

The Role of Parenting in the Development of Rumination

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Abstract

Background

Research suggests that rumination predicts depression in adult and adolescent populations and there is increasing evidence that rumination is a transdiagnostic factor across psychological disorders. Whilst researchers have stressed the importance of understanding the developmental antecedents of rumination and a number of hypotheses have been posited, this area has received little research attention. Additionally, the majority of existing research has relied on self-report measures of parenting. The aim of this study was to investigate the role of parental modelling, low positivity and criticism in the development of rumination in offspring using an observational measure called the Five Minute Speech Sample (FMSS).

Design

A cross-sectional two-stage design was utilised. During stage one, sixth-form girls and their mothers were invited to complete questionnaires measuring rumination and affect. At stage two, mothers of high rumination and low rumination daughters were invited to complete the FMSS.

Results

Rumination was not correlated in mothers and daughters, suggesting a lack of support for the role of modelling. Unfortunately, there was a paucity of critical comments in this sample which hindered attempts to investigate the relationship between maternal criticism and offspring rumination. However, the data showed that the mothers of low ruminators made twice as many positive comments about their daughters compared to the mothers of high ruminators. This result remained significant even when controlling for mother and daughter affect variables.

Conclusions

The results suggest that low maternal positivity is associated with rumination in female adolescents. However, as this study was not experimental, causality cannot be inferred. Additionally, there was no evidence to support the role of parental modelling and the role of criticism could not be addressed. The results suggest a number of implications for clinical work and future research, including the need for prospective longitudinal studies using observational measures of parenting.

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1. Introduction

1.1 General Overview

1.1.1 Aims.

A substantial body of research shows that rumination predicts depression both in cross-sectional and prospective longitudinal studies in adults (Nolen-Hoeksema, Wisco & Lyubomirsky, 2008). Over the past decade, this finding has been replicated in studies with children and adolescents (Rood, Roelofs, Bogels, Nolen-Hoeksema & Schouten, 2009) and there has also been increasing evidence to suggest that rumination may play an important role in a range of psychological disorders other than depression (Harvey, Watkins, Mansell & Shafran, 2004). Nolen-Hoeksema et al. (2008) have stated that understanding the developmental antecedents of rumination is a key area for future studies as this research could aid the development of interventions and preventative approaches to rumination. Nolen-Hoeksema (1991) hypothesised that parental modelling, criticism and control could lead to the development of rumination in children. More recently, Gate et al. (in press) have suggested that low parental positivity may also be an important factor. Despite outlining possible developmental mechanisms over twenty years ago (Nolen-Hoeksema, 1991), this area has received relatively little research attention. The majority of studies that do exist rely on questionnaire reports of parenting and have often failed to systematically test the hypotheses outlined by Nolen-Hoeksema (1991).

The aim of the current investigation was to explore the role of parental modelling, criticism and low positivity in the development of rumination in adolescents by using direct observational measures of parenting behaviour rather than self-report methods. The findings of this study may have important implications

for clinical practice across a range of presentations, given recent findings showing the role of rumination in maintaining multiple psychological disorders (Harvey et al., 2004).

1.1.2 Literature search strategy for key research: rumination and parenting.

The most important literature search aimed to discover papers directly investigating the relationship between rumination and parenting characteristics. For this search Psycinfo (1806 to present), Medline (1950 to present) and Embase (1980 to present) were searched on four occasions between January 2012 and May 2013 using the National Health Service Healthcare Databases. Psycinfo was selected due to its extensive coverage of the psychology literature. Two medical databases (Embase and Medline) were included as they cover the field of psychiatry and rumination is strongly associated with the depression literature.

The search term “rumination” was entered and two searches were constructed to retrieve parenting research. Firstly, the term “parenting style” (or the equivalent within a given database) was entered using the explode function. Secondly, parenting terms were searched (parent or mother or maternal or father or paternal) with specific positive and negative parenting behaviours or outcomes discussed in the literature in order to detect as many papers as possible (modelling or control or overcontrol or overprotective or protective or intrusive or overinvolvement or critical or hostile or rejecting or warmth or accepting or autonomy or mastery or independence or positive or expressed emotion or Five Minute Speech Sample or Camberwell Family Interview). In all searches, except for “parenting style”, search terms were truncated where appropriate in order to ensure different endings of the same word were detected. For example “ruminat*” was searched for, in order to

detect entries using “ruminate”, “ruminating”, “rumination” or “ruminative”. Finally, the rumination and parenting searches were combined. The titles and abstracts of the search findings were read. If they appeared relevant, the full article was read. For example, articles that did not report child outcomes of interest (e.g., child anxiety, parental rumination only) were not retained. In total, nine relevant articles were retrieved.

1.1.3 Chapter overview.

Some key bodies of research suggesting the importance of rumination to our understanding of psychopathology are explored first. These are (1) research showing the link between rumination and depression in adult populations, (2) studies extending these findings to youth samples and, (3) literature suggesting the role of rumination in disorders other than depression. Given the possible contribution of rumination to a broad range of clinical presentations in different age groups, it is then argued that understanding the developmental origins of rumination is a key area of research and the limited available research to date is described and evaluated. Finally, a proposed method for improving on the existing evidence, namely by using the Five Minute Speech Sample, is outlined in addition to a proposed population for research: mother-daughter dyads.

1.2 The Relationship Between Rumination and Depression: Response Styles

Theory

Arguably the most influential and well-investigated theory of rumination has been Nolen-Hoeksema’s (1987, 1991) Response Styles Theory. According to this theory, the way an individual responds to low mood can determine the severity and chronicity of these symptoms. Specifically, Nolen-Hoeksema (1987, 1991) suggested two key responses to low mood: rumination and distraction. Rumination

can be defined as “repetitively focusing on the fact that one is depressed; on one’s symptoms of depression; and on the causes, meanings, and consequences of depressive symptoms” (Nolen-Hoeksema, 1991, p. 569). In contrast, distraction consists of “thoughts and behaviours that help divert one’s attention away from one’s depressed mood and its consequences and turn it to pleasant or benign thoughts and activities that are absorbing, engaging, and capable of providing positive reinforcement” (Nolen-Hoeksema, Wisco & Lyubomirsky, 2008, p.401).

