

Impact of inflated responsibility and maternal reassurance on child behaviour

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The impact of inflated responsibility and maternal reassurance
on child behaviour.

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Abstract

Background: Cognitive models of OCD propose that cognitions such as ‘inflated responsibility’ have a causal role in the persistence of OCD symptoms. Research is mounting to support the applicability of these models to children, although the models do not take into account family context. Parents are often involved in accommodating their child’s OCD through the provision of reassurance. This study aimed to investigate the relationship between maternal inflated responsibility and maternal reassurance and secondly, the relationship between maternal reassurance and child OCD-behaviours.

Method: Sixty children and their mothers were recruited from schools and the children completed a sweet sorting task in which their responsibility was inflated. Maternal responsibility was manipulated across three conditions; ‘high inflation’, ‘low inflation’ and ‘control’ (where mothers were not present during the sorting task). Child and maternal behaviours were examined from video-recordings of the task. It was hypothesised that mothers whose responsibility was inflated would offer more reassurance to their children and furthermore, their children would seek more reassurance and engage in more OCD-type behaviours.

Results: The findings did not support the hypotheses as the manipulation did not have a significant effect on maternal reassurance giving. Contrary to the hypothesis, there was a trend for mothers in the ‘low’ group to offer more reassurance to their child than mothers in the ‘high’ group. No differences were found between groups for child behaviours. Children in the control group took significantly longer to complete the task than the others.

Conclusions: The study was not able to provide support for a causal role of maternal reassurance in relation to their child’s behaviour. Limitations of the manipulation that may account for these findings are identified and suggestions are made for methodological improvements. Successfully demonstrating causal mechanisms between parental behaviours and child OCD-behaviours would have significant implications for the prevention and treatment of childhood OCD.

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CHAPTER ONE

1 Introduction

1.1 Chapter Overview

Obsessive compulsive disorder (OCD) is a debilitating mental health disorder characterised by distressing obsessions and compulsions experienced by both adults and children. The time consuming and distressing nature of OCD symptoms can result in pervasive negative consequences for sufferers' lives, including their social and occupational functioning (Piacentini, Bergman, Keller & McCracken, 2003). Psychological therapy is currently the most effective treatment for OCD (NICE, 2006) and is based on cognitive behavioural conceptualisations of the disorder. Cognitive models of OCD focus on how intrusive thoughts are appraised and the consequent behaviours these appraisals elicit. The inflated responsibility model of OCD (Salkovskis, 1985, 1989, 1999) proposes that the appraisal of intrusive thoughts as indicative of personal responsibility for harm to themselves or others is central to OCD and is supported by evidence from both adult and child studies. Experimental studies have shown an increase in OCD behaviours such as checking and reassurance seeking following an induction of inflated responsibility (Ladouceur et al., 1995; Lopatka & Rachman, 1995; Reeves, Reynolds, Wilson & Coker, 2010), providing evidence for a causal role of inflated responsibility in OCD. The model also highlights the role of early experiences and the impact of parenting on the development of inflated responsibility beliefs (Salkovskis, Shafran, Rachman, & Freeston, 1999).

Family accommodation of OCD symptoms such as the provision of reassurance may be significant in the maintenance of the disorder as it brings about a short term reduction in anxiety that is reinforcing (Allsopp & Verduyn, 1990). Parrish and Radomsky (2006) suggest that the provision of reassurance itself may influence the onset of OCD symptoms because it creates

ambiguity and doubt leading to an increased urge to check and seek reassurance. This suggests a causal relationship between parental behaviours such as reassurance giving and child OCD behaviours such as checking and reassurance seeking. This relationship has not yet been demonstrated successfully. Advancing our knowledge of cognitive models applied to childhood OCD and the role of parental beliefs and behaviours in the development and maintenance of OCD provides important evidence about the aetiology and course of OCD and has significant potential clinical implications.

This study aims to investigate the relationship between inflated responsibility, maternal reassurance giving and child behaviours by extending an experimental paradigm devised by Reeves et al. (2010). Children whose responsibility has been inflated will complete a sorting task and their mothers will either have their responsibility inflated (high responsibility), have no inflation of responsibility (low responsibility) or will not be present whilst their child completes the task (control group). The impact of maternal responsibility and reassurance will be examined on a range of child behaviours.

The chapter begins with an overview of the clinical presentation of OCD including a brief consideration of the prevalence, prognosis and co-morbidity of the disorder. Following this, the main theoretical frameworks of OCD are outlined with particular emphasis on cognitive models. Associated treatments are also briefly outlined. The applicability of cognitive models of OCD to children and adolescents is examined through a systematic literature search. The review focuses on evidence for thought-action fusion, meta-cognitive and inflated responsibility models. The remaining section explores the developmental and family context in relation to OCD, including the role of parents in the development of cognitions central to OCD. This is followed by a consideration of family accommodation in OCD and in particular, the role of reassurance

seeking and giving in the onset and maintenance of OCD symptoms. Finally, the rationale for the current study is outlined and the research hypotheses are stated.

1.2 OCD in Childhood

1.2.1 Definitions and Characteristics of OCD in Childhood

Obsessive Compulsive Disorder is recognised by the DSM-IV-TR (American Psychiatric Association [APA], 2000) as a mental health disorder diagnosable in adults and children. The disorder is characterised by frequent obsessions and/or compulsions that are both time consuming (more than 1 hour a day) and distressing (DSM-IV-TR; APA, 2000). Obsessions are recurrent thoughts or images that are experienced as intrusive and unwanted by the individual, causing significant anxiety and distress. Obsessive thoughts are not simply excessive worries about real-life problems (DSM-IV-TR, 2000). Compulsions are repetitive behaviours or mental actions carried out to reduce the anxiety and distress generated by the initial obsessional thought. Whilst compulsions serve this function they are not connected in any realistic way to the prevention of the feared outcome. Individuals may feel distressed whilst carrying out compulsive behaviours and feel frustrated by the amount of time and effort they take up. Compulsions may have to be carried out according to certain rules governing their frequency or duration which can cause individuals distress and frustration if not followed correctly (Wahl, Salkovskis & Cotter, 2008).

The content of children's obsessions and compulsions is idiosyncratic although there appear to be several themes. The most commonly reported obsessions in childhood are thought to be fears of contamination and fears of 'something awful' happening to loved ones (Hanna, 1995; Swedo, Rapoport, Leonard & Lenane, 1989). Commonly reported compulsions during

childhood include checking, washing, repeating, ordering and counting (Franklin et al., 1998; Thomsen, 1999).

Whilst child sufferers typically report experiencing both obsessions and compulsions (Hanna, 1995), the presence of either obsessions or compulsions is sufficient for diagnosis (DSM-IV-TR; APA, 2000). Some young people report compulsions only and do not appear aware of any associated obsessive thoughts (Shafran, 2001). This may be a reflection of young children's cognitive development, in particular their meta-cognitive abilities. Children may struggle to identify and express their thought processes and may not be aware of, or able to communicate obsessional thoughts (Swedo & Rapoport, 1989; Wever & Rey, 1997). Meta-cognitive development can also impact upon children's understanding and insight into their OCD. Younger children in particular may be unable to recognise the irrational and excessive nature of their actions. This is reflected in DSM-IV-TR (APA, 2000) criterion in which children, unlike adults, do not need to recognise the irrational and excessive nature of the condition in order to receive a diagnosis. Child cognitive development in relation to OCD is discussed in more detail in section 1.5.1.

The time consuming and distressing nature of OCD means that it is a debilitating disorder which can impact pervasively on a child's functioning, affecting school performance, peer relationships and family functioning (Piacentini, et al., 2003). The nature of OCD means that children often find they are less able to concentrate on their studies or engage with their friends. In addition, their behaviours may make them appear 'different' to others which can lead to withdrawal and isolation (Allsopp & Verduyn, 1990). Childhood OCD inevitably impacts on members of the child's family through involvement in rituals, requests for reassurance and the management of high levels of distress (Storch et al., 2007). Stengler-Wenske, Trosbach, Dietrich

and Angermeyer (2004) suggest that families' quality of life is detrimentally affected and they may experience stigmatization from others. The involvement of families in childhood OCD, particularly the accommodation of their child's OCD, is the focus of this thesis and is discussed further in section 1.5.4.

1.2.2 Epidemiology

1.2.2.1 Prevalence.

Epidemiological studies suggest that childhood OCD is far from rare with prevalence estimates ranging from 0.1 to 4% (Flament, et al, 1988; Valleni-Basile et al, 1995; Douglass, Moffitt, Dar, McGhee & Silva, 1995). The wide range of estimates may be attributable to differences in sampled age, sampling methods, using diagnosis versus symptoms (diagnostic methodology) and issues relating to children's willingness to disclose symptoms (Whitaker et al., 1990). The majority of studies have sampled adolescents with fewer studies examining prevalence below the age of 12. Young children in particular, may lack the awareness of internal processes to be able to verbally indicate obsessive compulsive symptoms. It is therefore not entirely clear how reliable estimates of prevalence are across the age range.

A British nationwide survey of paediatric OCD was conducted by Heyman et al. (2001) and surveyed 10,438 parents of 5 -15 year olds using structured and semi structured clinical interviewing methods and computerised diagnostic algorithms. The survey reported a point prevalence rate for OCD of 0.25%. This comparably low prevalence rate may be accounted for by the cut off age of 15 years, as the prevalence of OCD increases with age. There were equal prevalence rates between males and females. Previous epidemiological research has indicated that earlier onset of OCD is more common amongst males (Geller et al, 1998; Hanna, 1995; Zohar, 1999).

Estimates of prevalence rates of OCD in clinical samples range from 0.2% to 14.9% (Hollingsworth, Tanguay, Grossman & Pabst, 1980; Last, Perrin, Hersen & Kazdin, 1992). The wide range may also be attributable to variations in the methodology across studies such as diagnostic methods and age range sampled. Such studies have highlighted the underestimation of OCD amongst clinical samples, leading Whitaker et al. (1990) to suggest that only 25% of young people with OCD actively seek treatment from professional services.

1.2.2.2 Age of onset, course and prognosis.

The onset of OCD in childhood and adolescence is common with 50-80% of adults reporting the onset of symptoms before the age of 18 (Pauls, Alsobrook, Goodman, Rasmussen & Leckman, 1995). This highlights the importance of developing an understanding of the aetiology of OCD in children. Whilst diagnosis is not typically expected in young children, OCD symptoms have been detected in children as young as 3 years old (Chowdhury, Frampton & Heyman, 2004). However, there is a lack of evidence supporting the reliability of OCD diagnostic methods in children that young, as they rely on mostly behavioural observations. Very young children are not well able to verbally express their symptoms or indeed their thoughts. Typically, studies on clinical samples have shown the age of onset to range between 7.5 and 12.5 years (Geller et al., 1998; Last et al., 1992) suggesting that middle childhood is a particularly vulnerable time for the development of OCD symptoms.

The onset of OCD in childhood appears to be gradual. In a small sample of children and adolescents with OCD (n=31), Hanna, (1995) found that 55% reported the onset of their OCD over the course of several years and 39% reported the onset over weeks and months. Only 6% of the sample reported a sudden onset of symptoms, over a few days. Specific incidents have sometimes been associated with the onset of OCD including moving house, media reports of

disaster and physical illness (Rettew, Swedo, Leonard, Lenane & Rapoport, 1992). However, the frequency of these incidents in childhood suggests that they may interact with children's pre-existing vulnerabilities to OCD.

The natural course of OCD in children and adolescents appears to vary. Prospective studies have found that some children experience chronic OCD with variable symptom severity whilst others encounter long periods of remission with intermittent episodes of symptoms (Bolton, Luckie & Steinberg, 1995; Thomsen & Mikkelsen, 1995). Research on the outcome and prognosis of childhood-onset OCD is relatively sparse (Stewart et al., 2004). Twenty-two studies were identified by Stewart et al, (2004) for inclusion in a meta-analytic review. They reported a pooled persistence of full OCD rate of 41% and a pooled persistence of OCD symptoms rate of 60%. This indicates a complete remission rate of 40% for those with childhood OCD. Stewart et al. (2004) also reported that inpatient treatment, early age of onset and duration of OCD prior to treatment were significant predictors of persistent OCD.

Only five of the studies reported on psychosocial outcomes at follow-up. Children with persistent OCD were more likely to have problems socially and difficulties in maintaining employment. They were more likely to be without a partner and still living with their parents. Stewart et al. (2004) highlighted the importance of following up social functioning in OCD research because the course of OCD may interfere with social development. The persistence of OCD into adulthood is therefore likely to be associated with marked psychosocial consequences that warrant further investigation.

There are limitations to the existing literature on the course and prognosis of OCD such as reliance on retrospective data and the wide range of follow up periods. Stewart et al (2004) reported follow up ranging from 1 year to 15.6 years, with most studies conducting follow up

within 5 years. This makes comparison between studies challenging and potentially misleading if individuals experience periods of natural remission throughout the course of their disorder.

1.2.3 Co-morbidity

OCD in childhood, adolescence and adulthood is associated with high levels of co-morbidity with other psychiatric disorders, in particular anxiety disorders and depressive disorders. Heymen et al. (2001) reported that 52% of children and adolescents with OCD also met diagnostic criteria for another anxiety disorder, 20% met criteria for a depressive disorder and 44% of children with OCD also met criteria for a conduct disorder.

Of particular relevance to childhood OCD is the association between OCD and Tourette's syndrome. Up to 50% of young people with tic disorders also experience OCD symptoms (Holzer et al., 1994). It is not clear however, whether OCD detected alongside tic disorders is equivalent in presentation and course to non-tic related OCD (McDougle, Goodman & Price, 1994). The wide range of comorbidity and diagnostic overlap found within OCD has prompted debate around the use of sub-typing OCD classification (Nestadt et al, 2003) and has led some to conceive OCD as part of a wider obsessive compulsive spectrum (Hollander, 1993).

1.3 Theoretical and Treatment Approaches to OCD

This section will outline the main biological and psychological approaches to OCD and the treatments derived or associated with them. A full discussion of biological approaches to OCD is beyond the scope of this thesis and so a brief summary is presented here. Behavioural and cognitive approaches are presented and considered in more detail.

1.3.1 Biological Models

The Biological ‘umbrella’ of theories underpinning OCD includes research from genetics, brain structure and function abnormalities and neurochemical transmission and pathways, some of which are briefly outlined below.

1.3.1.1 Genetic transmission of OCD.

Researchers have sought evidence for the genetic transmission of OCD by examining familial concordance. Hettema, Neale and Kendler (2001) found that an individual with OCD was four times more likely to have a family member with OCD than those without the disorder. Hanna, Himle, Curtis and Gillespie (2005) found that OCD was more prevalent in the close relatives of children with OCD than in the close relatives of children without OCD. It is difficult to rule out the confounding influence of family environment and culture when considering familial concordance and twin studies are usually considered a useful way of addressing this. A review of twin studies concluded that genetic influences in OCD accounted for between 45-65% of the variance (van Grootheest, Cath, Beekham & Boomsma, 2005). Clearly the scope for environmental influences is significant although genetic vulnerabilities may be meaningful. Studies demonstrating family concordance do not necessarily provide evidence for the genetic transmission of OCD. Environmental factors within the home environment may be the shared relevant factor in the development of OCD. Psychological factors triggered within the environmental context may trigger genetic vulnerability to the disorder.

1.3.1.2 Neurochemistry and drug treatments.

Selective serotonin reuptake Inhibitors (SSRIs) have demonstrated efficacy in the reduction of OCD symptom severity. Despite the reported benefits of SSRI's it is not clear what role they play in relation to OCD. Henin and Kendall (1997) proposed that OCD symptoms may result from an over sensitivity of certain serotonergic pathways within the central nervous

system. The National Institute for Health and Clinical Excellence (NICE; 2006) recommends the use of SSRIs in the treatment of OCD for adults but they are not recommended as a treatment for children with OCD due to concerns about adverse effects on children.

1.3.2 Behavioural Model

The behavioural conceptualisation of OCD is based on Mowrer's (1951, 1960) two-factor theory of fear acquisition and maintenance. This draws on classical and operant conditioning to explain the development of OCD. Mowrer proposed that fears are acquired through classical conditioning whereby a previously neutral stimulus becomes associated with an aversive stimulus, producing an unpleasant physiological fear response. A behavioural reaction is initiated by the person in order to escape the aversive state. If the behavioural response is successful in reducing the fear response and anxious state the behavioural response is strengthened through negative reinforcement. A person is likely to repeat the behaviour in the presence of the same or similar cue because the reduction in fear 'rewards' the escape behaviour.

In terms of OCD, a once neutral stimulus such as a door becomes associated with an aversive thought about burglary which elicits a fear response and consequent escape behaviour. In order to escape the fear response, a child may develop the behaviour of checking their front door is locked. If the action is successful in reducing or avoiding anxiety it will be negatively reinforced and thus repeated. Over time, behavioural responses that were successful in producing an escape from anxiety may occur compulsively in response to anxiety eliciting stimuli. The result could be a range of checking behaviours (doors, windows, lights) in their own home and in other contexts. Behavioural responses in OCD can be both passive (i.e. avoidance) and more active, for example, making physical checks or asking others for reassurance.

Drawing on the work of Mowrer, Rachman (1978) suggested that obsessions can be conceptualised as ‘conditioned aversive stimuli’ because they cause distress and lead to behaviours designed to avoid the stimuli. Compulsive behaviours persist over time because their avoidant nature means habituation to the obsessive thought fails to occur. Whilst compulsive behaviours reduce or prevent anxiety in the short term they do not allow for disconfirmation of the initial fear. This means that obsessive thoughts go unchallenged and a fear response continues to occur. Habituation is the process of decreasing the strength of the person’s responses to a stimulus and is the central tenant of the behavioural approach to treating OCD which is discussed in section 1.3.2.1.

Empirical support for the two-factor model of OCD comes from studies that demonstrate a reduction in anxiety following compulsive behaviours (Rachman & Shafran, 1998) and an increase in anxiety following obsessive thoughts (Roper & Rachman, 1976). However, there are aspects of OCD that this model seems less able to account for. Aversive classical conditioning is not the only way in which fears are acquired and therefore cannot account for the development of all obsessive thoughts. Individuals do not always remember a single aversive event in which this occurred. Given that intrusive thoughts are a common and normal phenomenon (Rachman & DeSilva, 1978), behavioural theory alone cannot account for why some individuals come to associate a neutral stimulus with an intrusive thought without reference to any cognitive processes that may mediate the process.

1.3.2.1 Exposure and response prevention treatment (ERP).

ERP was developed by Meyer (1966) as a psychological treatment for OCD based on behavioural principles. The treatment involves prolonged exposure to the anxiety generated by an obsessive thought or obsessively feared situation, without engaging in any internal or external

compulsions. For example, experiencing the anxiety caused by thoughts of burglary whilst lying in bed at night without checking whether the doors are locked. Over repeated exposure to the anxiety caused by the obsessive thought in the absence of compulsions, habituation occurs in which there is a natural reduction in anxiety and physiological arousal in response to the absence of any feared outcome.

Evidence to support the use of ERP is highlighted in a meta-analytic review of 18 randomised controlled trials for the treatment of OCD in young people (Abramowitz, Whiteside & Deacon, 2005). The authors found that placebo, SSRIs and ERP all led to reliable improvements in symptom severity. ERP was associated with post treatment symptoms within the mild range compared to symptoms within the moderate range for those in placebo and SSRI groups. Only ERP was associated with a large effect size at post-treatment (1.98 CI 1.40-2.56). Bolton and Perrin, (2008) conducted a randomised trial of ERP compared with wait list controls with 20 children and found statistical and clinically significant improvement within the ERP group. These improvements were maintained at 14 week follow up. NICE guidelines for OCD (2006) reflect the evidence base for ERP and recommend that it is offered to adults and children as a first line treatment.

Difficulties associated with conducting ERP have also been identified. It has been associated with high dropout rates due to its aversive nature (Bolton & Perrin, 2008). In a review of cases, Allsopp & Verduyn, (1990) reported that 48% of adolescents drop out of ERP treatments. The current NICE guidelines (2006) recommend that where ERP is unacceptable to a patient, cognitive behaviour therapy (CBT) without an exposure component should be offered. CBT treatments that target OCD relevant cognitions have developed alongside the growth of cognitive models of OCD over the last 15 years. CBT has the ability to offer treatment for OCD

that does not necessarily include an ERP component that may be experienced as aversive.

Cognitive models and their associated treatments will now be outlined.

1.3.3 Cognitive Models of OCD

Cognitive models of OCD focus on how obsessive thoughts are appraised by individuals. Demonstrations that intrusive and unpleasant thoughts are a common and non-pathological experience (Allsopp & Williams, 1996; Purdon & Clark, 1994; Rachman & DeSilva, 1978) suggest that intrusive thoughts alone are not sufficient for the development of OCD. According to cognitive models, it is the interpretation of intrusive thoughts as somehow meaningful or powerful that underlies the development of OCD. Appraisals typical of OCD lead individuals to avoid the thought or avoid the feared outcome of having the thought. In line with behavioural accounts, the short term relief brought about by performing behaviours reinforces them, making them compulsive in nature and thus contributing to the maintenance of OCD.

Several cognitive factors are considered important to the development and maintenance of OCD (OCD Working Group, 1997) including inflated responsibility (Salkovskis, 1985), meta-cognitive beliefs (Wells & Matthews, 1994) and thought-action fusion (Rachman, 1993). This led to the development of several different cognitive models that have each been subject to empirical testing. Salkovskis' (1985, 1989, 1999) model of inflated responsibility is the primary focus of this study and this model and two other commonly researched models will be considered in more detail below. These models have been developed for application with adults.

1.3.3.1 Thought-action fusion.

Thought-action fusion (TAF) is considered a key cognitive process in the development and maintenance of OCD and other anxiety disorders (Rachman & Shafran, 1998). It is defined as a cognitive bias which leads individuals to interpret their intrusive thoughts as equivalent to

actions. Rachman (2003) distinguished between two forms of TAF: TAF morality and TAF likelihood. TAF likelihood refers to the belief that thinking about something (i.e. a car crash) makes it more likely to occur. TAF morality refers to the belief that thinking about something (usually unacceptable or abhorrent) is as morally equivalent to actually carrying out the action.

Rachman and Shafran (1998) described how the two forms of TAF may be interlinked.

Individuals who appraise their intrusive thoughts as a sign that they have increased the likelihood of a negative or dangerous event occurring are likely to draw negative inferences about their own morality. Individuals with TAF are likely to experience high levels of distress in response to feeling personally and/or morally liable for increasing the risk of negative events. This distress leads individuals to engage in behaviours that prevent the negative event from happening (Shafran, Thordarson & Rachman, 1996).

