it. When I think about making an obscene remark or gesture in church, it is almost as sinful as actually doing it.					
If I think of a friend/relative losing their job, this increases the risk that they will lose their job.					
Thinking about swearing at someone else is almost as unacceptable to me as actually swearing.					
Having violent thoughts is almost as unacceptable to me as violent acts.					
If I think of a friend/relative falling ill, this increases the risk that he/she will fall ill.					
If I wish harm on someone, it is almost as bad as doing harm.					
If I think of myself falling ill, it increases the likelihood that I will fall ill.					
If I think of a friend/relative being injured in a fall, this increases the risk that he/she will have a fall and be injured.					
If I think of a friend/relative being in a car accident, this increases the risk that he/she will have a car accident.					
Thinking of cheating in a personal relationship is almost as immoral as actually cheating.					
Having a blasphemous thought is almost as sinful to me as a blasphemous action.					
Thinking of making an extremely critical remark to a friend is almost as unacceptable to me as actually saying it.					
Having obscene thoughts in a church is unacceptable to me.					

	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neither agree nor disagree</b>	<b>Agree</b>	<b>Strongly agree</b>
If I think of myself being injured in a fall, this increases the risk that I will have a fall and be injured.					
If I think of myself being injured in a car accident, this increases the risk that I will have a car accident.					

***[Obsessive-Compulsive Inventory – Revised]***

The following statements refer to experiences that many people have in their everyday lives.

Select the answer that best describes **how much** that experience has **distressed** or **bothered** you during the **past month**.

	<b>Not at all</b>	<b>A little</b>	<b>Moderately</b>	<b>A lot</b>	<b>Extremely</b>
I have saved up so many things that they get in the way.					
I check things more often than necessary.					
I get upset if objects are not arranged properly.					
I feel compelled to count while I am doing things.					
I find it difficult to touch an object when I know it has been touched by strangers or certain people.					
I find it difficult to control my own thoughts.					
I collect things I don't need.					
I repeatedly check doors, windows, drawers etc.					
I get upset if others change the way I have arranged things.					
I feel I have to repeat certain numbers.					
I sometimes have to wash or clean myself simply because I feel contaminated.					
I am upset by unpleasant thoughts that come into my mind against my will.					
I avoid throwing things away because I am afraid I might need them later.					

	<b>Not at all</b>	<b>A little</b>	<b>Moderately</b>	<b>A lot</b>	<b>Extremely</b>
I repeatedly check gas and water taps and light switches after turning them off.					
I need things to be arranged in a particular order.					
I feel that there are good and bad numbers.					
I wash my hands more often and longer than necessary.					
I frequently get nasty thoughts and have difficulty getting rid of them.					

*{Generalised Anxiety Disorder – 7-item Scale}*

Over the last 2 weeks, how often have you been bothered by the following problems?

	<b>Not at all</b>	<b>Several days</b>	<b>More than half the days</b>	<b>Nearly everyday</b>
Feeling nervous, anxious, or on edge.				
Not being able to stop worrying.				
Worrying too much about different things.				
Trouble relaxing.				
Being so restless that it is hard to sit still.				
Becoming easily annoyed or irritable.				
Feeling afraid as if something reasonable might happen.				

If you checked off **any** problems, how **difficult** have these problems made it for you to do your work, take care of things at home, or get along with other people? Circle one answer.

- Not difficult at all
- Somewhat difficult
- Very difficult
- Extremely difficult

*[Edinburgh Postnatal Depression Scale]*

As you have recently had a baby, we would like to know how you are feeling. Please select the answer which comes closest to how you have felt **in the past 7 days**, not just how you feel today. Here is an example, already completed:

I have felt happy:

- Yes, all the time
- Yes, most of the time (selected)**
- No, not very often
- No, not at all

This would mean “I have felt happy most of the time” during the past week. Please complete the other questions in the same way.

**In the past 7 days...**

I have been able to laugh and see the funny side of things.

- As much as I always could
- Not quite as much now
- Definitely not so much now
- Not at all

I have looked forward with enjoyment to things.

- As much as I ever did
- Rather less than I used to
- Definitely less than I used to
- Hardly at all

I have blamed myself unnecessarily when things went wrong.