Whilst ruminative thinking is negative in nature, it can be distinguished from negative automatic thoughts, as outlined by cognitive theorists (e.g., Beck, Rush, Shaw & Emery, 1979). Rumination refers to a perseverative cognitive process rather than to the specific thought content. Additionally, rumination has been shown to be a trait-like characteristic, showing stability over time even when there are considerable changes in mood in the same time period (e.g., Bagby, Rector, Bacchioni & McBride, 2004; Nolen-Hoeksema & Davis, 1999; Nolen-Hoeksema, Morrow & Frederickson, 1993; Roberts, Gilboa & Gotlib, 1998). For example, Nolen-Hoeksema et al. (1993) found that most people reported consistent levels of rumination via daily accounts over a one month period.

Nolen-Hoeksema (1987, 1991) outlined three key mechanisms by which rumination could lead to low mood. These mechanisms are that (a) rumination increases negative cognition regarding the past, the present and the future, (b) rumination interferes with effective problem solving and, (c) rumination reduces motivation to engage in mood-alleviating activities. Research has shown support for each of these hypotheses (see Nolen-Hoeksema et al., 2008). For example, research has demonstrated that experimentally-induced rumination in dysphoric individuals further increases negative affect and negative thinking about the past, the present and

the future (e.g., Nolen-Hoeksema & Morrow, 1993; Lavender & Watkins, 2004). This induction also decreases effective problem solving and the likelihood of engaging in adaptive means of reducing distress (e.g., Lyubomirsky & Nolen-Hoeksema, 1993; Lyubomirsky, Tucker, Caldwell & Berg, 1999). Finally, Nolen-Hoeksema et al. (2008) outline evidence suggesting a fourth mechanism: rumination increases depression through causing relationship difficulties which may ultimately reduce social support (e.g., Schwartz & McCombs, 1995).

In addition to suggesting mechanisms by which rumination leads to low mood, Nolen-Hoeksema's (1987, 1991) theory also explains the well-established gender difference in depression in adult populations, whereby women are approximately twice as likely to suffer from depression as men (for overview see Nolen-Hoeksema, 1987). According to Response Styles Theory, women are more likely to ruminate in response to low mood and therefore exacerbate their symptoms, whereas men are more likely to distract themselves and therefore reduce their distress. Several studies have found that women are more likely to engage in rumination than men and that ruminative thinking mediates the gender difference in depressive symptoms (e.g., Butler & Nolen-Hoeksema, 1994; Nolen-Hoeksema, Larson & Grayson, 1999; Roberts et al., 1998). In contrast to Nolen-Hoeksema's (1987, 1991) initial outline of Response Styles Theory, further research has also shown that rumination predicts the onset of new episodes of depression at follow-up rather than the duration of depressive episodes (Nolen-Hoeksema et al., 2008). However, this finding mirrors research showing that gender differences in depression exist for the onset of new episodes of depression but not for the duration of depressive episodes (e.g., Kessler, McGonagle, Swartz, Blazer & Nelson, 1993).

A further adjustment to Nolen-Hoeksema's (1987, 1991) original theory has been reduced research interest in distraction, as research investigating the relationship between levels of distraction and depression has yielded inconsistent results (Nolen-Hoeksema et al., 2008). In contrast, research has demonstrated that rumination consistently predicts depression in both cross-sectional and prospective longitudinal studies (e.g. Just & Alloy, 1997; Nolan, Roberts & Gotlib, 1998; Roberts et al., 1998). Additionally, a prospective study examining depression vulnerability in a student population found that all of the risk factors examined that predicted depression at follow-up had their effect through rumination, suggesting that rumination may be a route through which diverse vulnerabilities give way to depression (Spasojevic, Alloy, Abramson, Maccoon & Robinson, 2004).

Given the importance of rumination in depression, more recent treatment approaches have aimed to address rumination directly. For example, Teasdale, Segal and Williams (1995) combined elements of cognitive behavioural therapy for depression with mindfulness to create mindfulness-based cognitive therapy. One of the aims of this approach is to enable individuals with recurrent depression to reduce their ruminative responding. Research suggests that this may be an effective intervention for individuals that have experienced three or more previous depressive episodes (e.g., Teasdale et al., 2000). More recently, Watkins et al. (2011) have tested a cognitive behavioural treatment of depression which exclusively targets rumination. The results of this study indicated that rumination-focused cognitive behaviour therapy reduced depressive symptoms as compared to treatment as usual in adults with residual depressive symptoms.

Whilst clinical interventions targeting rumination more directly have emerged, an important theoretical development has been the division of rumination

into two processes: “brooding” and “reflective pondering” (Treynor, Gonzalez & Nolen-Hoeksema, 2003). Brooding can be defined as “moody pondering” in which there is “a passive comparison of one’s current situation with some unachieved standard” (Treynor et al., 2003, p.252 and p.256, respectively), whereas reflective pondering is a more neutral form of contemplation involving “a purposeful turning inward to engage in cognitive problem solving to alleviate one’s depressive symptoms” (Treynor et al., 2003, p.256). Of these two processes, brooding is thought to be maladaptive. Treynor et al. (2003) found that brooding predicted depression cross-sectionally and prospectively and that it mediated the gender difference in depressive symptoms. In contrast, reflective pondering only showed a weak relationship with depressive symptoms and did not mediate the gender difference in depression.

1.2.1 Summary of Response Styles Theory.

Nolen-Hoeksema (1987, 1991) suggested that a ruminative response to low mood would exacerbate these symptoms. A substantial body of research supports the cross-sectional and prospective prediction of the onset of depression by baseline rumination scores and some evidence suggests that rumination may be a route through which other depression risk factors take their effect (Nolen-Hoeksema et al., 2008; Spasojevic et al., 2004). Rumination appears to be a key factor in explaining the gender difference in depression in adults and the evidence suggests that it represents a stable vulnerability factor over time (e.g., Bagby et al., 2004; Butler & Nolen-Hoeksema, 1994). More recent work has investigated the effectiveness of interventions targeting rumination directly and theoretical developments in rumination research suggest dividing the concept into two components: brooding and reflection, where brooding is thought to be a maladaptive process (Treynor et al.,

2003). Overall, the research shows that rumination is a key factor in depression vulnerability.