1.3.3.1.1 Empirical evidence for TAF in relation to OCD.

Evidence for the role of TAF in OCD comes from both questionnaire studies and experimental studies. Studies have provided evidence for a small to moderate relationship between TAF and OC symptoms in non-clinical samples (between .20 and .38; Gwilliam, Wells & Cartwright-Hatton, 2004; Smari & Holmsteinsson, 2001). Such studies are limited however, in their generalisability to clinical populations and cannot offer any insights into how strong the relationship is between TAF beliefs and clinical levels of OCD. In addition, the causal role of TAF beliefs in the development of OCD cannot be addressed by such studies.

In order to provide stronger evidence for the role of TAF, experimental studies have been conducted that explicitly address the causal role of TAF in OCD. Rassin, Merckelbach, Muris and Spaan (1999), instructed participants not to think of the word 'apple' as they were told it would trigger an electric shock for one of the other participants. Participants in the control

group were not told anything about the consequences of their thoughts. Participants in the experimental group experienced an increase in intrusive thoughts, more resistance to thinking the word 'apple' and more discomfort compared to the control group. The authors argue that the study demonstrates that believing your thoughts can have damaging consequences leads to obsessional thoughts. Zucker, Craske, Barrios and Holuin, (2002) used a sentence paradigm task with 72 students. Participants wrote the names of their loved ones into gaps in sentences, such as 'I hope _____ is in a car accident'. The authors found that those who received information about TAF prior to the task reported less anxiety and fewer desires to neutralise their thoughts.

Whilst there is evidence for a relationship between TAF and OCD it is not clear that it is a specific one. Evidence of TAF beliefs has been found in other clinical disorders such as depression, social anxiety and panic disorder (Abramowitz, Whiteside, Lynam & Kalsy, 2003; Rachman & Shafran, 1998). This led Abramowitz et al. (2003) to argue that TAF beliefs may be related to OCD because they are linked to anxiety generally.

1.3.3.2 Meta-cognitive model.

The Meta-cognitive model of OCD (Wells, 1997; 2000; Wells & Matthews, 1994) proposes that specific beliefs about the meaning and consequences of thoughts (meta-beliefs) underlie the development of obsessions and compulsions within OCD. Two domains of belief are proposed; beliefs about the power and meaning of thoughts and beliefs about the use and control of rituals. Beliefs about the power and meaning of thoughts are activated by normally occurring intrusive thoughts. These beliefs guide the appraisal of intrusive thoughts and three types of beliefs are proposed to be important to OCD.

Thought-action fusion beliefs result in certain intrusive thoughts being interpreted as having the power to cause the individual to carry out an action against their will and desire. For

example, having an intrusive thought about stabbing someone when you see a knife means you believe you are going to stab someone. Thought-event fusion (TEF) is the belief that thoughts have the power to cause an event (outside the individuals; control) to occur or, serve as evidence that the event has already occurred. For example, having an intrusive thought about a friend being in a car accident would be appraised to mean that either a car accident will now occur, or it must already have occurred. Thought-object fusion (TOF) refers to the belief that thoughts and feelings can be transferred to, or caught from, objects and people. This leads to appraisals about contamination and 'tainting' of people and objects, a person, for example, may appraise their negative thoughts as having the power to transfer onto the objects they were holding or looking at whilst they were having the thought. These objects may then be viewed as 'ruined' and the person feels unable to use them due to the TOF belief that the objects now possess negative qualities that may transfer back to people if handled. Collectively, the different fusion beliefs are hypothesised to reflect beliefs about the power of thoughts that lead to appraisals of intrusive thoughts as dangerous, meaningful and having causal power. Specifically, TAF relates to the power of thoughts to influence our own actions, TEF relates to the influence of thoughts on events outside our control and TOF relates to the influence of thoughts on objects.

The model proposes a temporal sequence of belief activation (Wells, 1997). Once fusion beliefs have been activated and involved in the appraisal of an intrusive thought, meta-cognitive beliefs about rituals are activated, which influence the way an individual responds. These beliefs usually focus on the importance or perceived necessity of actions to prevent a feared outcome from occurring. They include checking, reassurance seeking and other compulsive behaviours. Wells (1997) proposes that the final set of meta-beliefs to be activated is beliefs about how to monitor rituals. These beliefs are often idiosyncratic rules or internal cues about when rituals

can be stopped. The use of rituals and stop criteria are counter-productive as they prevent the individual from disconfirming their original beliefs, thereby maintaining their obsessive compulsive symptoms. Based on this model, Fisher and Wells, (2008) propose that CBT treatment for OCD should focus on modifying meta-cognitive beliefs that underlie appraisals of intrusive thoughts in order to reduce anxiety and compulsive behaviours.

1.3.3.2.1 Empirical evidence for the meta-cognitive model.

Evidence for the meta-cognitive model of OCD comes from cross sectional, correlational studies and an intervention study. Studies using non-clinical participants have demonstrated a significant positive correlation between measures of meta-cognitive beliefs (such as the Meta-cognitions Questionnaire [MCQ]; Wells & Cartwright-Hatton, 2004) and obsessive compulsive symptoms (Emmelkamp & Aardema, 1999; Gwilliam et al., 2004; Wells & Papergeorgio, 1998). Myers and Wells (2005) examined questionnaire responses from 104 non-clinical volunteers and found that responsibility beliefs and meta-cognitive beliefs were positively correlated with obsessive symptoms. Only meta-cognitive beliefs however, were associated with obsessive compulsive beliefs irrespective of responsibility beliefs. Solem, Myers, Fisher, Vogel and Wells (2010) found a similar outcome with a sample of 57 OCD patients and a non-clinical control group (n=269). Meta-cognitive beliefs were positively correlated with obsessive-compulsive symptoms in both samples and the participants with OCD scored more highly on meta-cognitive measures compared to non-clinical participants. A limitation of these studies is that whilst they are able to demonstrate a significant relationship between meta-cognitive beliefs and OCD they cannot test the direction of this relationship.

Myers, Fisher and Wells (2009) conducted a cross sectional study examining all three domains of beliefs; fusion beliefs, ritual beliefs and stop beliefs. Undergraduates (n=238)

completed questionnaires assessing a range of beliefs and three different measures of obsessive compulsive symptoms. All the beliefs were significantly correlated with obsessive compulsive symptoms. Regression analysis highlighted that combined, meta-cognitive beliefs accounted for between 20-30% of the variance in symptoms. Although the study provides support for the relevance of the three types of beliefs central to the model, it is limited because it is unable to explicitly test the temporal sequence of belief activation outlined in Well's (1997) model.

Fisher and Wells (2005) conducted an intervention study with 8 OCD patients receiving two episodes of exposure response prevention, one with a meta-cognitive rationale and the other with a traditional habituation rationale. The order in which each patient received the interventions was counterbalanced to reduce the impact of order effects. Patients reported a greater reduction in subjective ratings of anxiety, urge to neutralise and meta-cognitive beliefs in the meta-cognitive rationale intervention compared to the traditional ERP. The study is limited however, by its small sample size and the authors highlight that researcher allegiance to the meta-cognitive intervention could not be ruled out as an influence on patients. In addition, although the interventions were kept short, it is likely that there were carry over benefits from receiving one intervention before the other. Whilst the study highlights the utility of targeting meta-cognitive beliefs during intervention, it does not directly test the proposed causal relationship of meta-cognitive beliefs that underlies the model. In summary, there is a lack of experimental research providing evidence for the direction of influence of meta-cognitive beliefs and the temporal sequence in which they are activated. The meta-cognitive model of OCD (Wells, 1997; 2000; Wells & Matthews, 1994) accounts for the maintenance of OCD symptoms although it does not suggest where these beliefs originate from.

1.3.3.3 Inflated responsibility model.

The inflated responsibility model of OCD (Salkovskis, 1985, 1989, 1999) proposes that individuals who appraise intrusive thoughts as indicative of personal responsibility for harm to themselves or others, are likely to develop obsessive compulsive symptoms. People with OCD are more likely to appraise an intrusive thought as a sign that they are responsible for subsequent harm to themselves or others, unless they take action to stop it. The distress this generates is hypothesised to lead to neutralising behaviours, such as compulsive checking and reassurance seeking. Salkovskis (1999) suggests that neutralising behaviours not only reduce anxiety but also reduce the perceived sense of responsibility for the feared outcome. According to this model, an inflated sense of responsibility is hypothesised to increase both the occurrence of obsessions and neutralising behaviours.

Within the framework of Beck's theory of emotional disorders (Beck, 1976), Salkovskis (1985, 1999) suggests that appraisals of intrusive thoughts in terms of general danger will lead to associated emotional changes, most likely anxiety. Similarly, appraisals in terms of loss may lead to an associated lowering of mood and possible depression. Neither of these appraisals would necessarily lead to compulsive behaviours. Compulsive behaviours are more likely to develop when the intrusion is interpreted as a sign that the person is responsible for harm or responsible for preventing harm. This leads to associated mood changes and discomfort that motivate the individual to behave in ways to prevent the feared outcome or reduce responsibility for it. Inflated responsibility appraisals can therefore be viewed as the link between intrusive thoughts (which are commonly experienced), anxious discomfort (experienced in various disorders) and compulsive actions (specific to OCD).

The discomfort and mood change motivates individuals to engage in ‘neutralising’ behaviours which are overt and covert behaviours aimed at reducing the likelihood of harm and the responsibility for harm. Examples include washing, checking and reassurance seeking, which Salkovskis (1999) suggests are a way of diluting or sharing responsibility. These strategies - along with other safety behaviours such as avoidance and thought suppression, aim to reduce the distress and anxiety associated with the obsessive thoughts. The responses and strategies may reduce anxiety in the short term but actually contribute to the maintenance of obsessive thoughts and compulsive behaviours over time. The various behaviours prevent disconfirmation of original beliefs and may also contribute to the increased likelihood of further obsessive thoughts (Salkovskis, 1985, 1999).

As the model sits within a general cognitive framework, emphasis has also been placed on the role of early experiences in shaping beliefs and vulnerabilities to OCD, i.e. beliefs and assumptions focusing on inflated responsibility. Salkovskis et al. (1999) proposed hypotheses about the origins of inflated responsibility beliefs and the key experiences that may govern their development. This broadens the explanatory and clinical potential of the model by extending the potential for empirical examination of both the aetiology and maintenance of the disorder. Evidence for the inflated responsibility model is discussed in the next section whilst the development of inflated responsibility beliefs in childhood is considered in more detail in section 1.5.3.1.

1.3.3.3.1 Empirical evidence for inflated responsibility model.

Support for the inflated responsibility model of OCD is growing. Evidence for a relationship between responsibility beliefs and OCD symptoms comes from both questionnaire studies (e.g. Wilson & Chambless, 1999) and from experimental studies that demonstrate

changes in behaviours following manipulations of responsibility (Bochard, Rheume, & Ladouceur, 1999; Ladouceur et al., 1995; Ladouceur, Rheume & Aublet, 1997).

Studies employing questionnaire designs suggest a relationship between responsibility beliefs and OCD symptoms in adults. Salkovskis et al. (2000) compared responsibility beliefs, depression, anxiety and OCD symptoms in three groups; an OCD group (n=49), an anxiety group (n=38) and a non-clinical group of university students (n=143). The OCD group scored higher on measures of responsibility than the anxiety group and non-clinical group. The authors concluded that inflated responsibility beliefs are specific to OCD rather than other anxiety disorders and other emotional disorders. A limitation of this study is that it is correlational and cannot address the causal relationship between inflated responsibility and obsessive compulsive symptoms.

A variety of studies have used experimental designs to examine causal relationships between inflated responsibility, distress, neutralising and safety behaviours. Ladouceur et al. (1995) devised a medication sorting paradigm to manipulate responsibility in adults (n=40). The high responsibility group (HR) were told that their work would directly influence treatment safety and efficacy for a widespread virus in a South East Asian country. In contrast, the reduced responsibility (RR) group were informed that the task was a practice version based on colour perception. The manipulation of responsibility appeared to be successful as those in the HR group hesitated and checked more during the sort than those in the RR group. The HR group also indicated that they were more anxious than the RR group. The induction of distress and neutralising behaviours following an induction of inflated responsibility has been replicated in further studies which used the presence or absence of experimenters to manipulate responsibility in non-clinical participants (Lopatka & Rachman, 1995; Shafran, 1997).

Arntz, Voncken and Goosen (2007) extended these findings to a clinical sample. A classification task was used to manipulate responsibility in a group of participants with OCD (n=27), anxiety (n=370) and non-clinical controls (n=28). Individuals with OCD in the high responsibility group produced more checking behaviours and OCD-like experiences than any of the other groups. In summary, there is evidence for a relationship between inflated responsibility beliefs and obsessive compulsive symptoms. There is also evidence, based on experimental studies, to support the causal mechanisms of the model.

1.3.3.4 Cognitive behavioural therapy.

Developments in cognitive behavioural treatments for OCD have occurred alongside the formation of cognitive conceptualisations of the disorder. Whilst ERP has demonstrated efficacy in the treatment of OCD (see section 1.3.2.1) it does not target any of the cognitive factors addressed above. Cognitive treatments, often added to ERP, have been designed to challenge the cognitive biases underlying the disorder, such as inflated responsibility. The rationale for developing cognitive treatments whilst ERP remains effective comes from the finding that 20 - 30% of patients fail to start or drop out of ERP treatment because of its aversive nature (Stanley & Turner, 1995). Cognitive therapy can therefore be beneficial to those who are unable or unwilling to engage in ERP. It can also be viewed as a useful adjunct to ERP because it tackles cognitive processes underlying the disorder.

Van Oppen, deHaan, Van Balkom and Spinhoven (1995) conducted a trial comparing cognitive therapy and ERP in 57 adult OCD sufferers. The authors found that both treatments led to significant clinical improvement, although the cognitive therapy group showed better overall recovery. In contrast, McLean et al. (2001) compared group formats of cognitive therapy and ERP and found ERP to be superior to CBT in terms of treatment effect size. The authors

concluded however, that it was not a fair comparison as the group format was better suited to the delivery of ERP than cognitive therapy. In a further study, Whittal, Thorarson and McLean (2005) compared ERP and cognitive therapy in individual formats. The study revealed no differences in treatment effect size between the two therapies, leading the authors to conclude that cognitive therapy was as effective as ERP in the treatment of OCD. In light of the evidence, NICE guidelines for OCD (2006) recommend the use of cognitive behaviour therapy when treating OCD in adults and children, with the inclusion of ERP.

The use of cognitive therapy with children and adolescents with OCD is a developing area and some studies have found techniques aimed at challenging cognitive biases in children effective (Williams, Salkovskis, Forrester & Allsopp, 2002). The development of cognitive treatments for children and adolescents is simultaneous with developments in understanding the cognitive factors involved in childhood OCD.

1.3.3.5 Summary of cognitive models.

Cognitive models of OCD have built on behavioural models, focusing on the role of specific appraisals in the development of obsessive thoughts and compulsive behaviours. Cognitive factors are clearly important to our contemporary understanding of OCD (OCD Working Group, 1997) and there has been a considerable amount of research conducted supporting these models. The inflated responsibility model in particular has received empirical support from a range of methodologies within clinical and non-clinical samples. It has also highlighted the aetiological aspects central to the development of inflated responsibility beliefs.

Much of the work on cognitive models, including the inflated responsibility model, has been undertaken with adults. It cannot be assumed that cognitive constructs such as thought-action fusion and inflated responsibility are central to children's experiences of OCD and

consequently, whether cognitive treatments developed within the adult population are suitable and effective for children. Models of OCD do not explicitly address the developmental, familial and social context relevant to OCD in childhood and adolescence. Evidence for the applicability of cognitive models to children and adolescents is examined in the following section.

1.4 Cognitive Models of OCD Applied to Children

Research into cognitive constructs in childhood OCD suggests that models developed for the adult population are applicable to children and adolescents (Reynolds & Reeves, 2008), although the evidence is largely based on observational studies. Research in this area is growing and experimental studies examining the issue of causality are emerging (e.g. Reeves et al., 2010). This section outlines and critically reviews the research on cognitive models of OCD applied to children and adolescents. This takes the form of a systematic literature review in which the identified studies have been organised primarily according to the model they support and additionally by research design. This review builds on the work of Reeves and Reynolds (2008), who presented a similar review of the literature, and utilises a similar structure and methodology. Wider contextual issues, relevant to the development of OCD in children such as family environment are not typically addressed within these models and will be considered in detail in Section 1.5.

1.4.1 Literature Search Strategy

Searches were undertaken on the following databases in May 2011; PsychINFO, Web of Knowledge and Medline. Searches included papers published from 1985 onwards as this is when cognitive theories of OCD began to emerge. The search terms were, child* or adolescent or young people or juvenile or paediatric, in combination with, OCD or ‘obsessive compulsive’, ‘cognitive models or cognitive processes or cognitive appraisals’, responsibility, metacognition

or metacognitive beliefs and ‘thought action fusion or magical thinking’. The names of key authors and the references lists of relevant articles were searched. Additionally, hand searches were conducted on *The Journal of Anxiety Disorders and Behaviour, Research and Therapy* from the last 15 years. Colleagues working in the area within the University of East Anglia were consulted but no other authors were contacted.

1.4.2 Inclusion and Exclusion Criteria

Articles were included if they were published in a peer reviewed journal and were written in English. Articles of interest were defined as those that offered results relating to the application of cognitive models of OCD to children and/or adolescents. The focus of the paper had to be on participants under 18 years old. The search identified 105 papers, 15 of which met inclusion criteria. An additional four papers have been identified in this review that were not included (or yet published) in Reeves and Reynold’s (2008) review. Sixty-nine articles were excluded because their abstract revealed that they were not specifically related to cognitive models of OCD. Twenty articles focused on cognitive models but were excluded because they focused on adults samples. Current completed unpublished work at the University of East Anglia (Reynolds, Austin, Wator and Parker, in press) was added to the review as it was relevant to the current study. Further exploration and inclusion of unpublished studies was not conducted. A limitation of not including such material is that the review may present with a bias for positive results. A future review of the literature would benefit from the inclusion of unpublished studies.

The articles vary in their theoretical and methodological focus. For the purposes of this review they have been organised and appraised in terms of their primary theoretical focus, whether they look at inflated responsibility, thought action fusion, metacognitive beliefs or a mix and range of cognitive appraisals/processes.

1.4.3 TAF Model

1.4.3.1 Non-clinical questionnaire design.

The majority of articles focusing on the TAF model used non-clinical samples and examined correlations between measures of TAF and obsessive compulsive symptoms. Muris, Meester, Rassin, Merckelbach and Campbell (2001) examined the relationship between thought action fusion beliefs in a large sample of 427, 13-16 year olds. The authors developed the TAF Questionnaire -Adolescent (TAFQ-A) to capture a range of TAF beliefs in young people. The authors found that TAF-Q scores were significantly correlated with symptoms of OCD, depression and other anxiety disorders. When levels of trait anxiety were controlled for, TAFQ-A scores remained significantly related to OCD symptoms and to a lesser degree, generalised anxiety symptoms. Significant correlations remained between TAFQ-A scores and depression symptoms suggesting that thought action fusion beliefs are not specific to OCD and are related to a number of emotional symptoms.

Other studies have focused on the related concept of magical thinking. Bolton, Dearsley, Madronal-Luque and Baron-Cohen (2002) devised the Magical Thinking Questionnaire (MTQ) to capture beliefs in a group of 127 non-clinical participants. They covered a broad age range of 5 -17 years. Respondents had to decide whether each scenario on the MTQ was physically possible by answering either 'yes' or 'no'. The authors found MTQ scores correlated significantly with OCD symptoms, measured by the OCD subscale of the Spence Children's Anxiety Scale (SCAS; Spence, 1998). However, male scores also correlated with other anxiety symptoms. The authors report no decline in magical thinking with age, suggesting that these kinds of beliefs are not merely a phase during development but can coexist alongside logical and

scientific reasoning abilities. As the sample was taken from a private school there may be some difficulties in generalising the findings and the study did not control for depressive symptoms.

Evans, Milanak, Medeiros and Ross (2002) explored magical thinking and ritualistic behaviours in 31, 3-8 year olds using a structured interview, parent report and variety of novel tasks. There was a positive correlation between child OCD behaviours and magical beliefs. However, other anxiety and depressive symptoms were not measured so it is unclear whether the relationship between magical thinking and OCD is specific.

1.4.3.2 Clinical samples and questionnaire design.

Verhaak and deHann (2007) administered the MTQ to 39 children (age 8-12) and adolescents (age 13-18) with a primary diagnosis of OCD. There was no association between the severity of OCD symptoms and MTQ scores leading the authors to conclude that TAF has no specific role in childhood OCD. There were several limitations to this study that may account for the findings. The researchers did not use a standardised interview to diagnose OCD so there is no way of comparing patient severity or co-morbidity. No other symptoms such as anxiety and depression were controlled for and there was no clinical or non-clinical comparison group.

1.4.3.3 Summary of TAF studies.

The papers focusing on TAF provide some evidence for a relationship between TAF beliefs and OCD symptoms in children and adolescents. It is challenging to compare the studies as they use different methods of assessing obsessive compulsive symptoms and thought action fusion or magical thinking. Several of the studies did not measure other emotional symptoms so it is not clear whether TAF beliefs are specifically related to OCD. The observational design of the studies means that inferences cannot be made about any causal relationship between TAF and OCD symptoms.

1.4.4 Meta-Cognitive Model

1.4.4.1 Non-clinical questionnaire design.

Cartwright-Hatton et al. (2004) modified the Meta-Cognitions Questionnaire (MCQ; Cartwright-Hatton & Wells, 1997) for use with adolescents (MCQ-A). They administered the MCQ-A to 166, 13-17 year olds, along with the Leyton Obsessive Inventory-Child Version (LOI-CVS; Berg, Whitaker, Davies, Flament & Rapoport, 1988) and a range of other measures of emotional symptoms. The authors reported acceptable levels of validity and reliability for the MCQ-A and found the full range of beliefs were endorsed by adolescents. MCQ-A scores correlated significantly with obsessive compulsive symptoms, however, MCQ-A scores also correlated to similar levels with depression and general anxiety symptoms. This suggests that meta-cognitive beliefs may not be specifically linked to OCD.