- Yes, most of the time
- Yes, some of the time
- Not very often
- No, never

I have been anxious or worried for no good reason.

- No, not at all
- Hardly ever
- Yes, sometimes
- Yes, very often

I have felt scared or panicky for no very good reason.

- Yes, quite a lot
- Yes, sometimes
- No, not much
- No, not at all

Things have been getting on top of me.

- Yes, most of the time I haven't been able to cope at all
- Yes, sometimes I haven't been coping as well as usual
- No, most of the time I have coped quite well
- No, I have been coping as well as ever

I have been so unhappy that I have had difficulty sleeping.

- Yes, most of the time
- Yes, sometimes
- Not very often
- No, not at all

I have felt sad or miserable.

- Yes, most of the time
- Yes, quite often
- Not very often
- No, not at all

I have been so unhappy that I have been crying.

- Yes, most of the time
- Yes, quite often
- Only occasionally
- No, never

The thought of harming myself has occurred to me.

- Yes, quite often
  - Sometimes
  - Hardly ever
  - Never
- 

### *Six-month postnatal follow-up survey (Study 2)*

Thank you for taking part in our study. We are asking you to complete a follow-up survey because it is approximately 5-6 months after your baby's expected due date (which you told us in the first survey).

#### **This is the last online survey for our prevention trial.**

The questions in this survey are very similar to those in previous surveys, so that we can see how things have changed and/or stayed the same for you since your baby was born. We would appreciate you answering every question fully, even if you feel that you have answered it before. Most people are able to complete the survey in around 20-30 minutes.

If you have previously entered our prize draw to win a \$50, \$100, or \$200 gift card, you will receive one additional for completing this survey (see [terms and conditions](#) for more information).

If you no longer wish to participate, please **click [here](#)** to let us know not to contact you again.

**Curtin University Human Research Ethics Committee (HREC) has approved this study (HRE2017-0087). If you have any questions or concerns about the study, you can contact Melissa Mulcahy ([melissa.mulcahy@postgrad.curtin.edu.au](mailto:melissa.mulcahy@postgrad.curtin.edu.au)) or Dr Rebecca Anderson ([rebecca.anderson@curtin.edu.au](mailto:rebecca.anderson@curtin.edu.au)) by email or on +61 (08) 9266 1717. Should you wish to discuss the study with someone not directly involved, in particular, any matters concerning the conduct of the study or your rights as a participant, or you wish to make a confidential complaint, you may contact**

the Curtin University Ethics Officer on +61 (08) 9266 9223 or the Manager, Research Integrity on +61 (08) 9266 7093 or email [hrec@curtin.edu.au](mailto:hrec@curtin.edu.au).

***What is your Personal ID Code?***

This code will be used link your responses in this survey to the previous survey, so that we can see how things may have changed for you over time. This Code will also allow us to keep your responses separate from personally identifying information, so that our records of the surveys do not identify you as an individual.

Your Personal ID Code is made up of:  
the first two (2) letters of your first name,  
the last two (2) letters of your surname, and  
the date of the month on which you were born.

For example, for a person named Jane Smith, born on 12 February 1989, her Personal ID code would be JATH12.

Please enter your own Personal ID Code (created using the above instructions) and enter it into the textbox below.

---

***Questions about the healthcare you have received***

Have you been diagnosed with a psychiatric or psychological or mental health disorder/s **since the last survey (i.e. when you were 2-3 postpartum)**? Examples include depression, anxiety, posttraumatic stress disorder, puerperal psychosis, or eating disorders.

- Yes
- No
- Not sure
- Prefer not to say

What psychiatric or psychological or mental health disorder/s have you been diagnosed with?

---

Are you **currently** receiving any type of treatment or therapy for a psychiatric or psychological or mental health disorder from a healthcare professional? Select all that apply.

