

An Experimental Manipulation of Responsibility in Children: An investigation into the effects of inflated responsibility on reassurance seeking, checking behaviours and anxiety.

Melissa de Wolff

University of East Anglia

Submitted in partial fulfilment of the Doctorate in Clinical Psychology

(Clin.Psy.D)

30th September 2010

© This copy of the thesis has been supplied on condition that anyone who consults it is understood to recognise that its copyright rests with the author and that no quotation from the thesis, nor any information derived there from, may be published with the author's prior, written consent.

Acknowledgements

I like to start by saying a big thank you to all the children and mothers who took part in this study. I am also extremely grateful to all the head teachers and staff who agreed for their schools to take part and facilitated in the research process. Special thanks go to my lovely friends and family, for their unfailing support and encouragement. In particular I would like to thank Jane, Ruth, Lea, Kate and Ben who have kept me smiling during times of stress.

Finally I would like to thank my supervisor Shirley Reynolds whose invaluable advice and guidance has been gratefully received.

TABLE OF CONTENTS

List of Tables	9
List of Figures	9
List of Appendices	10
Abstract	11
CHAPTER ONE: Introduction	13
1.1 Overview	13
1.2 Obsessive-Compulsive Disorder in Childhood	14
1.2.1 Diagnostic Criteria	14
1.2.2 Epidemiology, Onset, Course and Prognosis	15
1.2.2.1 Prevalence	15
1.2.2.2 Age of onset, course and prognosis	16
1.2.3 Co-morbidity and Sub-Types of OCD	17
1.2.4 Continuity with OCD in Adults	18
1.3 Theoretical Approaches and Treatment	19
1.3.1 Biological Models	19
1.3.1.1 Pharmacological treatments	20
1.3.2 Behavioural Models of OCD	21
1.3.2.1 Exposure and response prevention	22
1.3.3 Cognitive Models of OCD	24
1.3.3.1 Thought-Action Fusion	25
1.3.3.2 The meta-cognitive beliefs model	27
1.3.3.3 The inflated responsibility model	29
1.3.3.4 Cognitive therapy	32
1.3.4 Summary: Evidence base for Cognitive Models of OCD	33

1.4	The Application of Cognitive Models of OCD to Children	34
1.4.1	Literature Search	34
1.4.2	Inclusion and Exclusion Criteria	35
1.4.3	Studies investigating the TAF model	35
1.4.3.1	Non-clinical samples and questionnaire designs	35
1.4.4	Studies Investigating the Meta-Cognitive Model	36
1.4.4.1	Non-clinical samples questionnaire designs	36
1.4.5	Studies investigating the Inflated Responsibility Model	39
1.4.5.1	Clinical samples and experimental designs	39
1.4.5.2	Non-clinical samples and experimental designs	39
1.4.5.3	Non-clinical samples and questionnaire designs	41
1.4.6	Studies Investigating more than one Cognitive Model	42
1.4.6.1	Clinical sample and questionnaire designs	42
1.4.7	Summary of Evidence	44
1.5	Developmental and Family Factors in OCD	44
1.5.1	Child Development	44
1.5.2	OCD in the Family	45
1.5.2.1	Parental rearing style	45
1.5.2.2	Threat interpretation bias in parents and children	47
1.5.2.3	Family accommodation	48
1.5.2.4	Reassurance seeking behaviour and OCD	49
1.6	Chapter Summary	51
1.7	Review of Pertinent Studies Leading to Hypotheses	51
1.7.1	Overview of responsibility model	52
1.7.2	Review of pertinent experimental studies	53

1.7.3	Research Aims and Rational for Hypothesis 1 & 2	58
1.7.4	Research Aims and Rational for Hypothesis 3	59
1.8	Setting Conditions and Research Hypotheses	61
1.8.1	Setting Conditions	61
1.8.2	Hypothesis 1	62
1.8.3	Hypothesis 2	62
1.8.4	Hypothesis 3	62
CHAPTER TWO: Methodology		63
2.1	Chapter Overview	63
2.2	Design	63
2.3	Participants	63
2.3.1	Inclusion and Exclusion Criteria	64
2.3.2	Sample Size	64
2.3.3	Recruitment	64
2.4	Experimental Task	65
2.5	Ethical Considerations	67
2.5.1	Consent	68
2.5.2	Deception	68
2.5.3	Managing Distress	68
2.5.4	Confidentiality and Anonymity	69
2.6	Measures	69
2.6.1	Demographic Questionnaire	69
2.6.2	Confounding variable Measures	70
2.6.2.1	The Spence Children's Anxiety Scale	70
2.6.2.2	Child Responsibility Attitude Scale	70

2.6.2.3 Children’s Depression Inventory	70
2.6.2.4 Beck Anxiety Measure	71
2.6.3 Measures of Anxiety and Inflated Responsibility	71
2.6.3.1 The State Trait Anxiety Inventory for Children	71
2.6.3.2 Measure of perceived inflated responsibility	72
2.6.4 Behavioural Measures	73
2.6.4.1 Time Taken to complete the task	73
2.6.4.2 Number of checks	73
2.6.4.3 Number of hesitations	73
2.6.4.4 Reassurance seeking behaviour	74
2.6.4.5 Mothers Reassurance Giving	74
2.7 Procedure	74
CHAPTER THREE: Results	76
3.1 Overview	76
3.2 Treatment of Data	76
3.3 Demographic Data	76
3.4 Internal Consistency of Questionnaires and Descriptive Statistics	77
3.4.1 Internal Consistency of Questionnaire Measures	77
3.4.2 Descriptive Statistics	78
3.4.2.1 Spence Children’s Anxiety Scale	80
3.4.2.2 Children’s Depression Inventory-Short Form	80
3.4.2.3 The State Trait Anxiety Inventory for Children	81
3.4.2.4 Beck Anxiety Inventory	81
3.4.2.5 Children’s Responsibility Attitude Scale	81
3.4.2.6 Measure of perceived Responsibility	82

3.4.2.6.1	Perception of Influence Scale	82
3.4.2.6.2	Probability of Harm Scale	83
3.4.2.6.3	Severity of Harm Scale	84
3.4.2.7	Behavioural Measures	85
3.4.3.	Between Group Comparisons	87
3.5	Inter-Rater Reliability	88
3.6	Interim Summary	89
3.7	Results	90
3.7.1	Setting Condition 1 -Manipulation Check	90
3.7.2	Setting Condition 2- State Anxiety	91
3.7.3	Dependent Variables: Between Group Comparisons	91
3.7.4	Perception of Influence, Probability and Severity of Harm	93
3.8	Exploratory Correlational Analyses	95
3.9	Summary of Results	98
3.9.1	Setting Condition 1 – Manipulation Check	98
3.9.2	Setting Condition 2- State Anxiety	99
3.9.3	Hypothesis 1	99
3.9.4	Hypothesis 2	99
3.9.5	Hypothesis 3	99
	CHAPTER FOUR: Discussion	100
4.1	Overview	100
4.2	Previous Research and Current Findings	100
4.2.1	Setting Condition 1- Manipulation Check	100
4.2.2	Setting Condition 2- State Anxiety	102
4.2.3	Hypothesis 1	103

4.2.4 Hypothesis 2	105
4.2.5 Hypothesis 3	106
4.3 Interim Summary	108
4.4 Methodological Critique	109
4.4.1 Design	109
4.4.2 Sample	109
4.4.3 Measures	110
4.4.4 Experimental Manipulation	112
4.4.5 Researcher Bias	113
4.5 Implication of Study	113
4.5.1 Inflated Responsibility Model	113
4.5.2 Implications for Cognitive Theory in OCD	114
4.5.3 Clinical Implications	114
4.5.4 Recommendations for Future Research	116
4.6 Overall Summary and Conclusions	117
REFERENCES	120
APPENDICES	150
Word Count:	28,130

LIST OF TABLES

Table 1: Gender and Age of Participants	77
Table 2: Internal consistency for STAIC, CRAS	77
Table 3: Descriptive statistics for measures	78
Table 4: Transformed values of skewness and kurtosis for CDI-S	81
Table 5: Transformed values of skewness and kurtosis for pre-task perceived responsibility	82
Table 6: Descriptive statistics for the perception of influence subscale	83
Table 7: Descriptive statistics for probability of harm subscale	84
Table 8: Descriptive statistics for severity of harm subscale	85
Table 9: Descriptive statistics for child behavioural dependent variables.	86
Table 10: Transformed values of skewness and kurtosis for hesitations.	87
Table 11: Descriptive statistics for maternal reassurance giving.	87
Table 12: Intra-class correlation co-efficients for checks, hesitations, reassurance seeking and reassurance giving	89
Table 13: Group comparison on probability and severity of harm baseline and after task	95
Table 14: Correlations between reassurance seeking/reassurance giving and other variables of interest.	97

LIST OF FIGURES

Figure 1: Photo of the experimental task	67
Figure 2: Post-task measure of perceptions of inflated responsibility	91
Figure 3: Mean time taken to complete the task, checks, hesitations, reassurance seeking and reassurance giving for each group.	92

Figure 4: Graph showing post-task adjusted marginal mean for perception of influence
in each group. 94

Figure 5: Post-task mean rank for probability and severity of harm in each group 95

LIST OF APPENDICES

Appendix A: Head Teachers Invitation Letter	150
Appendix B: Information about participating schools.	152
Appendix C: Mother's Invitation Letter	154
Appendix D: Mother's Information Letter	155
Appendix E: Mother's Consent Form	158
Appendix F: Demographic Questionnaire	160
Appendix G: Faculty of Health Ethics Approval	162
Appendix H: Child Information Sheet	164
Appendix I: Child Assent Form	165
Appendix J: The Spence Children's Anxiety Scale	167
Appendix K: Children's Responsibility Attitude Scale	169
Appendix L: The State Trait Anxiety Inventory for Children	171
Appendix M: Baseline and Posttask Measures of Inflated Responsibility	172
Appendix N: Experimental Task Instructions	174

ABSTRACT

Objectives

There is an increasing amount of evidence which suggests that the cognitive models of obsessive-compulsive disorder can be applied to children. However, until now only two studies have used an experimental design to investigate the causal links between cognitive processes and childhood OCD. Therefore, the initial aim of this study was to develop these studies in order to further investigate the inflated responsibility model of childhood OCD. The secondary aim of this study is to investigate the effect of child's reassurance seeking on mother's reassurance giving behaviour.

Method

This study used an experimental between subjects design adapted from previous experimental research with adults and children. 52 participants aged 9-11 were randomly assigned to either a high responsibility group or a control group. Dependent variables were perceived responsibility, anxiety, checking behaviours and reassurance seeking.

Results

After the manipulation, children in the high responsibility group reported higher perceived responsibility than those in the control group. There were no group differences in post-task anxiety, while controlling for baseline anxiety. Children in the high responsibility group took longer to complete the task and also checked, hesitated and sought more reassurance than those in the control group. Mothers with children in the high responsibility group did not provide more reassurance than those with children in the control group.

Conclusions

The findings offer support for the link between inflated responsibility and childhood OCD by providing preliminary evidence for a causal link between inflated responsibility, checking behaviours and reassurance seeking. The study did not find a link between children's reassurance seeking and mother's reassurance giving behaviours. There are a number of methodological limitations that need to be considered when interpreting the results. The findings are discussed in relation to the implications for the cognitive model of OCD, treatment for young people with OCD and directions for future research.

CHAPTER 1

Introduction

1.1 Overview

The aim of this study is to investigate whether the inflated responsibility model of OCD (Salkovskis, 1985) applies to children. Although there is now a large body of evidence for the role of cognitive factors in the development and maintenance of OCD in adults (Ladouceur, et al., 1995, Wilson & Chambless, 1999), very few studies have investigated how well these cognitive models apply to children. Recently a number of studies have tried to address this issue; however there have been a number of methodological limitations. For example, the use of observational designs has meant that causal relationships between cognitive processes and obsessive-compulsive symptoms could not be established. Only two studies have used an experimental design to examine the causal relationship between perceived inflated responsibility and childhood OCD. The aim of this study is to replicate and extend this work while also examining the relationship between maternal reassurance giving and children's reassurance seeking. Understanding whether the inflated responsibility model (Salkovskis, 1985) of OCD applies to children would have a number of clinical implications, such as improving the assessment and treatment of childhood OCD.

The introduction begins with an overview of childhood OCD including diagnostic criteria and epidemiology. It then goes on to discuss current theoretical approaches and treatment to childhood OCD including biological, behavioural and cognitive theories. Empirical evidence for adult cognitive models of OCD is reviewed with a specific focus on the Thought-Action Fusion, Meta-cognitive beliefs and the Inflated Responsibility model. The application of these models to children is then

discussed including a critique of available literature. Developmental and contextual issues in OCD are then discussed, ending with research aims, rationale and hypotheses.

1.2 OCD in Childhood

1.2.1 Diagnostic Criteria

The definition of OCD used in this study is in accordance with The Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition (DSM-IV; American Psychiatric Association, 2000). This defines the essential features for diagnosis as recurrent obsessions and/or compulsions that cause marked distress, are time consuming, or interfere significantly with the person's functioning. Obsessions are defined as intrusive thoughts, images or impulses that are experienced as inappropriate and are associated with marked anxiety or distress. Compulsions are defined as repetitive behaviours or mental acts that are completed in an attempt to neutralise or relieve anxiety, or to prevent a feared event from occurring.

Although symptoms of OCD in children are similar to that of adults, children can be diagnosed with OCD without having insight into the excessive or unrealistic nature of obsessions or compulsions. Research has also shown that certain obsessions and compulsions may be associated with a child's stage of development (Ivarsson & Valderhaug, 2006). For example younger children more commonly report obsessions about contamination, aggression, symmetry or exactness (Geller et al., 1998; Riddel et al., 1990), whereas adolescents report obsessions that are more sexual or religious in nature (Williams and Waite, 2009). Children and adolescents also appear to have more aggressive/catastrophic obsessions and hoarding symptoms than adults (Geller et al., 1998). This supports aspects of cognitive OCD theories which suggest that the content of obsessions are a reflection of the issues that are most pertinent to the individual at that time (Salkovskis, 1985). In line with adult OCD, compulsions in children have been

found to be both overt and covert in nature. Common overt compulsions in children include washing, cleaning, checking, ordering, touching, repeating and reassurance seeking whereas covert compulsions include cancelling thoughts, silent prayers or counting (Franklin et al., 1998). Compulsions can change throughout a child's development and it is common for children to present with a number of different compulsions at any one time (Hanna, 1995).

Although it is more typical for children to display both obsessions and compulsions, some younger children have been found to engage in compulsions without reporting obsessions. This may be because children of this age lack the cognitive capacity to articulate internal processes (Swedo & Rapoport, 1989).

1.2.2 Epidemiology, Onset, Course and Prognosis

1.2.2.1 Prevalence. Recent literature suggests that childhood OCD is more prevalent than once believed (March & Mule, 1998). Existing epidemiological studies of OCD in young people aged 18 years or under have reported prevalence rates of 0.1-4%; with relatively few of these studies including pubertal children (Flament et al., 1988; Valleni-Basile et al., 1996; Douglass, Moffitt, Dar, McGhee & Silva, 1995; Zohar, 1999). Suggested reasons behind these discrepancies include age of subjects, culture, reluctance to disclose symptoms and lack of awareness of internal processes.

A recent epidemiological study carried out by the Office for National Statistics (1999) found the prevalence of OCD in children in the UK to be 0.25% (95% CI 0.12-0.35). This is slightly lower than other studies (Heyman et al., 2001). However, 17% of the families did not consent to take part which may mean that the prevalence is slightly under reported. Also, results suggested that the rate of OCD increases with age however this study only included children up to 15 years old compared to other studies that have included children up to 18 years old.

Studies have also found that children and adolescents with OCD often go undiagnosed. For example, one found that only 4 out of 18 high school children that were found to have OCD had received professional care and none of those 18 had been correctly identified as suffering from OCD (Flament et al., 1988).

Heyman et al., (2001) showed a trend towards higher rates of OCD in ethnic minority groups in the UK. Higher prevalence of OCD was also found in children from families with lower average incomes and of lower social class (Heyman et al., 2001). This is in contrast with other studies that found no correlation with socio-economic status (Flament et al., 1988) or found that OCD is more prevalent in children of high social class (Hanna, 1995).

1.2.2.2 Age of onset, course and prognosis. The average age of onset for childhood OCD ranges from 7.5 to 12.5 years (Geller et al., 1998) with a mean of 10.3 years. In 50-80% of cases, adults with OCD reported that the onset of their symptoms began before the age of 18 (Pauls, Alsobrook, Goodman, Rasmussen, & Leckman, 1995). The age of onset appears to peak firstly in puberty and then in early adulthood (Pauls et al., 1995) with some studies suggesting that boys are more likely to have prepubertal onset whereas girls are more likely to have onset during adolescence (Swedo, Rapoport, Leonard & Lenane, 1989).

As with adults, the course of childhood OCD tends to fluctuate over time and is often chronic (Bolton, Luckie, & Steinberg, 1995). A study by Hanna (1995) investigated the onset of OCD symptoms in a clinical sample of 31 children and adolescents with OCD. Results showed that the onset of OCD symptoms most commonly happens over a period of a few years (55%) with the remaining emergence of symptoms happening over a few months (39%) or suddenly (6%). In terms of precipitating events, Rettew, Swedo, Leonard and Rapoport (1992) found that 38% of

youngsters (n=79) with OCD believed that incidents such as moving, media events and minor physical illnesses were associated with the onset of symptoms.

With regards to prognosis for OCD in childhood, Stewart et al. (2004) carried out a meta-analysis of twenty-two studies to investigate predictors and persistence of OCD. Findings indicated that persistence of OCD in childhood was not as high as previously thought, with 41% of the participants reporting a clinical level of OCD symptoms at follow up. However, as the authors note, a large number of the studies used in the meta-analyses lacked comprehensive psychosocial outcome measures making it difficult to know how much their symptoms were impacting on their quality of life.

Despite its limitations, this study confirms that paediatric OCD can be a chronic condition that persists into adulthood and highlights the importance of early recognition and treatment intervention. In addition to persistent OCD symptoms, children who have been diagnosed with OCD may be at increased risk of developing other anxiety or mood disorders in adulthood when compared to controls (Falment et al., 1990).

1.2.3 Co-Morbidity and Subtypes of OCD

OCD in children and adolescents has specifically been associated with Tourette's syndrome (TS; Thomsen & Mikkelsen, 1995; Rapoport, 1986), and some studies have suggested they may be alternative manifestations of the same underlying illness (Pauls et al., 1995). However, the extent of this relationship appears to differ depending on the sample being addressed. Whereas OCD has been reported in up to 42% of children diagnosed with TS (Apter et al., 1993), TS has been found in only 0% to 15% of those with OCD diagnosis (Zohar et al., 1992; Heyman et al, 2001; Douglass et al., 1995). Studies have also shown patients with OCD alone are more likely to have cleaning compulsions whereas those with both OCD and Tourette's, have more

touching and blinking compulsions (Holzer, 1994). Other movement disorders on the spectrum of Tic Disorders have been found in 13% to 20% of youth with OCD (Hanna, 1995; Zohar et al., 1992). Findings such as these have led to the view that tic-related and non-tic related OCD may be different subtypes of the disorder (Riddle et al., 1990).

With regards to co-morbidity, 60-80% of young people with OCD have at least one other psychiatric diagnosis (Hanna, 1995). According to the Britain nationwide survey of child mental health (Heyman et al., 2001), the most common are anxiety disorders, conduct disorder, depression and eating disorders (Heyman et al., 2001). Mancebo et al., (2008) reported that 25% of children with OCD met criteria for Attention Deficit Hyperactivity Disorder (ADHD).

A number of studies have investigated the effect of co-morbidity on treatment outcomes. In terms of co-morbid anxiety disorders, O’Kearney, Anstey and Von Sanden (2009) found that CBT for OCD brought about a reduction in both OCD and anxiety symptoms. In terms of depression, only severe depression was found to negatively impact on treatment outcome, with studies showing that children with severe depression and co-morbid OCD had worse outcomes (Abramowitz & Foa, 2000, Goodyer et al., 2007). The authors conclude that mild to moderate levels of depression may be a result of the OCD symptoms rather than a disorder in itself.

1.2.4 Continuity with OCD in Adults

To date, only one study has examined current symptoms and lifetime correlates of juvenile-onset OCD across the lifespan. Mancebo et al., (2008) used a structured diagnostic interview, rater-administered severity measures and self report questionnaires to collect data from 257 participants with juvenile onset OCD (20 children, 44 adolescents and 193 adults). Results showed that phenomenology of juvenile-onset OCD is similar across the lifespan and that regardless of age at presentation, individuals

report multiple types of obsessions and compulsions with similar themes. It therefore seems probable that our understanding of childhood OCD could be furthered by a better understanding of adult theoretical approaches.

1.3 Theoretical Approaches and Treatment

A number of biological and psychological models have been developed to aid our understanding of childhood OCD. This section gives an overview of the most widely recognised theories and discusses how these theories inform treatment provision. The chapter begins with a brief summary of biological and pharmacological treatments. This is followed by a more detailed account of psychological models, with particular focus on cognitive and behavioural approaches.

1.3.1 Biological Models

Biological models of OCD have focused on a number of different areas including brain structure and function, neuro-pharmacological, genetic and neuropsychology.

Neuro-pharmacological studies of OCD have focused on abnormalities in the serotonin and dopaminergic subsystems in the central nervous system, possibly in the areas of the basal ganglia and orbitofrontal cortex (Grados & Riddle, 1999). Studies investigating the serotonin hypothesis have suggested that it may be associated with hypersensitivity in the postsynaptic 5-HT receptors. This hypothesis has been supported by platelet studies that have found that positive treatment response is related to a decrease in serotonin levels and a reduction of 5-HT activity (Flament, Rapoport, Murphey, Berg & Lake, 1987).

Genetic factors have historically been thought of as important in the development of OCD; however literature in this area does not offer conclusive evidence. Black, Noyes, Goldstein and Blum (1992) found a low rate of OCD and a

relatively high rate of anxiety disorders in first degree relatives of adults with OCD.

Pauls et al. (1995) found a higher rate of OCD and subthreshold OCD in relatives of adults with OCD (10.3% and 7.9% respectively) compared to relatives of control patients (1.9% and 2.0% respectively). A more recent family study, involving 80 adults with OCD and 73 controls, showed significantly higher lifetime prevalence of OCD (11.7% vs. 2.7%), obsessions (10.4% vs. 2.4%) and compulsions (18.2% vs. 6.1%) in first degree relatives of adults with OCD compared to controls (Nestadt et al., 2000).

Childhood OCD studies have also found higher rates of OCD in close relatives of children with OCD than in close relatives of children with no diagnosis (Hanna, Himle, Curtis & Gillespie, 2005). Also, childhood studies have generally reported higher rates of OCD in first degree relatives than adult studies, suggesting that earlier age of onset is related to degrees of familiarity of OCD (Grados & Riddle, 1999). However, higher rates of OCD are not found in more distant relatives, suggesting that genetics only explain a small part of the development of OCD.

A recently published article investigated the influence of genetic factors of OCD by reviewing over 70 years of twin research (van Grootheest, Cath, Beekman, & Boomsma, 2005). They concluded that obsessive-compulsive symptoms are heritable, with genetic influences in the range of 45% to 65%. However, as the studies included in this paper spanned a considerable timeframe there were inconsistencies in the design and methodology used. It appears that although genetic factors may influence susceptibility of OCD, it is likely that environmental factors also play a large part in the development of OC symptoms.

1.3.1.1 Pharmacological treatments. Studies investigating the efficacy of pharmacological treatments for childhood OCD have consistently found a reduction in symptoms ranging from 30-40% (Geller et al., 2001; Riddle et al., 2001).

In the UK the National Institute for Health and Clinical Excellence (NICE) highlights that pharmacological treatments can be an effective in the treatment of OCD symptoms in children and young people, but that clinicians must be aware of the potential unknown risks involved, particularly in relation to the child's developing nervous system (NICE, 2006). Therefore although selective serotonin reuptake inhibitors (SSRIs) should be considered as potentially effective treatments for this population, treatment decisions need to take the potential adverse effects of these drugs into account.

Given the strong evidence base for the effectiveness of therapeutic interventions in the treatment of OCD and the possible side effects of medication, it seems advantageous to offer other alternatives to medication when possible. This will be discussed in the next section.

1.3.2 Behavioural Models of OCD

The origins of current behavioural treatment are found in learning theory. Behavioural models of OCD derive largely on Mowrer's (1960) two-stage model of fear and avoidance. This model suggests that an individual becomes fearful of specific stimuli through classical conditioning and that this fear is maintained through operant conditioning. For example, a neutral object become associated with fear and anxiety through some negative event or stimuli and this fear and anxiety is reduced by engaging in some repetitive behaviour that is negatively reinforcing. These repetitive behaviours, known as compulsions, temporarily remove the aversive stimuli and relieve feelings of anxiety, which in turn strengthens the response and increases the likelihood that the compulsions will be carried out again. For example, a child who has fears around contamination may learn that by repeatedly washing his hands, their anxiety will

reduce. However, as this reduction in anxiety is short lived, it is usually not long before the cycle of distress and alleviation happens again.

Similarly, Rachman (1971) proposed that normal intrusive thoughts, images and impulses become associated with anxiety that has subsequently failed to extinguish. The failure to extinguish is said to occur because sufferers develop escape and avoidance behaviours (such as obsessional checking and washing) which prevent the anxiety becoming extinct (Rachman and Hodgson, 1980). For example, rather than exposing themselves to the feared stimuli and allowing the anxiety to pass, individuals avoid the stimuli by carrying out compulsive rituals, therefore not allowing themselves to become habituated to the intrusive thought. The avoidant activity is therefore strengthened by the process of operant conditioning.

In support of this model Rachman and his colleagues conducted a series of experiments. They found that; (1) the elicitation of obsessions was associated with increased anxiety and discomfort, (2) if the patients were allowed to ritualise then this anxiety and discomfort immediately decreased, (3) that if ritualising was delayed then the anxiety and discomfort decreased over a longer period and, (4) when the patient refrained from ritualising then the anxiety on the next trial was lower than during the previous trial and this did not occur if the ritualising took place (Rachman and Hodgson, 1980). Similarly, other studies have found a link between covert compulsions and anxiety reduction among patients with OCD (Mark et al, 2000). The next section will discuss the treatment approaches for OCD based on these behavioural principles.

1.3.2.1 Exposure and response prevention (ERP). ERP is the most widely used psychological intervention for children, adolescents and adults with OCD (March, 1995). It is based on behavioural principles and involves exposing the individual, either directly or through imagination, to the anxiety that is provoked by their obsessions

while also preventing the use of compulsions to reduce the anxiety. For example, children with compulsive washing would be required in a graded way to touch objects that they fear will lead to contamination, and prevent the washing that neutralises their fear (O’Kearney, Anstey, von Sanden, 2010). The idea is that over long periods of exposure, the individual will learn that they are able to tolerate the feared stimuli and that the anxiety will pass without needing to engage in the compulsion. This cycle of exposure and response prevention is repeated until the individual becomes habituated to the feared stimuli, and learns that even when the compulsions are not carried out, the feared catastrophe does not occur (Albano, Knox & Barlow, 1995).

A large body of evidence exists for the efficacy of ERP in adult populations (Abramowitz, Whiteside & Deacon, 2005); however the effectiveness of ERP alone for OCD in childhood and adolescents is still debatable.

Bolton and Perrin (2008) compared a 5 week ERP treatment programme (ERP alone without the cognitive components involved in CBT) with a wait list control in 20 children and adolescents with OCD. Children were randomised to ERP or wait-list condition. Children assigned to the treatment group showed a significant improvement in symptoms compared with controls, and this was maintained 14 weeks later. This study suggests that ERP is an effective treatment for paediatric OCD even when delivered over a relatively short period of time, which is consistent with previous studies (Franklin et al., 1998). However, due to the small sample size, these findings should be interpreted with caution. Also, the assessor was not blind to treatment outcome which could mean that the investigator-based outcome ratings were influenced by the researcher’s expectation of change in the treatment outcome group vs. no change in the control group (Bolton & Perrin, 2008).

In the treatment of OCD, ERP is often incorporated as part of cognitive behavioural intervention. This section will therefore discuss studies that examine efficiency of cognitive behavioural therapy (CBT) for the treatment of paediatric OCD. O’Kearney et al. (2010) reviewed 8 randomised controlled treatment trials involving 343 participants 18 years or younger. ERP was part of all the CBT interventions reviewed. Results from two studies suggest that combining CBT with medication produces better outcomes than medication alone (Pediatric Obsessive-Compulsive Disorder Treatment study: POTS, 2004; Neziroglu et al, 2000). However, sample sizes from both studies were small and therefore results should be interpreted with caution. Two studies compared CBT to wait list control (Barret, Healy-Farrell & March, 2004; Bolton & Perrin, 2008) and two against a placebo control (Freeman et al, 2008; POTS, 2004). CBT was more effective than wait list control, pharmacotherapy and psychological placebo at reducing the severity of OCD symptoms.

These studies support CBT (with ERP) as an effective treatment for OCD in children and adolescents. However, other studies report high drop out rates of up to 48% and suggest that a large number of children find the ERP approach to be aversive and demanding (Bolton & Perrin, 2008; Allsopp & Verduyn, 1990). CBT for OCD has been modelled on OCD for adults (Turner, 2006). Further research is needed to gain a better understanding of the cognitive processes relevant to OCD in children and adolescents as this will be vital in the developing and refining of treatments.

1.3.3 Cognitive Models of OCD

All cognitive models of OCD are based on the idea that intrusive thoughts are a very normal every day experience and occur in almost 90% of the general population (Salkovskis, 1985). The significance lies in the way in which intrusive thoughts are interpreted and it has been proposed that individuals with OCD may have a tendency to

misinterpret these intrusive thoughts as dangerous and catastrophic thereby transforming them into 'abnormal' obsessions (Rachman, 1997). A number of cognitive models of OCD in adults have been proposed. These include inflated responsibility (Salkovskis, 1999), thought-action fusion (TAF; Rachman, 1993) and meta-cognitive beliefs (Wells and Papageorgiou 1998). Each of these models assume that an individual's appraisal of their obsessional thoughts and their response to such thoughts contribute to OCD. However, each model emphasizes different types of beliefs and some unique processes in the development and maintenance of OCD.

1.3.3.1. Thought-action fusion (TAF). TAF refers to the tendency to treat thoughts and actions as equivalents. According to Rachman and Shafran (1999), TAF is a cognitive distortion with two components. The first is 'probability TAF' in which the intrusive thought is believed to increase the possibility of the specific negative event occurring in reality. The second is 'morality TAF' in which the individual believes that experiencing the intrusive thought is morally equivalent to carrying out the imagined action. This cognitive distortion may lead to feelings of guilt and increased distress which in turn may lead to attempts to neutralise these feelings.

Empirical evidence for TAF

Rassin, Merkelbach, Muris and Spann (1999) conducted a randomised experimental study of TAF. Participants were wired to EEG apparatus. Those in the experimental condition were told that the apparatus could tell when they thought of the word apple and that this would result in an electrical shock being administered to another person. Participants in the control group were not given information about the electric shock. After 15 minutes participants completed questionnaires about the frequency and aversiveness of the target thought. Individuals in the experimental group

reported a higher frequency of intrusions, more discomfort, more self-directed anger and more resistance than the control group.