Mather and Cartwright- Hatton (2004) re-examined the data collected from the Cartwright-Hatton et al. (2004) study in order to carry out a more detailed analysis of the roles of responsibility attitudes and meta-cognitive beliefs in relation to obsessive compulsive symptoms. The 166 participants had also completed the Responsibility Attitude Scale (RAS: Salkovskis et al., 2000) which was developed to measure responsibility beliefs in adults. The authors made minor changes to the RAS to make it more appropriate for adolescents. Both the RAS and MCQ-A scores were significantly correlated with obsessive compulsive symptoms. In a subsequent regression analysis, only MCQ-A scores independently predicted obsessive compulsive symptoms once RAS scores were controlled for. The authors argued that meta-cognitive beliefs may be more specifically related to adolescent OCD than responsibility beliefs. A concern from the study is that the authors focused on adapting the MCQ for adolescents in

detail whilst only making minimal changes to the RAS for adolescents which may have influenced responses.

1.4.4.2 Summary of Meta-cognitive studies.

Research relating to the meta-cognitive model of OCD in children has focused on non-clinical populations which may lack validity when making inferences about clinical populations. The studies are cross-sectional, questionnaire designs which prevent the exploration of any causal role for meta-cognitive beliefs in childhood OCD. The research does highlight a relationship between meta-cognitive beliefs and OCD in adolescents although the research has not addressed whether these beliefs are relevant in younger children.

1.4.5 Inflated Responsibility Model

1.4.5.1 Non clinical samples and questionnaire designs.

Magnusdottir and Smari (2004) asked 202, 10 -14 year olds to complete a modified version of the RAS (Salkovskis et al., 2000) for use with children. Depressive symptoms were also measured. Moderate positive correlations were found between RAS scores and OCD symptoms. In a hierarchical regression analysis, responsibility attitudes were a stronger predictor of obsessive symptoms than depression, gender or age. Whilst the study provides a measure of responsibility suitable for use with younger children, a limitation of this study is that the authors did not measure general levels of anxiety, making it difficult to know whether RAS scores would have correlated with anxiety generally rather than OCD specifically.

Youlmaz, Altin and Karanci (2008) examined responsibility beliefs in 380 Turkish high school students. A strong association was found between levels of responsibility measured by the RAS (Salkovskis et al., 2000) and compulsive checking. Symptoms of depression and trait anxiety were controlled for in the analysis. The authors suggest that the results support the

applicability of the inflated responsibility model of OCD to adolescents and highlight that their study uniquely examined participants from a non-Western culture. Taken together, these studies advance support for the applicability of the inflated responsibility model to adolescents.

1.4.5.2 Clinical samples and experimental design.

As part of a wider clinical treatment trial, Barrett and Healy-Farrell (2003) examined responsibility appraisals in 43 children with a diagnosis of OCD, ranging in age from 7 -17. They manipulated the children's level of responsibility using a behavioural avoidance task (BAT) adapted from two adult studies (Lopatka & Rachman, 1995; Shafran, 1997). Children were asked to expose themselves to an idiosyncratic feared scenario at home that typically caused them distress. There were three levels of responsibility (high, low and moderate) that differed along two dimensions; 1) who the child conducted their exposure work with (parent, experimenter or alone) and 2) who the child stated was responsible for any adverse consequences in a signed contract (self, parent or experimenter). Subjective units of distress were used to measure responsibility beliefs and behavioural responses of avoidance and ritualising were observed. There were no significant associations between inflated responsibility and perception of probability, severity of harm, anxiety, avoidance or ritualising. The authors concluded that responsibility appraisals may not be a primary cognitive factor of interest in childhood.

The study has limitations which may account for the findings. The authors noted that children in the 'high responsibility' condition were very reluctant to take on responsibility for adverse consequences, which may have interfered with the manipulation. The responsibility manipulation assumed that children would experience a greater sense of responsibility when doing the task with an experimenter and less responsibility when doing the task with a family member. This may not have been the case for all the children however. The study involved

manipulating responsibility in two ways and it may have been more useful to manipulate responsibility along one dimension to isolate effects. The authors highlighted the difficulty faced when manipulating clinical participants, in particular the participants' avoidance of responsibility during the manipulation.

1.4.5.3 Non-clinical experimental studies.

Reeves et al. (2010) developed an experimental paradigm for manipulating responsibility in children based on the adult experimental literature (Ladouceur et al., 1995). Eighty one children (aged 9 to 12) were asked to sort differently coloured sweets according to whether they had nuts in them. Children were told that the sweets were to be given to a group of children in which one had a nut allergy (the consequences of nut allergies were briefly explained). Responsibility was manipulated within 3 conditions; high, moderate and reduced. The high responsibility group were told that the sweets would not be checked before going to the children. The reduced responsibility group were told that the sweets would be checked before going to the children and the moderate responsibility group were not given any information about whether the sweets would be checked. Incidences of checking and hesitating during the sorting task were recorded. In support of the inflated responsibility model, children in the high responsibility group checked and hesitated more than children in the reduced responsibility group. However, the study lacked a control condition in which there was no manipulation of responsibility, meaning the specific influence of inflated responsibility could not be isolated.

Reynolds et al. (in press) carried out a follow up study using the same experimental manipulation as Reeves et al. (2010). The authors added a control group in which there was no manipulation of responsibility (children were told to sort the sweets out by colour only). Incidences of reassurance seeking behaviours were also recorded, testing further branches of the

inflated responsibility model. Children in the high responsibility condition reported higher levels of perceived responsibility than those in the other groups. They also hesitated more and sought more reassurance but there was no difference in the levels of checking or post task anxiety between the groups.

These studies make an interesting contribution to the field as they use inventive and engaging ways to manipulate responsibility in children. Experimentally manipulating responsibility provides evidence for a causal role of responsibility in childhood OCD symptoms. There is a deal of ecological validity in conducting such work although it is worthy to note that Reeves et al. (2010) conducted the tasks in children's homes whilst Reynolds et al. (in press) conducted tasks in the child's school. It is not clear how these different contexts impact on children's sense of responsibility.

1.4.5.4 Summary of inflated responsibility studies.

Questionnaire based studies (Magnusdottir & Smari, 2004; Youlmaz et al, 2008) have demonstrated evidence for a relationship between inflated responsibility beliefs and OCD symptoms. Magnusdottir and Smari, (2004) demonstrated this relationship in children as well as adolescents. Experimental designs have also been developed and used in clinical and non-clinical samples to explore casual aspects of the inflated responsibility model. Preliminary evidence has been provided for a causal role of inflated responsibility beliefs in the development of OCD symptoms in non-clinical children (Reeves et al, 2010; Reynolds et al, in press). Preliminary evidence for this relationship has not yet been found in a clinical sample (Barrett & Healy-Farrell, 2003). Further evidence in support of the inflated responsibility model comes from studies that examined more than one model. These are reviewed in the next section.

1.4.6 Studies Examining Multiple Models and Factors

1.4.6.1 Clinical questionnaire studies.

Barrett and Healy (2003) explored a range of cognitive factors relevant to OCD including TAF, responsibility beliefs and cognitive control in a sample of children. Ratings of these beliefs were collected from 28 children with OCD aged 7- 13 years and were compared with a clinically anxious group (n=17) and a non-clinical group (n=14). Children with OCD reported higher levels of thought action fusion and responsibility beliefs in comparison to the non-clinical group. However, the ratings did not differ significantly from those children in the anxious control group. The findings support the applicability of TAF and inflated responsibility models to childhood OCD but cannot rule out that these beliefs are important to anxiety generally. Having both a clinical and non-clinical control group allowed the authors to isolate the relationship between cognitive constructs and OCD. However, children in the clinical control group reported some obsessive compulsive symptoms which may account for both groups endorsing TAF and inflated responsibility beliefs.

In a follow up study, Farrell and Barrett (2006) investigated a range of cognitive factors including TAF, inflated responsibility and cognitive control in 38 adults (aged 18-66), 39 adolescents (aged 12-17) and 34 children (aged 6-11) with a diagnosis of OCD. No differences were reported in TAF beliefs across the age groups but adults and adolescents rated significantly higher levels of responsibility beliefs than the children. The authors concluded that responsibility beliefs may be less important in the development of OCD in childhood and become more relevant in adolescence and adulthood.

Libby, Reynolds, Derisley and Clark (2004) investigated thought action fusion, responsibility beliefs and perfectionism in three groups of young people aged 11-18 years old. A strength of

this study was the use of both parent and child diagnostic interviews to determine OCD diagnosis. They compared scores on the RAS (Salkovskis et al., 2000) and TAFQ (Muris et al., 2001) between a group of children with OCD (n=28), children with other anxiety disorders (n=28) and non-clinical children (n=62). RAS and TAF-Q scores were significantly higher in the OCD group compared to the anxious and non-clinical group. RAS scores were the only significant predictor of OCD symptoms following a regression analysis. Libby et al. (2004) concluded that the results offer support for the inflated responsibility model applied to children. It should be noted however, that the study employed the original adult versions of the questionnaires measuring TAF and inflated responsibility, making it hard to compare to studies with adapted versions.

1.4.6.2 Non clinical questionnaire studies.

Matthews et al. (2006) explored meta-cognitive beliefs, responsibility beliefs and thought-action fusion beliefs in 223, 13-16 year olds. They aimed to directly test the different models by employing a mediation analysis procedure. TAF, inflated responsibility and meta-cognitive beliefs were significantly associated with OCD symptoms. Responsibility beliefs however, completely mediated the effect of TAF beliefs and partially mediated the effect of meta-cognitive beliefs. Matthews et al. (2006) argued that both inflated responsibility and meta-cognitive beliefs are as relevant in childhood OCD as they are in adult OCD. These results present a discrepancy with Mather and Cartwright-Hatton's (2004) study in which only MCQ-A scores independently predicted obsessive compulsive symptoms once RAS scores were controlled for. This is challenging to understand in light of the fact that the studies were comparable in terms of the measures and type of sample they used. The RAS may have been

modified in different ways in each of the studies. In addition, Matthews et al. (2006) did not control for depressive symptoms in their analyses which may account for the differences.

1.4.7. Summary of the Evidence That Cognitive Models Can be Applied to Children

The review demonstrates that cognitive factors such as TAF, inflated responsibility and meta-cognitive beliefs are clearly relevant to the understanding of OCD in children. A variety of methods have been used to examine these processes, including questionnaires, idiographic tasks and behavioural observations. Studies vary in how they measure OCD symptoms which can make comparisons between studies problematic. Some of the studies fail to control for general levels of anxiety and depression and therefore cannot make specific inferences about the role of cognitive factors in OCD. Small sample sizes typical of clinical studies may be under-powered and Barrett and Healy-Farrell (2003) highlight the challenges involved in manipulating processes such as responsibility, in young people with OCD who may be reluctant to engage.

It is not conclusive from the literature which cognitive factors are of most relevance to childhood OCD. The inflated responsibility model has been supported by both correlational studies (e.g. Magnuddottir & Smari, 2004; Libby et al., 2004) and experimental studies which have allowed direct testing of the model (e.g. Reeves et al., 2010). The study by Barrett and Healy-Farrell (2003) contradicts these findings suggesting that more research is needed to consider the applicability of the inflated responsibility model to childhood OCD.

Pursuing work along these lines will develop our understanding of OCD aetiology in addition to the maintenance of the disorder. This has significant implications for treatment of childhood OCD. Whilst the different models suggest that cognitive factors are clearly important, they do not explicitly address the way in which these cognitions develop in childhood. The next section will consider the broad role of the child's family in the development and maintenance of

OCD and more specifically, the role of the family in the development of cognitions relevant to OCD.

1.5 Developmental and Family Context in OCD

Whilst the evidence suggests that adult models of OCD are applicable to children, these models do not take into account the developmental and family context of the child and the likely origins of the disorder. This is a limitation of applying adult models in a top down fashion without considering the wider context in which children's mental health disorders emerge. These avenues are not only of theoretical significance but have clinical and pragmatic utility. Identifying key family risk factors will be helpful in the prevention of OCD and will help to target important factors during treatment.

1.5.1 Child Cognitive Development

Cognitive models of OCD focus on cognitive appraisals which involve thinking and evaluating one's own thoughts. Applying these models to childhood OCD requires a consideration of whether or not children have the ability to carry out these cognitive processes. Piaget (1962) outlined four main stages of cognitive development that children are observed to pass through. As children pass through each stage they are able to engage in more complex cognitive tasks. By age 7, children are thought to have entered the 'operational stage'. During this time, children develop the ability to think about things from others' perspective and start to identify themselves as thinking beings. By age 11, children in the 'formal operation stage' develop abilities that allow them to reflect on their own thinking, use logical reasoning and consider more abstract concepts. These abilities appear important to cognitive models of OCD in which appraisals of intrusive thoughts are central. The first peak of onset of OCD is thought

to be around age 10-12 (Geller et al., 1998) which might suggest that the development of new cognitive abilities at this time is a critical period in which childhood OCD develops.

The development of moral reasoning in childhood also has relevance to the understanding of OCD. Kohlberg (1969) proposed that until the age of 10 children make moral judgements based on the consequences of actions rather than by intentions (pre-conventional morality). From age 10, in parallel with general cognitive development, children are more able to consider peoples' intentions and social conventions when making moral decisions (conventional morality). This transition in moral reasoning may be a vulnerable stage during which inflated responsibility beliefs are likely to develop. Although the development of key cognitive skills may be related to a peak in OCD onset, it is not a sufficient factor for the development of OCD. Further contextual vulnerabilities in the development of OCD and OCD cognitions are now discussed.

1.5.2 Role of Parenting Style

Within anxiety research generally, researchers have considered the role that parents and families may play in the development of children's anxiety disorders. Much attention has been paid to the style of parenting displayed and the way in which parents interact with their children and their environment. Research on parenting styles, relevant to anxiety, has focused on the dimension of parental control/over involvement, compared with parental autonomy giving (Rapee, 1997). Controlling and overly involved parenting has consistently been associated with child anxiety, with studies reporting medium to large effect sizes between parental control during parent-child interactions and child anxiety (McLeod, Wood, & Weisz, 2007; Van der Bruggen, Stams & Bögels, 2008; Wood, McLeod, Sigman, Hwang & Chu et al, 2003).

Controlling and over involved parenting is hypothesised to impact on child anxiety by reducing a child's interactions with their environment and decreasing their sense of competence and confidence in coping with situations (Rapee, 1997). The precise way in which parental control influences child anxiety is not well established and it has been highlighted that parents may often become more controlling as a response to their child's anxiety (Hudson & Rapee, 2004). Whilst it is clear that parenting style is an important factor to consider when understanding the development of childhood anxiety it is not clear whether the evidence can be generalised to children with OCD (Barrett, Shortt & Healy, 2002).

1.5.2.1 Role of parenting style in OCD.

The amount of research considering the role of parenting style in relation to OCD specifically is relatively small and inconclusive (Waters & Barrett, 2000). Several factors have been proposed as influential in the development of OCD, including control, rejection and overprotection (Waters & Barrett, 2000). Aycicegi, Harris and Dinn (2002) explored the relationship between obsessive compulsive symptoms and retrospective accounts of parenting in 130 undergraduates. Participants completed the Children's Report of Parent Behaviour Inventory (CRPBI-30; Schuldermann & Schuldermann, 1988) which examines three dimensions of parenting; acceptance/rejection, psychological control/autonomy and firm/lax control. Psychological control was the only dimension significantly associated with obsessive compulsive symptoms. However, psychological control was also associated with depressive and anxiety symptoms.

Timpano, Keough, Mahaffey, Schmidt and Abramowitz (2010) recently investigated students' (n=227) retrospective accounts of parenting style using the Parental Authority Questionnaire (Buri, 1991) which explores three styles of parental authority; permissive,

authoritarian and authoritative. They found that current obsessive compulsive symptoms were associated with reports of authoritarian parenting, even when other parenting styles and emotional symptoms were controlled for. In a clinical sample, Alonso et al. (2004) compared 40 patients with OCD to a group of matched non-clinical controls on ratings of perceived parenting style. The OCD group perceived their fathers as more rejecting than the control group. A limitation of this study was the lack of a clinical control group to determine whether perceived paternal rejection was common to other emotional disorders or more specific to OCD.

Several limitations apply to studies employing retrospective ratings of parenting. Retrospective reports are subject to memory and attribution biases which may lead individuals with OCD to make inferences about their past that are not accurate. Causal inferences about the role of parental styles cannot be made from retrospective accounts as hypotheses cannot be explicitly tested. Barrett et al. (2002) advocate moving away from retrospective studies and their limitations to focus on other methods. They conducted an observational study of family problem solving discussions and compared the behaviours of 18 children with OCD, 21 children with externalising disorders, 22 children with other anxiety disorders and 22 non-clinical children. Compared to the other parents, parents of the children with OCD were less confident in their child's abilities, less able to use positive problem-solving strategies and were less likely to reward their child's independence. The children in the OCD group were rated as having less confidence, fewer positive problem solving skills and less warmth compared to the children in the other groups. The study is useful because it directly assesses parenting behaviour and compares parents of children with OCD to parents of children who did not have OCD. However, because it is an observational study it cannot demonstrate the direction of causality.

For example, parenting may become more controlling when a child develops OCD rather than the other way around.

Overall, studies of parenting and OCD have a number of methodological weaknesses. Many of the studies have used retrospective reports of experiences of parenting which raises questions about accuracy. There is a lack of conclusive evidence to support any one parenting factor as critically important to the development of childhood OCD. Implicating parenting style in the development of OCD also implies that a process of direct transmission of OCD occurs between parent and child. It is more likely that parental factors play a role in how children develop key cognitions that are central to the development of OCD.

1.5.3 Role of Family Context in the Development of Cognitions Relevant to Anxiety

Within the wider anxiety field, research has been conducted on the role of parents and parental rearing style on the development of children's cognitions (e.g. Hudson & Rapee, 2004). Child cognitions are hypothesised to mediate the role of parental style on the development of anxiety. There is a body of research examining the role of parents in their children's interpretation of threat. This is relevant to our understanding of child anxiety in general, although not specifically related to the development of OCD. Hudson and Rapee (2004) suggest a general model of anxiety development in which parents who have anxious beliefs and possibly anxiety symptoms, influence their child's interpretation of threat. Hudson and Rapee (2004) argue that parents who have beliefs focused on threat, danger and personal vulnerability are likely to parent their child in more controlling or over protective ways. These parents may inadvertently convey messages to their child that they cannot cope, inhibit or minimise learning experiences, and suggest that the world is a dangerous place. In addition, Hudson and Rapee (2004) suggest that

anxious parents are likely to encourage their children to avoid threatening or frightening situations and thus maintain their child's interpretation of threat.

Chorpita and Barlow (1998) proposed a model of child anxiety in which children's perceptions of control are a mediating factor between parental rearing style and anxiety symptoms. They suggest that parents with a controlling style will produce repeated experiences for children in which the child feels they have no mastery over things and consequently, perceive things as out of their control. Over time, children develop a cognitive style in which they perceive events as out of their control which Chorpita and Barlow (1998) argues is a vulnerability factor for the development of anxiety symptoms.

Evidence which suggests that parental behaviours and beliefs influence their children's beliefs comes from a variety of methods, including observations of child and parent problem solving (Barrett, Rapee, Dadds & Ryan, 1996; Chorpita, Albano & Barlow, 1996; Cresswell, Schniering & Rapee, 2005; Shortt, Barrett, Dadds & Fox, 2001), exposure to stressful scenarios (Kortlander, Kendell & Panichelli-Mindel, 1997; Cobhan, Dadds & Spence, 1999) and ambiguous stimulus tasks (Gifford, Reynolds, Bell & Wilson, 2008; Lester, Field, Oliver & Cartwright-Hatton, 2009). Whilst a review of this literature is beyond the scope of this thesis, the growing body of evidence suggests that the development of child anxiety may be influenced by their family context through the mediating role of cognitions. Whilst this work is not specific to cognitions implicated in OCD (such as inflated responsibility) it suggests a way of understanding OCD through the role of parenting in influencing OCD specific cognitions. This is considered in more detail in the next section.

1.5.3.1 Role of family context in the development of cognitions relevant to OCD.

Given the research suggesting that parents may transmit anxiogenic cognitions to their children thereby increasing their vulnerability to developing anxiety difficulties, it is possible that a mechanism exists through which parents transmit cognitions central to OCD, such as inflated responsibility. This would mediate the development of OCD symptoms in children. Salkovskis et al. (1999) hypothesised several pathways to the development of inflated responsibility beliefs, three of which focus on parental influence on the development of cognitions. Firstly, the ‘heightened responsibility as a child’ pathway refers to those children who actually have a lot of responsibility from a young age, such as those with caring responsibilities. These children may receive information from adults about the negative consequences of lessening their responsibilities or their role in the prevention of problems and difficulties. These children may develop inflated responsibility beliefs which leave them vulnerable to developing OCD.

Salkovskis et al.’s. (1999) second relevant pathway suggests that having ‘rigid and extreme codes of conduct as a child’ may constitute a vulnerability. Children who are exposed to rigid or extreme parenting receive information from adults that failure to adhere to strict behavioural codes will result in blame, guilt or punishment. These children may be vulnerable to developing beliefs about the significance of their thoughts and actions, particularly thought-action fusion beliefs. The third pathway relates to ‘overprotective and critical parenting’ which can lead to a lack of experience with responsibility as a child. Childhood experiences may be characterised by anxious parents who convey cognitions about potential danger and an inability to cope, which influence their child’s cognitions. Overprotection also reduces a child’s ability to experience responsibility, leading them to develop responsibility sensitive cognitions. The

proposed pathways are highly speculative and based on clinical retrospective observation (Salkovskis et al., 1999). The existence of these pathways has yet to be satisfactorily tested although work is emerging to support them.

Coles and Schofield (2008) developed a self-report questionnaire, the Pathways to Inflated Responsibility Beliefs Scale (PIRBS) to examine retrospective accounts of childhood experiences relevant to responsibility. The questionnaire was validated on 628 undergraduates and demonstrated acceptable reliability. Moderate correlations were detected between PIRBS scores and obsessive compulsive symptoms. Smari, Þorsteinsdóttir, Magnúsdóttir, Smari and Ólason (2010) extended this work by administering the PIRBS to a sample of 300 students in Iceland and also reported moderate correlations between the PIRBS scales and measures of responsibility and OCD symptoms.

Lawrence and Williams (2008) devised the Origins of Responsibility Questionnaire (OQA) to assess retrospective accounts of experiences related to Salkovskis et al. (1999) proposed pathways. The questionnaire was given to 16 adolescents with a history of OCD and 16 adolescents without a history of OCD. The groups did not differ on pathways relevant to parental context. In an attempt to account for the findings the authors suggest that the measure may not be sensitive enough and the questionnaire did not achieve satisfactory internal consistency. The authors also highlight that the study is limited by its small sample size.