1.3 The Relationship Between Rumination and Depression in Children and Adolescents

Whilst most research to date has explored the relationship between rumination and depression in adult samples, over the last decade there has been an increased interest in examining this relationship in child and adolescent samples. If rumination is a risk factor for the onset of depression, we would expect rumination to increase from childhood to adolescence, paralleling or preceding the increase in depression prevalence during this time. Several research studies have shown that depression is fairly uncommon until a rapid increase during adolescence. For example, Hankin et al. (1998) conducted clinical interviews with 653 young people at the ages of 11, 13, 15, 18 and 21 years of age. They found that the lifetime prevalence of having one or more depressive episodes was approximately 1% at age 11 and that this increased to 21% by age 18.

Additionally, if Nolen-Hoeksema's (1987, 1991) theory is correct then we would also expect a more marked gender difference in rates of rumination during adolescence, given that Hankin et al. (1998) found that gender differences in depression did not begin to emerge until age 13 and that by the age of 18 years, 14% of males and of 28% females had experienced a depressive episode at some point during their lifetime.

Both of these hypotheses are supported by the results of a meta-analysis conducted by Rood, Roelofs, Bogels, Nolen-Hoeksema and Schouten (2009). They analysed studies measuring the cross-sectional or prospective longitudinal relationship between rumination and depressive symptoms in children and

adolescents (defined as mean age of sample under or over 12 years old, respectively). They identified seventeen cross-sectional studies and nine prospective longitudinal studies. For longitudinal studies, the time interval between baseline and follow-up assessments ranged from five months to three years. They found significant relationships between depression and rumination both cross-sectionally and prospectively for both child and adolescent samples. In all studies, they found that there was a stronger relationship between rumination and depression in adolescent samples as compared to child samples (cross-sectional pooled effect sizes: $r = .48$ for adolescents and $r = .36$ for children; prospective pooled effect sizes: $r = .36$ for adolescents and $r = .27$ for children). Additionally, mirroring the adult literature, the relationship between distraction and depression was inconsistent.

Rood et al. (2009) also examined gender differences in rumination for child and adolescent samples. They found significantly greater levels of rumination in females as compared to males both in child and adolescents samples. However, the difference was greater for adolescents than children (pooled effect sizes: $r = .36$ and $r = .14$, respectively).

Rood et al.'s (2009) results are useful in testing hypotheses based on Nolen-Hoeksema's (1987, 1991) theory. However, looking at rumination scores split across two broad groupings (under and over age 12) gives only a rough indication of trends in rumination tendencies over the course of development. In contrast, Jose and Brown (2008) studied a large sample of young people ($N = 1218$, aged 10 – 17 years) in order to compare the age of onset of the gender difference in depression with that of rumination. In their sample, they found that the gender difference in depressive symptoms emerged at 13 years of age, whereas the gender difference in rumination emerged one year earlier at 12 years of age. The fact that gender

differences in rumination appear to precede gender differences in depression may add increased support to the idea that rumination acts as a risk factor for the development of depression.

1.3.1 Summary of child and adolescent rumination research.

Whilst most rumination research has examined the relationship between rumination and depression in adults, increasingly this relationship has been explored in child and adolescent populations. On the basis of Nolen-Hoeksema's (1987, 1991) Response Styles Theory, we may predict that (a) rumination increases from childhood to adolescence, paralleling or preceding the increase in depression prevalence during this time and, (b) that there is a more marked gender difference in rumination during adolescence as compared to childhood, given the emergence of gender differences in depression during adolescence. These hypotheses are supported by the available evidence to date (Rood et al., 2009), suggesting support for Nolen-Hoeksema's (1987, 1991) theory and also for the idea that increased levels of rumination may lead to the onset of depression in young people as well as adults.

1.4 Rumination as a Transdiagnostic Process

Research with both adult and youth samples suggests that rumination is an important factor in the development of depression. However, more recent research has investigated the role of rumination in other disorders and increasingly this literature suggests that rumination is a key process in a number of different psychological disorders. Harvey, Watkins, Mansell and Shafran (2004) summarise a number of studies in this area. For example, Harvey et al. (2004) outline research showing the importance of rumination in the development and maintenance of Post-Traumatic Stress Disorder (PTSD). They examine studies showing that baseline rumination levels assessed prior to a natural disaster predicted PTSD symptoms in

response to the event (Nolen-Hoeksema & Morrow, 1991) and that rumination levels following a traumatic incident can predict the persistence of PTSD symptoms at a follow-up of up to three years (Mayou, Ehlers & Bryant, 2002). A number of more recent studies also support the hypothesis that rumination increases intrusions both in clinical and experimental non-clinical studies (Birrer & Michael, 2011; Ehring, Fuchs & Klasener, 2009; Zetsche, Ehring & Ehlers, 2009).

Harvey et al. (2004) suggest that rumination may be involved in a number of other anxiety disorders. For example, individuals with social anxiety are thought to engage in post-event rumination which may serve to maintain the disorder. Harvey et al. (2004) cite evidence that post-event rumination predicted negative biases in appraisals about future social situations and memory recall (Mellings & Alden, 2000). Additionally, more recent studies support the role of rumination in social anxiety (e.g., Kocovski, Endler, Rector & Flett, 2005). Harvey et al. (2004) additionally consider the possible role of rumination in Obsessive Compulsive Disorder (OCD). They describe how some individuals with OCD appear to demonstrate obsessive ruminations which contain doubts about prior actions. A recent study by Wahl, Ertle, Bohne, Zurowski and Kordon (2011) found that the tendency to ruminate was correlated with the severity of OCD symptoms in a group of 261 students, even when controlling for depressive symptoms, supporting the idea that rumination is an important factor in OCD.

A number of studies have investigated the relationship between rumination and depression and anxiety symptoms side by side and have found that rumination scores predict symptoms of both anxiety and depression cross-sectionally and prospectively (Muris, Fokke & Kwik, 2009; Roelofs et al., 2009; Rood, Roelofs, Bogels & Alloy, 2010). Consequently, it has been suggested that rumination may

explain the comorbidity between the two disorders, given findings that rumination fully mediates the prospective relationship between depression and anxiety in adolescent and adult participants (McLaughlin & Nolen-Hoeksema, 2011).