Zucker, Craske, Barrios and Holguin (2002) investigated whether or not a brief educational intervention delivered before an anxiety provoking task was effective at reducing anxiety in 72 high school students. Each child was randomly assigned to either the experimental group, during which they received an educational message about intrusive thoughts and TAF, or a control condition who received a placebo message about stress. They were then asked to complete the sentence, 'I hope _____ is in a car accident', inserting a name of a relative or close friend in the blank and then close their eyes and think about the situation for a few moments. Findings showed that students in the experimental group reported less post task anxiety when compared to a control group.

Both studies suggest that the appraisal of intrusive thoughts influences levels of distress and neutralising which in turn supports cognitive models of OCD. However, it is important to note that both studies used non-clinical samples and that the question of whether TAF plays a significant role in OCD of clinical samples is currently less well established.

Barrett and Healy (2002) measured ratings of TAF, appraisal of responsibility, probability, severity, self doubt and cognitive control in a group of children with OCD and compared them to a group of anxious and non-clinical children. To assess TAF, children were asked to complete three multiple choice questions. For OCD children they were asked to complete the sentence 'If I think _____' by replacing the blank with the child's most intrusive thought and then choosing one of three possible endings; (a) probably nothing bad will happen, (b) something bad might happen or (c) something bad will happen for sure. Children in the anxious and control group were given a

standardised thought. Results showed that children with OCD reported significantly higher cognitive perceptions of TAF in comparison to the non-clinical children; however children in the OCD group and anxiety group did not differ. The authors noted that the similarity in OCD and anxious children may be because a large number of the anxious children reported that the OCD-relevant threat was true for them, indicating that they may have been experiencing some degree of OC symptoms.

1.3.3.2 The meta-cognitive beliefs model. Meta-cognition refers to beliefs and knowledge about strategies used to control and regulate thinking processes (Moses & Baird, 1998). This model focuses on the individual's beliefs about the significance and meaning of intrusive thoughts (Fisher & Wells, 2005). According to Wells (2000), OCD is maintained by two feedback loops. The first feedback loop focuses on the negative emotional feelings that arise from the appraisal of the thought, such as anxiety symptoms being interpreted as a sign of loss of control. Emotional responses increase the likelihood of further intrusions. The second feedback loop focuses on the behavioural response, which prevents disconfirmation of the dysfunctional beliefs. The non-occurrence of the catastrophic event is attributed to the ritual and not to the fact that the appraisal of the intrusion is not correct (Wells, 1997).

Empirical evidence for the metacognitive beliefs model

Results from a number of questionnaire based studies have shown empirical support for the meta-cognitive model by showing that meta-cognitive beliefs are associated with O-C symptoms (Wells & Papageorgiou, 1998).

Gwilliam, Wells and Cartwright Hatton (2004) used a battery of questionnaires to investigate whether OCD symptom severity in adults was better predicted by meta-cognitive beliefs or responsibility beliefs. Results showed that responsibility and meta-cognitive beliefs are positively correlated, that the relationship between responsibility

and OC symptoms was statistically dependent on meta-cognitions and that meta-cognitions positively correlated with OC symptoms independently of responsibility. Metacognitive beliefs about the need to control thoughts, thought-action fusion and negative beliefs about cognitive competence were reliable predictors of OC symptoms. However, only one measure of inflated responsibility was included in this study and therefore important aspects of this construct may have been missed.

Fisher and Wells (2005) compared the effects of brief ERP (ERP-E), delivered with a metacognitive rational, with the effects of brief ERP accompanied by a traditional habituation rational in eight patients referred to a clinical psychology service for OCD. Metacognitive beliefs were elicited by asking each patient about the meaning and dangers of their intrusions. Participants were then subjected to a brief five minute exposure to their feared obsessional stimuli. They were asked to focus on the obsessional stimuli and not to engage in any form of neutralising behaviours. Before the task was repeated participants in the metacognitive condition were given a metacognitive rational (Wells; 1997). In the habituation condition, an ERP rational was provided after the task had been repeated (Andrews et al., 2003). Results from a Wilcoxon signed-rank test showed that brief ERP accompanied by a meta-cognitive treatment rational resulted in significantly greater reductions of anxiety/distress ($z=-2.03, p<.05$), meta-cognitive beliefs ($z=-2.52, p<.05$) and the urge to neutralize ($z=-1.963, p<.05$), than brief ERP accompanied by a habitual rational.

Fisher and Wells (2008) evaluated a new form of cognitive therapy called Metacognitive therapy (MCT) which is based on Well's meta-cognitive model of OCD. MCT differs from standard CBT and ERP by focusing exclusively on metacognitive beliefs about obsessions and compulsions. It does not utilize habituation strategies or require in session exposure to obsessions. Treatment efficacy was assessed using single

case methodology in 4 patients with different OCD representations. MCT was delivered weekly for 12-14 weeks with each session lasting no more than one hour. Outcome measures included the Yale Brown Obsessive-Compulsive Scale (Y-BOCS; Goodman et al, 1989), the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock & Erbaugh, 1961) and the Padua Inventory (PI; Sanavio, 1988). Results showed substantial reductions were obtained on all of the outcome measures at post-treatment and at three month and six month follow up, including changes on metacognitive beliefs about obsessions and compulsions. Percentage improvements for pre- to post on the Y-BOCS ranged from 63% to 75% and percentage improvements on the PI ranged from 50% to 86%. The author discuss a number of limitations of the study including small sample size, the fact that the study relied heavily on self-report measures and did not have an independent assessment of treatment outcome (Fisher & Wells, 2008).

1.3.3.3. The inflated responsibility model. Salkovskis proposed that inflated responsibility is central to the development and maintenance of OCD (Salkovskis, 1999). The inflated responsibility model proposes that rather than dismissing normal intrusive thoughts as trivial, OCD sufferers are more likely to misinterpret the intrusions as indicating that danger is imminent and feel that they are personally responsible for preventing any potential harm that may occur as a result of that threat (Parrish & Radomsky, 2006). Responsibility was defined as the belief that one has the pivotal power to bring about or prevent subjectively crucial negative outcomes. These events may be actual, that is, having consequences in the real world, and/or at a moral level (Salkovskis, Shafran, Rachman, & Freeston, 1999). In line with other cognitive models of anxiety, the inflated responsibility model (Salkovskis et al., 2000) proposes that core beliefs and assumptions develop from early experiences. These assumptions may be activated by a critical incident and may lead to the misinterpretation of normal intrusive

thoughts as dangerous. The misinterpretation of these intrusions leads to increased levels of anxiety and discomfort which in turn leads to increased levels of anxiety-neutralizing behaviour (Parrish & Radomsky, 2006). These anxiety-neutralising behaviours can either be neutralising actions such as checking, reassurance seeking or rituals, or counterproductive safety strategies such as avoidance and thought suppression (Salkovskis et al., 2000). Although these behaviours serve to reduce anxiety in the short term, they prevent the individual from testing out their misinterpretation and therefore reinforce the compulsive behaviours in the long term. The impact of reassurance seeking will be discussed in more detail later on in the chapter.

Empirical evidence for the inflated responsibility model

There is increasing evidence that there is an association between inflated responsibility and OCD in adults. OCD patients and non-patients with OCD symptoms tend to score higher on measures of responsibility (e.g. Freeston, Ladouceur, Gagnon, & Thibodeau, 1993). Experimental studies have found that increases in perceived responsibility are followed by increased checking (Ladouceur et al., 1995) and that inducing responsibility in non-clinical adults leads to an increase in OCD-like behaviours compared to control participants (Bouchard et al., 1999, Ladouceur, Rheume & Aublet, 1997).

Salkovskis et al. (2000) investigated the links between clinical symptoms (depression, obsessionality and anxiety) and responsibility beliefs using a variety of questionnaires including the Responsibility Attitude Scale (RAS), Responsibility Interpretation Questionnaire (RIQ), depression and anxiety measures. Measures were administered to three groups: an anxiety sample; an OCD sample and; a non-clinical control group. Results showed that patients with OCD were more likely to have responsibility beliefs and assumptions compared to individuals in the other two groups.

Individuals in the OCD groups were also more likely to make responsibility-related appraisals of intrusive thoughts about possible harm (Salkovskis et al; 2000). These results suggest that inflated responsibility beliefs are more prominent in OCD sufferers than in general anxiety disorders or non-clinical controls.

A number of studies have aimed to demonstrate the link between different levels of perceived responsibility and OCD behaviours by experimentally manipulating responsibility in non-clinical subjects. Ladouceur et al., (1995) randomly assigned 40 participants to high responsibility (HR) and low responsibility (LR) groups. In the HR group subjects were asked to sort two hundred pharmaceutical capsules by colour and told that their work would directly influence treatment safety for a widespread virus in a South East Asian country. Individuals in the LR group were asked to complete the same task but were told that the study was interested in perception of colour alone. Participants from the HR group showed significantly more hesitations and checking behaviours than subjects from the LR group. They also reported higher levels of anxiety and were more worried about the possibility of making a mistake.

Based on Ladouceur et al's (1995) study, Arntz, Voncken and Goosen (2007) tested the causal status of responsibility in OCD by experimentally manipulating responsibility in a clinical sample. OCD patients, non-OCD anxiety controls and non-patients were assigned to either a HR or LR condition and asked to complete classification task. Results showed that checking behaviours and subjective OCD like experiences were higher in OCD patients in the HiRes condition than all other groups. Previous studies using clinical samples have found similar results, where responsibility was manipulated by the presence or absence of an experimenter during a task (Lopatka & Rachman, 1995; Shafran, 1997). These results suggest that there is a link between

perceived responsibility and checking behaviour and that reduced responsibility is associated with reduced levels of anxiety.

1.3.3.4. Cognitive therapy. The aim of cognitive therapy in the treatment of OCD is to challenge and restructure the unhelpful thoughts that are maintaining OCD symptoms. However, very few studies have investigated the efficacy of pure cognitive therapy alone. On comparing 'pure' cognitive therapy with 'pure' ERP, Van Oppen et al., (1995) found that both resulted in symptomatic improvement, with significantly more 'recovered' patients in the cognitive therapy group. However, it is important to note that in 10 out of the 16 sessions, behavioural experiments were used as part of the cognitive therapy group. Although different rationales are used for behavioural experiments and ERP, the two are very similar in that behavioural experiments often involve anxiety provoking situations in which the usual compulsive response is altered to test an alternative hypothesis. Therefore, results from this study should be interpreted with caution (Carlstedt, 2009). In contrast, Cottraux (2001) found no significant difference in outcome measures between those treated with ERP and those treated by cognitive therapy.

Other studies comparing group CBT to group ERP have found group ERP to be marginally more effective (McLean et al., 2001). The authors discuss the importance of considering optimal formats for the delivery of different types of treatment. For example, the nature of ERP may mean that a group setting is more appropriate whereas the challenging of thoughts and beliefs, which may be more specific to the individual, could be more effectively done through individual CBT (McLean et al., 2001). Wittal, Thordarson, and McLean (2005) compared individual ERP with individual CBT, and found that there was no significant difference. This suggests that CBT on an individual

level is equally as effective as individual ERP and may be a good alternative for patients who are unwilling to engage in ERP (Salkovskis & Warrick, 1986).

Based on these findings, it seems possible that cognitive therapy could also be an effective treatment for OCD in children and adolescents. Indeed, a number of cognitive therapy techniques, such as cognitive restructuring (March et al., 2001) and thought stopping (Ownby, 1983), have been used as part of child treatment programmes for OCD. However, these techniques are usually incorporated as part of a wider intervention, such as ERP, rather than on their own (Turner, 2006).

Using a case series of six adolescents, Williams, Salkovskis, Forrester, and Allsopp (2002) found that cognitive strategies such as reappraising responsibility were effective in reducing OCD symptom severity. These findings have been supported by other case studies who also found that cognitive techniques can effectively reduce OCD symptoms in adolescents (Freeston, 2001, Shaffran & Somers, 1998).

Although these findings are useful in guiding treatment and research, further studies are needed to investigate the different processes involved in effective treatment.

1.3.4. Summary: Evidence for Cognitive Models of OCD

All three of the cognitive models described above propose that intrusive thoughts are a normal everyday occurrence and that it is the misinterpretation and appraisal of these intrusive thoughts that is critical to development and maintenance of OCD. The TAF model (Rachman & Shafran, 1998) describes a phenomenon whereby people regard their thoughts to be equivalent to an imagined action whereas Wells (1997) proposed a model that focuses on meta-cognitive beliefs. Salkovskis (1985) on the other hand states that responsibility appraisals are the central component.

There is some evidence for each of the models but the most widely researched is the inflated responsibility model (Salkovskis, 1985). It is widely accepted that further

research is required in this field. The applicability of this model to a childhood population will be investigated further in the next section.

1.4 The Application of Cognitive Models of OCD to Children

While it is generally accepted that cognitive models of OCD may be applied to children many questions remain unanswered. The following section will review the available literature and will provide a critique of the findings. It will do this by evaluating the methodology used in the studies and will be organised according to research design and sample.

1.4.1 Literature Search

Relevant articles for this literature review were identified by searching the following electronic databases on April 2010: Cochrane Library, Ingenta, MEDLINE, PsycINFO (OCLC), Science Direct (Elsevier), EMBASE, Web of Science, Web of Knowledge and UEA Catalogue. All available years were examined. The studies were initially identified by keyword, title and abstract searches using the following terms: ‘adolescent or child* or juvenile or young people or paediatric’, in combination with ‘obsessive compulsive or OCD’, ‘cognitive processes or cognitive models or cognitive appraisals’, ‘metacognitive beliefs or metacognitions’, ‘responsib*’, ‘magical thinking’ and ‘thought-action fusion’. The abstracts were screened to identify those of relevance to the current review. During the search it became apparent that there were a number of key authors (e.g. ‘Barret’, ‘Shafran’, ‘Salkovskis’, ‘Rachman’, ‘Farrell’, and ‘Freeston’) and therefore author searches were also carried out. This was supplemented by a hand search through key journals and by following up references listed in relevant papers over the past ten years. The search was limited to articles printed in the English language and duplicates were removed. Colleagues working in the field of OCD were also consulted.

1.4.2 Inclusion and Exclusion Criteria

The articles included in this review were (1) studies written in English and published in peer review articles; (2) studies where the exploration of cognitive models of OCD was the main focus, including inflated responsibility, meta-cognitive and TAF models; (3) studies using clinical or non-clinical populations and (4) studies using child populations up to 18 years of age.

Using the method described above, 138 papers were identified with a total of 12 articles meeting the inclusion criteria. Two additional papers were also critically evaluated (Reeves, Reynolds, Wilson & Coker, 2010; Reynolds, Austin & Parker, submitted) as this study aims to extend and replicate these studies. The papers have been organised into three main categories based on three most prominent cognitive models of OCD. Within each category the papers have been further organised based on sample (e.g. clinical or non-clinical) and research design (e.g. questionnaire or experimental).

1.4.3 Studies investigating TAF

1.4.3.1 Non-clinical samples and questionnaire designs. Muris, Meesters, Rassin, Merckelbach, and Campbell (2001) investigated the TAF model using a large non-clinical sample (n=427) of adolescents. Participants were asked to complete the Thought-Action-Fusion Questionnaire for Adolescents (TAFQ-A) and scales measuring symptoms of OCD, trait anxiety, other anxiety disorders and depression. The TAF-Q was a reliable measure for assessing both the morality and probability component of TAF. TAF was related to OCD symptoms and also with symptoms of other anxiety disorders and depression. However, when controlling for levels of trait anxiety, TAF was most strongly associated with symptoms of OCD, suggesting that TAF is more relevant to OCD than for any other anxiety disorders. The authors noted a number of

limitations of the study such as using a non-clinical sample and that the correlational nature of the study does not provide evidence for any kind of causal association between TAF and OCD symptoms.

Bolton, Dearsley, Madronal-Luque, and Baron-Cohen (2002) developed a Magical Thinking Questionnaire (MTQ) to investigate the relationship between magical thinking and OC symptoms in children between aged between 5-17 (n=127). They hypothesised that magical thinking would lessen between young childhood and late adolescents. There was a significant relationship between magical thinking and OC symptoms suggesting that the TAF model is applicable to children. However, magical thinking did not appear to decline with age but rather showed a more fluctuating pattern.

Evans, Milanak, Madeiros, and Ross (2002) conducted a structured interview on thirty-one children aged 3-8 years looking at their beliefs about tricks, wishes and magic. The children were also asked to watch a collection of magic tricks/ illusions and invited to explain how they think they worked. The children's parents completed the Childhood Routines Inventory (CRI) which aimed to assess the children's 'compulsive-like' behaviours (habits, rituals and sensory perceptual experiences). Results from the study showed that the children's magical beliefs were associated with their rituals and compulsions. In support of Bolton's findings, no association was found between age and magical thinking. However, these results should be interpreted with caution as cognitive processes and development in a non-clinical sample may differ to those in a clinical sample.

1.4.4 Studies Investigating the Meta-Cognitive Model

1.4.4.1 Non-clinical samples questionnaire designs. Cartwright-Hatton et al. (2004) developed the Meta-cognitive Questionnaire for Adolescents (MCQ-A) and investigated the prevalence and emotional correlates of meta-cognitions in adolescents.

The MCQ-A, along with measures of anxiety, depression and obsessional symptoms was administered to 177 school children aged 13-17. The results showed that the full range of meta-cognitive beliefs that have been identified in adult populations were also found in adolescents and that these beliefs (as measured on the MCQ-A) are positively correlated with self-reports of emotional symptoms. The authors concluded that meta-cognitive beliefs may have a role to play in the development of emotional disorders; however, due to the nature of the study, this does not represent a causal association.

Mather and Cartwright-Hatton (2004) investigated the relationship between responsibility attitudes, metacognitive beliefs and OC symptoms by asking 166 young people aged 13-17 to complete a number of questionnaires. Both responsibility attitudes and meta-cognitions were found to be important correlates of OC symptoms. However, when age, gender and depression were controlled for only meta-cognition was a predictor of OCD.

The authors noted a number of methodological limitations. Firstly, as response rates were not calculated it is unclear how representative the sample is. Secondly, the use of non-clinical participants does mean that it is difficult to generalise the research to a clinical population. However, an advantage of using non-clinical sample in the research of anxiety disorders is that it allows studies to have adequate power to test relationships between variables. Thirdly, the authors questioned the validity of the measurements in regards to this age range and questioned poor test-retest reliability for one of the metacognitions questionnaire subscales.

Matthews, Reynolds and Derisley (2007) investigated inflated responsibility (Salkovskis, 1985), thought action fusion (Rachman, 1993) and meta-cognitive beliefs (Well and Matthews, 1994) in adolescents and looked at the relationships of these different cognitive processes to OC symptoms. In their study 233 participants aged 13

to 16 completed measures of inflated responsibility, TAF, meta-cognitive beliefs and obsessive compulsive symptoms. These variables accounted for 35% of the variance in OC symptoms and inflated responsibility and meta-cognitive beliefs both made significant independent contribution to OC symptoms. Inflated responsibility completely mediated the effect of TAF and partially mediated the effects of meta-cognitive beliefs. This supports Salkovskis model (1985) who suggested that responsibility is a central feature of OCD. The authors concluded that cognitive models of OCD appear to be as applicable to children as they do to adults and that the measures used to assess cognition are appropriate for this age group.

These results are inconsistent with the findings from Mather and Cartwright-Hatton's study (2004) who reported that responsibility attitudes did not make a significant independent contribution to OC symptoms. The authors note that one important difference between the two studies is that Marther and Cartwright-Hatton (2004) controlled for depression before examining the impact of responsibility attitudes and meta-cognitions. The authors conclude that in order to clarify different predictors of OC symptoms it is important for future studies to examine the role of mood, as well as cognitions.

The use of a non-clinical sample does mean that generalizing to a clinical population is problematic as different relationships may exist between mood, OCD and cognitive appraisals. However there are also a number of clear advantages to using non-clinical samples, including the relative ease with which these samples can be recruited, allowing studies to have adequate power to test relationships between variables. The use of a non-clinical sample also means that ethical and practical constraints can also be avoided (Gibbs, 1996) and also means that there are fewer competing factors (e.g. medication) that can influence the interpretation of the findings (Costello, 1994).

1.4.5 Studies Investigating the Inflated Responsibility Model

1.4.5.1 Clinical samples and experimental designs. Barrett and Healy-Farrell (2003) experimentally manipulated perceived responsibility in 43 children with OCD during a behavioural avoidance task (BAT) and examined the impact of this manipulation on perceived probability and severity of harm, distress, ritualizing and avoidance. The BAT was an individually tailored test during which the child was asked to expose themselves for 5 minutes to a situation that usually caused significant distress. Based on adult studies by Lopatka and Rachman (1995) and Shafran (1997), responsibility was manipulated by varying the presence of others during the BAT and by using signed contracts between the child and experimenter. Each participant engaged in three experimental conditions: high, moderate and low responsibility. The study then examined if CBT would decrease ratings across all measures during a BAT. Inflated responsibility did not lead to increased ratings of distress or of probability or severity of harm. Following CBT, there were no significant reductions across measures during the BAT.

This study has a number of strengths which include the experimental design and the use of an age appropriate adaptation of an established manipulation task. However, a number of limitations are also apparent. As noted by the authors, participants were particularly reluctant to accept responsibility in the high-responsibility BAT condition. Results also showed that the manipulation of responsibility did not result in a significant difference in responsibility ratings between low and moderate BAT conditions.

1.4.5.2 Non-clinical samples and experimental designs. Only two studies have used experimental designs to investigate cognitive models of OCD in a non-clinical sample of children (Reeves et al., 2010; Reynolds et al., submitted).

Reeves et al. (2010) aimed to investigate whether Salkovskis' (1985) inflated responsibility model of OCD applied to children by using a sample of non-clinical 9-12 year olds (n=81). Children were randomly allocated to one of three conditions: an inflated responsibility group, a moderate responsibility group and a reduced responsibility group. In all three groups children were asked to sort sweets according to whether they had nuts in or not. Responsibility was induced by telling the children that the sweets would be given to a group of children, where one child had a nut allergy. This is an adaptation of a sorting task that was developed by Ladouceur et al. (1995), to manipulate responsibility in adults. Children in the high responsibility group were told that the experimenter would not check the sweets after they had been sorted and therefore it was important that the children sorted them as carefully as possible. Children in the moderate responsibility group were not given any information about whether the sorted sweets would be checked or not. Children in the reduced responsibility group were told that their work would be checked by the researcher and therefore mistakes would not be their fault. The effect of the manipulation was examined on several dependent variables: number of checks, number of hesitations, time taken to complete the task and level of anxiety. Results showed that as perceived responsibility increased, children checked and hesitated more often and took longer to complete the task. Groups did not differ in self-reported state anxiety.

This study has a number of strengths. For example, the use of an experimental design meant that the possible causal role of OCD could be inferred. The authors also adapted a previously used experimental task resulting in it being appropriate for use with children of this age. The experimental task also had good face validity. A limitation of the study is the lack of a control group.

Reynolds et al., (submitted) attempted to address these shortcomings by replicating and extending the study by Reeves et al. (2010). The extension included the addition of a control group in which children were not given any responsibility as well as an inflated responsibility group and a reduced responsibility group. In line with the inflated responsibility model of OCD (Salkovskis et al., 2000), reassurance seeking was also added as another type of OCD-like behaviour. Sixty-nine children aged 9-11 participated in the study. Inflated responsibility increased reassurance seeking and also increased the time taken to complete the task. Unexpectedly, state anxiety, number of checks or hesitations did not increase with increased responsibility. Results also showed that although the sorting task was successful in manipulating responsibility between the high and reduced responsibility groups, the control group did not differ significantly from either of the experimental groups in post-task perceived levels of responsibility

This study has a number of strengths such as the inclusion of reassurance seeking and the use of reliable and valid questionnaires to measure possible confounding variables. The use of non-clinical samples allows investigations into the causes of OCD.

1.4.5.3 Non-clinical samples and questionnaire designs. Magnusdottir and Smari (2004) investigated the relationship between responsibility attitudes and OC symptoms in 202 non-clinical children aged 10 to 14. Results of a hierarchical regression showed that responsibility attitudes correlated moderately with OC symptoms and were a stronger predictor of OCD symptoms than were symptoms of depression. This indicates that responsibility attitudes have a specific relationship with OC symptoms.

Yorulmaz, Altin and Karanci (2008) investigated responsibility attitudes and obsessive compulsive symptom clusters in two samples of adolescents aged 16 to 20

years (n=380) and university students aged 18 to 29 years (n=378; age range 18-29) from Turkey. Responsibility had two dimensions based on self-dangerousness and prevention and was a strong predictor of OCD checking symptoms; adolescents reported more responsibility compared to university students. The dimensions of responsibility were correlated with different symptom clusters in OCD. For example, cleaning rituals were more associated with responsibility based on preventing danger to self or others whereas obsessive thinking was based on the self- dangerousness of the intrusive thoughts. People who had high scores in checking emphasised both factors of responsibility, supporting the importance of the role of responsibility in checking (e.g. Rachman, 2002). The use of non-clinical sample means that any generalisation to children with OCD is tentative.

As noted by the authors the study also highlights consistency in responsibility concerns among different cultures, as responsibility attitudes in the Turkish sample were similar to those found in young adults from elsewhere (Libby et al., 2004; Mather and Cartwright- Hatton, 2004). A strength of this study is that it has a relatively large sample size however the correlational nature of the study means that the results cannot be used to infer a causal relationship between the variables.

1.4.6 Studies Investigating more than one Cognitive Model

1.4.6.1 Clinical sample and questionnaire designs. As mentioned in 1.3.3.1, Barrett and Healy (2003) investigated cognitive appraisals of responsibility, probability and severity of harm, TAF, self-doubt and cognitive control in 59 children aged 7-13. Out of the 59 children, 28 had a primary diagnosis of OCD, 17 had another anxiety disorder and 14 had no diagnosis. Children with OCD reported significantly higher ratings of responsibility, severity, thought action fusion and less cognitive control than non-clinical children. Children with OCD only differed from anxious children on

ratings of cognitive control. The authors noted that a limitation of the study is the relatively small sample size resulting in insignificant power to detect group differences. The use of a clinical sample is a strength.

Farrell and Barrett (2006) investigated developmental differences in the cognitive processing of threat in a sample of children (n=36; aged 6-11), adolescents (n=37; aged 12-17) and adults (n=38, aged 18-66) with OCD. Results from self report questionnaires and an idiographic cognitive assessment task (also used by Barrett and Healy, 2003) showed that children reported experiencing less intrusive thoughts which were less uncontrollable and less distressing than the thoughts experienced by adolescents and adults. Perceived severity of harm, cognitive appraisals of TAF, cognitive control and self-doubt were similar across the age groups whereas thought suppression strategies, probability biases and responsibility attitudes were higher in adolescents and adults. The authors suggested that TAF may be more closely associated with the development in childhood OCD whereas other cognitive factors such as responsibility might develop as a consequence of other OC symptoms or at later developmental stages. However due to the small sample size, the possibility for a Type II error is increased and therefore results should be interpreted with caution.

Libby et al., (2004) examined responsibility (RAS; Salkovskis et al., 2000), TAF (Thought-Action- Fusion Scale; Shafran, Thordarson & Rachman, 1996) and perfectionism (Multidimensional Perfectionism Scale; Frost, Marten, Luhat & Rosenblate, 1990) in 11-18 year olds with OCD (n=28); other types of anxiety disorders (n=28) and a non-clinical group (n=62). Young people with OCD had significantly higher scores on TAF, inflated responsibility and one aspect of perfectionism (concern over mistakes) than the other groups and inflated responsibility was the only significant predictor of OCD. This supports Salkovskis et al.'s (1999) proposition that inflated

responsibility is associated with OCD in young people. In contrast to Farrell and Barrett (2006), these findings also indicate that young people with OCD hold similar cognitive appraisals to adults with the disorder. However, the authors note that there may be possible developmental shifts in the extent to which these beliefs are held and that this warrants further investigation. In terms of limitations, it is important to note that some adult OCD literature has shown that depression and anxiety may be associated with TAF and perfectionism but this was not controlled for in this study.

1.4.7 Summary of Evidence for Cognitive Models of OCD in Children.

There is some evidence that suggests that cognitive appraisals are linked to the development and maintenance of childhood OCD, however, conflicting evidence means that it is still unclear whether one specific cognitive model is most relevant. Further research is therefore needed to clarify the mediating roles of inflated responsibility, meta-cognitive beliefs and TAF. This study will focus on the inflated responsibility model.

1.5 Developmental and Contextual Issues in OCD

The next section will discuss the relevant contextual and developmental factors that may also play a role in the development and maintenance of OCD.

1.5.1 Child Development

The onset of OCD commonly occurs between the ages of 10 and 12 years (Geller et al., 1998). It could be hypothesised that the development of OCD symptoms may reflect the change in the child's ability to reflect on the impact of their thoughts and actions therefore making them more susceptible to an inflated sense of responsibility.

However, the question remains as to why certain children develop inflated responsibility beliefs and others do not. One possibility, proposed by Salkovskis et al. (1999), is that environmental factors such as social learning and early life experiences

play an important role. The impact of these psychosocial factors will be discussed in the next section.

1.5.2 OCD and the Family

Waters and Barrett (2000) proposed that environmental factors, such as parental rearing style, threat interpretation and family accommodation of OCD symptoms may contribute to the development and maintenance of OCD.

1.5.2.1 Parental rearing style. A number of models of anxiety have proposed that parent-child relationships are important in the development of childhood anxiety disorders (Chorpita & Barlow, 1998; Rapee, 2001) and this relationship is characterised by an overprotective or over involved parenting style (Hudson & Rapee, 2001). According to Rapee (2001), the relationship between parent behaviour and child anxiety is somewhat responsible for the development and maintenance of childhood anxiety disorders. The model suggests that children who have a genetic vulnerability to anxiety are more likely to display high levels of arousal. In response to their child's arousal, and in order to alleviate the child's distress, a parent may increase their level of involvement and protection. This reinforces the child's belief that their environment is dangerous and that they are not able to control it alone which in turn results in them trying to avoid the threat in the future.

This model has been supported by a number of retrospective studies that have found a link between over involved, controlling parenting styles and anxiety disorders (Rapee, 1997).

Turgeon et al. (2002) compared parental styles reported by adults with OCD (n=43), panic disorder with agoraphobia (n=38) and healthy controls (n=120). Results showed that individuals in both of the anxious groups reported their parents to be more overprotective than those in the control group. No differences were found between the

two anxious groups. Another study found that adults with OCD (n=40) reported higher levels of rejection from their father and lower levels of parental emotional warmth than a healthy control group (n=40; Alonso et al, 2004).

However, it is important to note that these studies were based on retrospective reports of parenting rearing styles, so a memory bias could be distorting the results.

An alternative view on parenting styles can be gained from observational studies. In terms of non-clinical samples, Krohne and Hock (1991) observed mother-child interactions while the child (aged 10-13) completed a difficult cognitive task. The results showed that mothers of children that reported a high level of anxiety became more involved and more controlling than mothers of children with lower levels of anxiety.

In terms of a clinical sample, Barrett, Short and Healy (2002) compared the behaviours of parents and children in families where a child was diagnosed with OCD (n=18), or other anxiety disorders (n= 22), or externalising disorders (n=21), or no clinical problems (n=22). The family were asked to have a five minute discussion about a hypothetical situation involving physical threat, and a five minute discussion involving a social threat. The families were told that parents could help the child think about the problem but that the final decision was ultimately down to the child. Mothers and fathers of children with OCD were less promoting of independence, less likely to use positive problem solving and less confident in their child's ability. Children in the OCD group displayed less warmth towards their parents, showed less positive problem solving and showed less confidence in their ability to solve the problem. Other observational studies have supported this finding showing that in difficult and stressful situations, mothers of anxious children were more intrusive and more involved than mothers of non-clinical children (Hudson & Rapee, 2001).