- Yes – counselling or psychological therapy (please specify) \_\_\_\_\_
- Yes – medication (please specify) \_\_\_\_\_
- Yes – other type of treatment (please specify) \_\_\_\_\_
- No
- Not sure
- Prefer not to say

***[Obsessive Beliefs Questionnaire – 44-item version]***

	<b>Disagree very much</b>	<b>Disagree moderately</b>	<b>Disagree a little</b>	<b>Neither agree nor disagree</b>	<b>Agree a little</b>	<b>Agree moderately</b>	<b>Agree very much</b>
I often think things around me are unsafe.							
If I'm not absolutely sure of something, I'm bound to make a mistake							
Things should be perfect according to my own standards.							
In order to be a worthwhile person, I must be perfect at everything I do.							
When I see any opportunity to do so, I must act to prevent bad things from happening.							

	<b>Disagree very much</b>	<b>Disagree moderately</b>	<b>Disagree a little</b>	<b>Neither agree nor disagree</b>	<b>Agree a little</b>	<b>Agree moderately</b>	<b>Agree very much</b>
Even if harm is very unlikely, I should try to prevent it at any cost.							
For me, having bad urges is as bad as actually carrying them out.							
If I don't act when I foresee danger, then I am to blame for any consequences.							
If I can't do something perfectly, I shouldn't do it at all.							
I must work to my full potential at all times.							
It is essential for me to consider all possible outcomes of a situation.							
Even minor mistakes mean a job is not complete.							
If I have aggressive thoughts or impulses about my loved ones, this means I may secretly want to hurt them.							
I must be certain of my decisions.							
In all kinds of situations, failing to prevent harm is just as bad as deliberately causing harm.							

	<b>Disagree very much</b>	<b>Disagree moderately</b>	<b>Disagree a little</b>	<b>Neither agree nor disagree</b>	<b>Agree a little</b>	<b>Agree moderately</b>	<b>Agree very much</b>
Avoiding serious problems (for example, illness or accidents) requires constant effort on my part.							
For me, not preventing harm is as bad as causing harm.							
I should be upset if I make a mistake							
I should make sure others are protected from any negative consequences of my decisions or actions.							
For me, things are not right if they are not perfect.							
Having nasty thoughts means I am a terrible person.							
If I do not take extra precautions, I am more likely than others to have or cause a serious disaster.							
In order to feel safe, I have to be as prepared as possible for anything that could go wrong.							
I should not have bizarre or disgusting thoughts.							
For me, making a mistake is as bad as failing completely.							
It is essential for everything to be clear cut, even in minor matters.							

	<b>Disagree very much</b>	<b>Disagree moderately</b>	<b>Disagree a little</b>	<b>Neither agree nor disagree</b>	<b>Agree a little</b>	<b>Agree moderately</b>	<b>Agree very much</b>
Having a blasphemous thought is as sinful as committing a sacrilegious act.							
I should be able to rid my mind of unwanted thoughts.							
I am more likely than other people to accidentally cause harm to myself or others.							
Having bad thoughts means I am weird or abnormal.							
I must be the best at things that are important to me.							
Having an unwanted sexual thought or image means I really want to do it.							
If my actions could have even a small effect on a potential misfortune, I am responsible for the outcome.							
Even when I am careful, I often think that bad things will happen.							
Having intrusive thoughts means I'm out of control.							
Harmful events will happen unless I am very careful.							
I must keep working at something until it's done exactly right.							

	<b>Disagree very much</b>	<b>Disagree moderately</b>	<b>Disagree a little</b>	<b>Neither agree nor disagree</b>	<b>Agree a little</b>	<b>Agree moderately</b>	<b>Agree very much</b>
Having violent thoughts means I will lose control and become violent.							
To me, failing to prevent disaster is as bad as causing it.							
If I don't do a job perfectly, people won't respect me.							
Even ordinary experiences in my life are full of risk.							
Having a bad thought is morally no different than doing a bad deed.							
No matter what I do, it won't be good enough.							
If I don't control my thoughts, I'll be punished.							

***[Thought Action Fusion Scale]***

For each statement, choose the answer matching the answer that best describes **how you think**.

	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neither agree nor disagree</b>	<b>Agree</b>	<b>Strongly agree</b>
When I have a nasty thought about someone else, it is almost as bad as carrying out a nasty action.					
If I have a jealous thought, it is almost the same as making a jealous remark.					
When I think unkindly about a friend, it is almost as disloyal as doing an unkind act.					