Since Harvey et al. (2004) published their initial review, a growing body of literature has suggested the role of rumination in an increasingly wide variety of presentations, including symptoms of borderline personality disorder (Baer, Peters, Eisenlohr-Moul, Geiger & Sauer, 2012; Watkins, 2009), eating disorders (Cowdrey & Park, 2012; Nolen-Hoeksema, Stice, Wade & Bohon, 2007; Rawal, Park, & Williams, 2010), alcohol abuse (Nolen-Hoeksema et al., 2007), sleep disturbance (Carney, Harris, Moss & Edinger, 2010; Guastella & Moulds, 2007; Takano, Iijima & Tanno, 2012) and bipolar disorder (Gruber, Eidelman, Johnson, Smith & Harvey, 2011; Kim, Yu, Lee & Kim, 2012). Given the role of rumination in a number of different disorders, Harvey et al. (2004) have suggested that rumination may be a transdiagnostic process. More generally, they have argued that there are more similarities than differences in the factors that maintain different psychological disorders and that different disorders may feature different concerns but similar underlying processes. So for example, an individual with anorexia nervosa may ruminate about their body dissatisfaction whereas an individual with social anxiety may ruminate about perceived mistakes made during a recent social encounter. It may be that the cognitive process is the same but that the area of concern, as embodied by the specific thought content, is different.

Due to these similarities, Harvey et al. (2004) suggest that researchers should adopt a transdiagnostic approach rather than a categorical, disorder-specific focus. A disorder-specific focus has dominated the literature in psychological disorders to date and despite this they point out that striking similarities have emerged in the

processes maintaining different disorders. Harvey et al. (2004) outline disadvantages of a categorical approach, including the fact that clear cut categories do not reflect the reality of clinical work as most processes can be thought to occur on a continuum. Additionally, it may be that a transdiagnostic perspective can better account for comorbidity between psychological disorders as the same transdiagnostic process may maintain both disorders (Brown & Barlow, 1992; Kessler et al., 1994). Harvey et al. (2004) suggest that adopting a transdiagnostic approach could facilitate advances in knowledge and the use of core treatment components across different clinical presentations. A number of researchers have already begun to develop transdiagnostic treatment approaches, particularly for the emotional disorders (e.g., Barlow et al., 2011; McManus, Shafran & Cooper, 2010). As these approaches are fairly recent, it is not yet clear whether disorder-specific or transdiagnostic treatments will ultimately be more effective in treating psychological disorders.

Harvey et al. (2004) reviewed the evidence for the role of transdiagnostic processes across five domains: attention, memory, reasoning, thought and behaviour. In the chapter on thought, Harvey et al. (2004) suggested that individuals may worry or ruminate in response to a negative thought intrusion and that these two responses may be considered forms of an overarching transdiagnostic process called recurrent negative thinking. Currently, researchers are yet to agree on whether worry and rumination differ only according to content or whether they may represent distinct processes as well (Ehring & Watkins, 2008; Nolen-Hoeksema et al., 2008).

An alternative although not necessarily incompatible view is that rumination can be conceptualised as an emotion regulation strategy. Nolen-Hoeksema's (1987) initial outline of Response Styles Theory preceded considerable developments in the theory and research into emotion regulation strategies. Aldao, Nolen-Hoeksema and

Schweizer (2010, p. 218) define emotion regulation strategies as “processes through which individuals modulate their emotions consciously and nonconsciously to appropriately respond to environmental demands”. They outline a number of psychological disorders in which difficulties with emotion regulation are thought to play a key role, such as bipolar disorder (Johnson, 2005), borderline personality disorder (Linehan, 1993), and anxiety and depression (Menin, Holaway, Fresco, Moore & Heimberg, 2007). In their meta-analysis they explore the relationship between six emotion regulation strategies (including rumination) and four disorders: substance abuse, eating disorders, anxiety and depression. They found that rumination was associated with all four areas of psychopathology and that, overall, rumination was most strongly associated with psychopathology out of the six emotion regulation strategies analysed. The results showed that the other regulation strategies were associated with two or more of the disorders investigated, suggesting that they may also constitute transdiagnostic processes. The results of Aldao et al.’s (2010) meta-analysis appear to support Harvey et al.’s (2004) view that there are striking similarities in the processes that underpin different psychological disorders. Exactly how to organise these transdiagnostic processes is still under debate (e.g., see Nolen-Hoeksema & Watkins, 2011) but the evidence so far would appear to support a transdiagnostic approach.

1.5 Developmental Origins of Rumination

Given the transdiagnostic nature of rumination (Harvey et al., 2004) and research showing that rumination appears to be a stable trait-like characteristic (Nolen-Hoeksema et al., 1993), research elucidating the developmental origins of rumination may be especially important in our understanding of a wide range of clinical presentations. In reviewing the available research, Nolen-Hoeksema et al.

(2008) outline four major research questions for future studies. One of these questions is “What are the developmental antecedents of individual differences in rumination?” (p. 418). Nolen-Hoeksema et al. (2008) state that “answering these questions will be critically important to the development of more effective prevention and intervention programs for depressive rumination” (p. 418).

Nolen-Hoeksema (1991) hypothesised that parenting factors may play a role in the development of rumination. Firstly, she argued that the children of depressed mothers tend to have difficulty regulating their own negative affect and she suggested that a tendency to ruminate may be transmitted via modelling (Nolen-Hoeksema, 1991), where modelling is an indirect form of learning in which an individual copies the behaviour of a model, especially if the model’s behaviour is rewarded (Bandura, Ross & Ross, 1961).