1.5.2.2 Threat interpretation bias in parents and their children. It has been proposed that childhood anxiety disorders may in part be to do with parents transmitting their anxious cognitions to their children. A number of cognitive theories of anxiety propose that individuals with high trait anxiety are more likely to interpret ambiguous cues as threatening (Beck, Emery, & Greenberg, 1985, Creswell, Schniering & Rapee, 2005). This leads the individual to avoid the situation in the future, which in turn reinforces anxious cognitions. It would therefore make sense that if parents do transmit biases to their children, then there would be an association between parent and child cognitive biases.

A number of studies have examined the relationship between threat interpretations of parents and their children. Creswell et al., (2005) investigated the nature of threat interpretations using 60 child participants, aged 7-15, and their mothers (27 children with anxiety disorders, 33 non-clinical children). Each child was presented with 12 ambiguous situations and given the option of two potential interpretations (one threatening and one non-threatening). The child was then asked to indicate which interpretation they would be more likely to make and explain what they would do next. Mothers were also asked to respond to 12 ambiguous scenarios. Results showed that clinical children and their mothers were more likely to interpret ambiguous situations as threatening when compared to non-anxious children and that mother and their children's threat interpretations were significantly correlated. Similarly, Barrett, Rapee, Dadds, and Ryan (1996) examined the response of anxious 7-14 year old children to a hypothetical situation of ambiguous threat before and after a discussion of the situation with their parents. Anxious children interpreted ambiguous situations as more threatening than non-anxious children and reported more avoidant coping responses after discussion of the situation with their parents than before. Findings from these

studies lends support to the idea that children's information processing style may result from internalisation of parental perception of threat (Barlow, 1988). However, there are also other possible explanations for the findings, such as shared anxiety /genetic effects (Creswell et al., 2005).

Kortlander, Kendall and Panichelli-Mindel (1997) compared maternal expectations and attributions about their child's ability to cope with a stressful situation in a group of anxious (n=40) and non-clinical (n= 40) children. Mothers of anxious children expected their child to be less able to perform the task, be more upset and be less able to make themselves feel comfortable. Also, maternal expectations for coping appeared to reflect the actual lower coping ability of the anxious child.

Lester, Field, Oliver and Cartwright-Hatton (2009) investigated whether a parent's interpretative biases about potentially threatening situations in their own environment, determines whether they demonstrate similar biases towards potential threats in their child's environment. Results showed that anxious parents interpreted ambiguous situations involving both themselves and their child as more threatening than parents with lower levels of anxiety.

1.5.2.3 Family accommodation. Family accommodation of OCD symptoms refers to actions taken by family members to assist or participate in the patient's rituals (Albert, Bogetto, Maina, Brunatto & Mataix-Cols, 2010). Accommodation includes behaviours such as feeling obliged to assist the patient when they are carrying out a ritual, accepting the rigid rules that the patient imposes on themselves and the family, and giving reassurance (Calvocoressi et al., 1995). Up to 75% of parents who have a child with OCD engage in some form of accommodation (Storch et al., 2007). Although such behaviours are often done in an attempt to reduce ritual engagement and distress, it can often result in increased negative family dynamics (Storch et al., 2007) and an

increase in OCD related rituals. Family accommodation has also been linked to increased anxiety and depression in family members (Amir, Freshman, & Foa, 2000). A study by Storch et al.(2007) investigated the effect of family involvement in children aged 7-17 (n=57) with OCD using the Family Accommodation Scale (FAS; Calvocoressi et al., 1999). This is a 13-item clinician-rated measure that assesses the degree to which family members have accommodated the child's OCD rituals over the last month and how much distress these accommodating behaviours have caused the child or family. Results showed that family accommodation was positively related to symptom severity and parent-rated child functional impairment. The most frequent type of family accommodation was found to be reassurance.

As family accommodation has been associated with poorer treatment outcomes in children and adolescents with OCD (Storch et al., 2007) it is possible that interventions aimed at reducing family accommodation may result in a significant reduction in OCD symptoms (Albert et al., 2010). Such interventions have been proposed as part of a broader cognitive behavioural treatment (Freeman et al., 2003) and the NICE guidelines (2006) now recommend that carers or family members play an active role in the planning and treatment of children and adolescents with OCD. Studies have already shown that interventions which include extensive family participation result in a greater reduction in OCD symptoms when compared to studies in which families are not involved (Barrett, Healy-Farrell & March, 2004).

As reassurance was found to be the most frequent type of family accommodation, this will be investigated further in the next section.

1.5.2.4 Reassurance seeking behaviour and OCD. Compulsive reassurance-seeking is a common behaviour observed in children with OCD (Clark, 2004). Within the context of OCD, reassurance seeking can be defined as repeatedly asking others for

safety-related information about situations or objects even after the information has already been given. Research has shown that reassurance seeking is one of the most common strategies used by OCD sufferer's to try to reduce their obsessional thoughts and images (Freeston et al., 1997).

According to Rachman (2002), reassurance seeking is a variant of compulsive checking, both of which aim to reduce anxiety by minimising the likelihood and perceived responsibility of negative outcomes. As with other safety behaviours, reassurance seeking reinforces the child's belief that they are unable to cope with the anxiety and discomfort alone and also prevents them from disconfirming their catastrophic belief. The receiving of reassurance is also accompanied with a temporary reduction of anxiety and perceived responsibility, increasing the likelihood that the child will engage in reassurance seeking behaviour again in the future.

In order to test Rachman's theory (2002), a number of recent studies have investigated whether checking and reassurance seeking serve similar functions in the maintenance of OCD. Using a classification task, Parrish and Radomsky (2006) manipulated responsibility and reassurance by assigning a group of non-clinical participants (n=124) to either a high or low responsibility conditions. In line with Rachman's theory (2002) individuals in the high responsibility group reported greater urges to check and seek reassurance compared to the low responsibility group. The authors conclude that checking and reassurance seeking may be functionally equivalent and/or driven by similar processes. However, the use of a non-clinical sample limits the potential generalisability of the results and the study did not directly focus on the function of these behaviours.

To overcome these limitations, Parrish and Radomsky (2010) developed a semi-structured interview to compare the content and cognitive processes involved in

excessive reassurance seeking in a people with OCD (n=15), depression (n=15) and healthy controls (n=20). Reassurance seeking in individuals with OCD focused mainly on perceived general threats (e.g. fire, theft) whereas individuals with depression focused mainly on social threats (e.g. abandonment).

Given the potential impact of reassurance seeking and other safety behaviours on the maintenance of OCD it seems remarkable that so few papers have been published in the area. The role of compulsive reassurance-seeking in the maintenance of OCD therefore warrants further investigation.

1.6 Chapter Summary

In order to provide a context for the current study, this chapter has reviewed the current literature in OCD. The literature suggests that the presentation of OCD may be similar in children and adults. Strengths and limitations of current treatment approaches for childhood OCD have also been discussed. Three cognitive models of OCD have been described along with a critical review of evidence for each model in relation to adults and children. Cognitive models of OCD can be applied to children and responsibility attitudes may play a key role. Developmental and family factors have been considered with a specific focus on parenting rearing styles, threat interpretation and family accommodation.

1.7 Review of Pertinent Studies Leading to Hypotheses

The aim of the following section is to bring together the central arguments that lead to the three main hypotheses in this study. It will do this by first clarifying the responsibility model and then reviewing the experimental studies that lead to hypotheses 1 and 2. This section will then go on to construct a clear rationale for hypothesis 3.

1.7.1 Overview of Responsibility Model

The inflated responsibility model is based on the idea that inflated responsibility is a central cognitive variable in the development and maintenance of OCD (Rachman, 1993).

Responsibility is defined as the belief of possessing a pivotal power to bring about or prevent potential negative outcomes (Salkovskis et al., 1992 cited in Salkovskis, 1995).

This definition of responsibility focuses on two related cognitive distortions: personal influence and potential negative outcome. Personal influence relates to the belief that you are personally responsible for causing/preventing harm to yourself or others, whereas potential negative outcome relates to the interpretation of risk (including perceived severity of harm and probability of harm). Perceived severity of harm refers to beliefs about the personal costs of the potential aversive event whereas probability of harm refers to the belief about the likelihood of that aversive event occurring (Farrell and Barrett, 2006). It has been suggested that individuals with OCD often overestimate of probability and severity of harm associated with an intrusive thought.

Salkovskis proposes that an obsessional pattern occurs if negative intrusive thoughts are interpreted as meaning that the person is responsible for subsequent harm to self and others, unless they take action to avoid that harm. This leads to increased discomfort and anxiety which in turn leads the individual to engage in neutralising behaviours including overt and covert compulsions. By carrying out the compulsion, the individual believes that they can reduce the possibility of harm coming to themselves and others which in turn reduces their anxiety.

1.7.2. Review of pertinent experimental studies from adult and child literature

There have been a number of studies that have explored the link between responsibility and compulsive behaviour in more detail. Using a behavioural approach test (BAT) Lopatka and Rachman (1995) conducted an experimental manipulation of responsibility by exposing OC sufferers to different levels of responsibility. In the experimental condition, individuals agreed to let the therapist resume all responsibility for any potential negative consequences for a fixed period of time. In the control condition, the individuals assumed all responsibility themselves. Results showed that a reduction in perceived responsibility (experimental condition) was followed by a significant decline in perceived discomfort, urge to check, probability of anticipated harm, severity of anticipated harm and estimated length of time needed to finish checking. Increases in perceived responsibility resulted in increased perceived discomfort and urge to check but did not increase estimated probability of harm or estimated severity of harm. The authors suggested that the deliberate inflation of responsibility resulted in non-significant effects as the subject's level of responsibility was already so high that there was little room for further inflation by the experimental test. They suggested that a replication was needed in which a lower starting level of responsibility is employed. Despite the strengths of this study, no behavioural variables were used e.g. number of checks or the actual time spent checking.

These shortcomings were addressed by Ladouceur et al. (1995) by randomly assigning a group of non-clinical adults to high (HR) and low perceived responsibility (LR) condition. Based on Salkovskis' definition of responsibility, Ladouceur et al. proposed that increasing perceived severity, probability and influence should increase the subjective perception of responsibility. In the first study, a sound recognition task was used to compare checking behaviour in the HR and LR conditions. Subjects from

the HR group reported more severity, probability, influence and responsibility related to consequences, but this did not have any effect on behavioural variable of checking, errors and time. The authors noted that one possible explanation for the absence of differences on checking behaviours was the weak effects of manipulation on perceived responsibility and the task difficulty.

A second study was therefore conducted with the aim of creating a more powerful manipulation of responsibility. Subjects in the HR group were asked to sort two hundred pharmaceutical capsules by colour and told that their work would directly influence treatment safety for a widespread virus in a South East Asian country. Individuals in the LR group were asked to complete the same task but were told that the study was interested in perception of colour alone. A manipulation check showed that the manipulation had been successful. Participants in the HR group reported significantly more severity, probability, perceived influence and responsibility for consequences than those in the LR group. They also reported higher levels of anxiety and were more worried about the possibility of making a mistake. Results showed that participants from the HR group showed significantly more hesitations and checking behaviours than subjects from the LR group. Authors suggest that elevated perceived responsibility results in increased checking behaviours, which supports Salkovskis' model of inflated responsibility. Further analyses of the results showed that a single variable, severity of outcome, accounted for the difference between groups. Authors suggest that perceived severity may be a more important variable than previously thought. However, all the other manipulation variables were also significantly different between groups suggesting that they too may also be necessary to produce compulsive-like behaviour.

Ladouceur, Rheaume and Aublet then went on to complete a similar study in 1997. The aim of this study was to clarify the respective roles of personal influence and negative consequence and their potential interaction in the construct of perceived responsibility. Instructions were the same as those used in part two of his previous study (Ladouceur et al., 1995), however this time 77 non-clinical adults were randomly assigned to one of four groups. The first was a combined condition during which participants were told that they were working alone and therefore their role was crucial for the success of the project (influence + negative consequence). The second was the influence condition during which they were told that their role was important but that they were part of a small group of three people and therefore not solely responsible (influence alone). The third group was the negative consequences condition during which participants were given the same instructions as the combined condition but told that 2000 participants would be providing data (negative consequence alone). The fourth group was the control group during which participants were told that their phase was just a practice and had no importance (no influence and no negative consequence). The results confirmed that the manipulation had been successful and the four experimental groups differed significantly on perceived influence, probability and severity of harm. Results showed that subjects in the combined condition perceived significantly more responsibility than those in the other three groups. This indicates that when influence and negative consequence were increased simultaneously, the subjects perceived themselves to be more responsible than when only one component was manipulated. Results also showed that at a subjective level, perceived influence was a better predictor of perceived responsibility than was the overestimation of negative consequences. On a behavioural level, results showed that subjects in all three of the experimental conditions showed significantly more hesitations than those in the control

group and those in the combined and negative consequences group reported more checking than those in the control group.

Based on Ladouceur et al.'s studies, Arntz, Voncken and Goosen (2007) tested the causal status of responsibility in OCD by experimentally manipulating responsibility in a clinical sample. They hypothesised that if elevated responsibility is indeed a causal factor in OCD, then people with OCD, when placed in a situation in which they have a personal responsibility for averting threat, will engage in more risk reducing behaviours than other people. In an attempt to completely eliminate the risk, these behaviours may be repeated and compulsive rituals may develop. OCD patients, non-OCD anxiety controls and non-patients were assigned to either a HR or LR condition and asked to complete a classification task. The classification task, similar to that used by Ladouceur et al. , was entirely new for every participant and therefore any OCD-like behaviour triggered during the experiment was new and not merely repetitions of earlier OCD symptoms related to similar situations. Results showed that only the HR OCD group and not the LR OCD group engaged in higher levels of OCD-like checking behaviour. Also, the influence of high responsibility is specific to OCD as the HR anxious control group did not respond similarly to the HR OCD group. Unlike the findings of Ladouceur et al., Arntz et al. (2007), did not find that the responsibility induction lead to OCD-type behaviours in non-patients. The authors noted that this may be because they had slightly changed Ladouceur's responsibility induction to make it stronger. High levels of responsibility for negative consequences probably elicit OCD behaviours in everybody, whereas low levels of responsibility only trigger such behaviours in vulnerable people (Bouchard, Rheaume, & Ladouceur et al. , 1999).

Research into the role of cognitive factors in OCD amongst children is sparse. A recent systematic review examining whether cognitive models of OCD applied to

children concluded that overall, the evidence suggests that cognitive models of OCD do apply to children (Reynolds & Reeves, 2008). However, the existing literature is largely based on observational studies meaning that the causal relationships between cognitive processes and OCD symptoms can not be assumed. Only two studies have used experimental designs to investigate cognitive models of OCD in a non-clinical sample of children (Reeves et al., 2010; Reynolds et al., submitted).

Reeves et al. (2010) adapted Ladouceur et al's (1997) sorting task to make it appropriate for non-clinical sample of 9-12 year olds (n=81). Children were randomly allocated to one of three conditions: an inflated responsibility group, a moderate responsibility group and a reduced responsibility group. In all three groups children were asked to sort sweets according to whether they had nuts in or not. Responsibility was induced by telling the children that the sweets would be given to a group of children, where one child had a nut allergy. Children in the high responsibility group were told that the experimenter would not check the sweets after they had been sorted and therefore it was important that the children sorted them as carefully as possible. Children in the moderate responsibility group were not given any information about whether the sorted sweets would be checked or not. Children in the reduced responsibility group were told that their work would be checked by the researcher and therefore mistakes would not be their fault. The effect of the manipulation was examined on several dependent variables: number of checks, number of hesitations, time taken to complete the task and level of anxiety. Results showed that as perceived responsibility increased, children checked and hesitated more often and took longer to complete the task. Groups did not differ in self-reported state anxiety.

This study has a number of strengths. For example, the use of an experimental design meant that the possible causal role of OCD could be inferred. The authors also

adapted a previously used experimental task resulting in it being appropriate for use with children of this age. The experimental task also had good face validity. A limitation of the study was the lack of a control group.

Reynolds et al., (submitted) attempted to address these shortcomings by replicating and extending the study by Reeves et al. (2010). The extension included the addition of a control group in which children were not given any responsibility as well as an inflated responsibility group and a reduced responsibility group. In line with the inflated responsibility model of OCD (Salkovskis et al., 2000), reassurance seeking was also added as another type of OCD-like behaviour. Sixty-nine children aged 9-11 participated in the study. Inflated responsibility increased reassurance seeking and also increased the time taken to complete the task. Unexpectedly, state anxiety, number of checks or hesitations did not increase with increased responsibility. Results also showed that although the sorting task was successful in manipulating responsibility between the high and reduced responsibility groups, the control group did not differ significantly from either of the experimental groups in post-task perceived levels of responsibility

This study has a number of strengths such as the inclusion of reassurance seeking and the use of reliable and valid questionnaires to measure possible confounding variables. The use of non-clinical samples allows investigations into the causes of OCD.

1.7.3. Research Aims and Rationale for Hypothesis 1 & 2

This study aims to further investigate whether the inflated responsibility model of OCD applies to children by replicating and extending these experimental studies using a sample of non-clinical children aged 9-11. The association between reassurance seeking, checking, inflated responsibility and children's anxiety will be explored using an experimental task based on previous research (Reeves et al., 2010; Reynolds et al.,

submitted). This study will include a control group where children are explicitly told that they are not responsible for the outcome of the task. The purpose of this adaptation is to establish clear differences between the High Responsibility group (HR) and the control group.

The model of OCD suggests that intrusive thoughts are accompanied by an increase in state anxiety and that individuals then carry out their compulsions in an attempt to relieve this anxiety. It would therefore be logical to predict that participants in the high responsibility group will report higher levels of state anxiety after the sorting task than the control group. A number of adult studies using a similar experimental design have shown that subjects in the high responsibility group reported higher levels of anxiety following the manipulation than those in the low responsibility group (Ladouceur et al., 1995; Lopatka and Rachman, 1995). Interestingly both experimental studies to date (Reynolds et al., submitted; Reeves et al., 2010) have found that the groups did not differ in anxiety after the sorting task (see Discussion). Despite the existing child literature showing null effects in this regard, analyses of post task state anxiety will be included in the current study. It is hoped that this analyses will help consolidate the findings of the two key child studies mentioned (Reynolds et al., submitted and Reeves et al., 2010).

Based on the findings of the previous experimental studies, it is hypothesised that children in the high responsibility group will be report a higher perceptions of responsibility (influence, probably and severity of harm) than those in the control group, and this will lead them to display a higher number of OCD type behaviours. 1.7.4.

Research Aims and Rationale for Hypothesis 3

Salkovskis, Shafran, Rachman & Freeston (1999) have identified a number of pathways through which inflated responsibility may develop, including early

experiences of having excessive amounts of responsibility, or in contrast, through being sheltered from age appropriate responsibility of self. As OCD often develops in childhood and adolescents Salkovskis et al, (1999) hypothesised that the family environment was a critical context in which attitudes and beliefs about responsibility would be developed. A number of models of anxiety have also proposed that parent-child relationships are important in the development of childhood anxiety disorders (Chorpita & Barlow, 1998; Rapee, 2001) and this relationship is characterised by an overprotective or overinvolved parenting style (Hudson & Rapee, 2001). This high level of parental control have been hypothesised to contribute to the development or exacerbation of children's anxiety symptoms through a variety of ways including signalling that the environment is threatening and thus raising children's vigilance for threat, signalling that the parent does not believe the child is able to deal with the perceived threat and failing to model appropriate ways to deal with threatening situations. (Beck, Emery, & Greenberg, 1985, Creswell, Schniering & Rapee, 2005). It has also been suggested that children who have a genetic vulnerability to anxiety are more likely to display high levels of arousal (Rapee, 2001). In response to their child's arousal, and in order to alleviate the child's distress, a parent may increase their level of involvement and protection. This reinforces the child's belief that their environment is dangerous and that they are not able to control it alone which in turn results in them trying to avoid the threat in the future.

Similarly, family accommodation of OCD symptoms is found to be prevalent in up to 75% of parents who have a child with OCD and is aimed at reducing ritual engagement and distress (Albert, Bogetto, Maina, Brunatto & Mataix-Cols, 2010). The most frequent type of family accommodation is found to be reassurance giving (Storch et al., 2007). This acts as a form of negative reinforcement, which strengthens the

child's belief that they are unable to cope alone and promotes OCD type beliefs and behaviours in the child.

Based on the fact that compulsive reassurance-seeking is the most common behaviour observed in children with OCD (Clark, 2004), and reassurance giving is the most common form of accommodation (Storch et al., 2007) this study aims to investigate the relationship between child's reassurance seeking and mother's reassurance giving during the task.

It was therefore hypothesised that mothers with children in the HR condition, would respond to their child's increased level of arousal by giving more reassurance than those with children in the control group and that this would increase reassurance seeking behaviour in their child.

1.8 Setting Conditions and Research Hypotheses

1.8.1 Setting Conditions

The following study will have two critical setting conditions. The first setting condition focuses on the successfulness of the manipulation. If the manipulation is successful, it is predicted that participants in the high responsibility group will report higher levels of inflated responsibility compared to the control group. The second setting condition is based on reported state anxiety. Previous experimental studies in both child and adult literature have shown differing results. This study therefore sets out to investigate whether or not participants in the high responsibility group report higher levels of anxiety after the sorting task than the control group.

On the basis that these setting conditions are demonstrated, my more specific hypotheses are:

1.8.2 Hypothesis 1

Participants in the high responsibility group will take longer to complete the sorting task and check, hesitate and seek more reassurance than the control group.

1.8.3 Hypothesis 2

Participants in the high responsibility group will report higher perceptions of influence and higher perceptions of probability and severity of harm after the sorting task than the control group.

1.8.4 Hypothesis 3

Mothers with children in the high responsibility group will provide more reassurance than those with children in the control group.

CHAPTER 2

Methodology

2.1 Chapter Overview

The aim of this chapter is to give a detailed account of the method used in this study. Firstly, the design of the study will be described. This will be followed by information about the participants and a detailed description of the measures used and their psychometric properties. The experimental task will be explained, followed by a discussion about ethical issues and an outline of the procedure.

2.2 Design

This study adopted a between-subjects experimental design. Using a block randomisation method, children and their mothers were allocated to one of two experimental conditions: increased responsibility and control. Thus, the independent variable was perceived level of responsibility. The use of the block randomisation method enabled an equal number of participants to be assigned to each group and also accounted for the varying rates in which participants were recruited (Solso & Johnson, 1994). In each of the experimental groups participants were asked to complete a sorting task. Dependent variables were: time taken to complete the task, number of checks, hesitations and reassurance seeking behaviours, perception of responsibility for harm, probability of harm, and severity of harm and level of state anxiety. The design was adapted from an experimental sorting task reported in adult literature (Ladouceur et al., 1995) and adapted for children (Reeves et al., 2010).

2.3 Participants

Participants were 52 children aged 9 to 11 and their mothers. The selection of this age group was based on the findings that children of this age group have developed responsibility beliefs (Barrett and Healy, 2003; Magnúsdóttir and Smari, 2004). This

age group may also be vulnerable to the development of OCD because the average age of onset ranges from 7.5 – 11.6 (Hollingsworth et al., 1980, Pauls et al., 1995). Mothers only were recruited because of evidence that mothers and fathers may play a very different role in the development and maintenance of childhood anxiety disorders (van der Bruggen, Stams, & Bogels, 2008).

2.3.1. Inclusion and Exclusion Criteria

Children were eligible to participate in the study if they were aged 9-11 years old, were fluent in English and lived with their mother. Children were excluded from the study if they had intellectual disabilities, as this could have affected their performance on the tasks and their ability to complete questionnaires. Children who were colour blind were also excluded from the study, as the sorting task required colour vision. Children with nut allergies were also excluded. All of the above criteria were assessed by the children's teachers and/or mothers.

2.3.2 Sample Size

The sample size was calculated using G* Power 3.0.3 (Faul, Erdfelder, Lang, & Buchner, 2007). Using a 0.45 effect size from previous research (Reynolds et al., submitted), setting power at 80% and using a significance level of 5%, 26 participants were required in each group (52 in total).

2.3.3 Recruitment

Participants were recruited from primary schools in Cambridgeshire, Suffolk, Sussex and Norfolk. Initially six schools were contacted via email. This contact was made through the Head Teachers who were given information about the study via email (see appendix A). If the head teacher indicated provisional willingness to take part a meeting was arranged to provide further information about the study and to gain their permission to recruit children at their school. A total of fifteen primary schools were

contacted and six agreed to take part. Details of the schools that took part are included in the appendix (see appendix B); in the text they are referred to as schools A-F.

Information packs were then sent out to the children's homes from the participating schools. The information pack included a covering letter from the school, an invitation letter to mothers (see appendix C), an information sheet (appendix D), a mothers' consent form (appendix E), and a demographic questionnaire (appendix F). To encourage participation a £3 book voucher was given to the school for each child that took part. Mothers who wanted to take part were asked to return the consent form to the school. They were then telephoned by the researcher to conduct a brief screening interview. This allowed the researcher to check that the child met the inclusion criteria and to arrange for a home visit if appropriate. Parents were also encouraged to ask any questions they may have regarding the study.

Forty information packs were sent out to primary school A of which 6 were returned giving a 15% response rate. 10 packs were sent out to primary school B of which 2 were returned giving a 20% response rate. 30 packs were sent out to primary school C of which 12 were returned giving a 40% response rate. 27 packs were sent out to primary school D of which 1 was returned giving a 3.7 % response rate. 60 packs were sent out to primary school E of which 15 were returned giving a 25 % response rate. 60 packs were sent out to primary school F of which 19 were returned giving a 31.6 % response rate. The overall number of information packs sent out was 227 giving a combined response rate of 24.2%. 1 child was excluded for having an intellectual disability, 1 for having a nut allergy and 1 for being colour blind.

2.4. Experimental Task

Children and their mothers were randomly assigned to one of two experimental groups: an inflated responsibility group and a control group. In order to ensure that all

the children received the same instructions, task instructions for both groups were recorded in advance and played to the children using a Dictaphone.

Children in both groups were given a bag of 120 sweets, made up of six different colours (blue, green, gold, silver, red and pink; 20 of each colour). Children in the high responsibility group were told that the blue and green sweets contained nuts, that the gold and silver sweets might contain nuts, and that the red and pink sweets did not contain nuts. They were told that the sweets had been mixed up and that their task was to sort them into three bowls, one for sweets containing nuts, one for sweets that might contain nuts, and one for sweets that did not contain nuts. Responsibility was induced by telling children that the sweets would be given to a group of children, one of whom had a nut allergy. They were told that sweets would not be checked before they were given to the children and that it was therefore important that they sorted the sweets as carefully as possible.

In order to make the memory load between the two groups similar, children in the control group were not given information regarding nut allergies, harm or responsibility but were instead asked to sort sweets according to flavour. They were told that the blue and green sweets were chocolate flavour, the gold and silver were mint flavour and the red and pink sweets were fruit flavour. Their task was to sort the sweets into three bowls, one for mint flavoured sweets, one for fruit flavoured sweets, and one for chocolate flavoured sweets.

In both groups the children were told to take one sweet at a time and to sort this before moving on to the next. They were instructed to not look into the bag. This would ensure that they did not know what colour the sweet was until they had looked at it. They were also asked to complete the task as quickly as possible but told that if they were not sure that they could check the sweets and bowls as many times as they liked.

In both groups prompt sheets were provided, reminding the children of their flavours or presence of nuts (Figure 1).

Figure 1: Photo of the experimental task



Before the experimental task, mothers in both groups were fully briefed about the true nature of the task. They were instructed not to become too involved in the task but to respond in the way that they normally would to their child. In order to measure the behavioural variables and to allow for inter-rater reliability, the children and their mothers were video-recorded while completing the task.

2.5 Ethical Considerations

Ethical approval for this study was obtained from The Institute of Health Ethics Committee, at the University of East Anglia (UEA; see appendix G for letters of approval). As children are considered vulnerable research participants, guidance from British Psychological Society Publications (BPS, 2006) was followed and potential risks and benefits were considered.

2.5.1 Consent

Included in the information packs, mothers were asked to complete a consent form giving permission for their child and themselves to participate in the study. Parents were also supplied with the researcher's contact details, and were encouraged to get in touch if they had any queries regarding the study. Children could only participate with consent from their mothers.

The children were also provided with age-appropriate information sheets (see Appendix H) and were asked for written assent prior to completing the task (see Appendix I). Both mother and child were informed that participation in the study was voluntary and that they could withdraw at any time without giving reason.

2.5.2 Deception

Prior to participation, mothers were briefed about the true nature of their child's task. In order for the experimental manipulation to be successful, children in the different groups were given different information about the level of responsibility over the consequences of the sorting task. However, children in both the high responsibility group and the control group were fully debriefed after they had completed the task. Full information about the consequence of the sorting task was provided. The BPS (2006) ethical guidelines state that in order to study some psychological processes, it is necessary to withhold some details of the hypothesis under test. It states that the central principle is the reaction of the participant when it is revealed. Time was spent with the child, discussing the child's experience of the research, and monitoring any unforeseen negative effects.

2.5.3 Managing Distress

In accordance with BPS (BPS, 2006) and Department of Children, School and Families (DCSF, 2004) guidelines, safeguarding children procedures were followed at

all times. Researchers endeavoured to minimise any risk of distress while administering the task. The task would have been discontinued immediately if a child had shown any signs of distress. Time would then be taken to talk with the child and alleviate any anxieties or worries that they were having.

If scores on the questionnaires indicated that a child or their mother was experiencing psychological difficulties (i.e. if their scores were above the clinical cut off), mothers were sent a letter informing them of the results. The letter also suggesting that their GP would be an appropriate source of information if they wanted further advice.

2.5.4 Confidentiality and Anonymity

In line with the Data Protection Act (1998), and in accordance with UEA's guidelines on Good Practice, raw data, including written records and videotapes, were coded anonymously and stored in a locked cabinet. This was available only to the researchers and kept for five years. Participants were informed as to how the data were handled prior to the study. Parents, children and the school were informed that their identity would not be revealed in the research data or reports.

2.6 Measures

2.6.1 Demographic questionnaire.

A demographic questionnaire was used to collect data on the child's age, gender, ethnic origin, colour blindness, and family history of allergies (Reeves et al, 2009). Mothers were asked to complete the questionnaire when they consented to their child's participation. If it had been suspected that a child was colour blind during data collection, the study would have continued but the results would have been excluded from the analysis. If this had happened, the researcher would have advised the mother to contact their family GP for further testing, advice, guidance and support. If a mother or

child had become distressed at this discovery, empathy and support would have been provided by the researcher or mother and their child would also have been reminded of their rights to withdraw from the study. However no children were discovered to be colour blind during data collection.

2.6.2 Confounding variable Measures

2.6.2.1 The Spence Children's Anxiety Scale (SCAS; Spence, 1998). The SCAS is a 45-item self-report measure used to assess symptoms of anxiety in children aged 8 to 12 years old (Appendix J). It is made up of six subscales, social anxiety, panic/agoraphobia, obsessions/compulsions, separation anxiety and fear of physical injury. Children are asked to rate how often the symptoms occur on a 4-point scale ranging from 0 (never) to 3 (always). Children who are clinically anxious record a mean of 42.28 (Spence, 1998). The SCAS has high internal reliability, with coefficient alpha of .92 and a Guttman split-half reliability of .90 (Spence, 1998). The test-retest reliability in 120 children after six months was 0.51 (Spence, 1998). The SCAS was used to control for anxiety

2.6.2.2 Child Responsibility Attitude Scale (CRAS; Salkovskis & Williams, 2004). The Responsibility Attitude Scale is a 26-item questionnaire which measures assumptions or general beliefs related to inflated responsibility (RAS; Salkovskis et al., 2000). The adapted version is known as the Child Responsibility Attitude Scale (CRAS) and has fewer questions (20-items) and age appropriate language (See Appendix K). Scores range from 20-140 with lower scores indicating higher levels of inflated responsibility. The CRAS was used in this study to measure and control for inflated responsibility beliefs across the experimental groups.