	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neither agree nor disagree</b>	<b>Agree</b>	<b>Strongly agree</b>
If I think about making an obscene gesture to someone else, it is almost as bad as doing it. When I think about making an obscene remark or gesture in church, it is almost as sinful as actually doing it.					
If I think of a friend/relative losing their job, this increases the risk that they will lose their job.					
Thinking about swearing at someone else is almost as unacceptable to me as actually swearing.					
Having violent thoughts is almost as unacceptable to me as violent acts.					
If I think of a friend/relative falling ill, this increases the risk that he/she will fall ill.					
If I wish harm on someone, it is almost as bad as doing harm.					
If I think of myself falling ill, it increases the likelihood that I will fall ill.					
If I think of a friend/relative being injured in a fall, this increases the risk that he/she will have a fall and be injured.					
If I think of a friend/relative being in a car accident, this increases the risk that he/she will have a car accident.					
Thinking of cheating in a personal relationship is almost as immoral as actually cheating.					
Having a blasphemous thought is almost as sinful to me as a blasphemous action.					
Thinking of making an extremely critical remark to a friend is almost as unacceptable to me as actually saying it.					
Having obscene thoughts in a church is unacceptable to me.					

	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neither agree nor disagree</b>	<b>Agree</b>	<b>Strongly agree</b>
If I think of myself being injured in a fall, this increases the risk that I will have a fall and be injured.					
If I think of myself being injured in a car accident, this increases the risk that I will have a car accident.					

***[Obsessive-Compulsive Inventory – Revised]***

The following statements refer to experiences that many people have in their everyday lives.

Select the answer that best describes **how much** that experience has **distressed** or **bothered** you during the **past month**.

	<b>Not at all</b>	<b>A little</b>	<b>Moderately</b>	<b>A lot</b>	<b>Extremely</b>
I have saved up so many things that they get in the way.					
I check things more often than necessary.					
I get upset if objects are not arranged properly.					
I feel compelled to count while I am doing things.					
I find it difficult to touch an object when I know it has been touched by strangers or certain people.					
I find it difficult to control my own thoughts.					
I collect things I don't need.					
I repeatedly check doors, windows, drawers etc.					
I get upset if others change the way I have arranged things.					
I feel I have to repeat certain numbers.					
I sometimes have to wash or clean myself simply because I feel contaminated.					
I am upset by unpleasant thoughts that come into my mind against my will.					
I avoid throwing things away because I am afraid I might need them later.					

I repeatedly check gas and water taps and light switches after turning them off.					
I need things to be arranged in a particular order.					
I feel that there are good and bad numbers.					
I wash my hands more often and longer than necessary.					
I frequently get nasty thoughts and have difficulty getting rid of them.					

***[Generalised Anxiety Disorder – 7-item Scale]***

Over the last 2 weeks, how often have you been bothered by the following problems?

	<b>Not at all</b>	<b>Several days</b>	<b>More than half the days</b>	<b>Nearly everyday</b>
Feeling nervous, anxious, or on edge.				
Not being able to stop worrying.				
Worrying too much about different things.				
Trouble relaxing.				
Being so restless that it is hard to sit still.				
Becoming easily annoyed or irritable.				
Feeling afraid as if something reasonable might happen.				

If you checked off **any** problems, how **difficult** have these problems made it for you to do your work, take care of things at home, or get along with other people? Circle one answer.

- Not difficult at all
- Somewhat difficult
- Very difficult
- Extremely difficult

*[Edinburgh Postnatal Depression Scale]*

As you have recently had a baby, we would like to know how you are feeling. Please select the answer which comes closest to how you have felt **in the past 7 days**, not just how you feel today. Here is an example, already completed:

I have felt happy:

- Yes, all the time
- Yes, most of the time (selected)**
- No, not very often
- No, not at all

This would mean “I have felt happy most of the time” during the past week. Please complete the other questions in the same way.

**In the past 7 days...**

I have been able to laugh and see the funny side of things.

- As much as I always could
- Not quite as much now
- Definitely not so much now
- Not at all

I have looked forward with enjoyment to things.

- As much as I ever did
- Rather less than I used to
- Definitely less than I used to
- Hardly at all

I have blamed myself unnecessarily when things went wrong.