Overall, more research is needed to address the proposed pathways to inflated responsibility that may confer a vulnerability to OCD. Caution should be used when interpreting retrospective accounts of childhood experiences as these may be subject to biases such as memory and current symptom bias. The inflated responsibility model of OCD has broadened to encompass potential aetiological factors, several of which are related to parenting context and the

influence this has on the development of responsibility beliefs. The next section explores the nature of family responses to a child's OCD symptoms and the potential role this plays in the maintenance of the disorder.

1.5.4 Role of Family Accommodation

In addition to the influence on relevant cognitions, the role of families in responding to a child's OCD has received attention. Families may accommodate OCD symptoms in a variety of ways. This can involve facilitating rituals, providing reassurance and reducing demands and expectations (Calvoceressi et al., 1995). Facilitating rituals can range from providing items for use in rituals, assisting with rituals, or modifying the family lifestyle to accommodate them. Family accommodation of OCD appears common. Allsopp and Verduyn (1990) found that 70% of parents reported being involved with their child's OCD rituals. For children with OCD the family context is particularly powerful as they are already dependent on their families for many of their needs.

The impact of family accommodation is potentially unhelpful because it reinforces the child's involvement in rituals and does not encourage children to challenge their obsessional thoughts. On-going family accommodation may inadvertently maintain their child's symptoms and counter the goals of treatment. Storch et al. (2007) suggested that families accommodate their child's symptoms initially to reduce their child's distress and anxiety in the hope that this will reduce their symptoms. As family responses are repeated, it may become harder to remove or limit levels of accommodation later on. Attempts to reduce accommodation may be met by increases in challenging behaviour or intense distress, which can make it hard for parents to stand their ground (Waters & Barrett, 2000).

Calocoressi, et al. (1995) investigated the relationship between levels of family accommodation, OCD symptoms, and family functioning. Accommodation was negatively correlated with family functioning and positively related to family stress. These results suggest that accommodation not only reinforces and maintains OCD symptoms but is also related to worse functioning and levels of stress within the family. Some studies have highlighted the impact OCD has on families and suggest that accommodation is a significant predictor of family conflict (Cooper, 1996; Merlo, Lehmkuhl, Geffken, & Storch, 2009).

Family accommodation is clearly a potential target for intervention when treating childhood OCD given its potential role in maintaining symptoms and its negative impact on family member's functioning. Merlo et al. (2009) specifically targeted family accommodation during family based CBT treatment for children aged 6-18 with OCD (n=49). They found that accommodation was prevalent amongst families and that levels of accommodation were associated with symptom severity pre-treatment. They delivered 14 sessions of family based CBT to children and their parents which included sessions on reducing accommodation behaviours. Post-treatment scores indicated that decreases in family accommodation during treatment predicted treatment outcome, when pre-treatment severity was controlled for. The work on family accommodation demonstrates that children's OCD symptoms are inextricably linked to their family context. The next section considers a specific type of family accommodation and its impact on childhood OCD.

1.5.4.1 Reassurance seeking.

Excessive reassurance seeking has been identified as a common feature in OCD (Salkovskis, 1985). It can be conceptualised as repeated requests for information associated with reducing perceived threat, even when the information is already known or has already been given

(Rector, Kamkar, Cassin, Ayearst & Laposa, 2011). Excessive reassurance seeking has been identified in several disorders, such as depression (Abela, Zuroff, Ho, Adams & Hankin, 2006) and health anxiety (Hadjistavropoulos, Craig & Hadjistavropoulos, 1998) as a strategy for managing distress as it immediately reduces anxiety. However, immediate reductions in anxiety are usually followed by an increase in anxiety and urge to seek more and more reassurance. Repeated reassurance seeking also prevents habituation to a feared situation and maintains an individual's sense of inability to cope (Rector et al., 2011).

In relation to cognitive accounts of OCD, Salkovskis (1985, 1999) has conceptualised reassurance seeking as a common neutralising action that has the effect of spreading the responsibility for harm to others. It has been referred to as 'checking by proxy' by Rachman (2002) with the purpose of reducing anxiety and decreasing responsibility for negative outcomes. Reassurance seeking in OCD can become reinforced by the short term reduction it brings in anxiety. However, this reduction is often short lived and often results in an increase in anxiety and subsequent neutralising behaviours. Within the inflated responsibility model, increases in obsessive thoughts that activate inflated responsibility beliefs, should lead to a direct increase in neutralising behaviours such as reassurance seeking.

Parrish and Radomsky (2006) examined this prediction in a non-clinical sample of 124 students. Participants were required to carry out a pill sorting task in which perceived responsibility was manipulated (high and low) and reassurance was manipulated in the form of experimenter feedback (high and low) creating four conditions. The participants gave subjective ratings of their level of anxiety, urge to check, urge to seek reassurance, and memory confidence before and after the task. High responsibility resulted in greater urges to check and seek reassurance; high levels of reassurance giving did not lead to an increased urge to check or seek

reassurance. The authors suggested that reassurance was manipulated in a standardised way which may have felt insincere to the participants thus reducing the validity of the manipulation. The research supports the hypothesised relationship between inflated responsibility and increased reassurance seeking but did not establish if an increase in reassurance giving leads to increased reassurance seeking. More research is required to establish whether reassurance giving directly influences the frequency of reassurance seeking.

As discussed above, children often involve family members in their OCD, frequently in the form of reassurance seeking (Rettew et al., 1992; Peris et al., 2008). It has been suggested that parents provide reassurance or assist with rituals to minimize both their child's and their own distress, and to streamline family functioning (Freeman et al., 2003; Storch et al., 2007). Reassurance is particularly relevant to the family context because it is inherently a two-way process, requiring a request and a response. The finding that repeatedly asking for reassurance leads to an increased need for reassurance is dependent on the continuous provision of reassurance by a family member. In this way, parents may play a pivotal role in influencing their child's OCD symptoms via their reassurance giving (Parrish & Radomsky, 2010).

There is a paucity of research on reassurance seeking/giving within childhood OCD. A provisional literature search returned no articles specific to OCD. Rector et al. (2011) have recently developed the Reassurance Seeking Scale (RSS) to examine this behaviour specifically within anxiety disorders although it has not yet been used specifically within an OCD sample. The consequences of providing excessive reassurance have been studied in other areas such as health anxiety (Hadjistavropoulos et al., 1998; Salkovskis & Warwick, 1986). Seeking reassurance has been associated with an exacerbation of compulsive behaviour, and interpersonal difficulties, (Joiner, Alfano, & Metalsky, 1992; Salkovskis & Warwick, 1986) whilst providing

reassurance has led to further increases in reassurance seeking behaviour (Hallam, 1974; Salkovskis & Warwick, 1986). It is reasonable to hypothesize that the excessive provision of reassurance in OCD may have long-term consequences for the disorder. Further experimental work is required to test this assumption.

Recent work at UEA using a sorting task with children (Reynolds et al., in press) showed that children who had inflated responsibility sought significantly more reassurance from an unknown experimenter. In an extension of this work, Wator (unpublished doctoral thesis) demonstrated that maternal reassurance-giving can be manipulated by inducing responsibility in mothers. In an experimental study with 34 mother-child dyads, all children were given a high responsibility sweet-sorting task. Their mothers were randomly assigned to 2 groups; the control group were told that the task was not real, that this was just ‘an experiment’; the experimental group were given the same ‘high responsibility’ information as their children. Mothers who believed that their child did have inflated responsibility provided 4 times as much reassurance as mothers who believed that their child did not have inflated responsibility. Children whose mothers were in the high responsibility condition also sought more reassurance and checked more than those whose mothers were in the low reassurance giving condition. Thus, mother’s beliefs and subsequent behaviour (reassurance giving) further increased children’s neutralising behaviours. This suggests a direct causal relationship between mothers’ beliefs, their behaviours, and the subsequent behaviour of their children.

Mothers in the low maternal responsibility condition however, did offer some reassurance to their children. It is not clear how much child behaviour (e.g. reassurance seeking) could be attributed to the presence of their mothers rather than to inflated child responsibility beliefs

alone. As such, the effect of inflated maternal responsibility could not be fully isolated from the effect of maternal presence on child behaviours in this study.

1.6 Rationale for Current Research

The study aims to investigate the relationship between inflated responsibility, maternal reassurance giving and child behaviours by extending an experimental paradigm devised by Reeves et al. (2010). Following on from the work of Wator (unpublished Doctoral thesis), in which mothers in both high and low responsibility reassurance groups gave their child reassurance, a condition has been added in which mothers were not present during their child's task. The third condition attempted to partial out the effects of maternal presence on child behaviours as it was not clear to what extent maternal presence (rather than maternal responsibility) impacted on child behaviours in previous work. The additional condition did not control for maternal presence during the experiment but did allow the impact of maternal presence/absence to be explored. The study focuses specifically on mothers and maternal reassurance. In relation to the OCD literature, it is not clear whether maternal and paternal reassurance giving influence child anxiety and reassurance seeking differently. Inconclusive findings from studies using mixed parent samples suggest there is utility in investigating maternal and paternal influence separately (Bogels & Brechman-Toussaint, 2006). In an experimental study (Hudson & Rapee, 2002), paternal over-involvement in their child's task had a less important relationship with child anxiety than maternal over-involvement - tentatively suggesting that maternal behaviours during a child's task may be of more significance when studying child anxiety.

This study will add to a growing body of experimental research examining the causal role of cognitive factors in childhood OCD. This is important for furthering our understanding of the

aetiology of OCD in children and also has implications for the development of childhood treatments. More specifically, understanding the interactions between family members and the disorder can help to facilitate assessment and family-based intervention.

1.7 Research Hypotheses

1.7.1 Hypothesis 1

Mothers in the ‘high responsibility’ condition will offer more reassurance to their children than mothers in the ‘low responsibility’ condition.

1.7.2 Hypothesis 2

Children in the ‘high maternal responsibility’ condition will seek more reassurance from their mothers than children in the ‘low maternal responsibility’ condition. .

Research Question 2a). Will children whose mothers are not present during the task seek different amounts of reassurance than children in the other conditions?

1.7.3 Hypothesis 3

Children in the ‘high maternal responsibility’ condition will check more, hesitate more and take longer to complete the task than those in the ‘low maternal responsibility’ group.

Research Question 3a). Will children whose mothers are not present during the task differ in the amount of checks, hesitations and time taken than children in the other conditions?

1.7.4 Hypothesis 4

After completing the sorting task, children in the ‘high maternal responsibility’ condition will report higher levels of anxiety than those in the ‘low maternal responsibility’ group.

Research Question 4a). Will children whose mothers are not present during the task report different levels of anxiety than children in the other conditions?

CHAPTER 2

Method

2.1 Chapter Overview

This chapter describes the study methodology. The design of the study is presented, followed by details of the recruitment process and a description of the study participants. Details of the experimental task and measures are given, followed by an account of ethical considerations. Lastly, the procedure for carrying out the study is described.

2.2 Design

This study used a between-subjects experimental design, adapted from a sweet-sorting manipulation reported in Reeves et al. (2010). The independent variable was maternal inflated responsibility, with three levels of manipulation: high maternal responsibility, low maternal responsibility and a group in which mothers were not present when their child completed the task. Children were randomly allocated to one of the three conditions. A number of dependent variables were examined during the task:

1. Number of times child sought reassurance.
2. Number of checks made by the child.
3. Number of hesitations made by the child
4. Time taken for the child to complete the task.
5. Level of child anxiety before and after the task.
6. Number of maternal reassurance giving behaviours

Demographic information, child and maternal anxiety and child depression symptoms were all measured prior to the experimental task.

2.3 Participants

Participants were 58 children aged 9 to 11 years old and their mothers. This age group was chosen because previous research has suggested that inflated responsibility beliefs are developed by this age (Barrett & Healy, 2003) and previous research has demonstrated that the manipulation is successful with this age group (Reeves et al., 2010).

2.3.1 Inclusion/Exclusion Criteria

Children were included in the study if they were aged between 9 and 11 years old and fluent in English. Children were excluded if they were unable to communicate fluently in English, had special educational needs (determined by their teacher), had an allergy to nuts, were colour blind or were under the care of Child and Adolescent Mental Health Services. Mothers of the children were recruited to take part in the study if their child met inclusion criteria and consented to take part.

2.3.2 Sample Size

The sample size was calculated using the G*Power 3 online power calculator (Faul, Erdfelder, Lang, & Buchner, 2007). The calculation assumed a large effect size; this was based on the results reported in Reeves et al. (2010) manipulation of responsibility in non-clinical children. Power was set at 80% and a significance level of 0.05% was used. This suggested that 66 participants were required (22 in each condition) to achieve appropriate power. A total of 58 child/mother dyads were recruited and met inclusion criteria for the study.

2.3.3 Recruitment

Participants were recruited from primary schools within Leicestershire and Northamptonshire (see Appendix A for information about participating schools). Head teachers were initially contacted by telephone or email with brief details of the study and those who

expressed an interest were visited by the researcher to discuss the study further and to obtain written permission to contact children's families.

Following collection of written permission from the head teacher, schools were asked to identify children with special educational needs and those who did not communicate fluently in English and information packs were not sent home with these children. Information packs addressed to parents were sent home with children in the appropriate year groups who met criteria. The information pack consisted of; an invitation letter and an information sheet for parents (Appendices B and C), and an information sheet for children (Appendix D). Mothers wishing to participate and who agreed to be contacted were asked to return the contact form (Appendix E) to the school office in the envelope provided. The researcher telephoned mothers who returned contact forms to provide further information and screen for inclusion and exclusion criteria. Home visits with mothers and children were arranged during the telephone call. Written consent from mothers and assent from children was obtained during the home visit, before beginning the research procedure (Appendices F and G). Four primary schools from Leicestershire and 3 schools from Northamptonshire agreed to take part in the project. The number of information packs sent out and returned for each school can be seen in Table 1.

In total, 62 consent to contact forms were collected from the schools. Three children were excluded from the study during the telephone screening stage because their mothers indicated that they were currently involved in Children's Mental Health Services. Fifty-nine children and their Mothers were visited at home and completed the task and questionnaires. One child completed the task but was excluded from the results as their colour blindness impacted on their task performance. During the telephone screening stage the child's Mother had not

indicated that their child was colour blind as they wanted their child to participate in the task. Of the 58 children within the study sample, 23 were female (40%).

Table 1

School Response Rates

| School | No. of packs sent | No. of packs returned | Response rate % |
|--------|-------------------|-----------------------|-----------------|
| A | 80 | 3 | 3.8 |
| B | 116 | 9 | 6.8 |
| C | 150 | 16 | 11.0 |
| D | 146 | 10 | 6.8 |
| E | 89 | 6 | 6.7 |
| F | 205 | 12 | 5.8 |
| G | 95 | 6 | 6.3 |
| Total | 881 | 62 | 7.0 |

2.4 Experimental Task

The experimental sorting task was adapted from Reeves et al. (2010). Children were given brief information about nut allergies and asked to indicate whether they knew of anyone with a nut allergy. Children were presented with an opaque bag of 120 sweets. The bag contained 20 each of pink, yellow, orange, white, green and gold sweets. They were told that the orange and white sweets contained nuts, the pink and yellow sweets may contain nuts, and the

green and gold sweets did not contain nuts. They were told that the sweets had been mixed up and that their job was to sort the sweets into three bowls: one for the sweets that contain nuts, one for the sweets that may contain nuts, and one for the sweets that do not contain nuts.

Children were told to take one sweet out of the bag at a time without looking into the bag. This ensured that the child did not know what colour the sweet was until it was taken out of the bag. They were instructed to complete the task as quickly and as carefully as possible. A colour key for the sweets was visible throughout the experiment. The bag of sweets, bowls, labels and colour key were laid out in a standard format for each child. In order to induce responsibility all children were told that after the sweets were sorted that they would be given to a group of children, one of whom had a nut allergy. Children were instructed: “After you have finished, I will not be checking how you have sorted the sweets before I give them to the group of children. Therefore it is important that you sort the sweets as carefully as possible”. Mothers in each of the three conditions were present when their child was given this information.

In order to manipulate the level of maternal responsibility, mothers were asked to speak with the experimenter in private prior to the child beginning the task. Conversations took place in a different room to the child so that they could not hear the instructions. The level of maternal responsibility was manipulated as follows:

High maternal responsibility

Mothers were told, “I will be asking your child to sort sweets based on whether they have nuts in them or not. Your child will also be told that after they finished I will not be checking how they have sorted the sweets before I give them to a group of children where one child has a nut allergy”.

Low maternal responsibility

Mothers were told “I will be asking your child to sort sweets based on whether they have nuts in them or not. Your child will also be told that after they finished I will not be checking how they have sorted the sweets before I give them to a group of children where one child has a nut allergy. As you know, this is an experiment and I will not be giving the sweets to any children after your child has finished sorting them, so it does not matter whether your child makes mistakes or not”.

Mothers not present condition

In the third group mothers were not present during the child’s sweet sorting task. Mothers in this condition were reminded that their child was taking part in a sorting task and were not given any further information about their child’s task. They were asked to remain in another room whilst their child completed the task.

2.5 Measures

2.5.1 Demographic Questionnaire

Mothers were asked to complete a short questionnaire containing information about the child’s age, gender, ethnicity, allergies in the child or family, and whether the child was colour-blind (Appendix H).

2.5.2 Confounding Variables

2.5.2.1 Spence Children’s Anxiety Scale (SCAS).

The SCAS (Spence, 1998) is a 45-item standardised self-report questionnaire used to assess symptoms of anxiety in children aged 8 to 12 years old (Appendix I). It has six subscales; panic/agoraphobia, social anxiety, separation anxiety, obsessions/compulsions, and fear of physical injury. Children are asked to rate how frequently they experience each item on a 4-point scale ranging from 0 (never) to 3 (always). The measure has been shown to have high

internal consistency (Cronbach's alpha = .92; Spence, 1998) and the test-retest reliability coefficient after 6 months was found to be .51 for the total score (Spence, 1998). The OCD subscale contains 7 items from the scale and has demonstrated acceptable reliability (Cronbach's alpha = .73; Spence, 1998). The SCAS was used to measure overall anxiety (SCAS total score) and obsessive-compulsive symptoms (OCD subscale score) in all children in order to assess whether there was any relationship between anxiety or obsessive symptoms and task performance.

2.5.2.2 Children's Depression Inventory-Short form (CDI-S).

The CDI-S (Kovacs, 1985) is a 10-item questionnaire designed to measure symptoms of depression in children aged 7 to 17 years (Appendix J). Children record how much they have been bothered by each symptom during the past two weeks on a 3 point scale (0 to 2). The CDI-S has a good reported level of internal consistency (Cronbach's alpha = .80; Kovacs, 1985). Test-retest reliability coefficients range from .74 to .77 in a non-clinical sample (Rush et al., 2005; Smucker, Craighead, Craighead, & Green, 1986). The CDI-S was used to assess levels of depression in all children in order to establish if there was a relationship between children's scores and task performance.

2.5.2.3 Positive and Negative Affect Scale (PANAS).

The PANAS (Watson, Clark & Tellegen, 1988) is a 20-item self report measure designed to measure two distinct dimensions of affect, positive affect (PA) and negative affect (NA; Appendix K). PA is thought to represent the extent to which a person is alert, active and enthusiastic with high PA reflecting high energy and pleasure. NA is considered a dimension of subjective distress with low NA representing calmness and high NA representing anxiety and other negative affect states (Watson et al., 1988). The questionnaire consists of two, 10-item

scales. Each item is rated on a 5-point scale ranging from 1 (very slightly or not at all) to 5 (extremely) to indicate how the respondent has felt over a specified time frame (mothers were asked to rate on the basis of the last 2 weeks). The PANAS has good reported levels of internal consistency (Cronbach's alpha ranges from ranges from .86 to .90 for PA and .84 to .87 for NA; Watson et al., 1988) and test-retest reliability coefficients range from .47 to .68 for PA and .39 to .71 for NA.

Anxiety is considered to be a state of high NA (Tellegan, 1985) whilst depression has been shown to be a mixed state of low PA and high NA (Tellegan, 1985; Watson, Clark & Carey, 1988). The PANAS was used in this study to measure mother's affective states in order to establish whether there were baseline differences in maternal affect between groups.

2.5.3 Dependent Measures

2.5.3.1 The State Trait Anxiety Inventory for Children (STAIC).

The STAIC (Spielberger, Edwards, Lushene, Montuori & Platzek, 1973) is a self-report questionnaire used to assess both state and trait anxiety in children aged between 9 and 12 years of age (Appendix L). It consists of two separate scales to measure 'state' and 'trait' anxiety. Each scale has 20 items on a 3-point Likert scale, ranging from 0 (never true/not at all) to 2 (completely true/often). The STAIC has shown good test-retest reliability ($r = .63$ to $.72$; Finch, Kendall, Montgomery, & Morris, 1975) and good internal consistency (Cronbach's alpha ranges from .82 to .87; Spielberger et al., 1973). The 10 items comprising the 'state' anxiety scale were used in this study and it was administered before and after the sorting task to give an indication of how the task may have influenced changes in state anxiety.

2.5.3.2 Measures of child behaviour.

Children's behaviours were observed and counted from the video-recordings of the task. The child behaviour measures were based on the measures used in studies by Reeves et al. (2010) and Reynolds et al. (in press).

1. Number of times child sought reassurance. This was defined as: (a) asking their mother (or the experimenter) if they are doing ok/ doing it right, (b) asking their mother (or the experimenter) to check it for them, (c) asking their mother (or experimenter) to do it with them, (d) asking their mother (or experimenter) what would happen if they do it wrong and (f) looking at their mother (or experimenter). Each instance of reassurance seeking that was initiated by the child was counted.

2. Number of Checks. This was defined as: (a) stopping the gaze or looking inside a particular container for at least 1 second, (b) emptying the contents of a container in their hand or on the table, (c) checking the label on the bowl, (d) sorting through the bowls at any point during the task (but not to correct immediate mistakes), (e) looking at the colour key regarding whether a sweet contains nuts and (f) feeling the sweet for at least 1 second.

3. Number of hesitations. This was defined as: (a) close examination of a sweet for at least 1 second and (b) movement of a child's hand between two different containers for at least 1 second.

4. Time taken to complete the task. This was measured in seconds using a stop watch. Timing started as soon as the child was told to start the task and stopped when the child informed the researcher that they had finished.

2.5.3.3 Measure of mothers' behaviour.

Maternal behaviours during the experimental task were measured from the video-recordings of the task. The method for measuring maternal reassurance giving was developed for the purposes of Wator's (unpublished Doctoral thesis) research. This method extended Reeves et al (2010) paradigm to include mothers' behaviours in addition to child behaviours. During the Wator (unpublished Doctoral thesis) study, recordings were scrutinized for examples of any behaviors initiated by mother's that could be considered a form of verbal or non-verbal reassurance.