2.6.2.3 Children's Depression Inventory – Short Form (CDI-S; Kovacs, 1985). The CDI-S is a 10-item self-report measure for use with children and young

people aged 7-17. The CDI-S was used to control for symptoms of depression. Children rate how they have been feeling over the past two weeks on a 3 point scale 0, 1 or 2. Raw scores are converted to standardised *T* scores (Kovacs, 1985). The measure has good internal consistency, with alpha reliability coefficient of .80 (Kovacs, 1985) and has acceptable test-retest reliability coefficients ranging between .74 and .77 in a non-clinical sample (Smucker, Craighead, Craighead, & Green, 1986). A copy of this measure has not been added to the appendices as permission was not granted by the author.

2.6.2.4 Beck Anxiety Inventory. The Beck Anxiety Inventory (BAI; Beck & Steer, 1990) is a 21-item self-report measure designed to assess the severity of primarily somatic anxiety symptoms experienced by respondents during the previous two weeks. The BAI has an average reliability coefficient of .92 and a test-retest reliability of .75 (De Ayala, Vonderharr-Carlson & Doyoung, 2005). Mothers were asked to complete the BAI while their children completed their measures. This was used to measure and control for mothers' level of anxiety.

2.6.3 Measures of Anxiety and Inflated Responsibility.

2.6.3.1 The State Trait Anxiety Inventory for Children (STAIC; Spielberger, Edwards, Lushene, Montouri & Platzek, 1973). The STAIC is a 20 item self-report questionnaire designed to measure state and trait anxiety in children aged between 9 and 12 years (Appendix L). In this study only the state part of the inventory was used. This is designed to measure subjective transitory anxiety states, such as feelings of apprehension, tension, and worry that vary in intensity and fluctuate over time (Spielberger et al., 1973). Items are rated on a 3-point Likert Scale, 0 (never true/not at all) to 2 (completely true/often) with a maximum score of 40. It demonstrates good retest reliability ($r = .63$ to $.72$; Finch, Kendall, Montgomery & Morris, 1975). The state

anxiety scale demonstrates good internal consistency, with alpha reliability coefficient of .82 for males and .87 for females (Spielberger et al., 1973). To measure changes in the child's state anxiety, the STAI-C was administered at twice, once before the sorting task and once after the sorting task.

2.6.3.2 Measure of perceived inflated responsibility. As mentioned in the introduction, Salkovskis' definition of responsibility focuses on two related cognitive distortions: personal influence and potential negative outcome. Personal influence relates to the belief that you are personally responsible for causing/preventing harm to yourself or others, whereas potential negative outcome relates to the interpretation of risk (including perceived severity of harm and probability of harm). In order to operationalise these parts of the responsibility model, Reeves et al. (2010), created a series of six statements, made up for three subscales. Out of the six statements, two of the statements were designed to assess perceptions of influence, two to assess perceptions of probability of harm and two to assess perceptions of severity of harm. Using a 5-point Likert scale, children were asked to rate how much they believed in each statement based on a scale of 0- 4, with 0 representing completely disagree and 4 representing completely agree. The idea behind the 6 statements was to allow the researcher to obtain a measure of overall perceived responsibility and also obtain a measure of the various components that make up this construct. This also allows the researcher to ascertain which components of inflated responsibility are associated with OCD behaviours.

In order to ensure that the manipulation of the responsibility had been effective, and to determine whether the two groups had different levels of perceptions of responsibility, probability of harm and severity of harm after the task, the questions were asked before and after the sorting task (Appendix M). Due to the fact that this

measure only contained six statements (2 in each subscale); it was not considered as a questionnaire in an additive sense. Therefore internal consistency of the measure was not calculated.

2.6.4 Behavioural Measures

The behavioural measures are based on those used in Reeves et al. (2010)

2.6.4.1 Time taken to complete the task.

This was measured in seconds using a stop watch. Timing began as soon as the child was told to start the sorting task and finished as soon as the child informed the researcher or mum that they had finished.

2.6.4.2 Number of checks.

The number of checks that a child made during the sorting task was recorded. A check was defined as (Reeves et al., 2010):

- Emptying the content of a bowl onto the table or into the participants hand or;
- Looking at the colour key to see whether a sweet contains nuts or;
- Stopping the task and gazing at a particular bowl for at least 1 second or;
- Sorting through the bowls.
- Feeling the sweet for at least 1 second or longer or;
- Checking the bowl's label.

2.6.4.3 Number of hesitations.

The number of hesitations that a child made during the sorting task was counted.

A hesitation was defined as (Reeves et al., 2010):

- A movement of a child's hand between two different bowl for at least 1 second or;
- A close examination of a sweet for at least 1 second.

2.6.4.4 Reassurance seeking behaviour. Based on Reynolds et al. (submitted).

The number of reassurance seeking behaviours that a child made during the sorting task was counted. A reassurance seeking behaviour was defined as:

- Asking Mum if what they are doing is right or;
- Asking Mum to check it for them or;
- Asking Mum to do it with them or;
- Asking Mum what would happen if they did it wrong;
- Glancing at mother;
- Looking at mother for an extended period of time.

2.6.4.5 Mothers reassurance giving. Based on Reynolds et al. (submitted). The

number of reassurance giving behaviours that mother made during the sorting task was counted. A reassurance giving behaviour was defined as:

- Glancing over at the child: A purposeful glance toward the child involving a change of direction of the mother's eyes observed on the video tape.
- Helping the child with the task: A physical attempt to help the child in the task, for example helping to straighten the bowls, examining/ altering the contents of the bowls.
- Offering unprompted reassurance: A positive verbal comment made by the mother in relating to either the child's current state or the task performance e.g. 'That's fine', 'You're doing great', 'Well done', 'That's right'.

2.7 Procedure

The study was conducted at the child's home. On arrival at the child's home, each child was given an information sheet. They were reminded that participation was voluntary and they could withdraw at any time without giving a reason. Children who wanted to participate were asked to complete a written assent form. Mother – child

dyads were then assigned to an experimental group (high responsibility or control) using a block randomisation method with 6 blocks. The random assignment of the experimental conditions was calculated by a colleague at UEA who was independent to the study. Using envelopes labels 1-52, each envelope corresponded with a participant number. After the child had completed the written assent form, the researcher opened up the corresponding envelope to determine which experimental group the child was assigned to.

Before the sorting task, each child was asked to complete the CDI-S, the CRAS, the SCAS, the state form of the STAIC, and the measure of perception of responsibility, probability of harm and severity of harm. Mothers were also asked to complete the BAI. During the task mothers were instructed not to help their child complete the task but to respond as they naturally would if the child asks for assistance.

Using a digital voice recorder, all children were then played the information about the sorting task (see Appendix N for task instructions). This ensured that that each child received exactly the same instructions in exactly the same tone of voice. After they complete the task children completed the post task measures. They were then debriefed. Feedback from the participants was encouraged and any worries were discussed. Every child that participated received a certificate.

To assess inter-rater reliability, 35% of randomly selected video were independently rated by a research associate that was blind to the randomisation.

CHAPTER 3

Results

3.1. Overview

This chapter is presented in eight sections. Section 3.2 describes the treatment of data and how it was screened for errors, outliers and missing data. Section 3.3 presents the demographic data for the experimental groups, including gender, age and ethnicity. Section 3.4 describes the internal consistency for new measures and descriptive data for all variables. Attention is given to the distribution of data, the treatment of outliers and the transformation of non-normally distributed data. Section 3.5 presents the inter-rater reliability for checks, hesitations, reassurance seeking and reassurance giving. Section 3.6 gives an interim summary of the results presented in the previous part of the chapter and describes the data analysis strategy. Section 3.7 presents the results, including the manipulation check. Finally, section 3.8 summarises the results in relation to the research hypothesis.

3.2 Treatment of Data

Data was entered into SPSS and screened for errors, outliers and missing data. If unusual data was found, these were checked against the original questionnaires to make sure that no errors had been made. There was no missing data.

3.3 Demographic Data

Demographic data for the whole sample and for the experimental groups are shown in Table 1.

Table 1

Gender and age of participants.

	N	Males	Females	Mean age	SD age
Whole Sample	52	21	31	10.10	0.83
High Responsibility	26	9	17	9.90	0.86
Control Group	26	12	14	10.40	0.75

Most participants were White British (86.5%). The remaining participants were White non-British (3.8%), Mixed Race (3.8%), Asian or Asian British (1.9%) and Other Ethnic Group (3.8%). Seventy three percent of children had a family history or a close friend with nut allergies.

3.4 Internal Consistency of the Questionnaire Measure and Descriptive Statistics

3.4.1 Internal Consistency of the Questionnaire Measure

The internal consistency of the STAIC and CRAS was explored. As the STAIC was used before and after the task it was important to assess its internal consistency. This was to make sure that any changes in STAIC score could be accurately attributed to the experimental manipulation. The internal consistency of the recently developed CRAS was also explored. This information is displayed in Table 2.

Table 2

Internal consistency for STAIC and CRAS.

	<i>Cronbach alpha coefficient (α)</i>
STAIC	.83
CRAS	.79

3.4.2 Descriptive Statistics

The distribution of the data was visually examined using histograms and outliers were checked using box plots. Skew and kurtosis were assessed by dividing their value by the standard error (Tabachnick & Fidell, 2007). Z scores greater than 2.58 or less than -2.58 were significant at the .01 level. Where data were not normally distributed log and square root transformations were used to improve the distribution if possible. Data are presented for the whole sample and both of the groups. Any variables with significant skew and/or kurtosis are highlighted in the following tables.

In order to improve the distribution of skewed data, significant outliers were reduced to the next largest value + 1. Due to the relatively small sample size, significant outliers were defined as z scores greater than 2 or less than -2.

The following table (Table 3) shows the descriptive data for all the measures. In cases when skewed data was improved by reducing significant outliers, adjusted data has been displayed.

Table 3

Descriptive statistics for measures.

Group	N	Range	Mean	SD	Median	Skew	Kurtosis
Total SCAS							
Whole Group	52	45	24.26	10.56	23.50	.37	-.24
High Resp ^[a]	26	38	24.46	11.10	22.50	.32	-.77
Control	26	45	24.46	10.30	24.40	.47	.69
OCD Subscale							
Whole Group	52	11	4.75	2.47	5.00	.33	-.20
High Resp	26	11	4.92	2.81	5.00	.46	-.47
Control	26	8	4.58	2.12	5.00	-.16	-.35

CDI-S							
Whole Group	52	9	1.63	2.14	1.00	*1.97	*4.25
High Resp	26	9	1.15	1.97	.50	*2.95	*10.13
Control	26	9	2.12	2.23	2.00	*1.50	*2.78
Adjusted Pre-task STAIC							
Whole Group	52	21	26.17	4.72	26.22	.12	.66
High Resp	26	15	24.69	4.71	24.50	-.21	-.12
Control	26	17	27.65	4.32	28.50	-.08	-.44
Adjusted Post-task STAIC							
Whole Group	52	31	24.44	6.33	24.50	-.52	1.16
High Resp	26	23	22.90	6.89	24.00	-1.02	.23
Control	26	19	25.96	5.42	25.50	.90	.15
Adjusted BAI							
Whole Group	52	16	5.12	4.10	4.50	1.00	.61
High Resp	26	15	4.46	3.88	3.00	1.17	1.22
Control	26	16	5.77	4.27	5.50	.89	.52
CRAS							
Whole Group	52	75	75.88	15.50	78.00	-.33	.05
High Resp	26	53	75.54	14.84	81.50	-.54	-.61
Control	26	75	76.23	16.51	76.50	-.21	.63
Total score pre-task perceived responsibility							
Whole Group	52	16	4.10	3.57	4.00	1.38	* 2.35
High Resp	26	9	3.60	2.82	3.00	.45	-1.03
Control	26	16	4.60	4.17	4.00	*1.43	1.95

	Adjusted Post-Task perceived responsibility						
Whole Group	52	13	3.60	3.66	2.50	1.00	-.01
High Resp	26	13	4.23	4.01	3.00	.84	-.48
Control	26	11	2.96	3.20	2.00	1.13	.55

$p < 0.01^*$ [a] High Resp refers to high responsibility group

3.4.2.1 Spence Children's Anxiety Scale (SCAS; Spence, 1998). The mean scores on the SCAS were below the mean clinical cut off of 42.48 (Spence 1998). Four children had scores above the clinical cut off of 42.48 and their parents were informed by letter (as outlined in the Methods section 2.5.3). Mean scores on the OCD subscale of the SCAS ranged from 4.6-4.9, slightly lower than the 6.09 reported by Spence (1998). Data for both the SCAS and the OCD subscale was normally distributed (see Table 3).

3.4.2.2 Children's Depression Inventory – Short Form (CDI-S; Kovacs, 1985). The descriptive data for CDI-S is outlined in Table 3. A T score higher than 65 is generally considered to be clinically significant and was used as the clinical cut off in the present study. No children reported CDI-S scores above 65.

CDI-S distribution was significantly positively skewed. A log transformation was performed on these data, which improved the distribution of scores. Table 4 shows the transformed values of skewness and kurtosis.

Table 4

Transformed values of skewness and kurtosis for CDI-S.

Group	N	Skewness	SE	Kurtosis	SE
Whole Group	52	.52	.33	-.68	.64
High Resp	26	1.11	.46	.91	.89
Control	26	.01	.46	1.01	.89

3.4.2.3 The State Trait Anxiety Inventory for Children (STAIC; Spielberger, Edwards, Lushene, Montouri & Platzek, 1973). Pre-task and post-task STAIC scores were significantly negatively skewed in the high responsibility group. With the pre-task STAIC, visual inspection of these data revealed four significant outliers ($z=2.74$, $z=2.60$, $z=3.01$, $z=3.15$; $p=0.01$). With the post-task STAIC scores, two significant outliers were revealed ($z=3$, $p=0.01$; $z=3.29$, $p=0.01$). With both pre-group and post-task data, reducing significant outliers to the next largest value +1 improved distribution. Adjusted descriptive statistics for pre and post STAIC has been reported in Table 3.

3.4.2.4 Beck Anxiety Inventory (BAI; Beck & Steer, 1993). The distribution of the BAI was significantly positively skewed in the control group. There was one significant outlier in the control group ($z=3.24$, $p=.01$). Reducing significant outliers to the next largest value improved distribution. These adjusted values have been reported in Table 3.

3.4.2.5 Children's Responsibility Attitude Scale (CRAS, Salkovskis & Williams, 2004). The distribution of the CRAS data were not skewed and is presented in Table 3. Mean scores in this study are slightly higher than those reported by Reeves et al. (2010) of 69.68 but slightly lower than those reported by Reynolds et al. (submitted) of 90.44.

3.4.2.6 *Measure of perceived responsibility (perception of influence, probability of harm, and severity of harm)*. The total score for perceived responsibility measure was analysed. The data for perceived responsibility were positively skewed and is presented in Table 3. Data from the pre-task were transformed to the square root and improved the distribution of scores (See Table 5). Visual inspection of the post-task data revealed three significant outliers ($z=2.42$, $z=2.16$, $z=2.94$; $p=0.01$). Reducing significant outliers to the next largest value improved distribution. The adjusted values for post-task data have been reported in Table 5.

Table 5

Transformed values of skewness and kurtosis for pre-task total perceived responsibility.

Group	N	Skewness	SE	Kurtosis	SE
Whole Group	52	.47	.33	.05	.65
High Resp	26	.12	.46	-1.01	.89
Control	26	.56	.46	.22	.89

$p < 0.01^*$

The perception of influence, probability of harm and severity of harm subscales that make up this measure were then analysed separately for the whole sample and each of the experimental groups. Data are presented at baseline and after the experimental task.

3.4.2.6.1 *Perception of influence subscale*. Table 6 shows descriptive data for the perception of influence subscale. The distribution of baseline data on the perception of influence subscale was normally distributed for the high responsibility group ($z=2.42$, $p>.01$) and the control group ($z= 1.10$, $p>.01$). Distribution of post-task data for the high responsibility group and the control group was also normally distributed.

Table 6

Descriptive statistics for the perception of influence subscale

Group	N	Mean	SD	Median	Skew	Kurtosis
Baseline Score						
Whole Group	52	.92	.89	.50	*.99	.32
High Resp	26	.60	.60	.55	1.10	.60
Control	26	1.25	1.01	1.0	.50	-.63
After Task						
Whole Group	52	1.14	1.10	1.00	*.90	.20
High Resp	26	1.25	1.19	1.0	1.04	.43
Control	26	1.06	1.03	1.0	.69	-.32

* $p < 0.01$

3.4.2.6.2 *Probability of harm subscale.* Descriptive data for the probability of harm subscale are presented in Table 7. The distribution of baseline score on the probability of harm subscale was normally distributed for the high responsibility group ($z = 1.63$, $p > .01$) and the control group ($z = 2.4$, $p > .01$). The distribution of the data for the post-task scores on probability of harm subscale for the control group, indicated significant skewness, ($z = 4.85$, $p < .01$); and kurtosis ($z = 5.5$, $p < .01$).

Table 7

Descriptive statistics for probability of harm subscale

Group	N	Mean	SD	Median	Skew	Kurtosis
Baseline Score						
Whole Group	52	.72	.71	.50	*.87	.02
High Resp	26	.79	.71	.50	.74	-.10
Control	26	.65	.72	.50	1.08	.56
After Task						
Whole Group	52	.42	.63	.00	*1.47	*1.48
High Resp	26	.54	.62	.50	.96	-.20
Control	26	.31	.63	.00	*2.20	*4.9

* $p < 0.01$

As the data were not normally distributed, they were transformed using log transformations. A log transformation did not improve the distribution. A square root transformation was employed, but this did not improve the distribution of the data either. As data were not normally distributed for the variable of perceptions of harm, non-parametric tests were used in the analyses.

3.4.2.6.3 Severity of harm subscale. Table 8 shows the descriptive data for the severity of harm subscale. The distribution of the baseline score on the severity of harm subscale was significantly positively skewed for the control group ($z = 4.03$, $p < 0.01$). The distribution of the baseline scores for the control group also indicated significant kurtosis ($z = 3.15$, $p < 0.01$). The distribution of the post task scores on the severity of harm subscale was significantly positively skewed for the high responsibility group ($z = 2.74$, $p < 0.01$) and the control group ($z = 5.77$, $p < 0.01$). The distribution of the data

on the post score also indicated significant kurtosis in the control group ($z = 8.14$, $p < 0.01$).

Table 8

Descriptive statistics for severity of harm subscale

Group	N	Mean	SD	Median	Skew	Kurtosis
Baseline Score						
Whole Group	52	.42	.61	.00	*1.48	*1.87
High Resp	26	.44	.52	.25	.72	-.83
Control	26	.40	.69	.00	*1.84	*2.80
After Task						
Whole Group	52	.39	.62	.00	*1.78	*2.71
High Resp	26	.50	.62	.50	*1.25	.88
Control	26	0.30	.60	.00	*2.63	*7.22

* $p < 0.01$

As the data were not normally distributed, they were transformed using log

transformations. A log transformation did not improve the distribution. A square root transformation was also employed, but this did not improve distribution either. As data were not normally distributed for the variable of perceptions of severity of harm, non-parametric tests were used in the analyses.

3.4.2.7 Behavioural Measures. Table 9 presents descriptive statistics for child behavioural measures of adjusted checks, hesitations, reassurance seeking, and time.

Table 9

Descriptive statistics for child behavioural dependent variables.

Group	N	Mean	SD	Median	Skew	Kurtosis
Adjusted Checks						
Whole Group	52	6.25	3.50	6.00	.20	-.44
High Resp	26	7.50	3.52	7.50	-.17	-.49
Control	26	5.00	3.05	5.00	.47	.76
Hesitations						
Whole Group	52	2.38	3.76	1.00	*2.32	*4.95
High Resp	26	3.73	4.81	1.50	*1.50	1.01
Control	26	1.04	1.40	.00	*1.23	.91
Reassurance Seeking						
Whole Group	52	1.81	2.70	1.00	2.03	4.00
High Resp	26	2.96	3.30	1.50	*1.28	.93
Control	26	.65	1.13	.00	*2.56	*8.16
Time						
Whole Group	52	343.33	85.14	323.50	*.86	.22
High Resp	26	379.88	84.77	348.00	.82	-.61
Control	26	306.77	69.44	304.00	1.03	1.52

* $p < 0.01$

In the inflated responsibility group checks were positively skewed. Two outliers were adjusted to the next largest value and this improved the distribution ($z=4.03$, $p=0.01$; $z=3.64$, $p=0.01$). Hesitation was positively skewed in the inflated responsibility group and the control group. Square root transformation improved the distribution (see Table 10). Analyses comparing the groups on this variable used the transformed data.

Table 10

Transformed values of skewness and kurtosis for hesitations.

Group	N	Skewness	SE	Kurtosis	SE
Whole Group	52	*1.61	.33	*2.16	.64
High Resp	26	1.05	.46	-.05	.89
Control	26	.83	.46	-.44	.89

Reassurance seeking was positively skewed in the inflated responsibility group and the control group. Neither the reduction of significant outliers or performing transformation improved the distribution. All values were therefore retained and non-parametric tests were used in the analysis of this data. The distribution of the time data were not skewed

Maternal reassurance giving was normally distributed (see Table 11).

Table 11

Descriptive statistics for maternal reassurance giving.

	Mean	SD	Median	Skew	Kurtosis
Whole Group	3.00	3.44	2.0	*.89	-.51
High Res	2.88	3.09	2.0	.72	-.90
Control	3.12	3.82	2.0	.97	-.50

* $p < 0.01$

3.4.3 Between Group Comparisons on Demographic and Confounding

Variables. Multivariate normality was checked by calculating Mahalanobis distances (Tabachnick & Fidell, 2007). No multivariate outliers were found in the data file. A Pearson's Chi Square test revealed that there were no group differences in gender

$\chi^2(1, N=52) = 1.30, p = .57$, familial nut allergy $\chi^2(1, N=52) = 0.59, p = .44$ or knowledge of nut allergies $\chi^2(1, N=52) = .39, p = .53$. A one-way between-groups multivariate analysis of variance (MANOVA) was used to compare groups on age, total SCAS, OCD subscale of SCAS, BAI, CRAS, CDI-S, pre-task perceived responsibility and pre-task STAIC. Preliminary assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of co-variance matrices and multicollinearity, with no serious violations noted. There was a statistically significant difference between groups on the combined dependent variables: $F(9,42) = 2.77, p = 0.12$; Wilk's Lambda, = .63, partial eta squared = .37. When univariate results were examined there was a significant between group difference on baseline state anxiety, $F(1, 50) = 5.6, p = .02$ and close to significant between group difference on baseline depression $F(1, 50) = 3.9, p = .05$. State anxiety and depression was higher in the control group than in the inflated responsibility group. Therefore state anxiety and child depression were controlled in further analyses.

3.5 Inter-Rater Reliability

Inter-rater reliability for hesitations, checks, reassurance seeking and reassurance giving was measured through intra class correlations. Data from 18 participants (35%) was randomly selected and rated by two researchers, one of whom was blind to the randomisation. The reliability co-efficients were all above .8 (see Table 12) which demonstrates good inter-rater reliability (Landis & Koch, 1977).

Table 12

Intra-class correlation co-efficients for checks, hesitations, reassurance seeking and reassurance giving.

Variable	ρ
Checks	0.82
Hesitations	0.80
Reassurance Seeking	0.92
Reassurance Giving	0.92

N = 18

3.6 Interim Summary

The STAIC, CRAS and perceived responsibility were internally consistent. The SCAS, SCAS OCD subscale, CRAS, and time taken to complete the task and reassurance giving were normally distributed. Measures of anxiety (BAI, STAIC), depression (CDI), perceived responsibility, checks, hesitations and reassurance seeking behaviour were not normally distributed. The distribution of maternal anxiety, child state anxiety scores, perceived responsibility post task and checks were improved by reducing any significant outliers to the next highest score +1. Pre-task perceived responsibility and hesitations was successfully transformed using a square root transformation and child depression was transformed to the log10. The distribution of reassurance seeking was not improved by transforming the data or reducing outliers. At baseline the control group reported higher anxiety (STAIC) and depression (CDI) than the high responsibility group. These variables will therefore be controlled for in future analyses. There was no significant between group difference in gender, knowledge of nut allergy, total SCAS, OCD subscale of SCAS, BAI, CRAS or pre-task inflated responsibility scores. Intra-class correlations revealed that there was a high level of

inter-rater reliability on all of the behavioural measures. The remainder of this chapter highlights how these data were used to test the research hypotheses.

3.7 Results

3.7.1 Setting Condition 1-Manipulation Check

To check if the experimental manipulation had been successful, a one-way between groups analysis of covariance (ANCOVA) was conducted to compare between groups differences on total perceived responsibility.

The independent variable was group (inflated responsibility or control) and the dependent variable was adjusted post task total perceived responsibility. As raw scores were not normally distributed, participants transformed baseline responsibility ratings were used as the covariate in this analysis. Preliminary checks were conducted to ensure that there was no violation of the assumptions of normality, linearity, homogeneity of variance, homogeneity of regression slopes, and reliability of covariate. Levene's test was used to determine homogeneity of variance and revealed that variances were equal ($p=.42$). The relationship between the covariate and dependent variable was examined using Spearman's Rho correlation and scatter plots. A significant linear relationship was observed ($r=.49$; $p<.01$). Assumptions of homogeneity of regression slopes had also been met ($F=.08$; $df=1,44$, $p=.22$).

There was a significant group difference in perceived responsibility after controlling for baseline perceived responsibility, $F=5.89$; $df=1,49$, $p=.019$, partial eta squared, 0.11 (medium to large effect size). The mean for the adjusted post-task perceived responsibility are shown in Figure 2. The high responsibility group had higher mean post-task responsibility perceptions ($M=4.32$, $SD 4.01$) than the control group ($M=2.96$, $SD 3.22$).

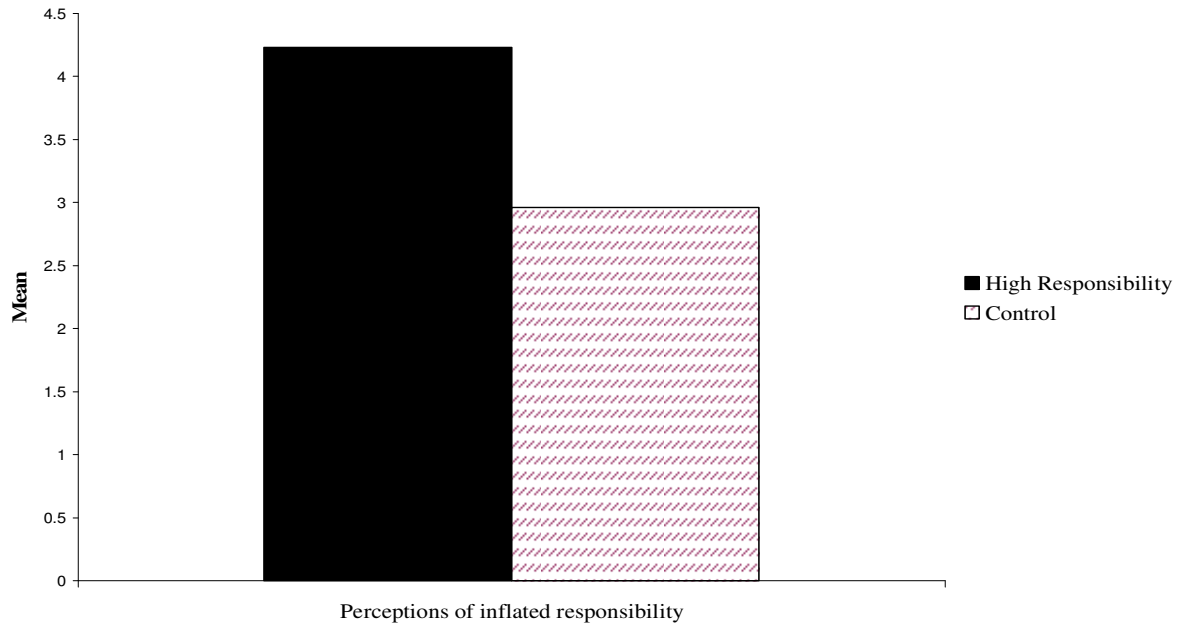


Figure 2. Posttask measures of perception of responsibility by group.

3.7.2 Setting Condition 2-State Anxiety

An ANCOVA revealed that there were no group differences in post-task state anxiety, while controlling for baseline state anxiety, $F(1,49) = 0.11$, $p = .75$, partial eta squared = 0.02. Therefore, children in the inflated responsibility group did not become more anxious compared to those in the control group. Results from Levene's test found that the assumption of homogeneity of variance to be satisfactory ($p = .33$).

3.7.3 Dependent Variables: Between Group Comparisons.

A MANCOVA was conducted to examine between group differences in time, checking and hesitations while controlling for baseline CDI-S and pre-task STAIC. Results from Levene's test found that the assumption of homogeneity of variance to be satisfactory. There was a significant multivariate between- group difference in behaviour $F(3, 46) = 4.40$, $p = .008$. Univariate F values showed that there was a significant group differences in time, $F(1,48) = 10.1$, $p = .003$, checking $F(1,48) = 6.7$, $p = .012$ and hesitations $F(1,48) = 4.57$, $p = .038$. The high responsibility group took

longer to complete the task, checked more and hesitated more than the control group (see Figure 3).

As reassurance seeking was not normally distributed, a Mann-Whitney U test was used. There was a statistically significant difference in reassurance seeking between the two groups, $Z=-3.26$, $p=.001$, with mean reassurance seeking being higher in the high responsibility group (see Figure 3).

Figure 3 shows that children in the inflated responsibility took longer to complete the task, hesitated, checked and sought reassurance more often.