- Yes, most of the time
- Yes, some of the time
- Not very often
- No, never

I have been anxious or worried for no good reason.

- No, not at all
- Hardly ever
- Yes, sometimes
- Yes, very often

I have felt scared or panicky for no very good reason.

- Yes, quite a lot
- Yes, sometimes
- No, not much
- No, not at all

Things have been getting on top of me.

- Yes, most of the time I haven't been able to cope at all
- Yes, sometimes I haven't been coping as well as usual
- No, most of the time I have coped quite well
- No, I have been coping as well as ever

I have been so unhappy that I have had difficulty sleeping.

- Yes, most of the time
- Yes, sometimes
- Not very often
- No, not at all

I have felt sad or miserable.

- Yes, most of the time
- Yes, quite often
- Not very often
- No, not at all

I have been so unhappy that I have been crying.

- Yes, most of the time
- Yes, quite often
- Only occasionally
- No, never

The thought of harming myself has occurred to me.

- Yes, quite often
- Sometimes
- Hardly ever
- Never

## Health practitioner studies (Study 3 & 4)

### Consider the case

Please read the following case scenario and consider how you might respond as a health professional to this kind of clinical presentation:

**You are seeing a client named Sally, who is 26 years old, for the first-time in your clinical practice. Sally gave birth to her first child, named Mia, nine weeks ago. Sally's husband, James, sits in the waiting room with Mia while you meet.**

**You have a good rapport with Sally, and during your consultation, she discloses that she is experiencing repeated thoughts about harming Mia that are unwanted and very frightening to her. When she experiences these thoughts she becomes very anxious and tries to think of other thoughts or do activities to distract herself. Most often, these thoughts are about her violently shaking Mia, or of strangling the baby or stabbing her with a kitchen knife, along with the phrase "I want to do it" running through her mind. She sees herself doing these things to Mia. When she has these thoughts, she repeats "No, I love Mia" out aloud to reassure herself that she is in control of herself. Sally is visibly distraught when discussing these thoughts of harming Mia with you. The thoughts became particularly intense and frequent after she read an online news article about a mother who attempted suicide and killed her newborn baby. Sally tells you that she is scared that her repeated thoughts about hurting Mia mean that she "is a bad mother" and that she, like the mother in the article, is "capable of doing something awful." She told James about the thoughts she was having and, since then, has repeatedly asked him whether he thinks she is a "danger to Mia."**

**Because of these fears, Sally has recently begun avoiding close contact with Mia or going into the kitchen/being around knives unless James is present. She also tells you that she is experiencing difficulty getting sufficient sleep. She awakens and checks Mia many times each night to make sure that the baby is okay, and that she hasn't harmed Mia without remembering doing so. James has currently taken personal leave from work to help Sally look after Mia. Sally says that she feels guilty about "burdening" James with more responsibilities for looking after Mia.**

**You ask Sally if you can speak with James, and he joins you in the consultation room. When you ask him how he would describe Sally, he says that she is a "gentle" and "very responsible" person but that she has become "very stressed" since the birth. He also reports that Sally "seems mostly okay" to him, and describes her as having good days and bad days. According to James, on her good days, Sally has less of these thoughts and feels more in control, and seems to enjoy being with Mia. She continues to take appropriate care of herself and Mia (when she is able to engage with Mia). She has no reported history of trauma and no apparent history of engaging in aggressive or violent behaviour. James tells you that while he initially told Sally that she was "a great mother" in response to her repeated requests for reassurance, but he is feeling worried that it doesn't seem to be making much difference to her distress.**

---

Please read the following questions and use your clinical judgment to select the answer that reflects what you believe would be the most appropriate response if you were working with the person described in the case vignette that you have just read. You should base your responses on the information provided in the vignette.

What would you consider to be the **primary** presenting issue in this case? Please choose **one** answer.

- Adjustment disorder symptoms
- Depressive symptoms
- Panic symptoms
- Generalised anxiety symptoms
- Psychotic symptoms
- Obsessive compulsive symptoms
- Dissociative symptoms
- Child protection issues
- Post traumatic stress symptoms
- Munchausen by proxy syndrome symptoms
- Impulse control problems
- Other - we will ask you to specify this on the next page
- Unsure - I'd need more information - we will ask you to specify this on the next page

You answered 'other' for the previous question. Please specify what you consider to be the primary presenting issue in this case in the textbox below.