Based on the observations, maternal reassurance giving was categorized into three classes: (a) glancing over at their child and the task, (b) helping the child with the task and (c) offering unprompted verbal reassurance. 'Glancing over at their child and task' was counted when Mums diverted their gaze away from what they were focused on, to glance specifically at their child or an aspect of what the child was doing. For example, when a Mum turned to look at their child or gazed at the colour key or sweet bowl. 'Helping with the task' included any direct unprompted involvement with the task or offers to help with task. This included behaviours such as picking up or rearranging the equipment and offering corrective information about a child's action. 'Offering unprompted verbal reassurance' included maternal reassuring comments such as, "that was right" or "don't worry".

Maternal behaviours or comments were not counted as reassurance giving if they occurred directly in response to a child's request for reassurance or help. Only behaviours or comments initiated by mothers were counted. The validity of these categories is discussed in detail in section 4.4.5.2.

For the current study, the experimenter was trained to code maternal reassurance giving behaviours by a postgraduate researcher, experienced in using the coding system, using previously collected video recordings. To ensure the experimenter could carry out reliable coding, the experimenter coded sets of 10 video-recordings at a time, comparing each set with the postgraduate's coding until inter-rater reliability was acceptable. This occurred when intra-class correlations were greater than 0.8 for 3 consecutive sets of 10 recordings (Landis & Koch, 1977). Following the training stage, no changes were made to the coding categories for use in the current study. Following data collection in the current study, a Trainee Psychologist was recruited in order to provide a measure of inter rater reliability for all behaviour measures which is reported in section 2.8.

2.6 Ethical Considerations

Ethical approval was given by the Faculty of Health Ethics Committee, at the University of East Anglia (see Appendix M). The British Psychological Society (BPS) guidelines and recommendations for conducting research were also followed during the study.

2.6.1 Consent

Head teachers and all parents received information outlining the objectives and procedures of the study. Following a meeting in which head teachers could ask questions about the study, written consent to send information to children and their mothers was provided. Mothers were asked to complete and return contact forms if they agreed to being contacted by the researcher to arrange a visit. Mothers and children were invited to contact the researcher if they wanted further information.

During the home visit, mothers were asked to sign a consent form to confirm that they wished to participate and consented to their child participating. Children were given an age

appropriate information sheet and were asked to provide written assent during the home visit (Appendices F and G). Children who did not provide assent were not asked to participate, even if their parent had given consent. Mothers and children were able to ask the researcher questions about the study before giving consent/assent.

The voluntary nature of the study was made clear to all participants and they were told that they could withdraw from the research at any point, without giving a reason. They were also told that their decision to withdraw would have no impact on any aspect of their schooling. Contact details for the researcher were provided on the information sheet for parents and children if they required further information at any stage of the process.

2.6.2 Deception

Both mothers and children were given information about the study before taking part and the level of deception was minimised. However, children in all conditions and mothers in the high responsibility condition were given false information about the child's level of responsibility. British Psychological Society research ethics guidelines (BPS, 2006) were strictly followed throughout the study. The guidelines state that in order to study some psychological processes, it may be necessary to withhold some details of the research hypothesis. It states that '...the central principle was the reaction of participants when the deception was revealed....' (p221). In accordance with this, children and their mothers were fully debriefed about the study and full information about the nature of the sorting task was given.

Debriefing also included a discussion of the child's experiences of taking part which allowed for any unforeseen impact to be monitored and responded to. Contact details for the researchers were provided along with written information about the task (Appendix N).

Participants were encouraged to make contact with the researcher if they wished to discuss any issues that arose from the visit.

2.6.3 Managing Distress

Previous research using this task has not found the task to be distressing for children. Children who were in contact with child and adolescent mental health services were excluded from the study to minimise any risk of distress during the experiment. None of the children became distressed during the procedure. Two children reported clinically significant levels of difficulty as measured by the SCAS (Spence, 1998) prior to taking part in the experimental task. These children did not report any distress during and after the task. The children's parents were informed about their child's score by letter and advised to contact their General Practitioner if they had any concerns (Appendix O).

2.6.4 Confidentiality

Data was managed in accordance with the Data Protection Act and UEA's guidelines on Good Practice in Research. All participants (and schools) were informed that the data was collected only for the purposes of this study and that their identity was not revealed in any way in any of the research outputs. All raw data, including written records and video tapes, was identified by an anonymous identification number and personally identifying data was not stored. This information is kept in a locked cupboard in UEA for a maximum of 5 years, after which time it will be destroyed. Any data stored on computer was accessed by a secure password.

2.7 Procedure

Following the consent of the head teacher, information packs were provided for schools to forward to children and their mothers. Mothers who returned forms giving their consent to be contacted were telephoned and a time was arranged to visit them at home. During the meeting at

home, children and mothers were reminded that they were taking part in an experiment that involved sorting different coloured sweets and answering some questions. Children were instructed that the task was not a test and would not affect their school work in any way. They were also reminded that they could stop the task at any point if they did not want to continue. Children and mothers had the opportunity to ask questions before they decided to take part. If mothers were happy to take part and agreed to their child taking part, signed consent forms were collected. If the child was happy to take part, a signed assent form was collected.

Before the sorting task, children were asked to complete the SCAS, the CDI-S, and the STAIC. Mothers were asked to complete the PANAS and a brief demographic questionnaire about their child. Following this children and their mothers were allocated to one of the three conditions via a block randomization method. This method was chosen (rather than purely random assignment) because it allows for roughly equal numbers of participants in each group, which is useful in relatively small sample sizes. The three conditions were represented randomly across 9 blocks (each containing 7 participants). A fellow trainee at UEA, who was not involved in the investigation, calculated the random assignment of conditions within each block using a computer generated random number sequence. The order in which each block was used was also calculated by the trainee using a random number sequence. A different trainee, also independent of the study, put the allocated conditions into envelopes labeled 1-66 in order to correspond to participants 1-66. The envelopes were opened by the experimenter following the collection of consent and completion of the initial questionnaires.

Children in all conditions were given the same information about the sorting task which was read aloud to them verbatim (see Appendix P). This included a description about nut allergies and how eating nuts can affect a person with a nut allergy. Children in all conditions

were told that the researcher would not be checking how they had sorted the sweets so it was important that they sorted the sweets as carefully as possible.

Mothers were given instructions in private. Mothers in the high responsibility condition were given the same information about the sorting task as their children. Mothers in the low responsibility condition were told that the researcher would not be giving the sweets to a group of children. Mothers in the 'mothers not present' condition were also told that the researcher would not be giving the sweets to a group of children and that it was not necessary for them to be present during the task.

At the end of the task children were asked to complete the STAIC again. The entire meeting, including the task and questionnaires typically took around 45 minutes to complete. Mothers and children were debriefed once the task and measures were completed and full information about the nature and consequences of the task were shared. This included a discussion of the impact of the task on the child and parent. An information sheet (Appendix N) was provided containing information about the nature of the study and contact details for the researchers if there were any further questions or concerns. With the consent of their mother, children were offered some sweets as a thank you for taking part and given a certificate for their participation. Schools received a £3 voucher for every dyad that took part.

2.8 Inter-rater Reliability

During the task, children (and mothers where present) were video-recorded and the behavioural variables were observed and recorded by the researcher outside of the task situation. The experimenter received training on coding from another researcher familiar with the coding procedure at UEA. Intra-class correlations were used to measure inter-rater reliability for the following behavioural variables; hesitations, checks, reassurance seeking and reassurance giving.

Video recordings of 15 participants (25%) were randomly selected and rated for behavioural variables by a Trainee Clinical Psychologist who was blind to the experimental conditions. The rater was trained by the researcher. The reliability coefficients are presented below in Table 2. Only one reliability coefficient (checks) was below 0.8 which is indicative of good inter-rater reliability (Landis & Koch, 1977).

Table 2

Intra-class Correlation Coefficients for Behavioural Variables

| Variable | ρ |
|---------------------|--------|
| Checks | .77 |
| Hesitations | .91 |
| Reassurance Seeking | .94 |
| Reassurance Giving | .97 |

n = 15

CHAPTER THREE

Results

3.1 Chapter Overview

The first section briefly outlines how data were initially treated to make them suitable for analyses. Following this, demographic data for the participants, including age, gender and ethnicity are described and differences between groups on these variables are examined. The internal consistencies of all questionnaire measures used in the study are reported. In section 3.5 descriptive statistics are presented for each baseline variable and the normality of each distribution is assessed in order to determine whether the data are suitable for parametric tests. Where variables are not normally distributed, transformations are attempted and reported if successful in producing a normal distribution. Comparisons are made between the groups on all the baseline measures to determine if there are any confounding variables that need to be controlled for in subsequent analyses. Descriptive data for the dependent variables are presented in section 3.6. Normality is assessed for each variable to determine whether data are suitable for parametric tests. Where data are not normally distributed, transformations are attempted and reported where successful. Following a summary of the preliminary analyses, the main analyses are presented with a summary of the results in relation to each specific research hypothesis. The chapter finishes with a presentation of the significant results from an unplanned analysis of the correlations between variables.

3.2 Treatment of Data

All data were entered into SPSS and the data set was screened for anomalous values or cases. Any unusual values within the data set were checked against the original questionnaires to clarify any mistakes during data entry. There were no missing data. The distribution of data

for each measure was visually examined using histograms, and box-plots were created to highlight the presence of outliers. Skewness and kurtosis were explored by calculating Z- scores following the procedure outlined in Tabachnick and Fidell, (1997). Z-scores greater than 2.58 or less than -2.58 were considered significant at the .01 level and were taken as indication that the data were not normally distributed. Normality was assessed for groups rather than the whole sample as these were the focus of the main analyses. Where data were not normally distributed, transformations were attempted and where successful are reported.

3.3 Demographic Data

Demographic characteristics of the sample were explored. Table 3 presents the gender and age distributions for the whole sample and each group. The mean age of participants was 120 months (10years and 0 months; SD = 10.04 months). The age of participants ranged from 108 – 141 months. There was no significant between groups difference in age, $F(2, 55) = 1.19$, $p = .31$. Females made up 40% of the sample. There was no significant between groups difference in gender, $\chi^2(2) = 3.94$, $p = .14$.

Table 3

Gender and Age of Participants

| | N | Males | Females | Mean age (months) | SD |
|---------------------|----|-------|---------|----------------------|-------|
| Whole Sample | 58 | 35 | 23 | 120 | 10.04 |
| High Responsibility | 20 | 14 | 6 | 122 | 9.44 |
| Low Responsibility | 19 | 8 | 11 | 118 | 10.01 |
| Mothers not present | 19 | 13 | 6 | 121 | 10.58 |

The majority of the mothers described themselves and their child as White British (87.9%). Five percent described themselves as White Other, 5.1 % described themselves as Mixed race and 1.7% as Chinese. This reflects the demographic composition of the areas from the two counties that were sampled. Participants also provided information on their experience of allergies. Forty-six percent of the children in the sample reported knowing a family member or friend with an allergy and 17.2% of the sample had personal experience of allergies.

3.4 Internal Consistencies of Questionnaire Measures

Internal consistencies of the questionnaire measures used in the study were calculated and are reported in Table 4. A Cronbach alpha value greater than .8 indicates good internal consistency (Bryman & Cramer, 2001) although a value of .7 is considered acceptable (DeVellis, 2003). The SCAS total score, PANAS PA, PANAS NA and pre and post STAIC scales all demonstrated acceptable levels of internal consistency. The CDI-S scale demonstrated a level of reliability just below an acceptable level, in contrast to the Cronbach Alpha Coefficient of .8 reported by Kovacs (1985). The SCAS OCD subscale demonstrated a lower level of internal consistency than the other scales. Pallant (2001) highlights that it is common to find low alpha values (e.g. .5) for scales with less than 10 items because the coefficient is sensitive to the number of scale items. Briggs and Cheek (1986) recommend reporting the mean inter-item correlation for scales with fewer than 10 items and suggest that scores greater than .2 reflect acceptable consistency. The mean inter-item correlation for the SCAS OCD subscale score was .2.

Table 4

Internal Consistencies of Questionnaire Measures

| Scale | No. of items | Cronbach's α |
|-----------------------|--------------|---------------------|
| SCAS total | 45 | .86 |
| SCAS OCD subscale | 6 | .57 |
| CDI-S | 20 | .67 |
| PANAS Positive Affect | 10 | .80 |
| PANAS Negative Affect | 10 | .72 |
| Pre- STAIC | 20 | .85 |
| Post-STAIC | 20 | .88 |

3.5 Descriptive Statistics and Between Group Comparisons of Baseline Variables

This section presents the descriptive data for the baseline measures used in the study. Following an examination of the distribution of data, group differences in baseline variables were examined to determine whether any needed to be controlled for in later analyses. Non-parametric alternatives were used on data that was not normally distributed in order to analyse group differences. Any significant differences between groups would be covaried in subsequent analyses.

3.5.1 Spence Children's Anxiety Scale (Spence, 1998)

Descriptive data for the SCAS total score and obsessive compulsive subscale are presented in Table 5. The mean scores on the SCAS for each group were below the clinical cut-off score of 42.48 (Spence, 1998) as expected in a non-clinical sample. The scores of three children were above the clinical cut off indicating that they might be experiencing clinical levels

of anxiety. Parents of those children were informed by letter, as detailed in the Method, section 2.6.3. Mean scores on the Obsessive Compulsive Subscale across the groups were lower than the mean of 5.99 from a large community sample (Spence et al., 1998). No individuals scored above the 'elevated' score of 10 (Spence, 1988).

Visual inspection of the data indicated that the data were normally distributed with no significant outliers. There was no significant between group differences on the SCAS total score, $F(2, 55) = .46, p = .64$ or SCAS OCD score, $F(2, 55) = .5, p = .61$.

Table 5

Descriptive Statistics for the SCAS Total Score and OCD Subscale

| Group | Mean | SD | Median | Skew | Kurtosis |
|---------------------|-------------|-------|--------|------|----------|
| | Total SCAS | | | | |
| Whole Group | 25.00 | 11.56 | 23.5 | .73 | 1.34 |
| High Responsibility | 23.65 | 8.34 | 22.0 | -.03 | -.35 |
| Low Responsibility | 27.00 | 13.94 | 20.0 | .99 | 1.88 |
| Mothers not present | 24.42 | 12.2 | 23.0 | .28 | -.34 |
| | OC Subscale | | | | |
| Whole Group | 4.28 | 2.35 | 4.0 | .30 | -.11 |
| High Responsibility | 4.8 | 2.52 | 5.0 | -.06 | -.33 |
| Low Responsibility | 4.1 | 2.42 | 5.0 | .39 | .56 |
| Mothers not present | 3.9 | 2.08 | 4.0 | .61 | .72 |

3.5.2 Children's Depression Inventory-Short Form (Kovacs, 1985)

The descriptive data for the CDI-S is presented in Table 6. Two participants had scores that exceeded the clinical cut off score of 8 (Kovacs, 1985). Parents of these children were informed of their child's score by letter (Appendix O). Data in the low maternal responsibility group and control group demonstrated significant skew and kurtosis, suggesting that the data were not normally distributed. A range of transformations were unsuccessful. CDI-S data were therefore analysed using non-parametric tests. A Kruskal-Wallis test revealed no significant group differences, $H(2) = .02, p = .99$.

Table 6

Descriptive Statistics for the CDI-S

| Group | Mean | SD | Median | Skew | Kurtosis |
|---------------------|------|------|--------|-------|----------|
| Whole Group | 1.16 | 1.61 | 1.0 | 2.83* | 9.99* |
| High Responsibility | 0.95 | 0.89 | 1.0 | 0.61 | -.25 |
| Low Responsibility | 1.32 | 2.00 | 1.0 | 2.35* | 6.51* |
| Mothers not present | 1.21 | 1.81 | 1.0 | 3.15* | 11.82* |

* $p < .01$

3.5.3 Positive and Negative Affect Scale (Watson et al., 1988).

The descriptive data for the mothers' PANAS PA and NA scales are presented in Table 7. Data for the PA and NA scales were normally distributed. No significant between group differences were found for the PANAS PA, $F(2, 55) = .54, p = .59$. A significant between group difference was found for the PANAS NA, $F(2, 55) = 4.26, p = .02$. Post hoc comparisons using the Tukey HSD test indicated mothers in the high responsibility group ($M = 14.7, SD = 3.2$) had

significantly lower NA than mothers in the low maternal responsibility group ($M = 19$, $SD = 5.91$). The control group ($M = 17.58$, $SD = 4.67$) did not differ significantly from either of the other groups.

Table 7

Descriptive Statistics for the PANAS

| Group | Mean | SD | Median | Skew | Kurtosis |
|---------------------|----------|--------|--------|-------|----------|
| | Positive | Affect | Scale | | |
| Whole Group | 36.76 | 5.51 | 38 | -0.15 | -0.33 |
| High Responsibility | 36.4 | 5.92 | 35.5 | -0.23 | -0.1 |
| Low Responsibility | 36.12 | 5.79 | 38 | 0.13 | -1.11 |
| Mothers not present | 37.84 | 4.87 | 38 | -0.19 | 1.38 |
| | Negative | Affect | Scale | | |
| Whole Group | 17.05 | 4.96 | 16 | .92* | -0.05 |
| High Responsibility | 14.7 | 3.2 | 14 | 0.87 | 0.27 |
| Low Responsibility | 19 | 5.91 | 16 | 0.57 | -1.08 |
| Mothers not present | 17.58 | 4.67 | 17 | 0.59 | -0.7 |

* $p < .01$

3.6 Descriptive Statistics for the Dependent Variables

This section presents the descriptive data for the dependent variables to assess if parametric tests are appropriate. Where data were not normally distributed, transformations were attempted and where successful are reported in the appendices.

3.6.1 The State Trait Anxiety Inventory for Children (Spielberger et al., 1973)

Table 8 presents descriptive data for the STAIC pre and post task scores.

For the low maternal responsibility group, pre STAIC data were significantly positively skewed and had significant kurtosis. Examination of the post STAIC data revealed that the control group demonstrated significant kurtosis. Log¹⁰ transformations on data from all groups were successful on both pre and post scores. The transformed values are reported in Appendix table Q1 and were used in subsequent analyses. There were no significant between group differences on the pre-test STAIC, $F(2, 55) = 1.94, p = .15$ or the post-test STAIC, $F(2, 55) = .301, p = .06$.

Table 8

Descriptive Statistics for Pre and Post STAIC

| Group | Mean | SD | Median | Skew | Kurtosis |
|---------------------|-----------|-------|--------|-------|----------|
| | Pre-task | STAIC | | | |
| Whole Group | 27 | 4.23 | 27 | 0.9 | 3.42* |
| High Responsibility | 26.55 | 3.07 | 26.5 | 0.32 | -0.1 |
| Low Responsibility | 26.1 | 5.73 | 26 | 1.62* | 4.36* |
| Mothers not present | 28.37 | 3.3 | 28 | -0.55 | 1.38 |
| | Post-task | STAIC | | | |
| Whole Group | 25 | 4.4 | 24 | 0.36 | -1.14 |
| High Responsibility | 23.35 | 4.31 | 21 | 1 | -0.66 |
| Low Responsibility | 24.42 | 3.82 | 24 | 0.23 | -1.21 |
| Mothers not present | 27.21 | 4.29 | 27 | -0.09 | -.81* |

* $p < .01$

3.6.2 Maternal and Child Behaviours

A number of behavioural variables were recorded from video tapes; maternal reassurance, child hesitation, checking, reassurance seeking and time taken to complete the task. Descriptive statistics are shown in Tables 9 and 10. Maternal reassurance giving in the high responsibility group was not normally distributed, therefore data were transformed to log¹⁰. Transformed values are reported in Appendix Table Q2 and were used in subsequent analyses.

Table 9

Descriptive Statistics for Maternal Reassurance Giving

| Group | Mean | SD | Median | Skew | Kurtosis |
|---------------------|-------|------|--------|-------|----------|
| Whole Group | 9.55 | 7.17 | 5.0 | 1.47* | 2.78* |
| High Responsibility | 7.25 | 6.93 | 6.0 | 3.10* | 11.82* |
| Low Responsibility | 11.84 | 6.01 | 12.0 | 0.32 | -0.73 |

* $p < .01$.

Descriptive statistics for children's behaviours (checks, hesitations, reassurance seeking and time taken to complete the task) are presented in Table 10. All behavioural variables were significantly skewed and/or had significant kurtosis. Checks and reassurance seeking were improved by Log¹⁰ transformations (see Appendix Table Q3) and were used in subsequent analyses. Hesitations and time taken were not improved by a range of transformations. Non-parametric methods were used on these variables in subsequent analyses.

Table 10

Descriptive Statistics for Child Behavioural Variables

| | Mean | SD | Median | Skew | Kurtosis |
|----------------------------|--------|--------|--------|-------|----------|
| Checks | | | | | |
| Whole Group | 9.07 | 3.78 | 8.05 | 1.0* | 0.67 |
| High Responsibility | 9.65 | 4.31 | 10 | 0.91 | 0.37 |
| Low Responsibility | 8.37 | 3.4 | 8 | 0.95 | 0.34 |
| Mothers not present | 9.16 | 3.64 | 9 | 1.17 | 1.77 |
| Hesitations | | | | | |
| Whole Group | 0.74 | 1.35 | 0 | 2.55* | 7.91* |
| High Responsibility | 0.35 | 0.81 | 0 | 2.5* | 5.95* |
| Low Responsibility | 0.79 | 1.03 | 1 | 1.82* | 4.24* |
| Mothers not present | 1.11 | 1.91 | 0 | 2.02* | 4.11* |
| Reassurance Seeking | | | | | |
| Whole Group | 4.36 | 5.75 | 3 | 3.0* | 10.6* |
| High Responsibility | 4.1 | 6.58 | 2 | 3.51* | 13.91* |
| Low Responsibility | 5.42 | 6.33 | 4 | 2.86* | 9.37* |
| Mothers not present | 3.58 | 4.14 | 3 | 1.5* | 1.95 |
| Time taken (secs) | | | | | |
| Whole Group | 360.18 | 81.83 | 341 | 2.38* | 8.91* |
| High Responsibility | 329.47 | 44.22 | 316 | 0.5 | 1.43 |
| Low Responsibility | 340.68 | 64.09 | 321 | 1.74* | 2.9* |
| Mothers not present | 410.37 | 103.51 | 391 | 2.20* | 6.57* |

* $p < .01$

3.7 Interim Summary

The experimental groups did not differ significantly in terms of age and gender. All baseline measures demonstrated acceptable levels of internal consistency. The SCAS total score, SCAS OCD, PANAS PA and PANAS NA were normally distributed. The CDI-S was not normally distributed and a range of transformations were unsuccessful at changing the normality of the distribution. CDI-S was therefore analysed using a non-parametric test. At baseline there were no significant group difference for SCAS, SCAS OCD, CDI-S and PANAS PA but mothers in the high responsibility group had significantly lower PANAS NA scores than mothers in the low responsibility group. To prevent potential confounding, PANAS NA was controlled for in subsequent hypothesis testing.