Nolen-Hoeksema (1991) also suggested that critical and controlling parenting behaviours may cause children to fail to develop active coping strategies which could lead them to use more passive styles of coping, such as rumination. Nolen-Hoeksema, Wolfson, Mumme and Guskin (1995) suggest a number of mechanisms through which parental criticism could prevent the development of active coping and problem solving in children, including: (a) children may lose enthusiasm and persistence for a task if they are criticised, (b) distress caused by criticism may interfere with problem solving whilst completing a task, and (c) children may avoid difficult tasks altogether if they think their attempts will elicit criticism, although the failures that result from avoidance may in turn elicit further criticism. Nolen-Hoeksema et al. (1995) also suggest that controlling parenting prevents the child from learning how to approach problems for themselves and stops the child learning persistence in the face of difficulty. Finally, Nolen-Hoeksema et al. (1995) suggest

that controlling parenting may lead the child to develop negative beliefs about themselves, such as the idea that they are incompetent, which may make them more prone to adopting passive rather than active coping styles. These hypotheses outlined by Nolen-Hoeksema (1991) are speculative, given a paucity of research investigating the role of parenting behaviours in the development of rumination.

Gate et al. (in press) have suggested a fourth parenting behaviour which could lead to the development of rumination in offspring. In line with operant conditioning theory, they suggest that when children show signs of active problem solving, if these behaviours are not met with positive reinforcement from parents, such as praise, then these adaptive behaviours may be less likely to continue. Consequently, Gate et al. (in press) suggest that low levels of parental positivity may lead to passive modes of responding, such as rumination, in children.

In summary, four key parental behaviours may lead to the development of passivity and ultimately ruminative coping: (a) modelling, (b) criticism, (c) control, and (d) low positivity. Evidence for these four parenting hypotheses will be examined below.

1.5.1 The role of parental modelling.

Research has shown that parental psychopathology increases the risk of psychopathology in offspring (Sander & McCarty, 2005). For example, Fendrich, Warner and Weissman (1990) investigated the relationship between several psychosocial risk factors and psychopathology in parents and their children and they found that parental depression was the strongest risk factor for a variety of psychological problems in their offspring. One study has also investigated risk across three generations and shown that half of children with a depressed parent and grandparent had at least one psychological disorder (Warner, Weissman, Mufson &

Wickramaratne, 1999). Goodman and Gotlib (1999) have proposed four mechanisms to explain the intergenerational transmission of psychopathology: (1) genetic predisposition, (2) disturbed neural development during the prenatal period, (3) exposure to maladaptive maternal affect, cognitions and behaviours, and (4) environmental stressors. Related to the third proposed mechanism, parental modelling of unhelpful responses to negative affect could constitute one possible mode of intergenerational transmission of psychopathology. The role of modelling has been most extensively investigated in the child anxiety literature, with results suggesting that modelling may play an important role in the development of anxiety in children (e.g., Askew & Field, 2008). Similar research elucidating the role of modelling in the development of rumination or depression has been sparse.

However, Abela and Hankin (2008) and Sander and McCarty (2005) describe research looking at the relationship between child and parental cognitive style. These studies revealed mixed results (Garber & Flynn, 2001; Kaslow, Rehm, Pollack & Siegal, 1988; Seligman, Peterson, Kaslow, Tenenbaum, Allot & Abramson, 1984).

If parents are modelling ruminative coping styles to their children and their children are copying them then we would expect there to be a significant positive correlation between parent and child rumination scores. To date, only two studies have measured parental and child rumination in the same study. Firstly, Gibb, Grassia, Stone, Uhrlass and McGeary (2012) assessed 100 mother and child dyads (children aged 8 – 12 years). The sample was divided into two groups: a depression group ($n = 52$, mothers had experienced depression during the child's lifetime) and a non-depression group ($n = 48$, mothers had never suffered with depression). Gibb et al. (2012) found that rumination was not correlated in mother and child dyads from either of these two groups ($r = .15$, $p = .14$). However, Gibb et al. (2012) warned that

these results should be treated with caution as they may not generalise to a representative community sample and therefore further studies should aim to replicate this finding before drawing strong conclusions.

The second study that reports parent and child rumination together was conducted by Gardner and Epkins (2012). In contrast to Gibb et al.'s (2012) study, they recruited a community sample of 125 mother and daughter dyads (daughters aged 9 – 12 years). Mothers and daughters completed a number of questionnaires, including rumination measures. In line with Gibb et al.'s (2012) findings, the correlation between mother and daughter rumination was nonsignificant ($r = -.10, p > .05$).

Whilst both studies would seem to provide a lack of support for Nolen-Hoeksema's (1991) modelling hypothesis, the timing of this modelling may be important. The meta-analysis conducted by Rood et al. (2009; see section 1.3) suggested that gender differences in rumination and the relationship between rumination and depression become more pronounced after 12 years of age. In Gibb et al. (2012) and Gardner and Epkins' (2012) studies, the children were aged 8 – 12 years old and, taking the findings of both studies together, it would appear that rumination is not correlated in mothers and their children during this point in development. However, it may be beneficial for future studies to examine this relationship during adolescence, when rumination starts to become a more powerful predictor of depression and gender differences in depression (Rood et al., 2009).

An additional consideration is the use of rumination measures in younger samples. In Gibb et al.'s (2012) study, mothers and children completed the same adult measure of rumination, called the Ruminative Responses Scale (RRS; Nolen-Hoeksema & Morrow, 1991). In contrast, in Gardner and Epkins's (2012) study,

mothers completed the RRS and daughters completed a rumination measure designed for use with children called the Children's Response Style Questionnaire (CRSQ; Abela, Rochon & Vanderbilt, 2000). It could be argued that a child measure is more valid in a younger sample. However, it is also difficult to know whether a lack of association between mother and offspring rumination can be explained by a genuine lack of association or by the fact that mothers and offspring completed different measures. A compromise could be for future studies to recruit older adolescents (e.g., 16 – 18 year olds) and to use an adult rumination measure with parents and their offspring to reduce concerns about the validity of using an adult rumination measure with offspring, whilst being able to use the same rumination measure with parents and offspring.