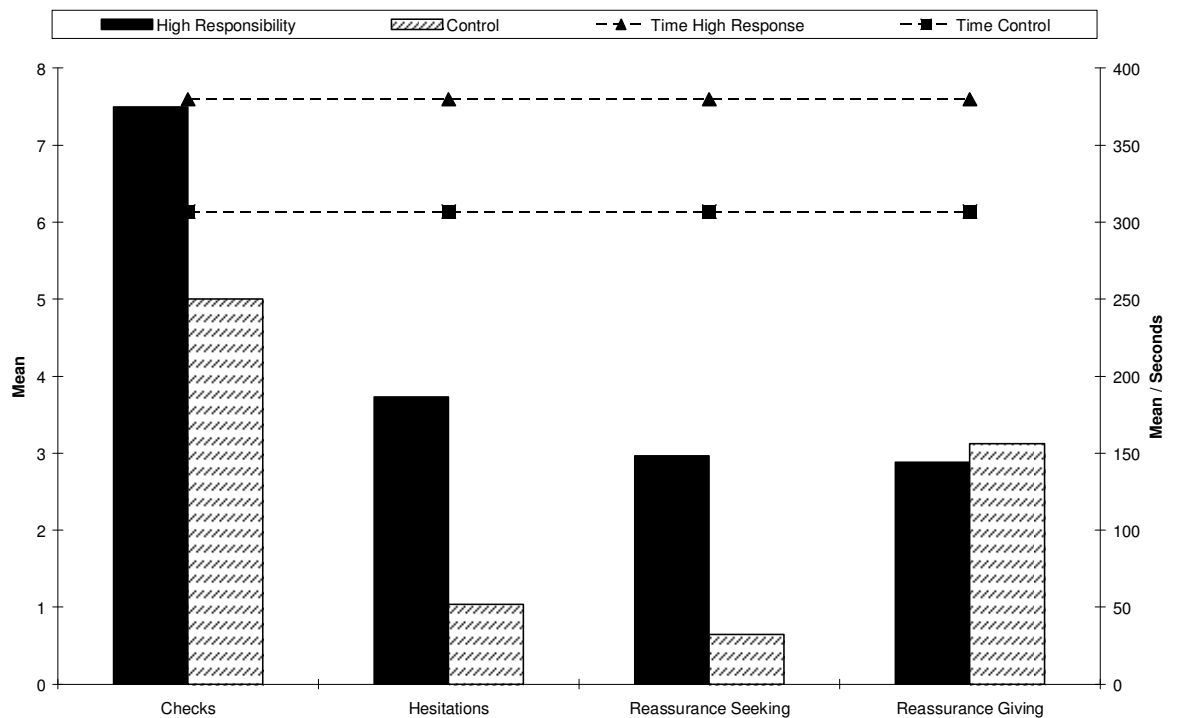


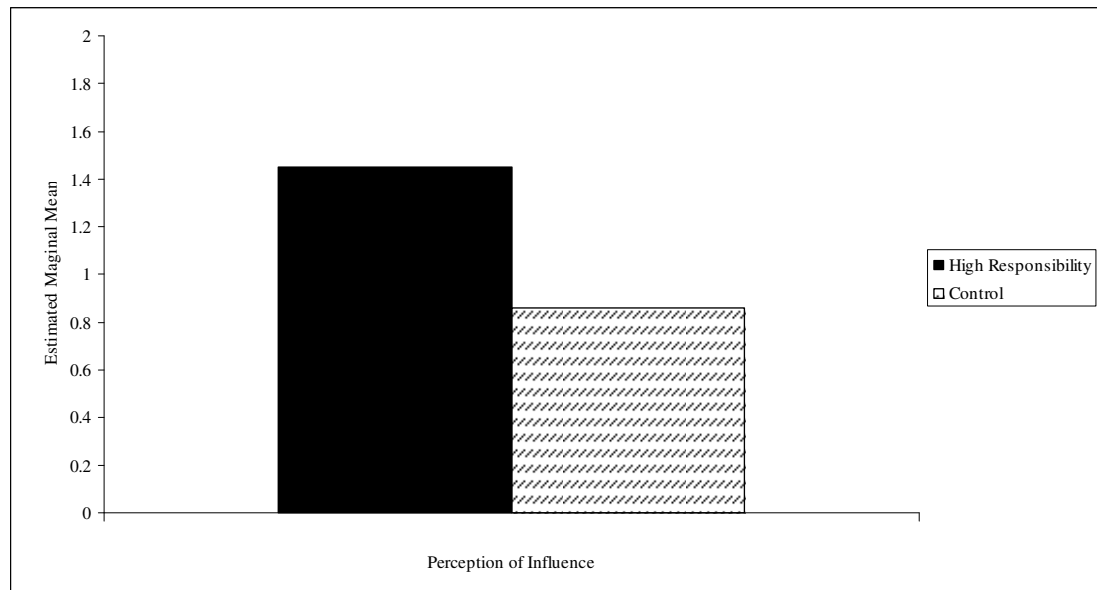
Figure 3: Graph showing mean time, checks, hesitations, reassurance seeking and reassurance giving in each group.

An independent sample t-test showed that there was no significant group difference in maternal reassurance giving, $t(50) = -.24$, $p=.81$. The groups were also compared in an ANCOVA, controlling for child baseline state anxiety; this was not significant ($F=.026$; $df=1,49$, $p=.87$). Results have been displayed in Figure 3.

3.7.4 *Perceptions of Influence on outcome, Probability of Harm and Severity of Harm.*

The two experimental groups were compared to determine whether there were significant differences in perceptions of influence on outcome, probability of harm and severity of harm. An independent samples t-test was conducted to compare baseline scores on the perceptions of influence subscale. There was a significant difference in baseline scores for the control group ($M=1.25$, $SD = 1.01$) and the high responsibility group ($M=0.60$, $SD =0.60$; $t(50) = -2.8$, $p = .007$, two tailed). Post-task scores on the perception of influence subscale were therefore compared using an ANCOVA, with baseline scores being used as the covariate. Preliminary checks were conducted to ensure that there was no violation of the assumptions of normality, linearity, homogeneity of variance, homogeneity of regression slopes, and reliable measures of the co-variate. After adjusting for baseline scores, there was a significant difference between the two groups on post-task scores on the perception of influence subscale, $F(1,49) = 3.7$, $p=0.05$, partial eta squared value of .07 (medium effect size). The high responsibility group had higher mean post-task perception of influence (Unadjusted $M=1.23$, $SD 1.19$; Adjusted $M= 1.43$, $SE, .20$) than the control group (Unadjusted $M=1.06$, $SD 1.03$; Adjusted $M = 0.86$, $SE, .20$). The adjusted marginal means for the post-task perceptions of influence are shown in Figure 4.

Figure 4: Graph showing post-task adjusted marginal mean for perception of influence in each group.



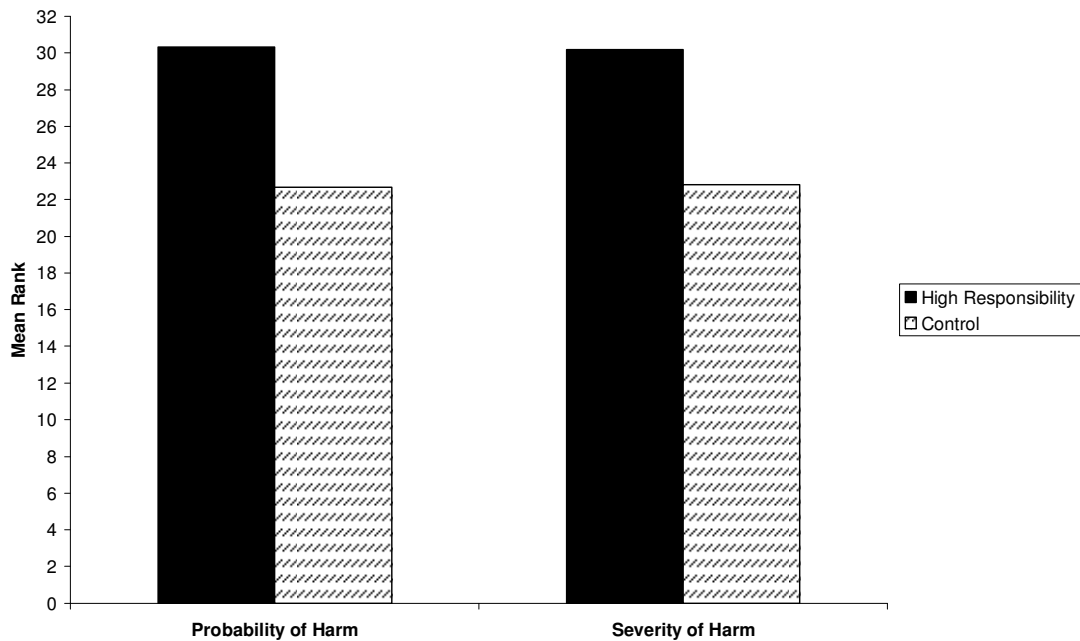
As the data from the probability of harm and severity of harm subscale was not normally distributed, non-parametric Man-Whitney U tests were used. There were no significant differences between groups at baseline on their scores on the responsibility of harm dimension, probability of harm dimension. There were significant differences between groups on their post scores with regards to both probability of harm; $U = 239$, $z = -2.05$, $p = 0.04$, $r = 0.28$ (small to medium effect size); and severity of harm $U = 242$, $z = -2.00$, $p = 0.05$, $r = 0.28$ (small to medium effect size). See Table 13.

Table 13

Group comparison on probability and severity of harm baseline and after task

	Control		High Responsibility	
	Mean Rank	S.D	Mean Rank	S.D
Before Task				
Probability	24.85	0.72	28.15	0.71
Severity	24.92	0.69	28.08	0.52
After Task				
Probability	22.69	0.63	30.31	0.62
Severity	22.83	0.60	30.17	0.62

Figure 5: Graph showing post task mean rank for probability and severity of harm in each group.



3.8 Exploratory Correlational Analyses

Combining the two groups together, the relationship between reassurance seeking/reassurance giving (total and sub-category scores) and other variables of

interest (both mother and child) were explored using a correlational approach. For variables that were normally distributed Pearson's correlation coefficient was used, and for variables that were not normally distributed Spearman's correlation was used.

Results are displayed in Table 14.

Table 14.

Correlations between reassurance seeking/reassurance giving and other variables of interest (two groups combined).

Variable	ReasS Total ²	ReasG Total ¹	Glance ¹	Help ¹	Unprompted Reassurance ¹
SCAS ¹	.104	.19	.19	.01	.98
OCD ¹	-.02	.24	.24	.03	.15
CRAS ¹	.05	-.08	-.14	.01	-.02
CDI ¹	-.18	.07	.09	-.09	.01
Mum BAI ¹	.07	.13	.17	-.10	-.09
Post-STAIC ¹	.02	.25	*.27	-.21	.26
Post Resp ¹	.06	.23	*.28	.10	.09
Post Influence ²	-.03	.15	.20	.11	.06
Post Prob ²	.26	.22	.21	.17	.25
Post Sev ²	.23	.22	.25	.12	.07
Hesit ¹	** .40	.08	.03	.11	.06
Checks ¹	** .39	.09	.12	.04	-.12
Time ¹	*.29	*.31	.24	*.31	.24
ReasS ²	-	.18	.27	.20	.07
ReasG ¹	-	-	** .92	** -.43	** .65
Glance ¹	-	-	-	.77	** .56
Help ¹	-	-	-	-	** .45

Note. N=52. Prob. = probability of harm. Sev= severity of harm, Post Resp = Total perception of responsibility post task, ReasS = Reassurance Seeking, ReasG = Reassurance Giving.

¹Pearsons' correlation coefficient. ²Spearman's correlation coefficient.

*p < .05 one tailed ** p< .01 two tailed

Within the two groups combined, children's reassurance seeking behaviour (as measured by child's total reassurance seeking score) was significantly correlated with

all other OCD-type behaviours including time taken, amount of hesitations and amount of checks. Children's reassurance seeking behaviour was not correlated with child's overall perceived anxiety, perceptions of responsibility or mother's reassurance giving. Also, mothers reassurance giving was not correlated with children's anxiety or perceived responsibility. However, when mothers reassurance giving was broken down into sub-categories, the glancing category was significantly correlated with their child's post state anxiety score (as measured by the STAIC) and their child's post task perceptions of responsibility. This suggests that there is a relationship between children's reported levels of perceived responsibility and anxiety and mother's reassurance giving in the form of glancing. This partially supports a number anxiety models which suggests that in order to alleviate the child's distress, a parent may increase their level of involvement and protection (Rapee, 2001).

Mothers helping behaviour was positively correlated with time. Reassurance giving total was significantly correlated to the three sub-categories of glancing, helping and unprompted reassurance. Mothers glancing and helping behaviour was significantly correlated with mother's unprompted reassurance. It must be noted however, that this correlational analyses is purely exploratory in nature and therefore any findings should be interpreted with caution.

3.9 Summary of Results

This section summarises the findings in relation to the setting conditions and each research hypothesis.

3.9.1 Setting Condition 1 – Manipulation Check.

The manipulation check showed that children assigned to the high responsibility group had higher perceived responsibility than the control group. Therefore the experimental manipulation was successful.

3.9.2 Setting Condition 2 – State Anxiety.

There were no group differences in post-task state anxiety, while controlling for baseline state anxiety. Therefore, after completing the sorting task children in the inflated responsibility condition were not more anxious than those in the control group.

3.9.3 Hypothesis 1- Participants in the high responsibility group will take longer to complete the sorting task and display a significantly greater number of checks, hesitations and reassurance seeking behaviours, than the control group.

Children in the high responsibility group took longer to complete the task and also checked, hesitated and sought reassurance more often than those in the control group. Therefore hypothesis 1 was supported.

3.9.4 Hypothesis 2- Participants in the high responsibility group will report higher perceptions of influence and higher probability and severity of harm after the sorting task than the control group.

Participants in the high responsibility group reported significantly higher perceptions of influence, probability and severity of harm after the sorting task than those in the control group. Therefore hypothesis 2 was supported.

3.9.5 Hypothesis 3 – Mothers with children in the high responsibility group will provide more reassurance than those with children in the control group.

An independent sample t-test showed that mothers with the children in the high responsibility group did not provide more reassurance than those with children in the control group. Across both groups, mother's reassurance giving was not associated with their child's reassurance seeking. Therefore hypothesis 3 was not supported.

CHAPTER FOUR

4. Discussion

4.1 Overview

The purpose of this chapter is to consider the results of the study in relation to each setting condition and hypothesis and to relate these findings to relevant literature. This is followed by a critique of the methodology and a discussion of the theoretical implications of the results. Directions for future research are considered concluding with an overall summary of the research findings.

4.2 Previous Research and Current Findings

This section reviews the results in relation to each setting condition and hypothesis and relates these findings to relevant empirical literature. As only limited research has investigated the relationship between childhood OCD and inflated responsibility, research from adult populations will also be considered.

4.2.1 Setting Condition 1- Manipulation Check

Children assigned to the high responsibility group reported significantly higher perceived responsibility than the control group. Analyses revealed a partial eta squared effect size of 0.11. This is a medium to large effect size according to guidelines outlined by Cohen (1998) and suggests that the sorting task was successful in manipulating responsibility.

These results are similar to those reported by previous studies. For example, Reeves et al. (2010) found that there was a significant post-task difference in the perceptions of influence between the high responsibility group and the reduced responsibility group, $U=98$, $p=.00$, $r=-.64$ (large effect size) and between the no responsibility group and the reduced responsibility group, $U=169$, $p=.00$, $r=-.45$ (medium to large effect size). There was no significant difference between the high

responsibility group and the no manipulation group. When comparing the strength of the current manipulation to previous studies it is also important to consider the difference in methodology. For example, Reeves et al. (2010) chose to evaluate the successfulness of manipulation based on scores from the perception of influence subscale alone, rather than a score based on all three subscales. Also, the lack of control group in the study by Reeves et al. (2010), it is difficult to draw any direct comparisons between the study by Reeves et al. (2010) and the current study.

Reynolds et al. (submitted) on the other hand decided to measure overall inflated responsibility based on the total of all three subscales that make up the responsibility measure e.g. perception of influence, probability of harm and severity of harm. This is similar to the current study which also used scores from all three subscales to calculate overall perception of responsibility. Reynolds et al. (submitted), also included a control study. In the study by Reynolds et al. (submitted), significant differences were observed between groups, on measures of post-task inflated responsibility, when the effect of baseline differences was controlled for ($F = 3.392$; $df = 2, 59$, $p = 0.04$). The results of pairwise comparisons indicated that the high responsibility group had significantly higher perceptions of responsibility than the reduced responsibility group ($M = .275$, $SD = .106$, $p = .04$). However, there were no significant differences between the high responsibility and the control group, or the reduced responsibility and the control group. Unfortunately, Reynolds et al. (submitted) did not report any effect sizes.

The small to medium effect sizes reported in this study compared to the medium to large effect sizes reported in previous studies may be due to a number of reasons. One explanation is that the mother's presence during the task may have inadvertently reduced the child's feelings of responsibility. For example, rather than assuming all

responsibility themselves, they may have felt like their mother's presence allowed them to absolve themselves from some of the responsibility, therefore reducing their perception of influence, severity and probability of harm. However, it is important to remember that unlike the study by Reynolds et al. (submitted), the manipulation in this study did appear to be powerful enough to differentiate between the high responsibility group and the control group.

Results from this study are also in keeping with experimental research that has manipulated responsibility in non-clinical adults. For example, Ladouceur et al. (1995) found that significantly higher perceptions of responsibility were reported by participants in the high responsibility condition compared to those in the low responsibility condition. Making comparisons to the study by Ladouceur et al (1995) is particularly important as only two conditions were compared and the low responsibility group is similar to the control group used in the present study.

This study and previous literature suggest that perceived responsibility can be manipulated in a group of non-clinical children and that findings are similar to those found in adult populations.

4.2.2 Setting Condition 2- State anxiety

There were no group differences in post-task state anxiety. This does not support Salkovskis' inflated responsibility model of OCD (1985) which suggests that an increase in perceived responsibility is accompanied by an increase in discomfort and anxiety. It also goes against findings from adult studies that have found that an increase in perceived responsibility has results in increased perceived discomfort and anxiety (Ladouceur et al., 1995; Lopatka & Rachman, 1995). However, this finding is in keeping with other child and adult studies by Reynolds et al. (submitted), Reeves et al. (2010), Bouchard, Rheaume and Ladouceur (1999), and Ladouceur et al. (1997). Barrett

& Healy Farrell (2003) who also found that manipulated perceived responsibility did not increase ratings of distress in a group of clinical adolescents and concluded that responsibility was not central to the presentation of OCD in children. Unfortunately, neither Reynolds et al. (submitted) nor Reeves et al. (2010), reported the effect size for perceived state anxiety so it is impossible to draw direct comparisons.

However, other explanations are also possible. For example, Bouchard et al., (1999) suggested that when individuals are allowed to participate in safety behaviours such as reassurance seeking and checking during the task, it is less likely that they will feel anxious about their performance. This is one explanation for findings in the current study as children were permitted to check their work as many times as they wished, therefore reducing their anxiety. Findings from the present study also showed that children's state anxiety score were higher before the task than afterwards. A possible explanation for this is that some children were feeling apprehensive about what the task would involve and felt relieved after they completed it. In this study, one possible way of overcoming this would be to measure the anxiety at a different time i.e. after they had received the task instructions and before they completed the safety behaviours.

4.2.3 Hypothesis 1- Participants in the high responsibility group will take longer to complete the sorting task and display a significantly greater number of checks, hesitations and reassurance seeking behaviours, than the control group.

Children in the high responsibility group took longer to complete the task and also checked, hesitated and sought reassurance more often than those in the control group. These findings are consistent with Reeves et al. (2010) and offer support for a possible causal relationship between increased perceived levels of responsibility and an increase in OCD type behaviours. Numerous questionnaire studies have also found a significant positive correlation between inflated responsibility and OCD behaviours in

children (Libby et al., 2004; Magnusdottir and Smuari, 2004; Matthews et al., 2007), however, experimental studies provide much stronger evidence.

However, Barret & Healy-Farrell (2003) found that inflated responsibility appraisals were not associated with an increase in ritualising or avoidance in children with OCD (Barrett & Healy-Farrell, 2003). These differences could be to do with the use of a more powerful experimental manipulation in the current study. For example, in terms of manipulating levels of perceived responsibility, Barret & Healy-Farrell (2003) results were considerable less remarkable than results from this study. In addition, the experimenter in Barret & Healy-Farrell's (2003) study consistently observed that participants were particularly reluctant to accept responsibility in the high responsibility condition, and suggested that manipulating levels of responsibility in a sample of children with OCD was more difficult than anticipated.

The findings of the current study are also supported by previous experimental research with adults. Adults in a high responsibility group displayed more OCD-like behaviours than those in a control group (Bouchard et al., 1999; Ladouceur et al., 1995, Ladouceur et al. , 1997, Lopatka, 1995). In term of reassurance seeking behaviours, findings from this study are in line with Parrish and Radomsky (2006) who found that individuals in a high responsibility group reported greater urges to check and seek reassurance compared to the low responsibility group. They also noted that checking and reassurance seeking could be functionally equivalent and/or driven by the same processes.

In summary, these findings confirm the hypothesis that links inflated responsibility to an increase in OCD-like behaviours in children and that these findings are consistent with adult studies.

4.2.4 Hypothesis 2- *Participants in the high responsibility group will report higher perceptions of influence and higher perceptions of probability and severity of harm after the sorting task than the control group.*

The high responsibility group reported significantly higher perceptions of influence (partial eta squared = 0.07; medium to large effect size), probability of harm ($r = -.28$; small to medium effect size) and severity of harm ($r = -.28$; small to medium effect size) than the control group. In line with the definition of responsibility, these results suggest that perceived responsibility is related to the cognitive appraisals involving both personal influence and potential negative outcome (probability and severity of harm). The aim of using a measure made up of three subscales (each of which measured slightly different constructs of responsibility) was to ascertain which components of inflated responsibility are associated with an increase in OCD type behaviours. Taken in conjunction with the results from hypothesis 1, the results suggest that perception of influence, probability of harm and severity of harm may all be necessary to produce OCD type behaviours.

When comparing the results to previous studies, Reeves et al. (2010) also found that individuals in the high responsibility group reported significantly more perceptions of influence ($r = .64$; large effect size) probability of harm ($r = .37$; medium effect size) and severity of harm ($r = .33$; medium effect size) after the sorting task compared to the reduced responsibility group. However, there was no significant difference between the high responsibility group and the no manipulation group on all three subscales, and no significant difference in probability of harm and severity of harm between the no manipulation and the reduced responsibility group. Reeves et al. (2010) suggested that differences in perceptions of probability of harm and severity of harm only become significant when there is a significant difference in perception of influence.

The effect sizes reported by Reeves et al. (2010) are extremely similar to those reported in the present study. Interestingly, both the present study and the study by Reeves et al. (2010), reported slightly larger effect sizes for perception of influence than for probability of harm and severity of harm. This is supported by previous studies in adult literature that found that perceived influence was a better predictor of perceived responsibility than the overestimation of negative consequences (Ladouceur, Rheaume & Aublet, 1997). On the other hand, Ladouceur et al. (1995) reported that non-clinical adults in a high responsibility condition reported significantly more severity, probability, perceived influence and responsibility for consequences than those in the low responsibility condition. However, in this study, severity of harm accounted for up to 40% of the variance and the other variables accounted for less than 5%. This highlighted the importance of separately assessing all of the manipulation variables and also suggests that the development of a more robust measure of perceptions of severity, probability and responsibility is needed. Indeed, the results from the present study must be interpreted with caution due to the fact that this is a new measure.

Reynolds et al. (submitted) did not report findings based on the subscales on the responsibility measure but rather the total score of all three subscales combined. This means that it is impossible to compare results on the individual subscales as this information was not available.

4.2.5 Hypothesis 3 – Mothers with children in the high responsibility group will provide more reassurance than those with children in the control group.

Mothers with children in the high responsibility group did not provide more reassurance than those with children in the control group, despite the fact that their children sought significantly more reassurance from them. Therefore this hypothesis was not supported. Across both groups mother's reassurance giving was not associated

with their child's reassurance seeking, suggesting that this was not recognised as a relevant signal by mothers. Thus maternal behaviours towards the child were independent to their child's beliefs and behaviours. This is in contrast to previous research with clinical samples which suggest that OCD behaviours, such as reassurance seeking are related to family accommodation, such a reassurance giving (Calvocoressi et al., 1999).

There are a number of possible explanations for these findings. Firstly the use of a non-clinical sample may be a key factor. Previous research suggests that mothers of children with OCD are more likely to be overprotective and anxious than mothers of children who do not have OCD (Rapee, 1997). It could therefore be hypothesised that if a clinical sample had been used, mothers would have been generally more anxious, making them more likely to respond to their child's anxiety and give reassurance. BAI scores from this study showed that maternal anxiety across both groups was low. Also, children in both groups had low levels of state anxiety. Secondly, mothers were aware that responsibility was being manipulated and therefore knew that their child's performance on the task did not have dangerous consequences. Thus, although children in the high responsibility condition sought significantly more reassurance, it is likely that mothers may not have reacted to their child as often as they would if they had been unaware. Mothers were informed about the study and it was made explicit to them that the outcome of the task would not impact negatively on any other children i.e. they were aware that sweets would not be transferred to children in schools. This decision was made to ensure that the children did not react to any anxiety expressed by their mothers regarding the outcome of the task in an attempt to minimise confounding variables. The fact that mothers were aware of the fictitious nature of the task allowed mothers to reassure their children in response to their child's anxiety in a more naturalistic manner

without this being influenced by their concern for other children's safety. What might be interesting for future studies would be to investigate reassurance seeking/giving within the dyads if mothers were unaware of the fictitious nature of the task.

4.3 Interim Summary

The aim of this study was to investigate whether the inflated responsibility model of OCD applied to children. It did this by experimentally manipulating perceived levels of responsibility on a sorting task and investigating the effects on OCD-like behaviours and anxiety. The manipulation check showed that children assigned to the high responsibility group had higher perceived responsibility than the control group. There were no group differences in post-task state anxiety, perhaps because of the safety behaviours used by children. Children in the high responsibility group took longer to complete the task and also checked, hesitated and sought reassurance more often than those in the control group.

These results support a possible causal relationship between perceived responsibility and OCD type behaviours in non-clinical children.

Given the increasing literature on the role of the family in the maintenance of OCD behaviours, this study also aimed to investigate the impact of child's perceived responsibility on mother's reassurance giving. Mothers with children in the high responsibility group did not provide more reassurance than those with children in the control group, despite the fact that their children sought significantly more reassurance from them. Results also showed that mother's reassurance giving was not associated with their child's reassurance seeking. One possible explanation is the use of a non-clinical sample. For example, given that mothers in both groups reported low levels of anxiety it could be hypothesised that they may not show the overprotecting and controlling parenting style that has found to be associated with childhood OCD.

Therefore, due to the low levels of anxiety reported by the children, and the fact that mothers knew about the true nature of the task, mothers may not have felt the need to intervene. Another possibility is that due to demand characteristics, mothers may not have responded as they normally would towards their children.

4.4 Methodological Critique

The aim of this section is to discuss the strengths and limitations of the research design and methodology and to consider research findings in relation to these issues.

4.4.1 Design

This study employed a between- subject experimental design to investigate whether increased perceived responsibility led to increased OCD-like behaviours and anxiety. One of the main advantages of experimental designs over other study designs is the ability to demonstrate cause and effect relationships. Thus, the experimental design meant that the causal variable of responsibility could be manipulated, and the outcome of this manipulation (in terms of OCD-like behaviors) could be measured. This allowed some conclusions to be drawn about the impact of different levels of responsibility on anxiety and OCD-like behaviours.

The groups were not matched on confounding variables such as gender and age. Therefore baseline measures of possible confounding variables which differed between the groups e.g. anxiety, were controlled for in the analyses.

4.4.2 Sample

One of the main strengths of this study is that it investigated the applicability of the inflated responsibility model of OCD to a relatively young sample. This is a relatively under researched area as most childhood studies looking at the cognitive models of OCD have used adolescent samples (Marther & Cartwright- Hatton, 2004; Matthews et al., 2007). Therefore this study has contributed to the current evidence base

by showing that the inflated responsibility model of OCD can not only be applied to adolescents but also to a wider range of age groups including a non-clinical group of children aged 9-11 years.

In terms of ethnicity, the majority of the participants were white British. Although this is representative of the geographical area, this does mean that it may be difficult to generalise the findings to a more ethnically diverse population. Further investigations are needed to understand how ethnic differences would impact on the role of inflated responsibility in OCD. The response rate of 24.2% means that the participants may not be representative of the sampled population. It is impossible to know if the children who decided to take part differed from those that did not.

There are many advantages of using a non-clinical sample. The first advantage is the relative ease with which these samples can be recruited, allowing studies to have adequate power to test relationships between variables. The use of a non-clinical sample also means that ethical and practical constraints can be avoided (Gibbs, 1996) and also means that there are fewer competing factors (e.g. medication) that can influence the interpretation of the findings (Costello, 1994).

4.4.3 Measures

One of the strengths of the inflated responsibility measure was that it was brief, used age appropriate language and demonstrated good internal consistency.

A strength of this study was the use of reliable and valid questionnaires to measure possible confounding variables such as child anxiety. However, the CRAS has not been validated for use with younger children. The alpha value for the CRAS in the present study was 0.79, demonstrating acceptable reliability. Although this measure has proven to be an effective measure of responsibility attitudes in children aged 10-14 (Magnusdottir and Smari, 2004; Reeves et al., 2010), it has been suggested that some of

the items are too abstract for the youngest children and that such measures should consist of vivid scenarios or examples (Magnusdottir and Smari, 2004). In the present study the youngest children were 9 years old and therefore may have not understood the questionnaires. However, the presence of the researcher meant that children could ask questions and any misunderstandings could be rectified

Children were asked to complete a large number of questionnaires. As with all self report questionnaires, issues surrounding the validity of the patient's response should be considered. It could also be argued that the length of time that it took to complete these measures may have resulted in the children becoming tired and bored which could in turn have impacted on their performance during the task. In an attempt to overcome this problem, this study used a subscale of the SCAS to measure for OCD symptoms, rather than a more extensive and possibly more accurate measure such as the Leyton Obsessional Inventory-Child Version (Berg et al., 1988). However, considering that OCD symptoms were not a main dependent variable in the present study, the subscale of the SCAS was deemed to be sufficient.

A possible limitation of this study is that it specifically investigates the relationship between inflated responsibility and checking in children. This focus on one subtype of OCD makes it difficult to generalise the findings to other forms of OCD and highlights the need for future research to investigate this relationship with other OCD subtypes in childhood. It is important to note however that this study is only the second study that experimentally investigates the impact of inflated responsibility on reassurance seeking and that results suggest that a causal relationship may exist between these two variables.

Another possible area open to discussion is the definition of reassurance used in this study. Reassurance seeking and giving was coded in line with classifications

utilised in previous studies (Reynolds et al., submitted). It is acknowledged that the glancing category may encapsulate relational factors not linked directly to reassurance seeking or giving e.g. a mother glancing at her child may represent concern or interest. It is also possible that some other idiosyncratic behaviour of the dyads were captured in the coding. It may be beneficial for future studies to work towards minimising these.

4.4.4 Experimental Manipulation

In order to increase ecological validity, this study used an experimental task that was relevant and familiar to children of this age group. The manipulation appeared to be successful in that it increased perceived responsibility in the high responsibility group. It did not however, increase feelings of anxiety. Unlike previous studies (Reynolds et al., submitted) there was a significant difference in perceived responsibility between the high responsibility group and the control group. One possible explanation for these differing results could be to do with environmental issues. Indeed, the rationale for conducting the experiment in the home environment was based on previous research that shows that children are more likely to engage in ritualistic behaviour when in their home environment (King, Ollendick & Montgomery, 1995). Also, the responsibility model predicts that children will engage in increased checking behaviour when they feel a sense of ownership/increased responsibility towards their environment. However on reflection, as the results of the task would have an impact on unknown children within a school setting, not upon the child's home or family members, the environment may be anticipated to have a lesser effect. Future studies may benefit for considering how the experimental setting impacts on the outcome of the task. Therefore, the biggest advantage of conducting this study in a home environment would be to give the study added ecological validity.

A believability check was not carried out as part of this study as a similar task has been utilised in previous studies. It would however be interesting to determine to what extent children involved believed the task to be genuine as this may impact on the power of the manipulation.

4.4.5 Researcher Bias

Researchers administering the task were aware of which experimental group the child had been allocated to and this could have resulted in systematic bias (Tilly, 1996). Ideally the researcher should be blind to this information but this was not possible. Therefore 35% of video recordings of the child and mother's behaviours were rated by an independent rater blind to the randomisation.