The STAIC pre and post scores were not normally distributed and were successfully transformed (Log^{10}). The maternal and child behaviour variables were not normally distributed. Maternal reassurance giving, 'checks' and 'reassurance seeking' were successfully transformed. 'Hesitations' and 'time taken to complete the task' could not be transformed and were therefore analysed using non-parametric tests.

3.8 Hypotheses Testing

An ANCOVA was used to compare maternal reassurance giving between the high and low responsibility groups, controlling for PANAS Negative Affect. There was no significant between groups difference in maternal reassurance giving, $F(1, 36) = .19, p = .08$. Inspection of the data shows that mothers in the low responsibility group gave more reassurance to their children ($M = 11.84, SD = 6.93$) than mothers in the high responsibility group ($M = 7.25, SD = 6.01$), see Figure 1.



Figure 1. Transformed means for maternal reassurance giving.

To examine hypotheses 2 and 3, the groups were examined for differences on child behavioural variables. Parametric tests were used on normally distributed data and non-parametric tests were used on non-normally distributed data. ANCOVAs were used to examine group differences between number of checks and number of reassurance seeking behaviours whilst controlling for PANAS Negative Affect. No significant between group differences were found for 'checks' $F(2, 54) = .4, p = .67$ and 'reassurance seeking', $F(2, 54) = 1.28, p = .29$.

The variables 'hesitation' and 'time taken' were examined using Kruskal Wallis tests as data were not normally distributed. There was no significant difference between groups on hesitations, $\chi^2(2)=3.56, p=.17$. Figure 2 shows the mean number of reassurance seeking (Log^{10}), hesitation and checks (Log^{10}).

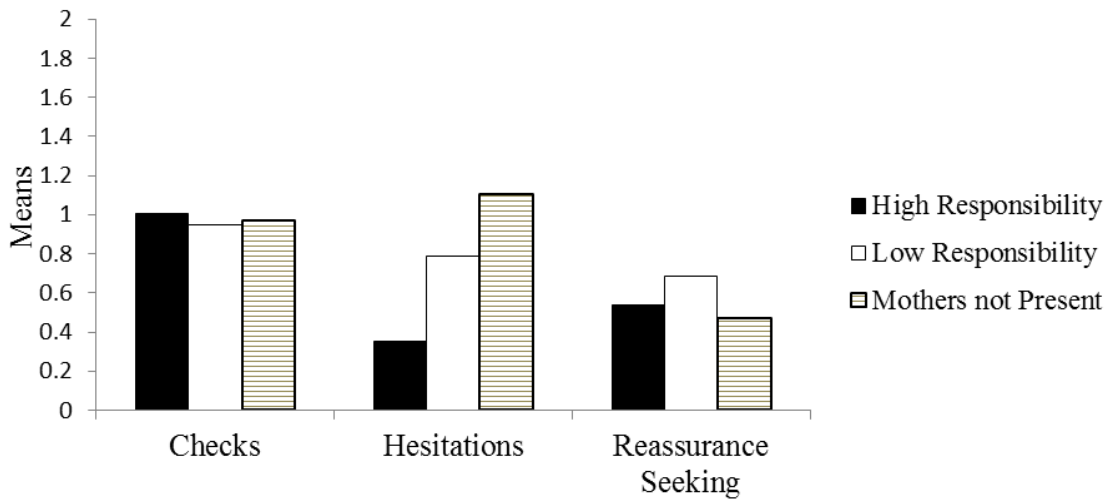


Figure 2. Means for checks, hesitations and reassurance seeking.

There was a significant between groups difference for time taken to complete the task, $\chi^2(2) = 8.57, p = .01$. Follow-up Mann Whitney tests on pairs of groups indicated that the 'mothers not present' group ($Md = 391$) took significantly longer to complete the task compared to the high responsibility group ($Md = 316$), $U = 95, z = -2.5, p = .01, r = .56$; and the low responsibility group ($Md = 321$), $U = 99, z = -2.56, p = .01, r = .59$. Figure 3 shows the means for time taken to complete the task.

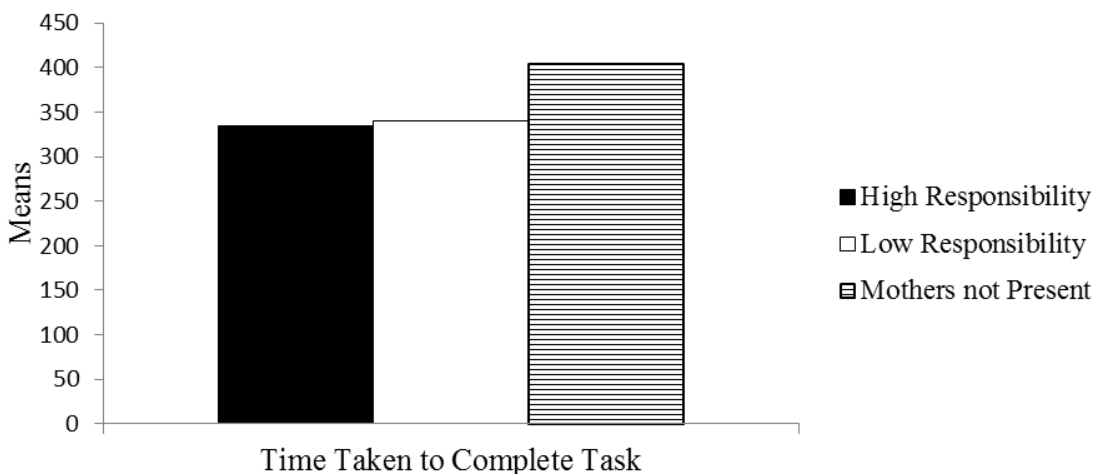


Figure 3. Means for time taken to complete the task.

An ANCOVA was used to examine differences in post-task STAIC scores between groups with pre-task STAIC scores and PANAS Negative Affect scores as covariates. No significant group differences in post-task anxiety were detected when pre-task anxiety and PANAS NA were controlled for, $F(2, 54) = 2.03, p = .14$.

3.9 Summary of Results

A summary is presented of the analyses in relation to the original research hypotheses and questions.

Hypothesis 1. *Mothers in the high responsibility condition will offer more reassurance to their children than mothers in the low responsibility group.*

Contrary to the hypothesis, there was no significant difference in reassurance seeking between mothers in the low responsibility group and mothers in the high responsibility group. Hypothesis 1 is therefore not supported.

Hypothesis 2. *Children in the high maternal responsibility condition will seek more reassurance than those in the low maternal responsibility group. **Research Question 2a).** Will children whose mothers are not present during the task seek different amounts of reassurance than children in the other conditions?*

There was no significant between groups difference in children's reassurance seeking. Therefore, Hypothesis 2 is not supported. The answer to question 2a) is that there is no difference in reassurance seeking between children whose mothers were not present and the children in the other conditions.

Hypothesis 3. *Children in the high maternal responsibility condition will check more, hesitate more and take longer to complete the task than those in the low maternal responsibility group. **Research Question 3a).** Will children whose mothers are not present during the task*

differ in the amount of checks, hesitations and time taken than those children in the other conditions?

There was no significant between groups difference in numbers of checks or hesitations. There was a significant between groups difference in time taken to complete the task. A follow up Mann Whitney test revealed that children in the ‘mothers not present’ group took significantly longer to complete the task than children in the other conditions. As no differences were found between children in the ‘high maternal responsibility’ condition and children in the ‘low responsibility condition’, hypothesis 3 is therefore not supported. The answer to the research question is that there are no differences in checks and hesitations between children whose mothers were not present and children in the other conditions. There is a difference in terms of time taken to complete the task, with children whose mothers were not present taking significantly longer to complete the task than children in the other conditions.

Hypothesis 4. *After completing the sorting task, children in the high maternal responsibility condition will report higher levels of anxiety than those in the low maternal responsibility group. **Research Question 4a).** Will children whose mothers are not present during the task report different levels of post –task anxiety than children in the other conditions?*

There was no significant between groups difference on anxiety after completing the sorting task. The hypothesis is therefore not supported. The answer to question 4a) is that there is no difference in post-task anxiety between children whose mothers were not present and the children in the other conditions.

3.10 Post-hoc Analysis

Further analysis of the data was conducted after the hypotheses had been tested in order to tentatively explore the nature of relationships between the different variables. As the analysis

was not planned it was not subject to the same preliminary testing as the planned analyses. For example, assumptions of normality and linearity were not tested. For this reason, the results of this analysis are interpreted extremely tentatively in section 4.2.5. The relationships between all variables (confounding and dependent) were explored using Pearson product-moment correlation coefficients. Relationships between variables that were of interest and were found to have a medium or strong relationship are reported below.

There was a medium negative correlation between maternal positive affect (measured by the PANAS –PA) and child reassurance seeking, $r = -.3, n = 58, p < .05$, with lower levels of maternal positive affect associated with higher levels of child reassurance seeking. There was a medium positive correlation between maternal negative affect (measured by the PANAS –NA) and child reassurance seeking, $r = .3, n = 58, p < .05$, with greater levels of maternal negative affect associated with higher levels of child reassurance seeking. There was a medium negative correlation between mother's reassurance giving behavior and children's post-test anxiety (as measured by the STAIC), $r = -.3, n = 58, p < .05$, with higher levels of maternal reassurance giving associated with lower levels of child anxiety post-test. Further explanation of the nature of these relationships and the limitations of their interpretation is given in section 4.2.5.

CHAPTER FOUR

Discussion

4.1 Chapter Overview

This chapter begins with an evaluation of the findings in relation to the research hypotheses and current literature. The post-hoc analysis of the data is also discussed. Following this, a methodological critique is presented, highlighting the strengths and weaknesses of the study. Implications for clinical practice and current psychological theory are presented, followed by possible avenues for future research. The chapter ends with an overall summary and conclusions from the study.

4.2 Evaluation of Findings

4.2.1 Hypothesis 1.

Mothers in the 'high responsibility' condition will offer more reassurance to their children than mothers in the 'low responsibility' condition.

The results indicate that the experimental manipulation did not have a significant effect on the dependent variable of maternal reassurance giving. There was a trend for mothers in the low responsibility group to offer more reassurance than mothers in the high responsibility group, contrary to the hypothesis. It is possible that this finding would have been statistically significant if there had been enough participants to achieve significant power.

The manipulation of mothers' responsibility did appear to have some influence on their child's behaviour but not in the way predicted. Mothers who were told that their child had no responsibility offered more reassurance than those who were told their child had high responsibility for the task. This finding is surprising given previous work at UEA that found mothers who believed their child had high responsibility for the task, gave more reassurance than

mothers who believed their child had low responsibility. Given that the manipulation of child responsibility and maternal responsibility was conducted in the same way as in previous studies, it is not clear what would account for the contrary findings. Some possible explanations are discussed below.

At baseline, before any task instructions were given, mothers in the low responsibility group reported significantly higher levels of negative affect than the mothers in the other groups. Negative affect is regarded as an indication of anxiety, with high NA reflecting high anxiety (Tellegan, 1985), suggesting that mothers in the low responsibility group were more anxious than the other mothers. It is not clear why these mothers would have higher levels of anxiety as there were no differences in procedure between the groups prior to the sorting task. It is possible that mothers in the low responsibility group offered more reassurance because they were more anxious. Maternal anxiety may have had a stronger influence on children's behaviour than inflated maternal responsibility. However, maternal negative affect was controlled for in the main analyses.

Another possible explanation for the finding is that mothers in the high responsibility group were not convinced by the manipulation and did not believe their child had responsibility for the task. If this were the case, mothers in the high responsibility group did not experience an inflation of their responsibility and mothers in both groups had similar levels of responsibility. The remaining difference between the groups was that mothers in the low responsibility group received explicit information from the experimenter that their child had no responsibility for the task. This may have influenced maternal behaviour. For example, mothers may have felt that a demand of the task was to contribute to the manipulation by artificially offering reassurance.

This would suggest that the manipulation of maternal responsibility was confounded by other elements of the procedure. Improvements to the manipulation are suggested in section 4.6.1.

4.2.2 Hypothesis 2

*Children in the 'high maternal responsibility' condition will seek more reassurance from their mothers than children in the 'low maternal responsibility' condition. **Research Question 2a).** Will children whose mothers are not present during the task seek different amounts of reassurance than children in the other conditions?*

The results indicate that there were no significant differences in reassurance seeking between the groups. Children in the low maternal responsibility group sought the most reassurance, followed by the children in the high maternal responsibility group. The manipulation of responsibility was the same for all children across groups. Differences in their reassurance seeking behavior could be attributable to a) whether their mother was present and b) the behaviour of their mother if present. Differences could also be accounted for by individual factors that were not controlled for in this study. There was a trend for children in the high and low responsibility groups to seek more reassurance than children in the 'mother not present' group (who were able to seek reassurance from the experimenter), tentatively suggesting an effect of maternal presence on child reassurance seeking. Interestingly, there was also a trend that children in the low maternal responsibility group, whose mothers provided the most reassurance, sought the most reassurance. This tentatively suggests that there may be a relationship between maternal reassurance giving and child reassurance seeking. However, causal inferences cannot be made about this correlational relationship between variables.

4.2.3 Hypothesis 3.

Children in the 'high maternal responsibility' condition will check more, hesitate more and take longer to complete the task than children in the 'low maternal responsibility' condition.

Research Question 3a). *Will children whose mothers are not present during the task differ in the amount of checks, hesitations and time taken than those children in the other conditions?*

There was no significant difference between groups in terms of the number of times children checked. There were no significant differences between the groups in terms of number of hesitations. These elements of the hypothesis were not supported by the results. In relation to the research question, there were no differences in the number of checks and hesitations between children whose mothers were not present and children whose mothers were present. One explanation for few differences in checking and hesitations between groups is because children were allowed to seek reassurance from their mother or the experimenter which functioned as a form of checking. Rachman (2002) proposed that reassurance seeking is a form of 'checking by proxy' which would imply that checking and maternal reassurance seeking are functionally equal in reducing anxiety. The reassurance children sought and received may have helped to 'neutralise' any anxiety they had and created less need for checking. Given this explanation, you might expect to see more checking by children in the 'mothers not present' group, whose mothers were not present to provide reassurance. This was not the case however.

The results could therefore support the findings of Barrett and Healy-Farrell (2003) and Farrell and Barrett (2006) who argued that inflated responsibility beliefs are not central to childhood OCD but become more important during adolescence and adulthood. Alternatively, the results may indicate that the manipulation of children's responsibility was not strong enough to produce significant frequencies of behaviours. The task was relatively easy to complete and

the objective of how to prevent harm was clear (i.e. correctly sort the sweets). Parrish and Radomsky (2006) highlight that real-life scenarios are often ambiguous and it is not always clear what needs to be done in order to prevent perceived harm. A more difficult or ambiguous task may have elicited greater frequencies of checking and hesitation.

Examining the 'time taken to complete the task' element of research question 3a) revealed that children in the 'mothers not present' group took significantly longer to complete the task compared to the other groups (who did not differ in time taken to complete the task). The absence of difference between the two experimental conditions means that the hypothesis was not supported. A possible explanation for the finding, is that children in the 'mothers not present' group were more anxious pre-task because doing the task without their mothers' present was a more anxiety provoking experience compared to the other groups. Additionally, being alone with an unknown experimenter may have made them more anxious. Higher levels of anxiety could impact on children's speed of processing and influence how long it took to complete the task. Children in the 'mothers not present' group did report higher levels of pre-task anxiety although this was not significantly different between the groups

Alternatively, children whose mothers were present during the task performed the task more quickly because they felt encouraged by their mother's interest and potentially felt incentivised to work quickly. It was common for mothers to comment on how fast their child was doing the task which may have been rewarding for children, positively reinforcing a fast pace. As a non-clinical sample, mothers may have provided 'scaffolding' for their child to finish the task through positive and supportive input. Vygotsky (1986) highlighted parents role in helping their child learn within the 'zone of proximal development' so they are appropriately challenged to achieve success. Parental scaffolding behaviours have been linked to child task

performance (Pratt, Green & MacVicar, 1992). Mothers in this sample may have provided an appropriate amount of challenge and encouragement (rather than reassurance) to their children that facilitated their performance. This suggests that models of OCD applied to children should draw more on developmental theory of child cognitive development when considering the role of parents on children's learning experiences (see section 4.4.1 for further discussion).

4.2.4 Hypothesis 4.

*After completing the sorting task, children in the 'high maternal responsibility' condition will report higher levels of anxiety than those children in the 'low maternal responsibility' condition. **Research Question 4a).** Will children whose mothers are not present during the task report different levels of anxiety than children in the other conditions?*

No significant differences were found between the groups in terms of post-task anxiety when pre-task anxiety was controlled for, indicating that the hypothesis was not supported and that there were no differences between children whose mothers were not present and children whose mothers were present. Reeves et al. (2010) similarly found that inflated responsibility did not impact on children's level of anxiety post task. An explanation for this finding, consistent with Reeves et al. (2010), is that children were able to check, hesitate and ask for reassurance as often as they wanted during the task which may have brought about a short-term reduction in their anxiety through negative reinforcement. Had the children not been allowed to check the task or carry out any other neutralising behaviours, it is possible that post-task levels of anxiety would be higher. It is also possible that the reduction in anxiety brought about by the behaviours would wear off after a period of time and children would experience more anxiety and further urges to check after a delay. Overall, anxiety scores appeared to reduce from pre to post task suggesting that children's anxiety reduced once they had completed a relatively easy task.

4.2.5 Post hoc analysis of data

The relationships between variables were explored further in an unplanned analysis of the correlations between them. Three relationships in particular were found to demonstrate a medium strength correlation. Lower levels of maternal positive affect (as measured by the PANAS-PA) were associated with higher levels of child reassurance seeking. The PA scale is thought to represent alertness and enthusiasm with high levels reflecting high energy and pleasure and low levels reflecting low energy and low mood (Watson et al., 1988). The finding therefore suggests that lower levels of maternal mood are associated with greater levels of child reassurance seeking. The direction of the relationship cannot be inferred from the correlation but possible interpretations can be tentatively suggested. One possibility is that mothers' mood influences child reassurance seeking in some way. It is not clear whether low mood has a direct impact on eliciting higher levels of reassurance seeking in children or whether maternal cognitions or behaviours associated with low mood, mediate the relationship. Alternatively, children's tendency to seek reassurance could have a causal influence on maternal mood. It is documented that frequent demands for reassurance lead to frustration in others (Parrish & Radomsky, 2006) and this may, over time have an impact on mood.

Higher levels of maternal negative affect (measured by the PANAS-NA) were associated with higher levels of child reassurance seeking. The NA scale is thought to represent anxiety, with low levels reflecting calmness and higher levels representing anxiety. The finding therefore suggests that higher levels of maternal anxiety are associated with greater levels of child reassurance seeking. Once again, the direction of this relationship cannot be inferred but some possible interpretations are tentatively offered. It is possible that maternal anxiety has a causal influence on child reassurance seeking. This would be consistent with models of child anxiety

discussed in section 1.5 such as Hudson and Rapee (2004), who argued that parents' anxious beliefs convey messages to their children about the interpretation of threat. These children may seek more reassurance because they interpret more threat from the task and are primed to neutralise their anxiety through reassurance seeking. Alternatively, children's tendency to seek reassurance may have a causal influence on maternal anxiety.

Higher levels of maternal reassurance giving were associated with lower levels of child anxiety post task. Although the direction of causality cannot be inferred from this finding a possible interpretation is that children who received more reassurance from their mothers experienced a greater reduction in anxiety in the short term. The reassurance from their mothers may have acted to neutralise their feelings of responsibility about the task and consequently they rated their levels of anxiety lower. Similar to the discussion in section 4.24, it is not clear whether higher levels of maternal reassurance would eventually lead to higher levels of child anxiety after a delay because the initial neutralising effect wears off.

Much caution is needed in interpreting these findings for several reasons. As discussed in section 3.10, the analysis was not planned so it was not subject to the same preliminary testing as the planned analyses. For example, assumptions of normality and linearity were not tested. The results are therefore less reliable. Additionally, the effect sizes found in the analysis were not large and suggested only medium strength relationships between the variables. Finally, the post-hoc analysis provided information about correlations and as such, was not able to test for causality or the direction of any relationships.

In summary, the additional analyses provided further information about the outcome of the experiment. It provides tentative support for the proposal that there is a meaningful relationship between maternal behaviours and affect and child behaviours and affect, that was

not successfully demonstrated by the planned analysis. Implications of these results for future research are discussed in section 4.5.2

4.3 Methodological Critique

This section considers the methodological strengths and weaknesses of the study.

4.3.1 Design

The study used a between- subjects experimental design to investigate the relationship between maternal responsibility, maternal reassurance giving and OCD behaviours in children. The strength of experimental designs is that they allow causal hypotheses to be tested. This study manipulated maternal responsibility and measured the outcome of this on mother's and children's' behaviours. This design is beneficial because it helps to overcome some of the limitations of the existing research base which has been largely based on observational and questionnaire studies (see section 1.4.7). The addition of a group in which mothers were not present was the main unique feature of this design. A condition in which mothers were not present during their child's task was included in order to isolate the effect of maternal presence from maternal responsibility. Previous work has not examined this.

A between-subjects design can lead to confounding due to the variability in individuals between groups. However, a repeated measures design would not have been possible in this study because the carry-over effects would have compromised the manipulation. Given the challenges with recruitment (see section 4.3.3), it was not practical to match the groups in terms of key variables such as age and gender. These variables were measured and compared as part of the analysis and revealed no between group differences. Other variables were measured and compared between groups, including child anxiety, OCD symptoms and depression. This is a strength of the study as the literature review highlighted that differences between groups are

often not specific to OCD but related to depression and anxiety. There were no significant differences between the groups on these child variables suggesting that they had no confounding influence. Maternal affect was also recorded and analysed indicating a significant between group difference. In order to reduce the confounding impact of negative affect, it was entered as a covariate on all analyses.