1.5.2 The role of other parenting factors.

Nolen-Hoeksema et al. (1995) provided evidence showing that maternal criticism and control were correlated with child helplessness. They investigated maternal and child behaviour during a puzzle solving task. Children aged five to seven years of age were presented with six puzzles, three were solvable and three were unsolvable. Mothers were instructed to help the child as they usually would but they were not allowed to touch the puzzle pieces. Observed maternal behaviour was rated according to the level of control and also for "negative affect", which was a combination of negative verbalisations including criticism and hostility. Child behaviour during the task was rated for enthusiasm and persistence. Enthusiasm ratings incorporated the positive or negative nature of their verbalisations, the amount of activity and their facial expressions (e.g., alertness, smiling). The persistence rating was based on whether or not they gave up and how distractible they were during the task. Teachers also completed a questionnaire rating the child's

helplessness and competence at school. The results showed that high maternal negative affect was significantly related to low enthusiasm, low persistence, low teacher-rated competence and high teacher-rated helpless behaviours in the children. Maternal controlling behaviour was only significantly related to low teacher-rated competence. These results seem to emphasise the relationship between parental negative verbalisations and hostility and child helplessness, with controlling behaviour showing a less consistent relationship to child behaviour.

Whilst Nolen-Hoeksema et al.'s (1995) study may show some evidence for the relationship between parental criticism and control with child passivity, further research needs to investigate the relationship between parenting characteristics and offspring rumination directly. There are currently seven published studies in this area (Gardner & Epkins, 2012; Gate et al., in press; Gil-Rivas, Greenberger, Chen & Lopez-Lena, 2003; Hilt, Armstrong & Essex, 2012; Manfredi et al., 2011; Spasojevic & Alloy, 2002; Vatanasin, Thapinta, Thompson & Thunjaroenkul, 2012). Six of these studies used questionnaires to measure parenting characteristics and these will be outlined first.

Spasojevic and Alloy (2002) and Manfredi et al. (2011) explored the relationship between rumination and retrospective reports of parenting (child-report). In Spasojevic and Alloy's (2002) study, participants were recruited from a student population ($N = 137$, aged 16 – 19 years) as part of another study using high depression risk samples, although analyses were adjusted for risk status (high or low). The high risk sample was selected according to scores on questionnaires thought to measure vulnerability to depressive cognition. In contrast, Manfredi et al. (2011) recruited participants via community adverts ($N = 307$, aged 18 – 57 years). In both studies, participants completed the RRS as a measure of rumination. In

Spasojevic and Alloy's (2002) study, participants completed the Children's Report of Parental Behavior Inventory (Schaefer, 1965), which provides scores for parental rejection and parental control. In Manfredi et al.'s (2011) study, participants completed the Parental Bonding Instrument (Parker, Tupling & Brown, 1979), which provides scores of parental care and parental control. Both Spasojevic and Alloy (2002) and Manfredi et al. (2011) found that offspring-reported parental control, but not parental care or rejection, was correlated with rumination, even when controlling for current depressive symptoms.

The remaining four questionnaire studies used child and adolescent samples. As outlined above (see section 1.5.1), Gardner & Epkins (2012) recruited a community sample of 125 mother and daughter dyads (daughters aged 9 – 12 years). In addition to completing a rumination questionnaire (the Children's Response Style Questionnaire; Abela et al., 2000), daughters also completed a questionnaire called the Parental Acceptance and Rejection Questionnaire (PARQ; Rohner & Khaleque, 2005). The results showed that daughter rumination was significantly correlated with scores on the PARQ, indicating that daughters that had a greater tendency to ruminate also perceived their mothers as more rejecting.

Studies conducted by Gil-Rivas, Greenberger, Chen and Lopez-Lena (2003) and Vatanasin, Thapinta, Thompson and Thunjaroenkul (2012) investigated the relationship between parenting and rumination in adolescent samples ($N = 262$, mean age = 15.9 years; $N = 800$, mean age = 16.7 years, respectively). Gil-Rivas et al. (2003) explored the relationship between offspring rumination reported on the RRS and offspring-reported parenting via a scale called the Parental Warmth and Acceptance Scale (Greenberger, Chen and Beam, 1998). They found that higher levels of rumination were related to lower levels of parental warmth and acceptance.

Vatanasin et al. (2012) assessed rumination using a recently developed measure called the Ruminative Thought Style Questionnaire (Brinker & Dozois, 2009), which demonstrated good internal reliability (Cronbach's $\alpha = 0.94$). Parental care and parental control were assessed using the Parental Bonding Instrument (Parker et al., 1979). Vatanasin et al. (2012) found that higher levels of rumination were associated with low parental care and higher levels of parental control.

Finally, unlike the previous studies, Hilt et al. (2012) utilised a prospective longitudinal study. A questionnaire ascertaining maternal control was completed by mothers when the children were 4.5 years of age. However, this measure showed questionable internal reliability (Cronbach's $\alpha = .62$). These control scores were correlated with an average of two rumination scores obtained during adolescence at ages 13 and 15 years on the RRS ($N = 337$). Results showed that self-reported controlling maternal behaviours when their child was age 4.5 years were significantly correlated with future rumination in offspring.

All of the six studies outlined above relied on questionnaire reports of parenting style, either from the perspective of the parent or the child. Questionnaire responses may be biased by lack of insight or awareness, self-presentation biases or the mood of the respondent when filling in the questionnaire (Aldao et al., 2010). Only one study to date has looked at the relationship between observed parenting characteristics and rumination in their children. Gate et al. (in press) conducted a prospective longitudinal study with 163 adolescents and their mothers over three time points. Adolescents were aged approximately 12, 15 and 17 years at each assessment and they provided responses to rumination and depression questionnaires (including the RRS). In addition, maternal characteristics were coded during two tasks with the adolescent at the first time point. During this family assessment, the

mother-adolescent dyad completed a pleasant event-planning interaction and also a conflictual problem-solving activity. Coding of maternal affect and verbalisations was conducted using the Life in Familial Environments (LIFE) microsocial coding system (Hops, Davis & Longoria, 1995). Gate et al. (in press) rated maternal behaviour according to two variables: positive and aggressive behaviour. According to Gate et al. (in press; p. 4) positive maternal behaviour included “all codes with happy, pleasant, or caring affect, and approving, validating, affectionate, or humorous statements made with neutral affect”. In contrast, aggressive maternal behaviour included “all codes with contemptuous, angry, or belligerent affect, and disapproving, threatening, or argumentative statements made with neutral affect” (Gate et al., in press; p. 4).