4.5 Implications of the Study

4.5.1 Inflated Responsibility Model

The findings suggest that the inflated responsibility model of OCD (Salkovskis, 1985) is applicable to a group of non-clinical children aged 9-11 years. Children in the high responsibility group checked significantly more than those in the control group and sought more reassurance from their mothers. This supports the idea that reassurance seeking and checking may serve similar functions, i.e. to reduce anxiety by minimising the likelihood and perceived responsibility of the negative outcome (Rachman, 2002).

Although Salkovskis suggests that responsibility appraisals are central to the development and maintenance of all sub-types of OCD, this study only focused on one sub-type of OCD, namely checking. On investigating the function of responsibility in other OC symptom clusters, Yorulmaz et al. (2008) found that cleaning rituals were more associated with responsibility based on preventing danger whereas obsessive rumination was based on self-dangerousness of intrusive thoughts. It is therefore possible that the role of inflated responsibility is very different depending on the sub-

group being investigated. Comparing results from this study to other studies using different subtypes must therefore be done with caution.

4.5.2 Implications for a Cognitive Theory of OCD in Childhood

The findings of this study build on the current body of literature investigating the applicability of cognitive models of OCD to children and lend particular support to the inflated responsibility model.

There is an increasing body of literature highlighting the importance of context and family influence in the aetiology and maintenance of childhood OCD. It has been suggested that childhood disorders can not be understood without considering the impact of the family and that any model of childhood psychopathology must incorporate these factors (Turner, 2006). Although this is beyond the scope of this thesis, this study attempted to incorporate this idea by not only investigating child reassurance seeking behaviour but also mother's reassurance giving behaviours in the context of their own home. Results from this study showed that child reassurance seeking was not associated with maternal reassurance giving. Further research is clearly needed in this area.

4.5.3 Clinical Implications

The findings from this study provide preliminary evidence for the link between inflated responsibility beliefs and OCD behaviours in childhood. This has potential clinical implications in terms of assessment, formulation and treatment of childhood OCD. During the assessment process it would seem appropriate to measure a child's perceived level of responsibility as well as investigating other cognitive appraisals such as meta-cognitive beliefs and TAF. It is important to remember however, that each presenting child is different and that attempting to apply one model to all children would be inappropriate. Intervention should be tailored to the individual based on a

formulation of the presenting problem. In terms of measuring responsibility beliefs, the internal consistency of the CRAS in the present study suggests that it may be an appropriate questionnaire for use with children aged 9-11 years old. In terms of formulation, the inclusion of inflated responsibility beliefs may lead the individual to develop a deeper understanding of how these unhelpful beliefs are impacting on their symptoms which in turn could be challenged through cognitive therapy.

In terms of intervention, the present findings suggest that responsibility-related issues should be addressed in the treatment of OCD in children. Specific cognitive methods designed to challenge responsibility beliefs in childhood have already been developed. One such cognitive method is the responsibility pie. In this technique, children are asked to list all the factors that they believe have contributed to a catastrophic event. They are then asked to assign a relevant portion of the responsibility pie to each factor. When asked to assign their own responsibility from what remains they are often surprised to find how little is left. The aim of this technique is to help shape more realistic attitudes about their own responsibility, to highlight the difficulty of partitioning responsibility and to emphasise the multitude of factors involved.

Current treatment approaches for OCD also focus on the possible negative impact of reassurance seeking on the therapeutic process. For example, reassurance seeking allows the individual to reduce their feelings of responsibility which in turn reduces their associated feelings of anxiety. This concept has been supported by the findings from the present study which found an inverse relationship between anxiety and reassurance seeking, even when reassurance was not provided. In terms of treatment, this can become particularly problematic when carrying out behavioural experiments, as the involvement of the therapist means that the child feels like their

responsibility is shared. Throughout treatment it is therefore important that children are gradually encouraged to carry out their experiments alone (Waite, 2009).

In terms of family involvement, many parents report finding it very hard not to respond to their child's request for reassurance, particularly because it is accompanied with such high levels of distress. In these situations, Waite (2009) stresses the importance of using formulation with the family and the child to illustrate the cycle of reassurance seeking. Using a formulation of the problem, he suggests that the therapist should guide the child to draw an arrow from reassurance back to the belief. This shows that although the reassurance provides initial relief it ends up making the problem worse. The therapist can then ask the child whether they still think it is helpful to ask for reassurance or for their parents to give them reassurance. With the child's help the therapist can compile a list of things that their parents could do to help. He also states the important of encouraging parents to withdraw from giving reassurance gradually to avoid the possible distress that could occur if the reassurance was withdrawn too quickly.

4.5.4 Recommendations for Future Research.

The following section will suggest possible ways to overcome the limitations of the present study as well as suggesting possible future research.

Findings from the present study indicated that children's perceived levels of responsibility were not related to their reported levels of anxiety. As mentioned previously, this may have been because children were permitted to engage in checking behaviours. In future research, a possible adaptation of the task would be to ask children to 'post' the sweets into boxes. This would mean that the children would be unable to retrieve the sweets or change their minds. Instead, the children could be asked to keep a

note of the amount of times they felt the urge to check or the times when they believed that they had made a mistake.

In order to investigate maintaining factors, single case experiments that demonstrate temporal relationships between changing cognitive processes and changes in OC symptoms could be interesting. Further investigations comparing cognitive appraisal such as responsibility attitudes in children and adults could also be useful in understanding the development of inflated responsibility across the lifespan.

Further experimental studies demonstrating the causal role of cognitive biases in the formation of OC symptoms would be useful. Studies could investigate the specific cognitive appraisals associated with the different subtypes of OCD rather than just checking behaviour, which in turn would allow us to tailor our interventions accordingly. An investigation of certain constructs found to be important in adult literature, such as the role of perfectionism and intolerance of uncertainty in OCD could also be interesting (Bouchard et al., 1999; Rheume, Ladouceur & Freeston, 2000).

Further investigations into the role of the family in the development and maintenance of childhood OCD would allow us to gain further insight into the impact of contextual issues and highlight the importance of family involvement during treatment. In terms of the relationship between reassurance seeking and reassurance giving it would be interesting to build on the present study by manipulating mothers reassurance giving and observing its effect on the child's OC behaviours.

4.6 Overall Summary and Conclusions

In conclusion, the aim of this study was to investigate whether the inflated responsibility model of OCD (Salkovskis, 1985) applied to children. Although there is now a large body of evidence for the role of cognitive factors in the development and maintenance of OCD in adults (Ladouceur, et al., 1995, Wilson & Chambless, 1999),

very few studies have investigated how well these cognitive models apply to the children. Recently a number of studies have tried to address this issue however there have been a number of methodological limitations. For example, the use of observational designs has meant that causal relationships between cognitive processes and OC symptoms could not be established.

This study therefore used an experimental design to examine the causal relationship between perceived inflated responsibility and childhood OCD in 9-11 year olds. It did this by experimentally manipulating levels of perceived responsibility during a sorting task. Results showed that children in the high responsibility group took longer to complete the task, checked, hesitated and sought more reassurance than those in the control group. This study therefore offers preliminary support for the link between increased perceived responsibility and increased OCD behaviours in children.

On a wider scale, findings from this study also provide evidence for the application of the inflated responsibility model to childhood OCD. The findings also support the idea that there is continuity between childhood and adult OCD, however developmental differences must also be into consideration. Due to methodological limitations however, these findings are preliminary.

A second aim of this study was to investigate the relationship between child reassurance seeking and maternal reassurance giving. Mothers with children in the high responsibility group did not provide more reassurance than those with children in the control group, despite the fact that their children sought significantly more reassurance from them.

In terms of clinical implications, the findings from this study support the use of cognitive interventions in the treatment of childhood OCD. However, due to the various limitations of the current treatment methods, further development of these strategies are

needed. Further experimental studies demonstrating the causal role of inflated responsibility beliefs in the formation of OC symptoms would be useful as well as the inclusion of clinical samples.

References

- Abela, J. S., Zuroff, D. C., Ho, M. R., Adams, P., & Hankin, B. L. (2006). Excessive reassurance seeking, hassles, and depressive symptoms in children of affectively ill parents: A multiwave longitudinal study. *Journal of Abnormal Child Psychology, 34*, 171-187.
- Abramowitz, J.S., Whiteside, S., Lynam, D., & Kalsy, S. (2003). Is thought-action fusion specific to obsessive-compulsive disorder? A mediating role of negative affect. *Behaviour Research and Therapy, 41*, 1069-1079.
- Abramowitz, J.S., Whiteside, S., & Deacon, B.J. (2005). The effectiveness of treatment for paediatric obsessive-compulsive disorder. A meta-analysis. *Behavior Therapy, 36*, 55-63.
- Albano, A.M., Knox, L.S., & Barlow, D.H. (1995). Obsessive-compulsive disorder. In A. Eisen, C. Kearney & C. Schafer (Eds.), *Clinical handbook of anxiety disorders in children and adolescents* (pp.282-316).Nortvale, NJ: Jason Aronson.
- Albert, U., Bogetto, F., Maina, G., Brunatto, C. & Mataix-Cols, D. (2010). Family accommodation in obsessive–compulsive disorder: Relation to symptom dimensions, clinical and family characteristics. *Psychiatry Research, 179* (2), 204-211.
- Alonso, P., Menchon, J.M., Mataix-Cols, D., Pifarre, J., Urretavizcaya, M., Crespo, et al. (2004). Perceived parental rearing styles in obsessive-compulsive disorder: relation to symptom dimensions. *Psychiatry Research, 127*, 267-278.
- Allsopp, M., & Verduyn, C. (1988). A follow-up of adolescents with obsessive compulsive disorder. *British Journal of Psychiatry, 154*, 829-834.

- Allsopp, M., & Verduyn, C. (1990). Adolescents with obsessive-compulsive disorder: A case note review of consecutive patients referred to a provincial regional adolescent psychiatry unit. *Journal of Adolescence, 13*, 157-169.
- Allsopp, M., & Williams, T. (1996). Intrusive thoughts in a non-clinical adolescent population. *European Child & Adolescent Psychiatry, 5*, 25-32.
- American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.) (*DSM-IV-TR*). Washington, DC.
- Amir, N., Freshman, M., & Foa, E.B. (2000). Family distress and involvement in relatives of obsessive-compulsive disorder patients. *Journal of Anxiety Disorders, 14*, 209–217.
- Andres, S., Lazaro, L., Salamero, M., Boget, T., Penades, R., & Castro-Fornieles, J. (2008). Changes in cognitive dysfunction in children and adolescents with obsessive-compulsive disorder after treatment. *Journal of Psychiatric Research, 42*, 507-514.
- Andrews, G., Creamer, M., Crino, R., Hunt, C., Lampe, L., & Page, A. (2003). *The treatment of anxiety disorders: clinician guides and patient manuals* (2nd ed). Cambridge: Cambridge University Press.
- Apter, A., Pauls, D. L., Bleich, A., Zohar, A. H., Kron, S., Ratzoni, G., et al. (1993). An epidemiological study of Gilles de la Tourette's syndrome in Israel. *Archives of General Psychiatry, 50*, 734-738.
- Arntz, A., Voncken, M., & Goosen, A.C.A. (2007). Responsibility and obsessive-compulsive disorder: An experimental test. *Behaviour Research and Therapy, 45*, 425-435.
- Barlow, D. H. (1988). *Anxiety and its disorders: the nature and treatment of panic and anxiety*. New York, NY: Guilford Press.

- Baron-Cohen, S., & Wheelwright, S. (1999). 'Obsessions' in children with autism or Asperger Syndrome: a content analysis in terms of core domains of cognition. *British Journal of Psychiatry*, *175*, 484-490.
- Barrett, P.M., & Healy, L.J. (2003). An examination of the cognitive processes involved in childhood obsessive-compulsive disorder. *Behaviour Research and Therapy*, *41*, 285-299.
- Barrett, P.M., & Healy-Farrell, L. (2003). Perceived responsibility in juvenile obsessive-compulsive disorder: An experimental manipulation. *Journal of Clinical Child and Adolescent Psychology*, *32*, 430-441.
- Barrett, P. M., Healy-Farrell, & March, J. S. (2004). Cognitive behavioural family treatment for childhood obsessive compulsive disorder: A controlled trial. *Journal of the American Academy of Child and Adolescent Psychiatry* 2004, *43* (1), 46-62.
- Barrett, P.M., Rapee, R.M., Dadds, M.M., & Ryan, S.M. (1996). Family enhancement of cognitive style in anxious and aggressive children. *Journal of Abnormal Child Psychology*, *24*, 187-203.
- Barrett, P.M., Short, A., & Healy, L. (2002). Do parent and children behaviours differentiate families whose children have obsessive-compulsive disorder from other clinic and non-clinic families? *Journal of Child Psychology and Psychiatry*, *43*(5), 597-607.
- Barrett, P.M., & Healy, L. (2003). An examination of the cognitive processes involved in childhood obsessive-compulsive disorder. *Behaviour and Research Therapy*, *41*, 285-299.

- Bartz, J., & Hollander, E. (2006). Is obsessive-compulsive disorder an anxiety disorder? *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, 30, 338-352.
- Beck, A.T., & Emery, G., & Greenberger, R. C. (1985). *Anxiety disorders and phobias: A cognitive perspective*. New York: Basic Books.
- Beck, A.T., & Steer, R.A. (1990). *Beck Anxiety Inventory Manual*. San Antonio, TX: Psychological Corporation.
- Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry*, 4, 561–571.
- Beer, D., Karitani, M., Leonard, H., March, J., & Swedo, S. (2002). Obsessive-compulsive disorder: In S. Kutcher (Ed.), *Practical Child and adolescent Psychopharmacology* (pp.159-186). Cambridge: Cambridge University Press.
- Berg, C.Z., Whitaker, A., Davies, M., Flament, M.F., & Rapoport, J.L. (1988). The survey form of the Leyton Obsessional Inventory-Child Version; Norms from an epidemiological study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 27, 759-763.
- Black, D.W., Noyes, R., Goldstein, R. B., Blum, N. (1992) A family study of obsessive-compulsive disorder. *Archives of General Psychiatry*, 49, 362–368.
- Bögels, S., & Phares, V. (2008). Father's role in the etiology, prevention and treatment of child anxiety: A review and new model. *Clinical Psychology Review*, 28, 539-558.
- Bolton, D., Dearsley, P., Madronal-Luque, R., & Baron-Cohen, S. (2002). Magical thinking in childhood and adolescence: *Development and relation to obsessive compulsion*. *British Journal of Developmental Psychology*, 20, 479-494.

- Bolton, D., Luckie, M., & Steinberg, D. (1995). Long-term course of obsessive-compulsive disorder treated in adolescence. *Journal of the American Academy of Child and Adolescent Psychiatry, 34*, 1441-1450.
- Bolton, D., & Perrin, S. (2008). Evaluation of exposure response-prevention for obsessive compulsive disorder in childhood and adolescence. *Journal of Behaviour Therapy and Experimental Psychiatry, 39*, 11-22.
- Bouchard, C., Rheaume, J., & Ladouceur, R. (1999). Responsibility and perfectionism in OCD: an experimental study. *Behaviour Research and Therapy, 37*, 239-248.
- British Psychological Society (2006). *Ethical principles for conducting research with human participants: Introduction to the revised principles*. Leicester: BPS.
- Bryman, A., & Cramer, D. (2001). *Qualitative data analysis with SPSS release 10 for windows: A guide for social scientists*. Hove: Routledge.
- Calvocoressi, L., Lewis, B., Harris, M., Trufan, S. J., Goodman, W. K., McDougle, C. J., et al. (1995). Family accommodation in obsessive compulsive disorder. *American Journal of Psychiatry, 152*, 441-443.
- Calvocoressi, L., Mazure, C., Kasl, S. V., Skolnick, J., Fisk, D., Vegso, S. J., et al. (1999). Family accommodation of obsessive-compulsive symptoms: Instrument development and assessment of family behavior. *Journal of Nervous & Mental Disease, 187*, 636-642.
- Cameron, C.L. (2007). Obsessive-compulsive disorder in children and adolescents. *Journal of Psychiatric and Mental Health Nursing, 14*, 696-704.
- Carlstedt, R. A. (2009). *Handbook of Integrative Clinical Psychology, Psychiatry and Behavioural Medicine*. Springer Publishing Company, New York.
- Carter, A.S., & Pollock, R.A. (2000). Obsessive compulsive disorder in childhood. *Current Opinion in Pediatrics, 12*, 325-330.

- Cartwright-Hatton, S., & Wells, A. (1997). Beliefs about worry and intrusions: the metacognitions questionnaire and its correlates. *Journal of Anxiety Disorders, 11*, 279–296.
- Cartwright-Hatton, S., Mather, A., Illingworth, V., Brocki, J., Harrington, R., & Wells, A. (2004). Development and preliminary validation of the meta-cognitions questionnaire-adolescent version. *Journal of Anxiety Disorders, 18*, 411-422.
- Chabane, N., Delorme, R., Millet, B., Mouren, M.C., Leboyer, M., & Pauls, D. (2005). Early-onset obsessive-compulsive disorder: A subgroup with a specific clinical and familial pattern? *Journal of Child Psychology and Psychiatry, 46*, 881-887.
- Chorpita, B.F., Albano, A.M., & Barlow, D.H. (1996). Cognitive processing in children: Relationship to anxiety and family influences. *Journal of Clinical Child Psychology, 25*, 170-176.
- Chorpita, B. F., & Barlow, D. H. (1998). The development of anxiety: The role of control in the early environment. *Psychology Bulletin, 124*, 3-21.
- Chowdhury, U., Frampton, I., & Heyman, I. (2004). Clinical characteristics of young people referred to an obsessive compulsive disorder clinic in the United Kingdom. *Clinical Child Psychology and Psychiatry, 9*, 395-410.
- Clark, D.A. (2004). *Cognitive-behavioural therapy for OCD*. New York: The Guilford Press.
- Cobhan, V.E., Dadds, M.R., & Spence, S.H. (1999). The role of parental anxiety in the treatment of childhood anxiety. *Journal of Consulting and Clinical Psychology, 66* (6), 893-905.
- Cohen, J. (1992). Statistical power analysis. *Current Directions in Psychological Science, 1*, 98-101.

Comer, J.S., Kendall, P.C., Franklin, M.E., Hudson, J.L., & Pimentel, S.S. (2004).

Obsessing/worrying about the overlap between obsessive–compulsive disorder and generalized anxiety disorder in youth. *Clinical Psychology Review*, *24*, 663–683.

Cooper, M. (1996). Obsessive-compulsive disorder: Effects on family members.

American Journal of Orthopsychiatry, *66*, 296-304.

Costello, C.G. (1994). Two-dimensional views of psychopathology. *Behaviour*

Research and Therapy, *32*, 391–402.

Cottraux, J., Note, I., Yao, S. N., Lafont, S., Note, B., Mollard, E., Bouvard, M.,

Sauteraud, A., Bourgeois, M., & Dartigues, J.-F. (2001). A randomized controlled trial of cognitive therapy versus intensive behavior therapy in obsessive compulsive disorder. *Psychotherapy and Psychosomatics*, *70*, 288–297.

Creswell, C., Schniering, C.A., & Rapee, R.M. (2005). Threat interpretation in anxious

children and their mothers: comparison with nonclinical children and the effects of treatment. *Behaviour Research and Therapy*, *43*, 1375-81.

Dads, M.R., Barrett, P.M., Rapee, R.M., & Ryan, S. (1996). Family process and child

anxiety and aggression: An observational analysis. *Journal of Abnormal Child Psychology*, *24*, 715-734.

Data Protection Act (1998). Retrieved February 4 2009, from

www.opsi.gov.uk/ACTS/acts1998/ukpga_1998029_en_1

De Ayala, R., Vonderharr-Carlson, D. J., & Doyoung, K. (2005). Assessing the

Reliability of the Beck Anxiety Inventory Scores. *Educational and Psychological Measurement*, *6* (5), 742-756.

- Department of Children Schools and Families (2004). Working Together to Safeguard Children. Retrieved 22 May 2009 from <http://www.dcsf.gov.uk/everychildmatters>
- Do Rosario-Campos, M.C., Leckman, J.F., Curi, M., Quatrano, S., Katsovitch, L., Miguel, E.C., et al. (2005). A family study of early-onset obsessive-compulsive disorder. *American Journal of Medical Genetics (Part B:Neuropsychiatric Genetics)*, 136B, 92-97.
- Douglass, H. M., Moffitt, T. E., Dar, R., McGhee, R & Silva, P. (1995). Obsessive-compulsive disorder in a birth cohort of 18-year olds: Prevalence and predictors. *Journal of the American Academy of Child & Adolescent Psychiatry*, 34, 1424-1431.
- Evans, D.W., Milanak, M.E., Medeiros, B., & Ross, J.L. (2002). Magical beliefs and rituals in young children. *Child Psychiatry and Human Development*, 33(1),43-58.
- Farrell, L., & Barrett, P. (2006). Obsessive-compulsive disorder across the developmental trajectory: Cognitive processing of threat in children, adolescents and adults. *British Journal of Psychology*, 97, 95-114.
- Faul, F., Erdfelder, E., Lang, A.G., & Buchner, A. (2007). G*POWER 3: A flexible statistical power analysis program, for the social, behavioural, and biomedical sciences. [Computer Software]. Retrieved March 5 2009, from <http://www.psych.uni.duesseldorf.de/abteilungen/aap/gpower3>.
- Field A.P. (2000). *Discovering statistics using SPSS for Windows: advanced techniques for the beginner*. London: Sage.
- Finch, A. J., Kendall, P. C., Montgomery, L., & Morris, T. (1975). Effects of two types of failure on anxiety. *Journal of Abnormal Psychology*, 84, 583-586.

- Fisher, P.L., & Wells, A. (2005). Experimental modification of beliefs in obsessive-compulsive disorder: A test of the metacognitive model. *Behaviour research and Therapy, 43*, 821-829.
- Fisher, P.L., & Wells, A. (2008). Metacognitive therapy for obsessive-compulsive disorder: A case series. *Journal of Behavior Therapy and Experimental Psychiatry, 39*, 117-132.
- Flament, M. F., Koby, E., Rapoport, J.L., Berg, C. J., Zahn, T., Cox, C., Denckla, M., & Lenane, M. (1990). Childhood obsessive-compulsive disorder: A prospective follow-up study. *Journal of Child Psychology and Psychiatry, 31*, 363-380.
- Flament, M. F., Rapoport, J. L., Murphy, D. L., Berg, C. L., & Lake, C. R. (1987). Biochemical changes during clomipramine treatment of childhood obsessive-compulsive disorder. *Archives of General Psychiatry, 44(3)*, 219-25.
- Flament, M.F., Whitaker, A., Rappoport, J.L., Davies, M., Berg, C.Z., Kalikow, K., et al. (1988). Obsessive compulsive disorder in adolescents: An epidemiological study. *Journal of the American Academy of Child and Adolescent Psychiatry, 27*, 764-771.
- Fontenelle, L.F., Mendlowicz, M. V., & Versiani, M. (2005). Impulse control disorders in patients with obsessive-compulsive disorder. *Psychiatry and Clinical Neurosciences, 59*, 30-37(8).
- Franklin, M.E., Kozak, M.J., Cashman, L., Cloes, M., Rheingold, A., & Foa, E.B. (1998). Cognitive-behavioural treatment of paediatric obsessive-compulsive disorder: An open clinical trial. *Journal of the American Academy of Child and Adolescent Psychiatry, 37*, 412-419.

- Fredman, S.J., Chambless, D.L., & Steketee, G. (2004). Development and validation of an observational coding system for emotional overinvolvement. *Journal of Family Psychology, 18*, 339-347.
- Freeman, J. B., Garcia, A. M., Fucci, C., Karitani, M. K., Miller, L., & Leonard, H L. (2003). Family-based treatment of early-onset obsessive-compulsive disorder. *Journal of Child and Adolescent Psychopharmacology, 13*, 71-80.
- Freeman, J.B., Garcia, A.M., Coyne, L., Ale, C., Przeworski, A., Himle, M., et al. (2008). Early childhood OCD: Preliminary findings from a family- based cognitive- behavioral approach. *Journal of the American Academy of Child & Adolescent Psychiatry, 47*, 593–602.
- Freeston, M.H. (2001). Cognitive-behavioural treatment of a 14-year-old teenager with obsessive-compulsive disorder. *Behavioural and Cognitive Psychotherapy, 29*, 71-84.
- Freeston, M.H., Ladouceur, R., Gagnon, F., Thibedeau, N., Rhéaume, J., Letarte, H. et al. (1997). Cognitive-behavioural treatment of obsessive thoughts: A controlled study. *Journal of Consulting and Clinical Psychology, 65*, 405-413.
- Freeston, M.H., Ladouceur, R., Gagnon, F., & Thibedeau, N. (1993). Beliefs about obsessional thoughts. *Journal of Psychopathology and Behavioral Assessment, 15*, 1-21.
- Frost, R. O., Marten, P., Lahart, C., & Rosenblate, E. (1990). The dimensions of perfectionism. *Cognitive Therapy and Research, 14*, 449-468.
- Geller, D., Biederman, J., Jones, J., Park, K., Schwartz, S., Shapiro, S., et al. (1998). Is juvenile obsessive compulsive disorder a developmental subtype of the disorder? A review of the paediatric literature. *Journal of the American Academy of Child and Adolescent Psychiatry, 37*, 420-427.

- Geller, D. A., Hoog, S., Heiligenstein, J., Ricardi, R., Tamura, R., Kluszynski, S. et al. (2001). Fluoxetine treatment for obsessive-compulsive disorder in children and adolescents: a placebo-controlled clinical trial. *Journal of the American Academy of Child and Adolescent Psychiatry*, 40, 773-9.
- Gibbs, N. (1996). Nonclinical populations in research on obsessive-compulsive disorder: A critical review. *Clinical Psychology Review*, 16 (8), 729-773.
- Gifford, S., Reynolds, S., Bell, S., & Wilson, C. (2008). Threat interpretation bias in anxious children and their mothers. *Cognition and Emotion*, 22, 497-508.
- Gonzalez, J.C., Routh, D.K., & Armstrong, F.D. (1993). Effects of maternal distraction versus reassurance on children's reactions to injections. *Journal of Pediatric Psychology*, 18, 593-604.
- Goodman, W.K., Price, L.H., Rasmussen, S.A., Mazure, C., Fleischman, R.L., Hill, C.L., et al. (1989). The Yale-Brown Obsessive Compulsive Scale: Development, use, and reliability. *Archives of General psychiatry*, 46, 1006-1011.
- Goodwin, C. J. (2010). *Research in psychology. Methods and design* (6th Ed.). USA: Wiley.
- Goodyer, I. M., Dubicka, B., Wilkinson, P., et al. (2007). A randomized controlled trial of SSRIs and routine specialist care with and without cognitive behavior therapy in adolescents with major depression. *British Medical Journal*, 335, 142-146.
- Grados, M., & Riddle M. (1999) Obsessive-compulsive disorder in children and adolescents: treatment guidelines. *CNS Drugs*, 12, 257-277.

- Gwilliam, P., Wells, A. & Cartwright-Hatton, S. (2004). Does meta-cognition or responsibility predict obsessive-compulsive symptoms: A test of the meta-cognitive model. *Clinical Psychology & Psychotherapy*, *11*, 137-144.
- Hadjistavropoulos, T., Craig, K. D., & Hadjistavropoulos, T. (1998). Cognitive and behavioural responses to illness information: the role of health anxiety. *Behavior research and Therapy*, *36*, 149-164.
- Hadwin, J., Frost, S., French, C.C., & Richards, A. (1997). Cognitive processing and trait anxiety in typically developing children: Evidence for interpretation bias. *Journal of Abnormal Psychology*, *106*, 486-490.
- Hanna, G.L. (1995). Demographic and clinical features of obsessive-compulsive disorder in children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, *34*, 19-27.
- Hanna, G.L., Himle, J.A., Curtis, G.C., & Gillespie, B.W. (2005). A family study of obsessive-compulsive disorder with pediatric probands. *American Journal of medical Genetics (Part B: Neuropsychiatric Genetics)*, *134B*, 13-19.
- Hettema, J.M., Neale, M.C., & Kendler, K.S. (2001). A review and meta-analysis of the genetic epidemiology of anxiety disorders. *American Journal of Psychiatry*, *158*, 1568-1578.
- Heyman, I., Fombonne, E., Simmons, H., Ford, T., Meltzer, H., & Goodman, R. (2001). Prevalence of obsessive-compulsive disorder in the British nationwide survey of child mental health. *British Journal of Psychiatry*, *179*, 324-329.
- Hoekstra, R. J., Visser, S., Emmelkamp, P.M.G. (1989). *A social learning formulation of the etiology of obsessive-compulsive disorders*. In: Emmelkamp, P.M.G., et al. (Eds), *Annual Series of European Research in Behaviour Therapy: vol 4*.

- Fresh Perspectives on Anxiety Disorders. (Pp 115-123). Swets and Zeitlinger, Amsterdam.
- Holaway, R.M., Heimberg, R.G., & Coles, M.E. (2006). A comparison of intolerance of uncertainty in analogue obsessive-compulsive disorder and generalised anxiety disorder. *Journal of Anxiety Disorders, 20*, 158-174.
- Hollingsworth, C.E., Tanguay, P.E., Grossman, L., & Pabst, P. (1980). Long-term outcome of obsessive-compulsive disorder in childhood. *Journal of the American Academy of Child and Adolescent psychiatry, 19*, 134-144.
- Holzer, J. C., Goodman, W. K., McDougle, C. J., Baer, L., Boyarsky, B. K. & Leckman, J. F. (1994). Obsessive-compulsive disorder with and without a chronic tic disorder. A comparison of symptoms in 70 patients, *British Journal of Psychiatry, 464*. 469-473.
- Honjo, S., Hirano, C., Murase, S., Kaneko, T., Sugiyama, T., Ohtaka, K., et al. (1989). Obsessive-compulsive symptoms in childhood and adolescence. *Acta Psychiatrica Scandinavia, 80*, 83-91.
- Hudson, J.L & Rapee, R.M. (2001). Parent-child interactions and anxiety disorders: an observational study. *Behaviour and Research Therapy, 39*, 1411-1427.
- Hudson, J.L & Rapee, R.M. (2004). From anxious temperament to disorder. An etiological model of generalised anxiety disorder. In R.G. Heimberg, C.L.Turk, & D.S. Mennin (Eds.), *Generalised anxiety disorder: Advances in research and practice* (pp 51-74). New York: Guilford Press.
- Ivarsson, T., & Valderhaug, R. (2006). Symptom patterns in children and adolescents with obsessive-compulsive disorder (OCD). *Behaviour Research and Therapy, 44*, 1105-1116.

- Ivarsson, T., & Melin, K. (2008). Autism spectrum traits in children and adolescents with obsessive-compulsive disorder (OCD). *Journal of Anxiety Disorders, 22*, 969-978.
- Joiner, T. E., & Schmidt, N. B. (1998). Excessive reassurance seeking predicts depressive but not anxious reactions to acute stress. *Journal of Abnormal Psychology, 107*, 533-537.
- Kendall, P. C., & Chansky, T. E. (1991). Considering cognitions in anxiety disordered children. *Journal of Anxiety Disorders, 5*, 167-185.
- Kendall, P. C., & Ronan, K. R. (1990). Assessment of children's anxieties, fears, and phobias: Cognitive-behavioral models and methods. In C. R. Reynolds & R. W. Kamphaus (Eds.), *Handbook of psychological and educational assessment of children* (pp. 223–244). New York: Guilford.
- King, N.J., Ollendick, T.H. & Montgomery, I.M. (1995). Obsessive-compulsive disorder in children and adolescents. *Behaviour Change, 12*, 51-58
- Kortlander, E., Kendall, P.C., & Panichelli-Mindel, S.M. (1997). Maternal expectations and attributions about coping in anxious children. *Journal of Anxiety Disorders, 11*, 297-315.
- Kovacs, M. (1985). The Children's Depression Inventory. *Psychopharmacology Bulletin, 21*, 995-998.
- Last, C., & Strauss, C. (1989). Obsessive-compulsive disorder in childhood. *Journal of Anxiety Disorders, 3*, 295-302.
- Ladouceur, R., Rhéaume, J. and Aublet, F. (1997). Excessive responsibility in obsessional concerns: a fine-grained experimental analysis. *Behaviour Research and Therapy, 35*, 423–427.