---

What other information would you need in this situation? Please specify...

---

What step or steps would you take next? Please select all answers that apply.

- Reassure the parent
- Consider inpatient admission
- Complete a violence risk assessment
- Arrange for the child to be cared for by another person
- Refer to child protective services
- Refer to a mental health practitioner
- Do not allow the mother to be alone with the child
- Prescribe medication
- Refer the client to someone else - we will ask you to specify this on the next page
  - Other step/s - we will ask you to specify this on the next page

You selected 'refer the client to someone else' for the previous question. Please specify the type of service or professional you would refer Sally's case to in the textbox below.

---

You selected 'other step/s' for the previous question. Please specify the other step/s you would take in Sally's case in the textbox below.

---

What should treatment primarily focus on? Please rank the following responses from most likely to be helpful (i.e. enter a response of '1') to least likely to be unhelpful (i.e. enter a response of '5').

- \_\_\_\_\_ Improving the parent's mood
- \_\_\_\_\_ Helping the parent to manage their anger and frustration
- \_\_\_\_\_ Reducing their distress about the thoughts
- \_\_\_\_\_ Helping the parent to learn stress reduction and relaxation strategies
- \_\_\_\_\_ Implementing a plan to ensure the infant's safety

How **anxious** do you think you would feel if you encountered this scenario in your clinical practice?

- Very anxious
- Somewhat anxious
- Neither anxious nor non-anxious
- Generally non-anxious
- Not at all anxious

How **confident** are you that you would know what to do if you encountered this scenario in your clinical practice?

- Completely confident
- Somewhat confident
- Neither confident nor unconfident
- Generally unconfident
- Not at all confident

**What do you think about the thoughts that this individual is having about their baby?**

The following questions ask about reactions that many people have to thoughts about infant harm like those this parent is having. Please read the following statements and indicate the degree to which you agree or disagree with them in this case.

It's wrong for a parent to have thoughts like these about harming their baby.

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

The parent should stop having these thoughts about their baby.

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

Thoughts like these are normal.

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

Having these thoughts means the parent wants to harm their baby.

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

Thoughts like these are often meaningless.

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

Thoughts like these are common in the postnatal period.

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

Thoughts like these can be reduced with treatment.

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

**[Thought Fusion Instrument]**

The content of the *Thought Fusion Instrument* has been removed due to copyright restrictions. A full version of the measure is contained in Wells (2009).

**[Obsessive Beliefs Questionnaire – 21-item version]**

This inventory lists different attitudes or beliefs that people sometimes hold. Read each statement carefully and decide how much **you** agree or disagree with it. For each of the statements, choose the number matching the answer that best describes **how you think** in relation to **your own experiences**. Because people are different, there are no right or wrong answers. To decide whether a given statement is typical of your way of looking at things, simply keep in mind what you are like most of the time. In making your ratings, try to avoid using the middle part of the scale ('neither agree nor disagree'), but rather indicate whether you usually disagree or agree with the statements about your own beliefs and attitudes.

	<b>Disagree very much</b>	<b>Disagree moderately</b>	<b>Disagree a little</b>	<b>Neither agree nor disagree</b>	<b>Agree a little</b>	<b>Agree moderately</b>	<b>Agree very much</b>
If I'm not absolutely sure, I'm bound to make a mistake.							
In order to be a worthwhile person, I must be perfect at everything I do.							
Even if harm is very unlikely, I should try to prevent it at any cost.							
For me, having bad urges is as bad as actually carrying them out.							
If I don't act when I foresee danger, then I am to blame for consequences.							
In all kinds of daily situations, failing to prevent harm is just as bad as deliberately causing it.							
For me, not preventing harm is as bad as causing harm.							
I should be upset if I make a mistake.							
For me, things are not right if they are not perfect.							