4.3.2 Participants

A non-clinical sample was purposefully used in this study so that aetiological mechanisms could be examined. Whilst using clinical samples is highly relevant to our understanding of inflated responsibility and reassurance seeking, it does not allow the development of OCD behaviours to be examined experimentally as they already exist. A strength of the study is the use of primary school aged children (aged 9-11) which is useful for developing developmentally appropriate models of OCD. The age range sampled is quite limited however, and didn't include adolescents. This makes it difficult to generalise the findings to older children and adolescents as the relationships between maternal behaviour and adolescent behaviour may be different to that seen in younger children.

Whilst the sample was reflective of the ethnic composition of the area it was sampled from, it does not reflect the ethnic composition of families across the UK as a whole. The ability to generalise findings from this study to maternal/child relationships outside of White British families is therefore limited. It is not clear whether ethnicity and/or cultural factors would influence the manipulation in any way and further research is required to determine this.

The study focused specifically on mothers and their beliefs and behaviours which allowed their influence on child behaviours to be isolated. This is a strength because studies have shown that there can be conflicting results when maternal and paternal influences are

examined together (Bogels & Brechman-Toussaint, 2006). This does mean that the study is not generalisable to fathers and additional studies examining paternal influence are warranted.

4.3.3 Recruitment

Several challenges were incurred during the recruitment process that led to difficulties in achieving adequate numbers of participants. Anecdotal feedback from several of the declining schools highlighted that OFSTED was conducting visits within the county and head teachers were reluctant to engage in additional projects during that time. The recruitment process took place within the spring and summer terms, during which time there were more pressures on schools to complete exams. Anecdotal feedback suggested that the autumn term is optimum for recruiting schools. It is unclear whether the schools that agreed to take part in the study were different in any meaningful way from those schools that declined to take part because in-depth information was not collected on schools that declined participation.

Of the schools that consented to take part, there was a low overall response rate (7%) which suggests that the sample is unlikely to be representative of the general population. It is not clear what the differences are between those children and mothers who declined to take part and those that agreed because information could not be collected about these children. Children and parents may have been reluctant to take part because they did not want a stranger coming into their home. Take up might be increased by conducting the research within the child's school or other local setting. Children and their parents may also have been put off if they have had negative experiences of the education system or health professionals. Anecdotally, the majority of mothers told the experimenter that they were involved in job roles related to academia or healthcare. Parents who have experience of research or healthcare may be more inclined to take part in such a study as they feel it is of benefit. The sample of mothers and their children may

therefore be biased by this. It would be valuable to collect more demographic information about families in order to better understand the characteristics of the sample and who it represents.

Response rates could potentially be improved by providing incentives directly to the children and their families. Sending packs directly to the parents instead of via the school may have increased take up although this is not clear as parents may be very used to liaising with their child's school. It would also significantly increase the cost of the study.

4.3.4 Statistical power

The size of the sample was based on power calculations using large effect sizes. This estimation came from Reeves et al. (2010) study which looked at children only. Fewer participants were recruited than needed due to issues with recruitment so there was not an adequate number to achieve power. This may have impacted on the ability of the analyses to detect significant effects. Ideally a larger size sample would be recruited to ensure sufficient power.

4.3.5 Measures

4.3.5.1 Questionnaire Measures

A strength of the study was the use of reliable and valid measures to examine potential confounding variables and child anxiety. These measures demonstrated acceptable levels of internal consistency in the past and during the current study. The measures have also been commonly used in many of the studies outlined in the literature review. The OCD-subscale of the SCAS was used to examine OCD symptoms in children. It was noted during the study that some children found the questions difficult to understand and were inclined to indicate 'yes' to the answer when it did not apply to them. Children who did not ask for help with these questions may have made similar errors in interpretation resulting in inflated OCD scores. A more

comprehensive measure of OCD could be added to give a more accurate reflection of baseline OCD symptomology, such as the Leyton Obsessional Inventory – Child version (Berg, et al., 1988). This would also make the procedure longer and potentially more challenging for the children. All the child-relevant measures were self-reported by the child and it may be more comprehensive to include parent-report measures in addition. This may be quite relevant for younger children in this sample although it would add time onto the procedure and increase the amount of questionnaires to fill in.

4.3.5.2 Behavioural measures

In this study, observations were made of maternal and child behaviours during the sorting task. The task was video recorded so that behaviours could be carefully measured and scrutinised after the event. The coding system for counting behaviours was based on previous studies using this experimental paradigm (e.g. Reeves et al., 2010, Reynolds et al., in press). A strength of this approach is that data were collected about behavioural responses, allowing for direct testing of aspects of the inflated responsibility model. Additionally, inter rater reliability was acceptable for all but one of the behavioural measures, indicating good levels of agreement between different raters. The level of inter-rater reliability for the measure ‘checks’ was just below the level considered acceptable (Londis & Koch, 1977). This suggests that the coding of ‘checks’ may be less reliable than the other measures and could be improved.

A limitation of using a coding system to collect data on behaviours designed specifically for the purposes of the experimental paradigm is that it has not been validated across other types of studies. Furthermore, the system for coding maternal reassurance includes behaviours that are more readily open to subjective interpretation. For example, incidences of maternal reassurance included counts of mothers ‘glancing’ at their child. It may be that mothers looked at their child

for reasons other than the provision of non-verbal reassurance. Glances towards their child may be influenced by maternal inflated responsibility but it is difficult to rule out other influences or intentions. Maternal glancing may be a behavior that encourages and facilitates a child with their task and therefore conceptualized as a form of 'helpful' reassurance. For this reason, it may be of interest to analyse the observations with the incidence of glances removed. Further discussion of the nature of reassurance can be found in section 4.4.1. It was also noted that mothers provided varying degrees of verbal reassurance whilst the questionnaires were being filled in and during the task instructions. It would be interesting to extend the recording of mother and child behaviours to the rest of the procedure.

4.3.6 Experimental Manipulation

A strength of the manipulation is that it is developmentally appropriate and engaging. Children seemed interested in completing the task. Completing the task in your own home could have greater ecological validity than other environments because this is the environment in which behaviours should occur most naturally. On the other hand, mothers and children may have felt more relaxed at home and were less likely to take on responsibility than if they were in a more formal setting.

A limitation of the manipulation was that it did not appear to be satisfactory in manipulating mother's sense of responsibility. All mothers were taken aside (out of range of their child) and given information about their child's task. The manipulation may not have been strong enough and many of the mothers may have been aware that the sweets were not going to be given to a group of children. A stronger manipulation of responsibility may involve conducting the procedure in a more formal setting such as a university. As the tasks were carried out in people's homes it was challenging to control the conditions of each task. There were

sometimes slight variations in how the task was laid out due to seating and surface limitations. There were also variations in the time of day, lighting and other distractions going on. This may have impacted on children's level of concentration and motivation to do the task. Using the same setting for the task such as the child's school or university would allow the procedure to be standardised.

4.3.7 Researcher bias

It was not possible for the researcher to be blind to the condition that was being carried out each time. This could have introduced experimenter bias into the study. Employing somebody independent to carry out the tasks may be preferable although this was not possible for this study. The Instructions were written down and read out aloud each time to help standardise the procedure. However, instructions could have been recorded and played aloud to improve this process. The reliability of the coding was examined by another research and demonstrated acceptable levels of inter-rater agreement. It was not possible for the other researcher to be entirely blind to the different conditions as a third of the recordings would not have had a mother present. However, the researcher did not know anything about the conditions or the aims of the study.

4.4 Implications of the Study

4.4.1 Theoretical Implications

The results of this study did not support a link between maternal inflated responsibility beliefs and reassurance giving behaviours. There was a trend suggesting that greater maternal reassurance giving was linked to greater reassurance seeking in children but not to other neutralising behaviours. If this finding could be replicated then it would have implications for

cognitive models of OCD in childhood and models of parental influence on child anxiety generally.

The inflated responsibility model of OCD (Salkovskis, 1985, 1989, 1999) suggests that individuals seek reassurance to neutralise the anxiety they experience and reduce or dilute the sense of responsibility they feel for a particular outcome. Engaging in reassurance seeking brings about short term reductions in anxiety. The reduction in anxiety is short lived and individuals feel urged to seek further reassurance because the action has been negatively reinforced. The process of negative reinforcement exacerbates OCD symptoms. Parents may be involved in the reinforcement and maintenance of their child's OCD through the provision of reassurance when their child requests it. In addition to maintaining OCD symptoms, parents may be influential in the development of OCD symptoms such as reassurance seeking. If the finding that maternal reassurance giving influences child reassurance seeking could be replicated then there would be support for a bi-directional influence of parental and child behaviours on the development of OCD. The provision of reassurance to children, possibly as a consequence of parental inflated responsibility beliefs, may be an important factor in the aetiology of OCD-type behaviours. Cognitive models of childhood OCD could expand to include parental beliefs and behaviour as these may be key aetiological and maintaining factors.

In relation to the inflated responsibility model of OCD replicated findings could provide potential support for the pathways to inflated responsibility outlined by Salkovskis et al. (1999). Parents who are overprotective and controlling may be likely to provide unsolicited reassurance to their children. This could reduce their child's ability to experience responsibility, leading them to develop responsibility sensitive cognitions which make them vulnerable to developing OCD symptoms.

This would also have implications for general models of child anxiety models that suggest a bi-directional influence of child and parent behaviours. Hudson and Rapee (2004) propose that parents who act in more controlling and overprotective ways convey messages to their child that they cannot cope which inhibits their learning. If reassurance giving was conceptualised as a form of overprotection then it could potentially encourage uncertainty and threat interpretations which can lead to an increase in avoidance or anxiety neutralising behaviours such as reassurance seeking. The development of these behaviours may reinforce parents own sense of threat, thereby reinforcing their original reassurance giving.

Theoretically, it is important to develop models of childhood OCD and anxiety that allow for developmentally and culturally 'normal' expressions of reassurance seeking and giving. Children in all conditions sought some level of reassurance and mothers demonstrated behaviours that appeared to encourage and facilitate their child's performance (see section 4.2.3). It is therefore important that models of OCD refrain from conceptualizing reassurance as inherently unhelpful or 'bad' and begin to distinguish between excessive levels of reassurance giving and reassurance that is appropriate and possibly helpful.

4.4.2 Clinical Implications

If the finding that maternal behaviour influences some OCD behaviours in children can be replicated then there are significant clinical implications for the treatment of childhood OCD. During the assessment of children with OCD there should some focus on how the family responds to and accommodate their child's symptoms. It would be useful to build a comprehensive picture about how frequently reassurance is provided and whether it is given by all members of the family or just certain individuals. Understanding whether unsolicited reassurance was routinely offered would be paramount. Assessment schedules for OCD could

extend to incorporate these key questions and measures such as the recent Reassurance Seeking Scale (Rector et al., 2011) could be routinely administered.

Information about family accommodation would form an essential part of formulating OCD in childhood and guide the intervention plan. Reassurance seeking and providing reassurance could be explicitly addressed in treatment with the child and their parents. This may involve aspects of psycho-education about reinforcement and anxiety, and behavioural experiments involving changing aspects of reassurance giving. As discussed in the previous section, interventions could highlight the differences between excessive and appropriate amounts of reassurance to ensure that parents recognise the capacity their actions have for ‘scaffolding’ facilitating their child’s learning during anxious experiences. Increasing the involvement of parents in treatment for OCD in children may have implications for the improvement of the existing treatment evidence base. Treatment trials are currently being conducted in the UK (ROCKY project) to help identify the efficacy of family based CBT for OCD compared to individual CBT.

Parents who have OCD or other anxiety disorders may have particular difficulty in responding to family treatment for their child because of their own predictions about the consequences of withholding reassurance (Peris et al., 2008). In these cases, parents may require more intensive work around their own anxious cognitions and behaviours. This could lead to parent-only treatments for OCD which have demonstrated success in the treatment of child anxiety difficulties (Cartwright-Hatton, McNally, White & Verduyn, 2005). Children’s services may be able to make predictions about the level of parental involvement needed based on the outcome of an assessment of family accommodation and screening of parental mental health.

This could result in a triage system that allocates interventions for childhood OCD within a stepped care model.

4.5 Recommendations for Future Research

4.5.1 Methodological Improvements

Future work could focus on improving the manipulation of mothers' responsibility. One way this could be achieved is asking mothers to sign an agreement acknowledging their child's responsibility for the task. Lopatka and Rachman (1995) found that asking adult participants to sign responsibility contracts led to stronger manipulations of responsibility. To better understand the impact of the manipulation on mothers it would be helpful to include a measure of responsibility beliefs pre and post task such as the Responsibility Attitude Scale (Salkovskis et al., 2000)

As discussed previously, the manipulation may be more effective if it is carried out in a different setting away from the family home in which mothers and children may feel more relaxed and less likely to take on responsibility. Conducting the task in a 'lab' setting in a university could make the manipulation more effective because mothers would be more likely to accept the premise. This would also allow the task to be carried out under standardised conditions. Providing taped instructions would help to reduce potential researcher bias in the way the instructions are delivered.

Given that ratings of children's anxiety reduced after completing the task it would be interesting to modify the manipulation to cover a longer timeframe. This would allow us to see whether the reduction in anxiety is a short term consequence of carrying out checking and other neutralising behaviours. If this were the case then we could expect to see an increase in anxiety after a delay (children could complete further distractor tasks after the sorting task). In addition

to using the STAIC to measure child state anxiety it may be helpful to collect subjective ratings from children on how anxious or worried they feel about the task/how they performed the task. These ratings would provide more specific information about children's feelings towards the task than the STAIC.

The manipulation focused on several child behaviours related to OCD (checking, hesitations and reassurance seeking). It is not clear whether these behaviours are functionally equivalent in that they all bring about a reduction in anxiety or sense of responsibility (Rachman, 2002). It may be useful to prevent children from engaging in all the behaviours in order to isolate just one. For example, the sorting task could be designed so that children cannot check how they have sorted the sweets. If reassurance is a form of 'checking by proxy' (Rachman, 2002) then we would expect to see an increase in the amount of reassurance seeking.

In the current study, a condition was added in which mothers were not present because previous work could not be clear about the extent to which maternal presence (rather than maternal responsibility) impacted on child behaviours. However, this did not control for the presence of mothers and was therefore not a control group. To address this issue, an alternative condition could be added to the experiment instead, that attempts to control for the presence of mothers during the task. This could involve having mothers present whilst their child completes a neutral task, such as sorting out the sweets by colour. This could help to distinguish between the impact of maternal presence and the impact of maternal responsibility on child behaviours.

4.5.2 Future Research and Theoretical Questions

Further experimental research is warranted to examine the relationship between parental behaviours and child OCD behaviours to determine the nature and direction of the relationship. In the current study, maternal responsibility was the independent variable and changes in

maternal behaviour were allowed to occur naturally in response to this. Alternatively, maternal reassurance giving could be manipulated artificially by instructing mothers to behave in certain ways. This would allow the maternal behaviours to be standardised, helping to isolate impact on child behaviour. Mothers could be instructed to say certain reassuring phrases or comments at set intervals. Creating an artificial manipulation would allow a variety of questions to be addressed, such as what is the impact of reassurance from different sources (i.e. parent, teacher, and experimenter)? Parrish and Radomsky (2006) also highlight that reassurance in real life can be ambiguous because people are often frustrated by frequent requests for it. Manipulating the level of ambiguity of the reassurance is something that could be investigated which may allow us to understand more about what types of reassurance have the most influence on behaviour.

A significant drawback to this paradigm would be the loss of ecological validity due to the artificial manipulation. Radmosky and Parrish (2006) provided artificial feedback to their adult participants and reported that participants may have found it unconvincing and excessive, compromising the validity of their study. It would be important to pilot any new manipulations to determine whether it was effective and convincing.

Given the findings of the post hoc analysis, it may also be beneficial to explore the correlations between maternal and child variables in the absence of a manipulation of maternal responsibility. The findings highlighted that maternal mood and anxiety were associated with child behaviours and anxiety and it would be useful to see if these findings are replicated. Maternal mood (rather than anxiety) has not been addressed in previous research on reassurance seeking and child anxiety, so this would be an important area to expand on. A drawback of

exploring correlations is that it would not provide inferences about causality or the direction of relationships.

Alongside on-going experimental work, future research could focus on developing ways of measuring reassurance seeking in children. Rector et al. (2011) highlight the paucity of research on reassurance and anxiety disorders in children. The Reassurance Seeking Scale that Rector et al. (2011) developed could be used to investigate the role of reassurance in childhood OCD compared to other anxiety disorders. Measures could also be used to examine the relationship between fathers and children's reassurance seeking and to explore the nature of reassurance in other cultures and minority ethnic groups. This would allow us to better understand the generalisability of cognitive models of OCD and whether they are broad enough to account for cross-cultural differences in disorders.

Building on this, more research is needed to understand what 'normal' reassurance seeking and giving looks like within families. Collecting normative data and understanding what factors contribute to individual differences would help us to conceptualise what an 'optimum' level of reassurance might be. It would also allow researchers to move away from labeling reassurance as inherently 'unhelpful'.

Finally, CBT intervention studies are required to examine the impact of targeting reassurance seeking/provision on OCD symptoms during treatment. Studies can focus on isolating the active elements of treatment through mediation analysis.

4.6 Overall Summary and Conclusions

The development of OCD during childhood has many implications for children's functioning across many areas of their lives. It also has a significant impact on their families, who live alongside the disorder. CBT with ERP is the recommended treatment for children with

OCD (NICE, 2006) and these treatments are derived from cognitive models of OCD that were developed with adults. Research has been conducted that examines the applicability of these models to children and found that many of the proposed cognitions are relevant to childhood OCD. The applicability of the inflated responsibility model (Salkovskis, 1985, 1989, 1999) has been supported by several studies, including experimental manipulations (Reeves et al., 2010; Reynolds et al., in press). This model also highlights the role of early experiences and parental influence on the development of inflated responsibility beliefs that may engender a vulnerability to developing OCD. The role families' play in accommodating their child's OCD has also received attention and research suggests that parents may be involved in maintaining OCD symptoms. The provision of reassurance is a form of accommodation although there has been little investigation of its role in OCD (Parrish & Radomsky, 2006; Rector et al., 2011).

This study built on previous work examining the impact of inflated responsibility on children's behaviour. This study aimed to investigate the relationship between inflated maternal responsibility, maternal reassurance giving and child behaviours by extending an experimental paradigm devised by Reeves et al. (2010). It was hypothesised that mothers whose responsibility was inflated would offer more reassurance to their child than mothers in the low responsibility condition. Additionally, it was predicted that children whose mothers had inflated responsibility would seek more reassurance, check and hesitate more during the task and take longer to complete the task than children whose mothers did not have inflated responsibility, who would seek more reassurance and engage in more behaviours than children whose mothers were not present during the task. A control group, in which mothers were not present, was added so that the influence of maternal responsibility could be distinguished from the influence of maternal presence.

The results of the study did not support the research hypotheses and alternative explanations for the findings were explored. There did appear to be a trend for children whose mothers gave the most reassurance (low responsibility group) to seek the most reassurance although this was not statistically significant which may be due to insufficient power. If this finding could be replicated under a stronger manipulation with adequate power it suggests that maternal reassurance giving has a causal role in the development of children's reassurance seeking. Methodological improvements to improve the manipulation were suggested. Determining whether maternal reassurance giving influences the onset of child behaviours relevant to OCD has significant theoretical and clinical implications that could help to improve treatments for childhood OCD. Future research should include further experimental studies to test causal aspects of cognitive models in children and treatment studies to address the impact of targeting parental behaviours on treatment outcome.

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Appendix A

Information about participating schools from OFSTED Website.

School A

This is a smaller than average school of its type with the vast majority of pupils coming from White British families. The proportion of pupils with special educational needs and/or disabilities is average. The majority have moderate learning difficulties. A very small minority of the pupils are at an early stage of learning English. The proportion of pupils eligible for free school meals is average.

School B

This is a larger than average size school. The percentage of pupils eligible for free school meals is below average as is the proportion of pupils with learning difficulties and/or disabilities.

School C

This school is larger than most primary schools. The proportion of pupils known to be eligible for free school meals is average. The majority of pupils are of White British heritage. The proportion of pupils who come from minority ethnic backgrounds is below average, and a few of these pupils speak English as an additional language. The proportion of pupils with special educational needs and/or disabilities is below average.

School D

Most pupils come to this larger than average sized primary school from the town of Market Harborough. The proportion identified as having learning difficulties and/or disabilities is below average as is the number eligible for free school meals.

School E

This Church of England Junior School is smaller than the average sized primary school. Nearly all pupils are from a White British background. The proportion of pupils known to be eligible for free school meals is below the national average. The proportion of pupils with special

educational needs and/or disabilities is higher than the national average, as is the proportion of pupils with a statement of special educational needs. Most have moderate learning difficulties, speech and language disorders or emotional and behavioural problems.

School F

Pupils come to this larger-than-average-size school from the town of Desborough. Attainment on entry to the school varies between below average and average, and is broadly average this year. The proportion of pupils entitled to free school meals is broadly average. The school has a broadly average proportion of pupils with learning difficulties and/or disabilities, although year groups vary and these pupils are not evenly distributed throughout the school. Most pupils are from White British backgrounds with a few pupils coming from Traveller communities.

School G

The school is smaller than average. Almost all pupils are from White British backgrounds. The proportion of pupils who have special educational needs and/or disabilities is close to the national average. The proportion of pupils known to be eligible for free school meals is below the national average. When the school was inspected in June 2008, it was judged to require special measures because it failed to give its pupils an acceptable standard of education. Only one teacher present at the time of that inspection remains on the staff.

Appendix B

Parent Invitation Letter



University of East Anglia

School of Medicine, Health Policy and Practice

Rachel Badham
Elizabeth Fry Building, Room 2.30
Norwich, NR4 7TJ
R.badham@uea.ac.uk

Dear Parent

'A study of children and their mothers' responsibility for sorting out sweets'.

I am a Trainee Clinical Psychologist studying at the University of East Anglia and I am currently carrying out a research project that involves working with children and their mothers.

As your child is a pupil at the school I am working with, I am writing to invite you and your child to take part in the research. The project is looking at the short term effect of giving children and their mother's responsibility for a task that involves sorting sweets. In previous projects like this, most children have enjoyed taking part.

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 about the project you are welcome to contact me to discuss the project further.

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

Thank you for your time.

Yours faithfully

Rachel Badham

Trainee Clinical Psychologist

Supervised by:

Professor Shirley Reynolds

Clinical Psychologist

Dr Eleanor Sutton

Clinical Psychologist

Appendix C

Parent Information Sheet

A study of children and their mothers' responsibility for sorting out sweets.

I would like to invite you and your child to take part in a research project. Before you decide to take part, you need to know why I am doing this research and what it will involve.