- Ladouceur, R., Rheume, J., Freestan, M.H., Aublet, F., Jean, K., Lachance, S., et al. (1995). Experimental manipulations of responsibility: an analogue test for models of obsessive-compulsive disorder. *Behaviour Research and Therapy*, 33 (8), 937-946.
- Ladouceur, R., Talbot, F., & Dugas, M.J. (1997). Behavioural expressions of intolerance of uncertainty in worry. *Behaviour Modification*, 21, 355-371.
- Landis, J.R., & Koch, G.G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, 33, 159-174.
- Langner, J., Laws, M., Röper, G., Zaudig, M., Hauke, W., & Piesbergen, C. (2009). Predicting therapy outcome in patients with early and late obsessive-compulsive disorder (EOCD and LOCD). *Behavioural and Cognitive Psychotherapy*, 37, 485-496.
- Last, C.G., Perrin, S., Hersen, M., & Kazdin, A.E. (1992). DSM-III anxiety disorders in children: Sociodemographic and clinical characteristics. *Journal of the American Child and Adolescent Psychiatry*, 31, 1070-1076.
- Lazaro, L., Caldu, X., Junque, C., Bargallo, N., Andres, S., Morer, A., et al. (2008). Cerebral activation in children and adolescents with obsessive-compulsive disorder before and after treatment: A functional MRI study. *Journal of Psychiatric Research*, 42, 1051-1059.
- Lester, K.J., Field, A.P., Oliver, S., & Cartwright-Hatton, S. (2009). Do anxious parents interpretive biases towards threat extend into their child's environment? *Behaviour Research and Therapy*, 47, 170-174.
- Lewis, A. (1936). Problems of obsessional illness. *Proceedings of the Royal Medical Society*, 29, 325-336.

- Libby, S., Reynolds, S., Derisley, J., & Clark, S. (2004). Cognitive appraisals in young people with obsessive-compulsive disorder. *Journal of Child Psychology and Psychiatry, 45*(6), 1076-1084.
- Lopatka, C., & Rachman, S. (1995). Perceived responsibility and compulsive checking: An experimental analysis. *Behaviour Research and Therapy, 33*(6), 673-684.
- Magnusdottir, I., & Smari, J. (2004). Are responsibility attitudes related to obsessive-compulsive symptoms in schoolchildren? *Cognitive Behaviour Therapy, 33*, 21-26.
- Mancebo, M. C., Garcia, A.M., Pinto, A., Freeman, J.B., Przeworski, A., Stout, R., et al. (2008). Juvenile-onset OCD: Clinical features in children, adolescents and adults. *Acta Psychiatrica Scandinavia, 118*, 149–159.
- Manimala, M.R., Blount, R.L., & Cohen, L.L. (2000). The effects of parental reassurance versus distraction on child distress and coping during immunizations. *Children's Health Care, 29*, 161-177.
- March, J. S. (1995). Cognitive-behavioural psychotherapy for children and adolescents with OCD: a review and recommendations for treatment. *Journal of American Academy of Child and Adolescent Psychiatry, 34*, 7-18.
- March, J.S., Franklin, M., Nelson, A., & Foa, E. (2001). Cognitive-behavioural psychotherapy for pediatric obsessive-compulsive disorder. *Journal of Clinical Child Psychology, 30*, 8-18.
- March, J.S., & Mulle, K. (1998). *OCD in Children and Adolescents: A Treatment Manual*. Guilford Press, New York.
- Mark, I., O'Dwyer, A., Meeham, O., Greist, J., Baer, L. & McGuire, P. (2000). Subjective imagery in obsessive-compulsive disorder before and after exposure therapy. *British Journal of Psychiatry, 176*, 379-391.

- Mather, A., & Cartwright-Hatton, S. (2004). Cognitive predictors of obsessive-compulsive symptoms in adolescence: A preliminary investigation. *Journal of Clinical Child and Adolescent Psychology, 33*, 743-749.
- Matthews, L., Reynolds, S., & Derisley, J. (2007). Examining cognitive models of obsessive-compulsive disorder in adolescents. *Behavioural and Cognitive Psychotherapy, 35*, 149-163.
- McLean, P. D., Whittal, M. L., Thordarson, D., Taylor, S., Sochting, I., Koch, W. J., Paterson, R., & Anderson, K. W. (2001). Cognitive versus behavior therapy in the group treatment of obsessive compulsive disorder. *Journal of Consulting and Clinical Psychology, 69*, 205–214.
- McLeod, B. D., Wood, J.J., & Weisz, J.R. (2007). Examining the association between parenting and childhood anxiety: A met-analysis. *Clinical Psychology Review, 27*, 155-172.
- Moses, L. J., & Baird, J. A. (1998). Metacognition. In R.A. Wilson, & F. C. Keil (Eds.), *The MIT encyclopedia of the cognitive sciences*. Cambridge, MA: MIT Press.
- Mowrer, O.H. (1960). *Learning theory and behaviour*. New York: Wiley.
- Muris, P., Meesters, C., Rassin, E., Merckelbach, H., & Campbell, J. (2001). Thought-action fusion and anxiety disorders symptoms in normal adolescents. *Behaviour Research and Therapy, 39*, 843-852.
- Myers, S.G., Fisher, P.L., & Wells, A. (2009). An empirical test of a metacognitive model of obsessive compulsive symptoms: Fusion beliefs, beliefs about rituals, and stop signals. *Journal of Anxiety Disorders, 23*, 436-442.
- National Institute for Health and Clinical Excellence. (2006). *Obsessive-compulsive disorder. Core interventions in the treatment of obsessive-compulsive disorder*

and body dysmorphic disorder. London: National Institute for Health and Clinical Excellence.

Nestadt, G., Samuels, J., Riddle, M., Bienvenu, O., Liang, K., LaBuda, M et al.

(2000). A family study of obsessive-compulsive disorder. *Arch Gen Psychiatry*, 57 (4), 358-363.

Neziroglu F, Yaryur-Tobias JA, Walk J, McKay D (2000). The effect of fluvoxamine

and behavior therapy on children and adolescents with obsessive-compulsive disorder. *Journal of Child and Adolescent Psychopharmacology*, 10(4):295–306.

Obsessive Compulsive Working Group. (1997). Cognitive assessment of obsessive-compulsive disorder. *Behaviour Research and Therapy*, 35, 667-681.

Office for National Statistics. (1999). *Mental Health of children and adolescents in Great Britain*. Department of Health, London: Government Statistical Service.

O’Kearney, R. T., Anstey, K. J., & Von Sanden, C. (Updated March 2009). Behavioural and cognitive-behavioural therapy for obsessive-compulsive disorder in children and adolescents. [Cochrane Review]. *In Cochrane Database of Systematic Reviews*, 2010 (9). Retrieved May 10, 2010, from Ovid Evidence Based Medicine Reviews: Cochrane Database of Systematic Reviews.

Ownby, R. L. (1983) A cognitive behavioral intervention for compulsive handwashing with a thirteen-year-old boy, *Psychology in the Schools*, 20 (2), 219-222.

Pauls, D.L., Alsobrook, J.P., Goodman, W., Rasmussen, S., & Leckman, J.F. (1995). A family study of obsessive-compulsive disorder. *American Journal of Psychiatry*, 152, 76-84.

- Parrish, C.L., & Radomsky, A.S. (2006). An experimental analysis of responsibility and reassurance: Relationships with compulsive checking. *International Journal of Behavioral Consultation and Therapy*, 2(2), 174-191.
- Parrish, C.L., & Radomsky, A.S. (2010). Why do people seek reassurance and check repeatedly? An investigation of factors involved in compulsive behaviour in OCD and depression. *Journal of Anxiety Disorders*, 24, 211-222.
- Pediatric Obsessive-Compulsive Disorder Treatment Study (POTS) Team. (2004). Cognitive-behavioral therapy, sertraline, and their combination for children and adolescents with obsessive-compulsive disorder: The Pediatric Obsessive-Compulsive Disorder Treatment Study (POTS) Randomised Controlled Trial. *Journal of the American Medical Association*, 292,1969-1976.
- Peris, T. S., Bergman, R. L., Langley, A., Chang, S., McCracken, J. T., & Piacentini, J. (2008). Correlates of accommodation of paediatric obsessive-compulsive disorder: parent, child, and family characteristics. *Journal of the American Academy of Child and Adolescent Psychiatry*, 47, 1173-1181.
- Piacentini, J., Bergman, R.L., Keller, M., & McCracken, J. (2003). Functional impairment in children and adolescents with obsessive-compulsive disorder. *Journal of Child and Adolescent Psychopharmacology*, 13, S61-S69.
- Purdon, C., & Clark, D.A. (1994). Obsessive intrusive thoughts in non-clinical subjects. *Behaviour Research and Therapy*, 32,403-410.
- Purdon, C., & Clark, D.A. (1999). Metacognition and obsessions. *Clinical Psychology and Psychotherapy*, 6, 102-110.
- Rachman, S. (1971). Obsessional rumination. *Behaviour Research and Therapy*, 9, 229-235.

- Rachman, S. (1976). Obsessional-compulsive checking. *Behaviour Research and Therapy*, 14, 269-277.
- Rachman, S.J. (1978). *Fear and Courage*. San Francisco: W. H. Freeman.
- Rachman, S.J. (1993). Obsessions, responsibility and guilt. *Behaviour Research and Therapy*, 31, 149-154.
- Rachman, S.J. (1997). A cognitive theory of obsessions. *Behaviour Research and Therapy*, 35, 793-802.
- Rachman, S.J. (2002). A cognitive theory of compulsive checking. *Behaviour Research and Therapy*, 40, 625-639.
- Rachman, S. J. (2003). *The treatment of obsessions*. Oxford: Oxford University Press.
- Rachman, S. J. (2004). *Anxiety* (2nd. Ed). Hove, UK: Psychology Press.
- Rachman, S. J & Hodgson, R.J. (1980). *Obsessions and Compulsions*. Prentice-Hall, Englewood Cliffs, N.J.
- Rachman, S. J. & de Silva, P. (1978). Abnormal and normal obsessions. *Behaviour Research and Therapy*, 16, 233-238.
- Rachman, S.J., Shaffran, R. (1998). Cognitive and behavioural features of obsessive-compulsive disorder. In R.P. Swinson, M.M. Antony, S. Rachman, & M.A. Richter (Eds), *Obsessive-compulsive disorder: Theory, research and treatment* (pp.51-78). New York: Guilford Press.
- Radomsky, A., S., Rachman, J.S., & Hammond, D. (2001). Memory bias, confidence and responsibility in compulsive checking, *Behaviour Research and Therapy* 39, 813–822.
- Rapee, R. M. (1997). Potential role of childrearing practices in the development of anxiety and depression. *Clinical Psychology Review*, 17, 47-67.

- Rapee, R. M. (2001). The development of generalised anxiety. In M. W. Vasey, & M. R. Dadds (Eds), *The developmental psychopathology of anxiety* (pp. 481–503). New York: Oxford University Press.
- Rapoport, J. L. (1986). Childhood obsessive compulsive disorder. *Journal of Child Psychology & Psychiatry & Allied Disciplines*, 27, 289–295.
- Rassin, E., & Muris, P. (2006). Abnormal and normal obsessions: A reconsideration. *Behaviour Research and Therapy*, 45, 1065-1070.
- Rassin, E., Merkelbach, H., Muris, P., & Spann, V. (1999). Thought-action fusion as a causal factor in the development of intrusions. *Behaviour Research and Therapy*, 37, 231-237.
- Reeves, J. Reynolds, S., Wilson, C., & Coker, S. (2010). An experimental manipulation of responsibility in children: A test of the inflated responsibility model of obsessive-compulsive disorder. *Journal of Behaviour Therapy and Experimental Psychiatry*, 41, 228-233.
- Rettew, D. C., Swedo, S. E., Leonard, H. L., Lenane, M. C., Rapoport, J. L. (1992). Obsessions and compulsions across time in 79 children and adolescents with obsessive-compulsive disorder. *Journal of the American Academy of Child and Adolescent Psychiatry*, 31, 1050-1056.
- Reynolds, S., Austin, J., & Parker, P. (submitted). *An Investigation of the Relationship between Inflated Responsibility and Obsessive-Compulsive Disorder in Childhood*. Manuscript submitted for publication.
- Rheume, J., Ladouceur, R., & Freeston, M.H. (2000). The prediction of obsessive-compulsive tendencies: Does perfectionism play a significant role? *Personality and Individual Differences*, 38, 583-592

- Riddle, M.A., Reeve, E. A., Yaryura-Tobias, J.A., Wong, L.F., Claghorn, J.L., Gaffney, G. et al. (2001). Fluvomaxine for children and adolescents with obsessive-compulsive disorder: A controlled multi-centre trial. *Journal of the American Academy of Child and Adolescent Psychiatry*, 40, 222-229.
- Riddle, M.A., Scahill, L., King, R., Hardin, M.T., Towbin, K.E., Ort, S.I., et al. (1990). Obsessive-compulsive disorder in children and adolescents: phenomenology and family history. *Journal of the American Academy of Child and Adolescent Psychiatry*, 29, 766-772.
- Rosenberg, D.R., & Keshavan, M.S. (1998). Toward a neurodevelopmental model of obsessive-compulsive disorder. *Biological Psychiatry*, 43, 623-640.
- Rush, J., Pincus, H. A., First, M. B., Blacker, D., Endicott, J., Keith, S. J., et al. (2005). *Handbook of Psychiatric Measures*. Washington, DC: American Psychiatric Association (pp 7-14 & 336-339).
- Salkovskis, P. M. (1985). Obsessional-compulsive problems: A cognitive behavioural analysis. *Behaviour Research and Therapy*, 23, 571-583.
- Salkovskis, P. M. (1989a). Cognitive-behavioural factors and the persistence of intrusive thoughts in obsessional problems. *Behaviour Research and Therapy*, 27, 677-682.
- Salkovskis, P.M. (1989b). Obsessions and compulsions. In J. Scott, J.M.G. Williams & A.T. Beck (Eds.), *Cognitive Therapy: A Clinical Casebook* (pp.50-77). London: Croom Helm.
- Salkovskis, P. M. (1998). Psychological approaches to the understanding of obsessional problems. In R.P. Swinson, M.M. Anthony, S. Rachman, & M.A. Richter (Eds.), *Obsessive-compulsive disorder: Theory, research and treatment* (pp. 35-50). New York: Guilford Press.

- Salkovskis, P. M. (1999). Understanding and treating obsessive-compulsive disorder. *Behaviour Research and Therapy*, 37, 529-552.
- Salkovskis, P. M., & Warwick, H. M. C. (1986). Morbid preoccupations, health anxiety and reassurance: a cognitive behavioural approach to hypochondriasis. *Behaviour Research and Therapy*, 24, 597-602.
- Salkovskis, P., Richards, H., & Forrester, E. (1995). The relationship between obsessional problems and intrusive thoughts. *Behavioural and Cognitive Psychotherapy*, 23, 281-299.
- Salkovskis, P., Waite, P., & Williams, T. (2009). Issues and future directions in childhood OCD. In P.W. Waite & T. Williams (Eds.), *Obsessive Compulsive Disorder: Cognitive Behaviour Therapy with Children and Young People* (pp. 136-150). London: Routledge.
- Salkovskis, P., Shafran, R., Rachman, S., & Freeston, M.H. (1999). Multiple pathways to inflated responsibility beliefs in obsessional problems: Possible origins and implications for therapy and research. *Behaviour Research and Therapy*, 37, 1055-1072.
- Salkovskis, P., & Williams, T. (2004). Child responsibility attitudes scale (CRAS). Unpublished manuscript. In P.W. Waite & T. Williams (Eds.), *Obsessive compulsive disorder: Cognitive behaviour therapy with children and young people* (pp. 168-172). London: Routledge.
- Salkovskis, P., Wroe, A.L., Gledhill, N., Morrison, E., Forrester, C., Reynolds, M., et al. (2000). Responsibility attitudes and interpretations are characteristic of obsessive compulsive disorder. *Behaviour Research and Therapy*, 38, 347-372.
- Samuels, J.F. (2009). Recent advances in the genetics of obsessive-compulsive disorder. *Current Psychiatry Reports*, 11, 277-282.

- Sanavio, E. (1988). Obsessions and compulsions: The Padua Inventory. *Behaviour Research and Therapy*, 26, 169-177.
- Savage, C.R., & Rauch, S.L. (2000). Cognitive deficits in obsessive-compulsive disorder. *American Journal of Psychiatry*, 157, 1182.
- Scahill, L., Riddle, M.A., McSwiggan-Hardin, M.T., Ort, S.I., King, R.A., Goodman, W.K., et al. (1997). The Children's Yale-Brown Obsessive-Compulsive Scale: Preliminary report of reliability and validity. *Journal of the American Academy of Child and Adolescent Psychiatry*, 36, 844-853.
- Shafran, R. (1997). The manipulation of responsibility in obsessive-compulsive disorder. *British Journal of Clinical Psychology*, 36(3), 397-407.
- Shafran, R. (2001). Obsessive-compulsive disorder in children and adolescents. *Clinical Psychology & Psychiatry Review*, 6 (2), 50-58.
- Shafran, R., & Somers, J. (1998). Treating adolescent obsessive-compulsive disorder: Applications of the cognitive theory. *Behaviour Research and Therapy*, 36, 93-97.
- Shafran, R., Thordarson, D.S., & Rachman, S. (1996). Thought-action fusion in obsessive-compulsive disorder. *Journal of Anxiety Disorders*, 10, 379-391.
- Shortt, A. L., Barrett, P. M., Dadds, M. R., & Fox, T. L. (2001). The influence of family and experimental context on cognition in anxious children. *Journal of Abnormal Child Psychology*, 29, 585-596.
- Sinha, S. S., Mohlam, J., & Gorman, J.M. (2004). Neurobiology. In R.G. Heimberg, C.L. Turk, & D.S. Mennin (Eds.), *Generalised Anxiety Disorder. Advances in Research and Practice* (pp.187-216). London: The Guilford Press.
- Smucker, M. R., Craighead, W. E., Craighead, L.W., & Green, B. J. (1986). Normative and reliability data for the Children's Depression Inventory. *Journal of Abnormal Child Psychology*, 14, 25-39.

- Solso, R. L., & Johnson, H. H. (1994). *Experimental psychology: A case approach* (5th ed.). New York: HarperCollins College Publishers.
- Spence, S. H. (1998). A measure of anxiety symptoms among children. *Behaviour Research and Therapy*, *36*, 545-566.
- Spielberger, C. D., Edwards, C. D., Lushene, R. E., Montuori, J., & Platzek, D. (1973). *The State Trait Anxiety Inventory for Children: Preliminary manual*. Palo Alto, CA: Consulting Psychiatric Press.
- Stark, K.D., Humphrey, L.L., Crook, K., & Lewis, K. (1990). Perceived family environments of depressed and anxious children: child's and maternal figure's perspectives. *Journal of Abnormal Child Psychology*, *18*, 527-547.
- Steketee, G.S. & Van Noppen, B. (2003). Family approaches to treatment for obsessive-compulsive disorder. *Journal of Family Psychotherapy*, *14*, 55-71.
- Stewart, S.E., Geller, D.A., Jenike, M., Pauls, D., Shaw, D., Mullin, B., et al. (2004). Long-term outcome of pediatric obsessive-compulsive disorder: A meta-analysis and qualitative review of the literature. *Acta Psychiatrica Scandinavica*, *110*, 4-13.
- Stobie, B. (2009). Working with families. In P.W. Waite & T. Williams (Eds.), *Obsessive Compulsive Disorder: Cognitive Behaviour Therapy with Children and Young People* (pp. 118-135). London: Routledge.
- Storch, E.A., Geffken, G.R., Merlo, L.J., Jacob, M.L., Murphy, T.K., Goodman, W.K. et al. (2007). Family Accommodation in Paediatric Obsessive-Compulsive Disorder. *Journal of Clinical Child and Adolescent Psychology*, *36*, 207-216.
- Swedo, S. E., Rapoport, J. L. (1989). Phenomenology and Differential Diagnosis of Obsessive-Compulsive Disorder in Children and Adolescents. In J.L. Rapoport

- (Eds.), *Obsessive-compulsive disorder in children and adolescents* (pp. 13-32).
Washington: American Psychiatric Press.
- Swedo, S. E., Rapoport, J. L., Leonard, H. & Lenane, M. (1989). Obsessive-compulsive disorder in children and adolescents. *Archives of General Psychiatry*, 46, 335-341.
- Tabachnick, B.G., & Fidell, L.S. (2007). *Using Multivariate Statistics* (5th ed.).
London: Pearson.
- Tantam, D. (2000). Psychological disorders in adolescents and adults with asperger syndrome. *Autism*, 4, 47-62.
- Thomsen, P.H. (1999). *From thought to obsessions: Obsessive-compulsive disorder in children and adolescents*. London: Jessica Kingsley.
- Thomsen, P.H., & Mikkelsen, H.U. (1995). Course of obsessive-compulsive disorder in children and adolescents: A prospective Danish study of 23 Danish cases. *Journal of the American Academy of Child and Adolescent Psychiatry*, 34, 1432-1440.
- Tilly, A.J. (1996). *An Introduction to Psychological Research and Statistics* (3rd ed.).
London: Pineapple Press.
- Tolin, D.F., Abramowitz, J.S., Brigidi, B.D., & Foa, E.B. (2003). Intolerance of uncertainty in obsessive-compulsive disorder. *Journal of Anxiety Disorders*, 17, 233-242.
- Torgerson, S. (1983). Genetic factors in anxiety disorders. *Archives of General Psychiatry*, 40, 1085–1089.
- Turgeon, L., O'Connor, K. P., Marchand, A., & Freeston, M. H. (2002). Recollections of parent–child relationships in patients with obsessive-compulsive disorder

and panic disorder with agoraphobia, *Acta Psychiatrica Scandinavica*, 105, 310–320.

- Turner, C. (2006). Cognitive-behavioural theory and therapy for obsessive-compulsive disorder in children and adolescents: Current status and future directions. *Clinical Psychology Review*, 26, 912-938.
- Valleni-Basile, L. A., Garrison, C. Z., Waller, J. L., Addy, C. L., McKeown, R. E., Jackson, K. L., & S. P., Cuffe. (1996). Incidence of Obsessive-Compulsive Disorder in a Community Sample of Young Adolescents. *Child and Adolescent Psychiatry*, 35 (7), 898-906.
- Valleni-Basile, L.A., Garrison, C. Z., Jackson, K.L., Waller, J.L., McKeown, R. E., Addy, C.L., et al. (1995). Family and psychosocial predictors of obsessive compulsive disorder in a community sample of young adolescents. *Journal of Child and Family Studies*, 4, 193-206.
- van Grootheest, D.S., Cath, D.C., Beekman, A.T., & Boomsma, D.I. (2005). Twin studies on obsessive-compulsive disorder: A review. *Twin Research and Human Genetics*, 8(5), 450-458.
- van der Bruggen, C. O., Stams, G. J., Bogels, S. M. (2008). Research review: the relation between child and parent anxiety and parental control: a meta-analytic review. *Journal of Child Psychology and Psychiatry*, 49(12), 1257-69.
- van Noppen, P., & Steketee, G. (2009). Testing a conceptual model of patient and family predictors of obsessive compulsive disorder (OCD) symptoms. *Behaviour Research and Therapy*, 47,18-25.
- van Oppen, P., De Haan, E., van Balkom, A. J. L. M., Spinhoven, P., Hoogduin, K., & van Dyck, R. (1995). Cognitive therapy and exposure in vivo in the

- treatment of obsessive compulsive disorder. *Behaviour Research and Therapy*, 33, 379–390.
- Warwick, H. M.C. & Salkovskis, P. (1985). Reassurance. *British Medical Journal*, 290, 1028.
- Waite, P. (2009). CBT with Adolescents. In P.W. Waite & T. Williams (Eds.), *Obsessive Compulsive Disorder: Cognitive Behaviour Therapy with Children and Young People* (pp. 97-117). London: Routledge.
- Waters, T.L., & Barrett, P.M. (2000). The role of the family in childhood obsessive-compulsive disorder. *Clinical Child and Family Psychology Review*, 3(3), 173-184.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54, 1063-1070.
- Watson, H.J., & Rees, C.S. (2008). Meta-analysis of randomised, controlled treatment trials for paediatric obsessive-compulsive disorder. *Journal of Child Psychology and Psychiatry*, 49, 489-498.
- Wells, A. (1997). *Cognitive therapy of anxiety disorders: A practice manual and conceptual guide*. Chichester: John Wiley & Sons.
- Wells, A. (2000). *Emotional disorders and metacognition*. Chichester: Wiley.
- Wells, A., & Matthews, G. (1994). *Attention and emotion: A clinical perspective*. Hove, UK: Erlbaum.
- Wells, A., & Matthews, G. (1996). Modelling cognition in emotional disorder: The S-REF model. *Behaviour Research and Therapy*, 34, 881-888.

- Wells, A. & Papageorgiou, C. (1998). Relationship between worry, obsessive-compulsive symptoms and meat-cognitive beliefs. *Behaviour Research and Therapy*, 36, 899-913.
- Wever, C., & Rey, J.M. (1997). Juvenile obsessive-compulsive disorder. *Australian and New Zealand Journal of Psychiatry*, 31, 105-113.
- Whitaker, A., Johnson, J., Shaffer, D., Rapoport, J.L., Kalikow, K., Walsh, B.T., et al., (1990). Uncommon troubles in young people: Prevalence estimates of selected psychiatric disorders in a nonreferred adolescent population. *Archives of General Psychiatry*, 47, 487-496.
- Williams, T. I., Salkovskis, P. M., Forrester, E. A., Allsopp, M. A. (2002). Changes in symptoms of OCD and appraisal of responsibility during cognitive behavioural treatment: A pilot study. *Behavioural and Cognitive Psychotherapy*, 30 (1), 69-78.
- Williams, T., & Waite, P. (2009). Introduction to obsessive compulsive disorder. In P. Waite & T. Williams (Eds.), *Obsessive compulsive disorder: Cognitive Behaviour Therapy with children and young people* (pp. 1-19). London: Routledge.
- Wilson, K.A. & Chambless, D.L. (1999). Inflated perceptions of responsibility and obsessive-compulsive symptoms. *Behaviour Research and Therapy*, 37, 325-335.
- Whittal, M. L., Thordarson, D. S., McLean, P. D. (2005). Treatment of obsessive-compulsive disorder: cognitive behavior therapy vs. exposure and response prevention. *Behavior Research Therapy*, 43(12), 1559-76.

- Yorulmaz, O., Altin, M., & Karanci, N. (2008). Further support for responsibility in different obsessive-compulsive symptoms in Turkish adolescents and young adults. *Behaviour and Cognitive Psychotherapy*, 36,605-617.
- Zimbardo, P.G. (1985). *Psychology and life*. Glenview, IL: Scott, Foresman.
- Zohar, A.H. (1999). The epidemiology of obsessive-compulsive disorder in children and adolescents. *Child and Adolescent Psychiatric Clinics of North America*, 8, 445-460.
- Zohar, A. H., Ratzoni, G., Pauls, D. L., Apter, A., Bleich, A., Kron, S., et al.,(1992). An epidemiological study of obsessive-compulsive disorder and related disorders in Israeli adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, 31, 1057-1061.
- Zucker, B.G., Craske, M.G., Barrios, V., & Holguin, M. (2002). Thought action fusion: can it be corrected? *Behaviour Research and Therapy*, 40, 653-664.

Appendix A

*Head Teacher Invitation Letter***School of Medicine, Health Policy and Practice**

Doctoral Programme in Clinical Psychology

**University of East Anglia**

Norwich NR4 7TJ England

Telephone
01603 593310

Title of Project: The effect of responsibility on children's moods, beliefs and behaviours.

Dear Head Teacher,

I am a trainee clinical psychologist on the Doctoral Programme in Clinical Psychology at the University of East Anglia. As part of the programme, I am required to undertake a research project for my thesis, which may result in a publication. I am writing to ask whether you would allow me to recruit some of the children in your school to participate in my research.

What is the Research About?

I am hoping to examine whether giving children different information about a sorting task affects their thoughts, feelings and behaviours. The aim is to help us understand more about the effect of responsibility on children.

I want to test these ideas with children aged between 9 and 11 years old and their mothers. This is why your school is being contacted. The reason why this particular study only includes mothers and their children is because previous research has shown that mothers and fathers play a very different role in a child's development. This means that it is important that we study the relationships of fathers and mothers with children separately.

What Would it Involve?

I need to recruit as many children as possible, which is why this research is being run in a number of different schools across the UK.

If you decide that you would like your school to take part, information sheets and consent forms would be sent home to children in your school aged between 9-11. Mothers who are happy to take part in the study will fill in an enclosed consent form and return it to the school. I will then call these mothers to arrange a convenient time to meet with them and their child at their home. I will give the children information about the study so they can decide whether they want to take part or not. If they are happy to take part I will ask the children to answer some questions about how they are feeling (their current mood). I will also ask mothers to complete an information sheet about their child. With the mother present in the room, each child will be randomly assigned to one of two groups.

Group 1: Children will be asked to complete a short task, sorting sweets into containers, based on whether they contain nuts or not. In order to increase the child's sense of responsibility,

children in this group will be told that the sweets they are sorting will be given to a group of children, one of whom has a nut allergy. They will be told that the experimenter will not check the sweets before they are given to the children and that it is therefore important that they sort the sweets as carefully as possible.

Group 2: Children will simply be asked to complete a short task, sorting sweets into containers, based on what flavour they are.

On completion of the task, all children will be fully debriefed. Full information about the consequence of the sorting task will be provided.

While they are sorting the sweets, I will take a video-recording of the child. Video-taping allows another trained researcher to check the reliability of the data. After the task, the child will be asked the same questions about their current mood.

Confidentiality and Consent

Data management will follow the Data Protection Act. Written records and the video tapes will be kept in a locked cupboard at the University of East Anglia. All the children and their mothers will be identified by unique identity numbers. I will not keep any identifiable information about children or their mothers. After the research has finished, the video tapes will be destroyed.

Time

The whole procedure, including the questions and short task, will take approximately 30 minutes.

Why Participate

This is currently an under researched area. It is an opportunity to get involved in research that could contribute to improve our understanding of psychological difficulties in children. Also, for every child that participates in the study, a £3 book voucher will be given to their school. I will also be happy send your school the results of the study once they have been collected.

What Next?

The project has received approval from the Faculty of Health Research Ethics committee based at the University of East Anglia. The information sheets and consent forms provided to the children and their mothers do not state the fact that the sorted sweets will not really go to group of children, one of whom has a nut allergy. This is to preserve the reliability of the findings. Thus, it is important that this element of the study is not shared with the children involved until after the task has been completed. In line with ethics guidelines, as stated earlier, both the children and their mothers will be debriefed at the end of the task. This means they will become fully aware of the nature of the task.

If you have any questions about the research, would like to arrange a meeting with me, or would like your students to be involved, please get in touch via the contact details above.

Thank you for taking the time to read this information.