Gate et al. (in press) found that aggressive or positive maternal behaviour during either of the interaction tasks did not predict adolescent rumination at any time point as indicated by the cross-sectional correlations. However, they found that low levels of positive maternal behaviour during the positive event-planning interaction predicted an increase in rumination scores over time for females only and that this increase in rumination mediated the relationship between maternal positivity and depressive symptoms in daughters. Gate et al. (in press) conclude that maternal positivity may explain the change in rumination in adolescent females over time.

1.5.2.1 Summary and evaluation of studies of other parenting behaviours

Aside from research exploring the role of modelling in the development of rumination, seven studies have been published investigated the relationship between rumination and parenting characteristics (Gardner & Epkins, 2012; Gate et al., in press; Gil-Rivas et al., 2003; Hilt et al., 2012; Manfredi et al., 2011; Spasojevic & Alloy, 2002; Vatanasin et al., 2012). Six of these studies used questionnaire reports

of parenting and all six of these studies found a significant relationship between elements of parenting style and rumination. The four studies which measured parental control found support for Nolen-Hoeksema's (1991) hypothesis that controlling parenting is associated with higher levels of rumination in offspring (Hilt et al., 2012; Manfredi et al., 2011; Spasojevic & Alloy, 2002; Vatanasin et al., 2012). Two studies using retrospective reports of parenting found that rejecting and low care parenting was unrelated to rumination (Manfredi et al., 2011; Spasojevic & Alloy, 2002). However, cross-sectional studies showed that low parental warmth, acceptance and care and higher levels of rejecting parenting was related to increased rumination in young people (Gardner & Epkins, 2012; Gil-Rivas et al., 2003; Vatanasin et al., 2012). It is difficult to directly compare study results as the same constructs have been measured using a variety of measures and it is unclear to what degree these subscales are related. This may be because Nolen-Hoeksema (1991) did not provide definitions of the terms (e.g., "controlling" or "critical") when she outlined her hypotheses and particular measures were not recommended. A number of studies do not link the findings to Nolen-Hoeksema's (1991) parenting hypotheses and the research that has been conducted to date seems to have been influenced by the availability of parenting measures rather than testing theory. This may account for the fact that parental criticism has not been directly assessed by any of these studies and so there is currently no research addressing the hypothesis that parental criticism may lead to rumination in offspring.

A significant methodological weakness of six of the studies reviewed is the fact that parenting characteristics were reported by questionnaire, rather than via direct observation, and so responses may be subject to a number of biases (Aldao et

al., 2010). Additionally, in two studies parenting behaviour was reported retrospectively, which may have added additional bias.

To date, only one study has included an observational measure of parenting (Gate et al., in press). Additionally, Gate et al. (in press) is the only study to address the hypothesis that low parental positivity may lead to an increase in rumination in offspring and support was found for this hypothesis. However, as this is the only study to test this hypothesis, future research is needed to see if this finding can be replicated.

One methodological difficulty that could be applied to all seven studies is the use of broad measures of parenting behaviours. The use of broad measures, such as parental care (Manfredi et al., 2011) and maternal aggression (Gate et al., in press) means that variables may conflate several different behaviours which may relate to outcome variables in different ways. The child anxiety literature, which is much more developed than the child depression and rumination literature, suggests the importance of looking at specific parenting behaviours rather than global constructs in order to find meaningful results (Creswell, Murray, Stacey & Cooper, 2011).

1.5.3 The role of attachment.

Although not explicitly discussed by Nolen-Hoeksema (1991), an insecure attachment style could be a risk factor for rumination and this could be a more general way in which parenting influences the development of rumination in offspring. According to Bowlby (1969), humans have an innate desire to form relationships with others and the nature of the attachment relationship is determined by the quality of care provided by the primary caregiver. During development, children are thought to develop an internal working model of relationships based on

their early attachment experiences, which generates expectations about future relationships (Bowlby, 1969). Bartholomew and Horowitz (1991) suggest that adult attachment can be considered according to two categories: a person's self-image and their image of others, both of which can be positive or negative. An individual's self-image consists of seeing the self as worthy of support and love (positive) or not (negative) and an individual's view of others involves seeing others as available and trustworthy (positive) or rejecting and unreliable (negative). Combining these two dimensions creates four attachment categories: (1) secure (positive self and other), (2) fearful-avoidant (negative self and other), (3) preoccupied (negative self, positive other), and (4) dismissing-avoidant (positive self, negative other).

One could hypothesise that individuals with an insecure attachment style, and therefore a negative view of the self and / or others, may be more likely to engage in brooding rumination, defined as "a passive comparison of one's current situation with some unachieved standard" (Treyner et al., 2003, p.256) in response to negative events as the self and / or other is not seen to match up to a standard. In contrast, individuals with a secure attachment style, and therefore a positive image of the self and others, may interpret events through this positive lens, and be less likely to ruminate on negative events.

A number of studies have found an association between features of an insecure attachment style and rumination in both adolescent and adult samples (e.g., Burnette, Davis, Green, Worthington & Bradfield, 2009; Margolese, Markiewicz & Doyle, 2005; Pearson, Watkins & Mullan, 2011; Ruijten, Roelofs & Rood, 2011). As with the research investigating specific parenting characteristics, these studies have also relied on self-report measures of attachment style, rather than using direct observational measures. As the literature develops further, it will be important to see

how specific parenting characteristics and attachment styles interact to influence the development of rumination in offspring.

1.5.4 Summary of the developmental origins of rumination.

Nolen-Hoeksema et al., (2008) stated that understanding the developmental origins of rumination is a vital area for research in order to facilitate the development of intervention and prevention programmes for rumination. Nolen-Hoeksema (1991) outlined three key parental behaviours which could lead to the development of ruminative coping: modelling, criticism and control. Gate et al. (in press) added a fourth behaviour: low parental positivity. Over two decades since Nolen-Hoeksema's (1991) hypotheses were first stipulated, they have received relatively little research attention with just two studies investigating the role of modelling (Gardner & Ekins, 2012; Gibb et al., 2012), four studies investigating the role of control (Hilt et al., 2012; Manfredi et al., 2011; Spasojevic & Alloy, 2002; Vatanasin et al., 2012) and no studies to date directly investigating the role of parental criticism. Additionally, more research is needed to explore the role of parental positivity in the development of rumination (Gate et al., in press). Finally, although not specifically outlined by Nolen-Hoeksema (1991), attachment style may play a role in the development of rumination in offspring. The relationship between attachment and specific parenting characteristics in the development of rumination is yet to be elucidated.