Please take time to read this information to help you decide whether you and your child would like to take part. I have also included some information for your child; it would be helpful if you would pass it on to them and talk about it. Please contact me on the number given below if there is anything that is not clear or if you would like more information. Thank you for your time.

What is this project about?

I am hoping to find out whether giving children responsibility for a sorting task affects their thoughts, feelings and behaviours. I am also interested in finding out whether giving mothers different levels of responsibility for their children's task also affects their child's thoughts, feelings and behaviours. We want to study this because we hope it will help further our understanding of psychological difficulties in children and help people to develop treatments for children and their families.

Why have I been chosen to take part?

Your school has agreed to help us with our research, and has allowed us to contact parents whose children are aged between 9 and 11 years old who have *not* been identified as having psychological difficulties.

This is why you and your child have been invited to take part.

About myself

I am a Trainee Clinical Psychologist studying at the University of East Anglia, in the final year of my training. I have experience in working with children, and I am particularly interested in child psychology.

How will my child and I be involved?

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

- Fill in the enclosed contact form and return to school in the envelope provided.
- I will call you to arrange a suitable time to meet with you and your child at home. During the phone call, you can ask me as many questions about the project as you like.
- I will meet with you and your child at your home. If you and your child are happy to take part I will ask you both to sign consent forms. The meeting will probably last 45 minutes.
- I will ask your child some questions about how they are feeling and I will ask you to complete a brief questionnaire about your child and to complete a short questionnaire about how you are feeling. This should take about 15 minutes.
- I will then ask your child to complete a short task, sorting sweets into containers, based on their colour and whether they contain nuts or not. This task will take about 10 minutes to complete. I may or may not ask you to be involved in your child's task. At this stage, it is not possible to know whether you will be asked to be involved or not as it will be decided on a random basis.
- I would like to video-record your child whilst they sort the sweets so that I can look at how they did the task in more detail and record some information. The video tape also means that another person can check how well I've analysed the information. After we have recorded the information the tapes will be destroyed.
- After the task, your child will be asked the same questions again about how they are feeling. This should take about 5 minutes.

- When we have finished I will give you some information to keep about the study. You and your child can ask me any questions about taking part in the study. There will be contact details on the information sheet if you want to ask anymore questions or have any concerns once I have gone.

Are there any risks to my child?

This is very unlikely. The sorting task has been used in the past with 100s of children of the same age. Most children enjoyed the task and none were upset. If your child did become upset in any way, I would stop the task immediately and you would be able to comfort them. We could discuss the reason for their distress together.

In this study we want to use children who have a very similar attitude to responsibility. We will ask your child some initial questions about their feelings. If your child does not meet our criteria we will not include them in the study. This will not imply that your child has any problems but if your child seems to be experiencing higher than usual levels of worry or anxiety (from their answers to the questions) I would discuss this with you. We would have the opportunity to discuss any concerns you have and what you might want to do.

What are the potential benefits?

There are no direct benefits for you or your child. However, this is an opportunity to get involved in research that could help improve our understanding of psychological difficulties in children. For every child and parent pair 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

Do I have to take part?

No. It is up to you and your child to decide whether to take part.

Can I change my mind?

Yes. 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.

Will our information be kept confidential?

The project will follow the Data Protection Act at all times. This means that I will not keep any information about you or your child that could identify you to someone else. Any records will have a unique identity number rather than your name. Written records and video tapes will be kept in a locked cupboard at the University of East Anglia and destroyed at the end of the study. Records kept on a computer will be stored securely and will only be accessed by a secure password.

Who has reviewed the study?

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

Who can I talk to if I want to know more or if I have any concerns?

You can contact me (Rachel Badham) at r.badham@uea.ac.uk

Alternatively, you could contact Professor Shirley Reynolds at the University of East Anglia. You can contact her at the following address:

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 contact form and return it to the school office* in the envelope provided.

When I have received the form, I will call you to arrange a convenient time to meet with you and your child at home.

Thank you for your time

Appendix D

Children's Information Sheet

Information for children

'A study of children and their mothers' responsibility for sorting out sweets'.

Hi! I am doing a project and would like to invite you and your mum to take part. Before you decide I would like you to read this information and talk about it with your mum or dad. You can ask me as many questions as you like before you decide if you want to take part.

What is the project about?

I am a Trainee Clinical Psychologist studying at the University of East Anglia. I am working on a project with some help from some people at the University. The project is trying to find out the answers to questions. We want to know if giving children responsibility for a task affects what they do and how they feel. We also want to find out if having their mums with them also affects what they do and how they feel.

Why have I been asked to take part?

Your school is helping us with this project. We want to work with 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 that you would like to take part and your parents are happy for you to take part, this is what will happen:

- Your mum or dad will fill out a form and send it back to your school
- I will arrange with your mum or dad to come and visit you at home.
- When I visit you at home, I will answer any questions you have. If you are happy to take part, I will ask you to sign a form to show that you agree to take part and understand what it's about.
- I will ask you some questions about your feelings. This will take about 15 minutes.
- You will complete a task, which involves sorting sweets, which is not difficult. The task will take about 10 minutes for you to finish.
- 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 we have finished with them.

- After the task is finished, I will ask you some more questions about your feelings which will take about 5 minutes.
- After that we can talk about the project and you can ask me any questions you like. I will leave some information about the project and some phone numbers in case you or your mum want to ask me anything else once I've left.

Who will know what I said?

Only people involved in the project will know what you say. If you tell me something that is worrying you then I might share it with your parents but I will talk to you about it first.

Do I have to take part?

No -you do not have to take part in this project. If you decide to take part in the project, you can change your mind at any time, without giving a reason. Nothing bad will happen if you change your mind.

If you would like to take part in the study please tell your parents. They can let me know by filling in a form. I will then arrange to come and see you and your mum at home.



Rachel Badham, Trainee Clinical Psychologist

Professor Shirley Reynolds
Clinical Psychologist

Dr Eleanor Sutton
Clinical Psychologist

Appendix E
Contact Form



School of Medicine, Health Policy and Practice

Rachel Badham
Elizabeth Fry Building, Room 2.30
Norwich, NR4 7TJ
R.badham@uea.ac.uk

PARENT/GUARDIAN CONSENT TO CONTACT FORM

Title of Project: *A study of children and their mothers' responsibility for sorting out sweets.*

Name of Researcher: Rachel Badham, Trainee Clinical Psychologist

Please complete this form and return to the school office if you and your child wish to be contacted about taking part in this study.
Thank you.

1. I have read and understood the information sheet for the above study.

2. I give permission for the researcher to contact me to arrange a time to meet with me and my child at home.

Please complete the following:

Name of Child

Child's Date of Birth

Name of School

Name of Parent / Guardian

Date

Signature

Home Telephone Number

Mobile Number

Work Tel Number



Appendix F

Consent Form for Mothers



School of Medicine, Health Policy and Practice

Rachel Badham
Elizabeth Fry Building, Room 2.30
Norwich, NR4 7TJ
R.badham@uea.ac.uk

PARENT/GUARDIAN CONSENT FORM

Title of Project: *A study of children and their mothers' responsibility for sorting out sweets.*

Name of Researcher: Rachel Badham, Trainee Clinical Psychologist

Please initial box

1. I have read and understood the information sheet for the above study.
2. I understand that mine and my child's participation is voluntary and that I am free to withdraw myself and my child at any time without giving any reason and without my child's medical care or legal rights being affected.
3. I understand that the sorting task my child completes will be recorded on video tape and that my child's name will not be identified on the tape. Tapes will be destroyed at the end of the project.
4. I agree that my child and I may take part in the above study.

Please complete the following:

Name of Child

Child's Date of Birth

Name of School

Name of Parent / Guardian

Date

Signature

Name of Researcher

Date

Signature

Thank you for your time.

Appendix G
Child Assent Form

School of Medicine, Health Policy and Practice

Rachel Badham
Elizabeth Fry Building, Room 2.30
Norwich, NR4 7TJ
R.badham@uea.ac.uk

ASSENT FORM FOR CHILDREN

Title of Project: *A study of children and their mothers' responsibility for sorting out sweets.*

Name of Researcher: *Rachel Badham, Trainee Clinical Psychologist*

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

Do you understand that the task you do will be recorded on video tape and that tape will not have your name on it. The video tapes will be destroyed at the end of the project. Yes / No

Are you happy to take part? Yes / No

Name _____

Date _____

Thank you for your help

Appendix H

Demographic Questionnaire

Title of Project: *A study of children and their mothers' responsibility for sorting out sweets.*

Name of Researcher: Rachel Badham, Trainee Clinical Psychologist

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
(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 I

Spence Children's Anxiety Scale

PLEASE PUT A CIRCLE AROUND THE WORD THAT SHOWS HOW OFTEN EACH OF THESE THINGS HAPPEN TO YOU. THERE ARE NO RIGHT OR WRONG ANSWERS.

- | | |
|--|------------------------------|
| 1. I worry about things..... | Never Sometimes Often Always |
| 2. I am scared of the dark..... | Never Sometimes Often Always |
| 3. When I have a problem, I get a funny feeling in my stomach..... | Never Sometimes Often Always |
| 4. I feel afraid..... | Never Sometimes Often Always |
| 5. I would feel afraid of being on my own at home..... | Never Sometimes Often Always |
| 6. I feel scared when I have to take a test..... | Never Sometimes Often Always |
| 7. I feel afraid if I have to use public toilets or bathrooms..... | Never Sometimes Often Always |
| 8. I worry about being away from my parents..... | Never Sometimes Often Always |
| 9. I feel afraid that I will make a fool of myself in front of people..... | Never Sometimes Often Always |
| 10. I worry that I will do badly at my school work..... | Never Sometimes Often Always |
| 11. I am popular amongst other kids my own age..... | Never Sometimes Often Always |
| 12. I worry that something awful will happen to someone in my family..... | Never Sometimes Often Always |
| 13. I suddenly feel as if I can't breathe when there is no reason for this..... | Never Sometimes Often Always |
| 14. I have to keep checking that I have done things right (like the switch is off, or the door is locked)..... | Never Sometimes Often Always |
| 15. I feel scared if I have to sleep on my own..... | Never Sometimes Often Always |
| 16. I have trouble going to school in the mornings because I feel nervous or afraid..... | Never Sometimes Often Always |
| 17. I am good at sports..... | Never Sometimes Often Always |
| 18. I am scared of dogs..... | Never Sometimes Often Always |
| 19. I can't seem to get bad or silly thoughts out of my head..... | Never Sometimes Often Always |
| 20. When I have a problem, my heart beats really fast..... | Never Sometimes Often Always |

| | |
|---|------------------------------|
| 21. I suddenly start to tremble or shake when there is no reason for this... | Never Sometimes Often Always |
| 22. I worry that something bad will happen to me..... | Never Sometimes Often Always |
| 23. I am scared of going to the doctors or dentists..... | Never Sometimes Often Always |
| 24. When I have a problem, I feel shaky..... | Never Sometimes Often Always |
| 25. I am scared of being in high places or lifts (elevators)..... | Never Sometimes Often Always |
| 26. I am a good person..... | Never Sometimes Often Always |
| 27. I have to think of special thoughts to stop bad things from happening (like numbers or words)..... | Never Sometimes Often Always |
| 28 I feel scared if I have to travel in the car, or on a Bus or a train..... | Never Sometimes Often Always |
| 29. I worry what other people think of me..... | Never Sometimes Often Always |
| 30. I am afraid of being in crowded places (like shopping centres, the movies, buses, busy playgrounds)..... | Never Sometimes Often Always |
| 31. I feel happy..... | Never Sometimes Often Always |
| 32. All of a sudden I feel really scared for no reason at all..... | Never Sometimes Often Always |
| 33. I am scared of insects or spiders..... | Never Sometimes Often Always |
| 34. I suddenly become dizzy or faint when there is no reason for this..... | Never Sometimes Often Always |
| 35. I feel afraid if I have to talk in front of my class..... | Never Sometimes Often Always |
| 36. My heart suddenly starts to beat too quickly for no reason..... | Never Sometimes Often Always |
| 37. I worry that I will suddenly get a scared feeling when there is nothing to be afraid of..... | Never Sometimes Often Always |
| 38. I like myself..... | Never Sometimes Often Always |
| 39. I am afraid of being in small closed places, like tunnels or small rooms. | Never Sometimes Often Always |
| 40. I have to do some things over and over again (like washing my hands, cleaning or putting things in a certain order)..... | Never Sometimes Often Always |
| 41. I get bothered by bad or silly thoughts or pictures in my mind..... | Never Sometimes Often Always |
| 42. I have to do some things in just the right way to stop bad things happening..... | Never Sometimes Often Always |
| 43. I am proud of my school work..... | Never Sometimes Often Always |

44. I would feel scared if I had to stay away from home overnight..... Never Sometimes Often Always

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 J

Children's Depression Inventory – Short Form

| | |
|--|--|
| Client ID: _____ |  |
| Age: _____ Birthdate: _____ <small>mm/dd/yyyy</small> | |
| Grade: _____ Gender: Male Female | |
| Today's date: _____ <small>mm/dd/yyyy</small> | |

Kids sometimes have different feelings and ideas.

This form lists the feelings and ideas in groups. From each group of three sentences, pick one sentence that describes you *best* for the past two weeks. After you pick a sentence from the first group, go on to the next group.

There is no right or wrong answer. Just pick the sentence that best describes the way you have been recently. Put a mark like this next to your answer. Put the mark in the box next to the sentence that you pick.

Here is an example of how this form works. Try it. Put a mark next to the sentence that describes you *best*.

Example:

- I read books all the time.
 I read books once in a while.
 I never read books.

Remember, pick out the sentences that describe you best in the PAST TWO WEEKS.

| | |
|--|--|
| <p>Item 1</p> <input type="checkbox"/> I am sad once in a while. <input type="checkbox"/> I am sad many times. <input type="checkbox"/> I am sad all the time. | <p>Item 6</p> <input type="checkbox"/> Things bother me all the time. <input type="checkbox"/> Things bother me many times. <input type="checkbox"/> Things bother me once in a while. |
| <p>Item 2</p> <input type="checkbox"/> Nothing will ever work out for me. <input type="checkbox"/> I am not sure if things will work out for me. <input type="checkbox"/> Things will work out for me O.K. | <p>Item 7</p> <input type="checkbox"/> I look O.K. <input type="checkbox"/> There are some bad things about my looks. <input type="checkbox"/> I look ugly. |
| <p>Item 3</p> <input type="checkbox"/> I do most things O.K. <input type="checkbox"/> I do many things wrong. <input type="checkbox"/> I do everything wrong. | <p>Item 8</p> <input type="checkbox"/> I do not feel alone. <input type="checkbox"/> I feel alone many times. <input type="checkbox"/> I feel alone all the time. |
| <p>Item 4</p> <input type="checkbox"/> I hate myself. <input type="checkbox"/> I do not like myself. <input type="checkbox"/> I like myself. | <p>Item 9</p> <input type="checkbox"/> I have plenty of friends. <input type="checkbox"/> I have some friends but I wish I had more. <input type="checkbox"/> I do not have any friends. |
| <p>Item 5</p> <input type="checkbox"/> I feel like crying every day. <input type="checkbox"/> I feel like crying many days. <input type="checkbox"/> I feel like crying once in a while. | <p>Item 10</p> <input type="checkbox"/> Nobody really loves me. <input type="checkbox"/> I am not sure if anybody loves me. <input type="checkbox"/> I am sure that somebody loves me. |

Appendix K

Positive and Negative Affect Schedule

positive & negative affect schedule

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark in the appropriate answer in the space next to that word. Indicate to what extent(*time instruction*).

Use the following scale to record your answers:

| | | | | |
|--------------------------------|----------|------------|-------------|-----------|
| 1 | 2 | 3 | 4 | 5 |
| very slightly or not at all | a little | moderately | quite a bit | extremely |

| | | |
|------------------|--------------------|------------------|
| interested | hostile | inspired |
| distressed | enthusiastic | nervous |
| excited | proud ... | determined |
| upset | irritable | attentive |
| strong | alert | jittery |
| guilty | ashamed | active |
| scared | | afraid |

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. Don't 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..... very calm calm not calm
2. I feel..... very upset upset not upset
3. I feel..... very pleasant pleasant not pleasant
4. I feel..... very nervous nervous not nervous
5. I feel..... very jittery jittery not jittery
6. I feel..... very rested rested not rested
7. I feel..... very scared scared not scared
8. I feel..... very relaxed relaxed not relaxed
9. I feel..... very worried worried not worried
10. I feel very satisfied satisfied not satisfied
11. I feel very frightened frightened not frightened
12. I feel very happy happy not happy
13. I feel very sure sure not sure
14. I feel very good good not good
15. I feel very troubled troubled not troubled
16. I feel very bothered bothered not bothered

17. I feel very nice nice not nice

18. I feel very terrified terrified not terrified

19. I feel very mixed-up mixed-up not mixed-up

20. I feel very cheerful cheerful not cheerful

Appendix M

Letter of Approval from UEA Ethics Committee

Faculty of Health Research Ethics Committee



Rachel Badham
Postgraduate Programmes Office
Elizabeth Fry Building
Faculty of Health
University of East Anglia
Norwich NR4 7TJ

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21st December 2010

Dear Rachel

**The Impact of maternal reassurance and inflated responsibility on child behaviour:
Reference 2010/2011-16**

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

Please could you ensure that any amendments to either the protocol or documents submitted are notified to us in advance and also that any adverse events which 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 with your project.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Maggie Rhodes', is written over a horizontal line.

Maggie Rhodes
Research Administrator

Cc Prof Shirley Reynolds, Supervisor

Appendix N

Debrief Information Sheet



School of Medicine, Health Policy and Practice

Rachel Badham
Elizabeth Fry Building, Room 2.30
Norwich, NR4 7TJ
R.badham@uea.ac.uk

Information sheet

*A study of children and their mothers' responsibility for sorting out sweets.
Rachel Badham, Trainee Clinical Psychologist*

Thank you both for taking part in this study. We hope that you found it interesting and enjoyed taking part.

As we have talked about, I will not be giving the sweets you sorted to any children at all, so you do not have to worry about how you sorted the sweets

I told you that we were giving the sweets to children (some who might have a nut allergy) because we wanted to see what happens when people feel responsible for things. We hope that doing this helps us to answer research questions about children and their families.

There was no right way to answer the questions or do the task; we are just interested in how you feel and what you do.

Who can I contact for further information or if I have any concerns?

If you have any further questions about the study please contact

Rachel Badham on tel:

If for any reason you have any concerns following your part in the study you can discuss these with Professor Shirley Reynolds at the University of East Anglia. You can contact her at the following address: School of Medicine, Health Policy and Practice

University of East Anglia

NORWICH

NR4 7TJ

Tel 01603 593310

Thank you for your time

Rachel Badham, Trainee Clinical Psychologist

Supervised by:

Professor Shirley Reynolds

Clinical Psychologist

Dr Eleanor Sutton

Clinical Psychologist

Appendix O

Letter written to parents if their child scored above clinical cut-off on the Spence

Children's Anxiety Scale



School of Medicine, Health Policy and Practice

Rachel Badham
Elizabeth Fry Building, Room 2.30
Norwich, NR4 7TJ
R.badham@uea.ac.uk

Date

Dear Parent

*A study of children and their mothers' responsibility for sorting out sweets.
Rachel Badham, Trainee Clinical Psychologist*

Thank you again for taking part in my study. When we met _____ filled out some questionnaires about their feelings. One of these asked about fears and worries. _____ reported that he/she was worried about more things than most children his/her age. Sometimes the questions are not always an accurate reflection of your child's worries or they might just reflect short term worries. However, if you have any concerns about _____ and their worries you might find it useful to talk to your GP about this.

Thank you again for your help and please get in touch if you have any further questions about the study or this letter.

Yours Sincerely

Rachel Badham, Trainee Clinical Psychologist

Supervised by:
Professor Shirley Reynolds
Clinical Psychologist

Dr Eleanor Sutton
Clinical Psychologist

Appendix P

Information given to children about the task

- The child will be asked if they know what a nut allergy is. They will then be given the following information 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 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”.

- The child will be asked if they know anyone who has a nut allergy and whether they have ever seen anyone have an allergic reaction to either nuts or anything else. This information will be recorded.
- The child will then be given information about the sorting task. They will be told:

“I will now read you the instructions for the task, you can ask me as many questions as you like.

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.

After you have finished, I will not be checking how you have sorted the sweets before I give them to the group of children. Therefore it is important that you sort the sweets as carefully as possible”.

Appendix Q

Transformed values for skewness and kurtosis

(Tables Q1-3)

Table Q1

Transformed Values (Log¹⁰) for Skewness and Kurtosis for Pre and Post STAIC

| Group | Skewness | SE | Kurtosis | SE |
|---------------------|-----------|-------|----------|------|
| | Pre-task | STAIC | | |
| Whole Group | .12 | .31 | 1.09 | .62 |
| High Responsibility | -.17 | .51 | -.22 | .99 |
| Low Responsibility | .83 | .52 | 1.49 | 1.01 |
| Mothers not present | -.99 | .52 | 2.43 | 1.01 |
| | Post-task | STAIC | | |
| Whole Group | .18 | .31 | -1.36 | .62 |
| High Responsibility | .69 | -.51 | -1.36 | .99 |
| Low Responsibility | .05 | .52 | -.95 | 1.01 |
| Mothers not present | -.13 | .52 | -1.36 | 1.01 |

Table Q2

Transformed values (Log¹⁰) of Skewness and Kurtosis for Maternal Reassurance Giving

| Group | Skewness | SE | Kurtosis | SE |
|---------------------|----------|------|----------|------|
| Whole Group | -0.19 | 0.31 | -1.45 | 0.62 |
| High Responsibility | 0.36 | 0.51 | 1.39 | 0.99 |
| Low Responsibility | -0.61 | 0.52 | -0.3 | 1.01 |

Table Q3

Transformed Values (Log¹⁰) for Checks and Reassurance Seeking

| Group | Skewness | SE | Kurtosis | SE |
|----------------------------|----------|-----|----------|------|
| Checks | | | | |
| Whole Group | .26 | .31 | -.60 | .62 |
| High Responsibility | .25 | .51 | -1.1 | .99 |
| Low Responsibility | .29 | .52 | -.56 | 1.01 |
| Mothers not present | -.28 | .52 | -.23 | 1.01 |
| Reassurance Seeking | | | | |
| Whole Group | .17 | .31 | -.22 | .62 |
| High Responsibility | .29 | .51 | .03 | .99 |
| Low Responsibility | .77 | .52 | .74 | 1.01 |
| Mothers not present | .16 | .52 | -1.01 | 1.01 |