Yours sincerely,

Melissa de Wolff
Trainee Clinical Psychologist

Appendix B

Information Regarding Participating Schools

All information was retrieved from the website of the Office for Standards in Education, Children's Service and Skills (OFSTED) on 1st July 2010.

School A

School A is a small primary school in a rural location. There are 88 pupils enrolled at the school, aged 4-10 years old. Very few are eligible for school meals and the number of pupils with special needs and/or disability is below average. OFSTED (2010) reported that few pupils come from minority ethnic families and most have English as their first language.

School B

School B is a small school located in a small village in Cambridgeshire. There are 134 pupils enrolled at the school, aged 4-9. The school has a good reputation in the area and is often oversubscribed. OFSTED (2009) reported that most pupils are White British. There are a small number of pupils that have English as their second language but all these children are bi-lingual. The percentage of pupils with special need and/or disabilities is average and very few are eligible for school meals.

School C

School C is a large primary school in a small village in Cambridgeshire. There are 323 children enrolled at the school, aged 4-11. OFSTED (2007) reported that a vast majority of the pupils there are White British and very few are in the early stages of learning English. There is a higher than average proportion of pupils for Traveller families attending the school. Attainment on entry is broadly average as is the proportion of children who have learning difficulties and/or disabilities. The percentage of pupils eligible for school meals is below average.

School D

School D is a very small school in a rural location. There are 61 pupils enrolled in the school, aged 4-11. OFSTED (2009) reported that 100% of the pupils are of White British heritage and the percentage of children eligible for free meals are below average. Attainment on entry is broadly average; however the proportion of pupils who have learning difficulties or disabilities is above average.

School E

School E is an average sized junior school located in a small town in Norfolk. There are 246 pupils enrolled in the school, aged 7-11. OFSTED (2007) reported that most of the pupils are from White British backgrounds and few have English as their second language. The percentage of children eligible for free school meals is below average. Attainment on entry is higher than average and the proportion of children who have learning difficulties and/or disabilities are average.

School F

School F is a large primary school situated in a large town in Cambridgeshire. There are 443 pupils enrolled in the school, aged 3-11. OFSTED (2009) reported that there is a wide variety of minority ethnic groups with 25 different languages spoken in the school. The percentage of pupils eligible for free meals is below average, as is the proportion of children who have learning difficulties and/or disabilities.

Appendix C

*Parent/Guardian Invitation Letter***School of Medicine, Health Policy and Practice**

Doctoral Programme in Clinical Psychology

**University of East Anglia**

Norwich NR4 7TJ England

Telephone
01603 593310

Date 05/01/2010

Dear Parent,

Title of Project: The effect of responsibility on children's moods, beliefs and behaviours.

We are writing to let you know about a research project we are carrying out and to invite you and your child to take part. This has been approved by your head teacher. The aim of this project is to test the short term effect of giving children different levels of responsibility for a task. In previous research children have enjoyed taking part.

One of the aims of this study is to investigate reassurance seeking behaviours. For this reason we ask for the child's mother to be present during the task. The reason why this particular study only includes mothers and their children is because previous research has shown that mothers and fathers play a very different role in a child's development. This means that it is important that we study the relationships of fathers and mothers with children separately.

Enclosed with this letter is some information about the research project. I would be grateful if you would take the time to read this, discuss it with your child and think about taking part. If you have any questions you can contact me on the number above.

If you would like your child to take part, please sign the consent form and return this to the school office in the envelope provided. For every child who takes part in the research, a £3 book voucher will be donated to their school.

With best wishes,

Melissa de Wolff
Trainee Clinical Psychologist

Appendix D

Mother's Information Letter

School of Medicine, Health Policy and Practice
 Doctoral Programme in Clinical Psychology



Norwich NR4 7TJ England

Telephone
 01603 593310

Fax
 01603 593604

Title of Project: The effect of responsibility on children's mood, beliefs and behaviour.

Mother's Information Sheet

I would like to invite you and your child to take part in a research project. Before you decide if you would like to participate, you need to know why I am doing this research and what it will involve. Please take time to read this information carefully to help you decide whether or not you and your child would like to take part. Feel free to call me if you have any questions, or if you would like more information. Thank you for reading this.

What is this project about?

I am hoping to examine whether giving children different information about a sorting task affects their thoughts, feelings and behaviours. The aim is to help us understand more about the effect of responsibility in children.

I want to test these ideas with children aged between 9 and 11 years old, who have *not* been identified as having psychological difficulties. This is why your child has been invited to take part.

How will my child and I be involved?

If you decide that you would like your child to take part, this is what will happen:

1. You will fill in the enclosed consent form and return this to the school in the envelope provided.
2. I will call you to arrange a convenient time to meet with you and your child at your home. During this telephone call you can ask me as many questions as you like.

3. When I visit your child at your home, I will give them information about the study so they can decide what to do.
4. If they are happy to take part I will ask them to answer some questions about how they are feeling (their current mood).
5. I will also ask you to complete an information sheet about your child.
6. The procedure will take place at your home. With you present in the room, your child will be assigned to one of two groups. In one group children will be asked to complete a short task, sorting sweets into containers, based on whether they contain nuts or not.
7. In the other group children will be asked to complete a short task, sorting sweets into containers, based on what flavour they are. The task will take about 10 minutes to complete. At this stage, it is not possible to know which group your child would be in, as it will be decided on a random basis.
8. During the task it is important that you do not become too involved in the task but respond to your child in the way you normally would.
9. While they are sorting the sweets, I will take a video-recording of your child. I will time how long they take and count the number of times they check the sweets, hesitate, change their mind or ask reassurance from you. The video tape means that another person can check the reliability of the data. After we have recorded the data the tapes will be destroyed.
10. After the task, your child will be asked the same questions about their current mood.
11. The whole procedure, including the questions and short task will take approximately half an hour.

Are there any risks to my child?

It is very unlikely that the tasks will cause your child any upset. However, if your child did become upset in any way, the task would be stopped immediately. You will be able to comfort your child and distract them with a different activity. If your child seems to be experiencing higher than usual levels of anxiety, we can discuss the potential reasons for this together.

What are the potential benefits?

There will be no personal benefits for you or your child. However, this is an opportunity to get involved in research that could contribute to improve our understanding of psychological difficulties in children. For every child that participates in the study, a £3 book voucher will be given to their school.

Will it affect my child's care or education?

No, your child's care or education will not be affected in any way. This research is being carried out with the permission and co-operation of your child's school.

Can I change my mind?

Yes. It is up to you and your child to decide whether or not to take part. You are both free to withdraw from the research at any time, without giving a reason. Your decisions about this will not affect the standard of care your child will receive.

Who will have access to the results?

Data management will follow the Data Protection Act. Written records and the video tapes will be kept in a locked cupboard at the University of East Anglia. All the children and their mothers will be identified by unique identity numbers. I will not keep any information about you or your child that could identify you to someone else. After the research has finished, the video tapes will be destroyed.

Who has reviewed the study?

The Institute of Health Ethics Committee, at the University of East Anglia has reviewed and approved this research project.

Who do I speak to if problems arise?

If there is a problem please let me know.

You can contact me at the following address:

Melissa de Wolff (Trainee Clinical Psychologist)
School of Medicine, Health Policy and Practice
University of East Anglia
NORWICH
NR4 7TJ Tel: 01603 593310

OK I want to take part – what do I do next?

You need to fill in the enclosed consent form and return it to the school office in the envelope provided. Your child can only take part if you return this form to the school office. I will call you to arrange a convenient time to meet with you and your child at home.

Appendix E

Mother Consent Form

School of Medicine, Health Policy and Practice
 Doctoral Programme in Clinical Psychology



Norwich NR4 7TJ England

Telephone
 01603 593310

Fax
 01603 593604

Participant Identification Number:

MOTHERS' CONSENT FORM

Title of Project: The effect of responsibility on children's mood, beliefs and behaviour.

Name of Researcher: Melissa de Wolff

Please initial box

1. I confirm that I have read and understood the information sheet for the above study.
2. I understand that my participation and my child's participation is voluntary and that I am free to withdraw my child and myself at any time without giving any reason and without our medical care or legal rights being affected.
3. I understand that the research meeting will be recorded on video tape and that neither my child's name or my own will not be identified on the tape. Tapes will be destroyed at the end of the project.
4. I agree that both my child and myself will take part in the above study.

Please complete the following:

_____ Name of Child	_____ Child's Date of Birth	_____ Name of School
_____ Name of Mother	_____ Date	_____ Signature
_____ Home Telephone Number	_____ Mobile Number	_____ Work Tel Number

Thank you for your help.

Please return this consent form to the school office in the envelope provided.

Office use only

_____ Name of Researcher	_____ Date	_____ Signature
-----------------------------	---------------	--------------------

Appendix F

Demographic Questionnaire for Mother.

School of Medicine, Health Policy and Practice
 Doctoral Programme in Clinical Psychology



Norwich NR4 7TJ England

Telephone
 01603 593310

Fax
 01603 593604

Participant Identification Number:

DEMOGRAPHIC QUESTIONNAIRE

Title of Project: The effect of responsibility on children's mood, beliefs and behaviour.

Name of Researcher: Melissa de Wolff

Please complete the following information about your child by circling the appropriate response.

1. Is your child a boy or a girl? Boy / Girl
2. How old is your child? _____ years
3. How would you describe your child's ethnic group? (Please circle)

White	Mixed	Asian or Asian British	Black or Black British	Chinese or other ethnic group
British	White & Black Caribbean	Indian	Caribbean	Chinese
Irish	White & Black African	Pakistani	African	Other Ethnic Group
Other White	White & Asian	Bangladeshi	Other Black	

Other Mixed Other Asian

4. Is your child colour blind? Yes / No / Don't Know
(We ask this as the task involves sorting things based on their colour)

5. Does your child have any allergies? Yes / No
(We are interested in whether this will impact on the sorting task)

If yes, what are they allergic to? _____

6. Does anyone in your family have any allergies? Yes / No

If yes, what are they allergic to? _____

Thank you for your help.

Appendix G

Faculty of Health Ethics Committee Approval

The following page contains the ethical approval letter from the Institute of Health Committee, UEA.

Melissa De Wolff
93B Vinery Road
Cambridge
CB1 3DW

Research Office, Room 1.09
Chancellors Drive Annex
University of East Anglia
Norwich NR4 7TJ
United Kingdom

Email: Jane.Carter@uea.ac.uk
Tel: +44 (0) 1603 591023
Fax: +44 (0) 1603 591132

Web: www.uea.ac.uk
Web: <http://www.uea.ac.uk>

28 September 2010

Dear Melissa

An Experimental Manipulation of Responsibility in Children: An investigation into the effects of inflated responsibility on reassurance seeking, checking behaviours and anxiety – 2009024

The amendments to your above proposal have now been considered by the Chair of the FOH Ethics Committee and we can now confirm that your proposal has now been approved.

Please can you ensure that any amendments to either the protocol or documents submitted are notified to us in advance and also that any adverse events that occur during your project are reported to the committee. Please could you also arrange to send us a report once your project is completed.

The committee would like to wish you good luck in your project.

Yours sincerely,



Dr. Jane Carter

Appendix H

Child Information Sheet

Child's Information Sheet

I am doing a research project and I would like to invite you to take part. Before you decide I would like you to read the following information.

What is research? Why is this project being done?

Research tries to find out the answers to questions. This project is to see if giving different groups of children different information about a task will affect how they feel.

Why have I been asked to take part?

This project is interested in children aged between 9 and 11 years old, which is why you have been asked to take part.

What would I have to do?

If you and your mother decide that you would like to take part, this is what will happen:

- I will come and see you at your home.
- I will ask you some questions about your feelings.
- You will complete a task, which involves sorting sweets, which is not difficult. The task will take about 10 minutes for you to finish.
- Your mum will also be in the room during this task.
- During the task, you will be video-recorded. This is to check that I am recording things properly. The video tapes will be destroyed after I have finished with them.
- I will ask you some more questions about your feelings after the task.

Do I have to take part?

You do not have to take part in this project and can change your mind at any time, without giving reason.

Who will know what I said?

Only people involved in this project will know what you say. If you tell me something that is worrying you then I might share it with your mother.

If you have any more questions about this project then you can always get your Mum to give me a call and I will do my best to answer them.

Appendix I

Child Assent Form

School of Medicine, Health Policy and Practice
 Doctoral Programme in Clinical Psychology



Norwich NR4 7TJ England

Telephone
 01603 593310

Fax
 01603 593604

Participant Identification Number:

CHILDREN'S ASSENT FORM

Title of Project: The effect of responsibility on children's mood, beliefs and behaviour.

Name of Researcher: Melissa de Wolff

Please circle 'Yes' if you agree with the statements:

- | | |
|---|----------|
| Have you read (or had read to you) about this project? | Yes / No |
| Do you understand what this project is about? | Yes / No |
| Have you asked all the questions you want? | Yes / No |
| Have you had your questions answered in a way you understand? | Yes / No |
| Do you understand it is OK to stop taking part at any time? | Yes / No |
| Are you happy to take part? | Yes / No |

If you do want to take part, please write your name and today's date

Name of child _____

Date _____

Researcher Name Melissa de Wolff

Signature _____

Date _____

Thank you for your help

Appendix J

The Spence Children's Anxiety Scale (SCAS; Spence, 1998)

SPENCE CHILDREN'S ANXIETY SCALE

Your Name: _____

Date: _____

PLEASE TICK THE BOX UNDER THE WORD THAT SHOWS HOW OFTEN EACH OF THESE THINGS HAPPEN TO YOU. THERE ARE NO RIGHT OR WRONG ANSWERS.

Never Sometimes Often Always

1. I worry about things
2. I am scared of the dark
3. When I have a problem, I get a funny feeling in my stomach
4. I feel afraid
5. I would feel afraid of being on my own at home
6. I feel scared when I have to take a test
7. I feel afraid if I have to use public toilets or bathrooms
8. I worry about being away from my parents
9. I feel afraid that I will make a fool of myself in front of people
10. I worry that I will do badly at my school work
11. I am popular amongst other kids my own age
12. I worry that something awful will happen to someone in my family
13. I suddenly feel as if I can't breathe when there is no reason for this
14. I have to keep checking that I have done things right
(like the switch is off, or the door is locked)
15. I feel scared if I have to sleep on my own
16. I have trouble going to school in the mornings because I feel nervous or afraid
17. I am good at sports
18. I am scared of dogs
19. I can't seem to get bad or silly thoughts out of my head
20. When I have a problem, my heart beats really fast
21. I suddenly start to tremble or shake when there is no reason for this
22. I worry that something bad will happen to me
23. I am scared of going to the doctors or dentists
24. When I have a problem, I feel shaky

25. I am scared of being in high places or lifts (elevators)
26. I am a good person
27. I have to think of special thoughts to stop bad things from happening (like numbers or words)
28. I feel scared if I have to travel in the car, or on a bus or a train
29. I worry what other people think of me
30. I am afraid of being in crowded places (like shoppingcentres, the movies, buses, busy playgrounds)
31. I feel happy
32. All of a sudden I feel really scared for no reason at all
33. I am scared of insects or spiders
34. I suddenly become dizzy or faint when there is no reason for this
35. I feel afraid if I have to talk in front of my class
36. My heart suddenly starts to beat too quickly for no reason
37. I worry that I will suddenly get a scared feeling when there is nothing to be afraid of
38. I like myself
39. I am afraid of being in small closed places, like tunnels or small rooms
40. I have to do some things over and over again (like washing my hands, cleaning or putting things in a certain order)
41. I get bothered by bad or silly thoughts or pictures in my mind
42. I have to do some things in just the right way to stop bad things happening
43. I am proud of my school work
44. I would feel scared if I had to stay away from home overnight
45. Is there something else that you are really afraid of? YES NO

Please write down what it is _____

How often are you afraid of this thing? Never Sometimes Often Always

Appendix K

Children's Responsibility Attitudes Scale (CRAS; Salkovskis & Williams, 2004)

Children's Responsibility Attitude Scale

This questionnaire lists beliefs which people sometimes have. Read each statement carefully and decide how much you agree or disagree with it.

For each of the beliefs, put a circle round the words which **BEST DESCRIBE HOW YOU THINK**. Choose only one answer for each attitude. Because people are different, there are no right or wrong answers.

To decide whether a given attitude is like your way of looking at things, simply keep in mind what you are like **MOST OF THE TIME**.

1. I often feel responsible for things that go wrong.

TOTALLY AGREE	AGREE VERY MUCH	AGREE SLIGHTLY	NEUTRAL	DISAGREE SLIGHTLY	DISAGREE VERY MUCH	TOTALLY DISAGREE
------------------	--------------------	-------------------	---------	----------------------	-----------------------	---------------------

2. If I think bad things, this is as bad as doing bad things.

TOTALLY AGREE	AGREE VERY MUCH	AGREE SLIGHTLY	NEUTRAL	DISAGREE SLIGHTLY	DISAGREE VERY MUCH	TOTALLY DISAGREE
------------------	--------------------	-------------------	---------	----------------------	-----------------------	---------------------

3. I worry a lot about what might happen because of things that I do or don't do.

TOTALLY AGREE	AGREE VERY MUCH	AGREE SLIGHTLY	NEUTRAL	DISAGREE SLIGHTLY	DISAGREE VERY MUCH	TOTALLY DISAGREE
------------------	--------------------	-------------------	---------	----------------------	-----------------------	---------------------

4. Not stopping bad things happening is as bad as making them happen.

TOTALLY AGREE	AGREE VERY MUCH	AGREE SLIGHTLY	NEUTRAL	DISAGREE SLIGHTLY	DISAGREE VERY MUCH	TOTALLY DISAGREE
------------------	--------------------	-------------------	---------	----------------------	-----------------------	---------------------

5. I should always try to stop harm happening, when I have thought it might.

TOTALLY AGREE	AGREE VERY MUCH	AGREE SLIGHTLY	NEUTRAL	DISAGREE SLIGHTLY	DISAGREE VERY MUCH	TOTALLY DISAGREE
------------------	--------------------	-------------------	---------	----------------------	-----------------------	---------------------

6. I must always think through what might happen as a result of even the smallest things I do.

TOTALLY AGREE	AGREE VERY MUCH	AGREE SLIGHTLY	NEUTRAL	DISAGREE SLIGHTLY	DISAGREE VERY MUCH	TOTALLY DISAGREE
------------------	--------------------	-------------------	---------	----------------------	-----------------------	---------------------

7. I often take responsibility for things which other people don't think are my fault.

TOTALLY AGREE	AGREE VERY MUCH	AGREE SLIGHTLY	NEUTRAL	DISAGREE SLIGHTLY	DISAGREE VERY MUCH	TOTALLY DISAGREE
------------------	--------------------	-------------------	---------	----------------------	-----------------------	---------------------

8. Everything I do can cause serious problems.

TOTALLY AGREE	AGREE VERY MUCH	AGREE SLIGHTLY	NEUTRAL	DISAGREE SLIGHTLY	DISAGREE VERY MUCH	TOTALLY DISAGREE
------------------	--------------------	-------------------	---------	----------------------	-----------------------	---------------------

9. I often nearly cause harm

TOTALLY AGREE	AGREE VERY MUCH	AGREE SLIGHTLY	NEUTRAL	DISAGREE SLIGHTLY	DISAGREE VERY MUCH	TOTALLY DISAGREE
------------------	--------------------	-------------------	---------	----------------------	-----------------------	---------------------

10. I must protect others from harm.

TOTALLY AGREE	AGREE VERY MUCH	AGREE SLIGHTLY	NEUTRAL	DISAGREE SLIGHTLY	DISAGREE VERY MUCH	TOTALLY DISAGREE
------------------	--------------------	-------------------	---------	----------------------	-----------------------	---------------------

11. I should never cause even smallest amount of harm to others

TOTALLY AGREE	AGREE VERY MUCH	AGREE SLIGHTLY	NEUTRAL	DISAGREE SLIGHTLY	DISAGREE VERY MUCH	TOTALLY DISAGREE
------------------	--------------------	-------------------	---------	----------------------	-----------------------	---------------------

12. I will be condemned for my actions.

TOTALLY AGREE	AGREE VERY MUCH	AGREE SLIGHTLY	NEUTRAL	DISAGREE SLIGHTLY	DISAGREE VERY MUCH	TOTALLY DISAGREE
------------------	--------------------	-------------------	---------	----------------------	-----------------------	---------------------

13. I must try to stop bad things from happening, if there is any chance that what I do might make a difference.

TOTALLY AGREE	AGREE VERY MUCH	AGREE SLIGHTLY	NEUTRAL	DISAGREE SLIGHTLY	DISAGREE VERY MUCH	TOTALLY DISAGREE
------------------	--------------------	-------------------	---------	----------------------	-----------------------	---------------------

14. Doing nothing when bad things might happen is the same as making it happen.

TOTALLY AGREE	AGREE VERY MUCH	AGREE SLIGHTLY	NEUTRAL	DISAGREE SLIGHTLY	DISAGREE VERY MUCH	TOTALLY DISAGREE
------------------	--------------------	-------------------	---------	----------------------	-----------------------	---------------------

15. You should never be careless, when what you do might affect someone else.

TOTALLY AGREE	AGREE VERY MUCH	AGREE SLIGHTLY	NEUTRAL	DISAGREE SLIGHTLY	DISAGREE VERY MUCH	TOTALLY DISAGREE
------------------	--------------------	-------------------	---------	----------------------	-----------------------	---------------------

16. If I do nothing that can cause as much harm as doing something bad.

TOTALLY AGREE	AGREE VERY MUCH	AGREE SLIGHTLY	NEUTRAL	DISAGREE SLIGHTLY	DISAGREE VERY MUCH	TOTALLY DISAGREE
------------------	--------------------	-------------------	---------	----------------------	-----------------------	---------------------

17. I can't forgive myself, once I think it is possible that I have caused harm.

TOTALLY AGREE	AGREE VERY MUCH	AGREE SLIGHTLY	NEUTRAL	DISAGREE SLIGHTLY	DISAGREE VERY MUCH	TOTALLY DISAGREE
------------------	--------------------	-------------------	---------	----------------------	-----------------------	---------------------

18. Lots of things I have done, have been meant to prevent harm to others.

TOTALLY AGREE	AGREE VERY MUCH	AGREE SLIGHTLY	NEUTRAL	DISAGREE SLIGHTLY	DISAGREE VERY MUCH	TOTALLY DISAGREE
------------------	--------------------	-------------------	---------	----------------------	-----------------------	---------------------

19. If I am careful enough then I can prevent any harmful accidents.

TOTALLY AGREE	AGREE VERY MUCH	AGREE SLIGHTLY	NEUTRAL	DISAGREE SLIGHTLY	DISAGREE VERY MUCH	TOTALLY DISAGREE
------------------	--------------------	-------------------	---------	----------------------	-----------------------	---------------------

20. I often think that bad things will happen if I am not careful enough.

TOTALLY AGREE	AGREE VERY MUCH	AGREE SLIGHTLY	NEUTRAL	DISAGREE SLIGHTLY	DISAGREE VERY MUCH	TOTALLY DISAGREE
------------------	--------------------	-------------------	---------	----------------------	-----------------------	---------------------

Appendix L

The State Trait Anxiety Inventory for Children (STAIC; Spielberger, Edwards, Lushene, Montuori, & Platzek, 1973)

DIRECTIONS: a number of statements which boys and girls use to describe themselves are given below. Read each statement carefully and decide how you feel *right now*. Then put an X in the box in front of the word or phrase which best describes how you feel. There are no right or wrong answers. Do not spend too much time on any one statement. Remember, find the word or phrase which best describes how you feel right now, *at this very moment*.

- | | | | |
|------------|--|-------------------------------------|---|
| 1. I feel | <input type="checkbox"/> very calm | <input type="checkbox"/> calm | <input type="checkbox"/> not calm |
| 2. I feel | <input type="checkbox"/> very upset | <input type="checkbox"/> upset | <input type="checkbox"/> not upset |
| 3. I feel | <input type="checkbox"/> very pleasant | <input type="checkbox"/> pleasant | <input type="checkbox"/> not pleasant |
| 4. I feel | <input type="checkbox"/> very nervous | <input type="checkbox"/> nervous | <input type="checkbox"/> not nervous |
| 5. I feel | <input type="checkbox"/> very jittery | <input type="checkbox"/> jittery | <input type="checkbox"/> not jittery |
| 6. I feel | <input type="checkbox"/> very rested | <input type="checkbox"/> rested | <input type="checkbox"/> not rested |
| 7. I feel | <input type="checkbox"/> very scared | <input type="checkbox"/> scared | <input type="checkbox"/> not scared |
| 8. I feel | <input type="checkbox"/> very relaxed | <input type="checkbox"/> relaxed | <input type="checkbox"/> not relaxed |
| 9. I feel | <input type="checkbox"/> very worried | <input type="checkbox"/> worried | <input type="checkbox"/> not worried |
| 10. I feel | <input type="checkbox"/> very satisfied | <input type="checkbox"/> satisfied | <input type="checkbox"/> not satisfied |
| 11. I feel | <input type="checkbox"/> very frightened | <input type="checkbox"/> frightened | <input type="checkbox"/> not frightened |
| 12. I feel | <input type="checkbox"/> very happy | <input type="checkbox"/> happy | <input type="checkbox"/> not happy |
| 13. I feel | <input type="checkbox"/> very sure | <input type="checkbox"/> sure | <input type="checkbox"/> not sure |
| 14. I feel | <input type="checkbox"/> very good | <input type="checkbox"/> good | <input type="checkbox"/> not good |
| 15. I feel | <input type="checkbox"/> very troubled | <input type="checkbox"/> troubled | <input type="checkbox"/> not troubled |
| 16. I feel | <input type="checkbox"/> very bothered | <input type="checkbox"/> bothered | <input type="checkbox"/> not bothered |
| 17. I feel | <input type="checkbox"/> very nice | <input type="checkbox"/> nice | <input type="checkbox"/> not nice |
| 18. I feel | <input type="checkbox"/> very terrified | <input type="checkbox"/> terrified | <input type="checkbox"/> not terrified |
| 19. I feel | <input type="checkbox"/> very mixed-up | <input type="checkbox"/> mixed-up | <input type="checkbox"/> not mixed up |
| 20. I feel | <input type="checkbox"/> very cheerful | <input type="checkbox"/> cheerful | <input type="checkbox"/> not cheerful |

Appendix M

Baseline and post-task measures of inflated responsibility

I am interested in how you feel and what you think about the task you are about to do. Please read the following statements carefully and circle the number that shows how much you agree or disagree with the statements.

- 0** **Completely disagree**
- 1** **Mostly disagree**
- 2** **Neither agree or disagree**
- 3** **Mostly agree**
- 4** **Completely agree**

	Completely disagree	Mostly disagree	Neither agree or disagree	Mostly agree	Completely agree
It's likely that something bad will happen	0	1	2	3	4
Something really bad will happen now	0	1	2	3	4
It will be my fault if bad things happen	0	1	2	3	4
Other people are likely to be harmed in some way	0	1	2	3	4
Something really bad will happen to other people	0	1	2	3	4
I could cause something bad to happen to others	0	1	2	3	4

I am interested in how you feel and what you think about the task you just completed. Please read the following statements carefully and circle the number that shows how much you agree or disagree with the statements.

- 0 Completely disagree**
- 1 Mostly disagree**
- 2 Neither agree or disagree**
- 3 Mostly agree**
- 4 Completely agree**

	Completely disagree	Mostly disagree	Neither agree or disagree	Mostly agree	Completely agree
It's likely that something bad will happen	0	1	2	3	4
Something really bad will happen now	0	1	2	3	4
It will be my fault if bad things happen	0	1	2	3	4
Other people are likely to be harmed in some way	0	1	2	3	4
Something really bad will happen to other people	0	1	2	3	4
I could cause something bad to happen to others	0	1	2	3	4

Appendix N

Experimental task information (Adapted from Reeves et al., 2010)

1. Tell the child:

“I would like you to help me with some work that I am doing, which looks at how children of different ages think and behave. It is not a test and there are no right and wrong answers. I won’t be telling your teachers or your mum and dad about the answers you give, they are just for my project.”

2. Give the child the information sheet to read and if they are happy to participate, give them the assent form to complete.

3. Tell the child:

“Before we start the task, I would like you to fill in some questionnaires about different feelings you might have. There are no right or wrong answers. We can fill these in together if you would like.”

Give the child the SCAS, the RAS, the state form of the STAIC, and the measure of perceptions of responsibility, probability of harm and severity of harm.

4. Tell the child:

“We are now ready to start the task. Before we start I will read you some instructions. Firstly, do you know what a nut allergy is? (Child gives answer). I have some information to read to you about nut allergies:

At least 1 in 50 children are allergic to nuts. If a child has a nut allergy and they eat a nut or even touch one, they will have an allergic reaction. This means that they will have a reaction such as sickness, swelling of the mouth, difficulties in swallowing, or they might collapse. It is very important that children with nut allergies do not eat or come into contact with nuts.

5. Ask the child:

“Do you know anyone who has a nut allergy? Have you ever seen anyone having an allergic reaction to either nuts or anything else?”

6. Tell the child:

“I will now read you the instructions for the task. It is not a test and you can ask me as many questions as you like.

Task instructions will then be given to the child depending on whether they are in the high responsibility group. See below:

Information Given to Children in the Increased Responsibility Group

“Here are 120 sweets that have got all mixed up. The blue and green sweets contain nuts. The orange and gold sweets might contain nuts, as they were made in a factory where there are nuts. The brown and white sweets do not contain any nuts. Later on I will be giving the sweets to some children where one child has a nut allergy. Therefore I would like you to sort the sweets based on whether they have nuts in them or not.

I would like you to sort the sweets, by putting them into these bowls. Put all the sweets with nuts (blue and green sweets) into this bowl, all the sweets that might contain nuts (orange and gold sweets) into this bowl and all the sweets without nuts (brown and white sweets) into this bowl. I have written it out on this paper to remind you. Take one sweet at a time without looking in the bag. Work as quickly and as carefully as you can.

If you are not sure, you can check the bowls and change the sweets as many times as you want. No one else will be able to check how you have sorted the sweets before giving them to the children. Therefore it is important that you sort the sweets as carefully as possible”.

Information Given to Children in the Control Group

“Here are 120 sweets that have got all mixed up. The blue and green sweets are mint flavour, the orange and gold sweets are fruit flavour, the brown and white sweets are chocolate flavour. I would like you to sort the sweets based on what flavour they are.

I would like you to sort the sweets, by putting them into these bowls. Put all the mint flavoured sweets (blue and green sweets) into this bowl, all the fruit flavoured sweets (orange and gold sweets) into this bowl and all the chocolate flavoured sweets (brown and white sweets) into this bowl. I have written it out on this paper to remind you. Take one sweet at a time without looking in the bag. Work as quickly and as carefully as you can.

If you are not sure, you can check the bowls and change the sweets as many times as you want”.

7. Ask the child:

“Are you clear what you need to do? Can you explain to me what you need to do, so that I can check I have been clear? Do you have any questions? Tell me when you have finished the task.”

9. After the task has finished, ask the child:

“Do you want to change any of the sweets into other bowls?”

10. After the task, ask the child to complete the STAIC and the measure of perceptions of responsibility, probability of harm and severity of harm:

“Before we finish, I would like you to fill in 2 questionnaires that you saw earlier.”

11. Debriefing – Tell the child that the task is now finished. Ask whether they found the task easy or hard, or whether it made them think about anything in particular. Inform the child that the researcher will not be giving the sweets to any children later and the study was just interested in how giving them this information made them feel and whether it changed how they did the task. Ask if they have any questions and finally thank the child for taking part.