	<b>Disagree very much</b>	<b>Disagree moderately</b>	<b>Disagree a little</b>	<b>Neither agree nor disagree</b>	<b>Agree a little</b>	<b>Agree moderately</b>	<b>Agree very much</b>
Having nasty thoughts means I'm a terrible person.							
If I do not take extra precautions, I am more likely than others to have or cause a serious disaster.							
I am more likely than other people to accidentally cause harm to myself or others.							
Having bad thoughts means I am weird or abnormal.							
Even when I am careful, I often think bad things will happen.							
Having intrusive thoughts means I am out of control.							
Harmful events will happen unless I am careful.							
I must keep working until it's exactly right.							
To me, failing to prevent disaster is as bad as causing it.							
Having a bad thought is morally no different than doing a bad deed.							
No matter what I do, it won't be good enough.							

### **Questions about your professional training and experience**

We would now like to know some information about you, including your training and experience.

What country do you currently live in?

---

What is your profession? Choose the answer that best applies to you.

- Nursing
- Midwifery
- Medical – Obstetrics and Gynaecology
- Medical – Psychiatry
- Medical – Paediatrics
- Clinical Psychology
- Psychology – Other
- Social work
- Occupational therapy
- Speech therapy
- Physiotherapy
- Aboriginal and Torres Strait Islander Health Worker
- Nutrition and dietetics
- Counselling and psychotherapy – i.e., other than licensed/registered psychologist
- Other – we will ask you to specify this on the next page

You selected 'other' for the previous question. Please specify your profession in the text box below.

---

Are you a student currently on clinical placement?

- Yes
- No

What qualification are you currently working towards? Please specify...

---

Are you in a specialist area of practice (e.g. Child Health Nurse, Mental Health Nurse, Clinical Psychologist)?

- Yes - you will be asked to specify this on the next page
- No

You selected 'yes' for the previous question. Please specify your specialist area of practice (e.g. Child Health Nurse, Clinical Psychologist) below...

---

Please list the qualifications that you completed in order to obtain the ability to practice in your current health profession (e.g. higher degrees, formal vocational training programs) and the year that you completed them (e.g. 'PhD - 2005').

---

In what country did you complete your professional training? List as many as apply.

---

During your formal professional training (i.e. to date), approximately how much time was dedicated to gaining knowledge and/or experience in the assessment and treatment of mental disorders? Please specify your answer in **years** and **months** (for example, a single semester of full-time study would be equivalent to 6 months).

\_\_\_\_\_ Years

\_\_\_\_\_ Months

What setting/s do you currently practice in? Select as many as apply.

- Hospital-based perinatal mental health service (e.g. mother baby unit)
- Hospital-based specialised mental health services (e.g. inpatient psychiatric unit)
- Maternity or women's hospital
- Other hospital-based service (e.g. general hospital)
- Community-based mental health service
- Obstetrics or gynecology or women's health clinic
- General/family medical practice
- Pediatrics or child health clinic
- Private psychology practice
- Other - you will be asked to specify this on the next page

You selected 'other' for the previous question. Please specify the setting you currently practice in below...

---

For how long have you been working in clinical practice within your profession?

- 0-1 years
- 2-8 years
- 9 or more years

For how long have you been seeing new and/or expecting parents (for example, pregnant and postnatal women, new fathers) in your clinical practice?

- 0-1 years
- 2-8 years
- 9 or more years

Approximately how many individuals with perinatal mental health disorders (for example, perinatal depression and anxiety) have you seen in your clinical practice? Select the answer that best applies to you.

- 0-5 individuals
- 6-10 individuals
- 11-20 individuals
- 21-35 individuals
- 36-50 individuals
- More than 50 individuals

**In this study, we are particularly interested in exploring health practitioners' knowledge and experience of working with individuals who have obsessive-compulsive disorder (OCD) in the perinatal period (sometimes termed 'perinatal OCD').**

Approximately how many new and expecting parents (for example, perinatal women) **with OCD** have you seen in your clinical practice?

---

Have you completed any formal training or professional development in working with **perinatal OCD**?

- Yes
- No
- Unsure

In which of the following practice areas have you received formal training or professional development? Select all that apply.

- OCD in general
- Perinatal anxiety in general
- Perinatal mental health in general
- All of the above
- None of the above