Research investigating the role of specific parenting characteristics and attachment has a number of methodological weaknesses, including the reliance on self-report data. Future research should aim to use observational measures of parenting.

1.6 A Proposed Method for Assessing Parental Criticism and Positivity: The Five Minute Speech Sample

Reviewing the limited available research investigating the developmental origins of rumination revealed a lack of research using direct observational measures of parenting characteristics. Observational assessments can be difficult to arrange due to the need to have both members of a dyad present at the same time. Here it is proposed that the Five Minute Speech Sample (FMSS; Magana et al., 1986) can provide a convenient method of direct observation of parental criticism and positivity without both members of the parent-child dyad being present.

The FMSS was originally developed by Magana et al. (1986) to be a more efficient method of measuring expressed emotion than a pre-existing measure called the Camberwell Family Interview (Brown and Rutter, 1966). Research into expressed emotion stemmed from the finding that individuals with schizophrenia who had limited contact with their families after discharge from hospital tended to have a better prognosis than individuals who spent more time with their families (Brown, Carstairs & Topping, 1958). Brown, Monck, Carstairs and Wing (1962) found that if the levels of criticism, hostility and emotional overinvolvement were high in the family environment, then the individual would be more likely to relapse (Kavanagh, 1992). These characteristics form the construct of expressed emotion.

The Camberwell Family Interview was devised in order to measure expressed emotion (Brown and Rutter, 1966). The interview data are scored for criticism, where a critical comment shows unambiguous disapproval, resentment or dislike of the individual's personality or behaviour. Types of emotional overinvolvement which are scored on the Camberwell Family Interview include the use of exaggerated praise or detail, a lack of objectivity and overprotective behaviour.

There has been less research interest in the hostility component, given its considerable overlap with criticism ratings (Magana et al., 1986).

Whilst the Camberwell Family Interview is considered the gold standard in measuring expressed emotion (Van Humbeeck, Van Audenhove, De Hert, Pieters & Storms, 2002), concerns have been raised regarding the practicalities of using this measure. Magana et al. (1986) outline that it takes 70 hours to be trained in the use of the Camberwell Family Interview, up to two hours to administer the interview and three to four hours to rate it. Consequently, Magana et al. (1986) developed an alternative measure of expressed emotion called the Five Minute Speech Sample (FMSS). During the FMSS, the parent is asked to speak about their child for five minutes. They are asked to talk about “what kind of a person [patient’s name] is and how the two of you get along together” (Magana et al., 1986, p. 205). The speech samples provide a criticism score and an emotional overinvolvement score. The criticism score is composed of ratings on four subscales: initial statement (positive, neutral or negative), relationship with the child (positive, neutral or negative), criticism (frequency count of critical comments) and dissatisfaction (present or absent). The emotional overinvolvement score is composed of ratings on five subscales: emotional display (present or absent), statements of extreme attitude (frequency count, e.g., willing to do anything for the child), self-sacrificing behavior (present or absent), excessive detail (present or absent) and positive comments (frequency count).

Magana et al. (1986) showed good inter-rater reliability between coders for FMSS ratings and also good levels of correspondence between Camberwell Family Interview rated expressed emotion and categorisation according to the FMSS. As the FMSS takes six minutes to administer, approximately ten minutes to code and it does

not require formal training, it is a much less arduous measure of expressed emotion than the Camberwell Family Interview.

Since the publication of early studies in the area of expressed emotion, the concept has been investigated across a broad range of presentations. For example, some research has shown that expressed emotion may play an important role in other psychological disorders, such as mood and eating disorders (Butzlaff & Hooley, 1998) and in health psychology presentations (Wambolt, O'Connor, Wambolt, Gavin & Klinnert, 2000). Research has also broadened to investigate the role of expressed emotion in child and adolescent psychopathology (e.g., Asarnow, Goldstein, Tompson & Guthrie, 1993; Bolton, Barrowclough & Calam, 2009; Brennan, Le Brocque & Hammen, 2003; Clark & Coker, 2009; Frye & Garber 2005; Gar & Hudson, 2008). However, the direct application of expressed emotion criteria to younger samples has been questioned. Daley, Sonuga-Barke and Thompson (2003) argue that the criteria for criticism need to be adjusted for younger samples. For a comment to be coded as critical using the pre-existing criteria, parents have to state a negative description of the child within a critical phrase (e.g., "I resent it..."). However Daley et al. (2003) argue that parents of younger samples may not use such open criticism and they suggest counting descriptive words indicating a negative trait in the child as a critical comment (e.g., "she is very lazy"). Under their adapted scoring criteria, the frequency of these critical comments is counted.

Additionally, concerns have been raised regarding the validity of applying the emotional overinvolvement criteria to younger samples. For example, the emotional overinvolvement category on the FMSS involves counting "excessive" numbers of positive remarks. Whilst excessive praise may be age-inappropriate for a child once they are grown up, this may be normal before adulthood. For example,

Wambolt et al. (2000) found that a healthy control group were given the highest frequency of positive comments during the FMSS, as compared to a clinical chronic asthma group. Additionally, Vostanis, Nicholls and Harrington (1994) found that mothers of healthy control children gave significantly more positive comments about their children than the mothers of children with psychiatric problems (mean = 4.3, mean = 1.9, respectively, $p < .001$).

McCarty and Weisz (2002) explored the relationship between FMSS variables and child psychopathology in a more fine-grained analysis by investigating the contribution of different dimensions of the criticism and emotional overinvolvement scales to child psychopathology. They recruited 258 clinically referred youths aged 7 - 17 years and their mothers. Of the five overinvolvement dimensions, two were related to child psychopathology in the expected direction (emotional display, overprotection), two were unrelated to child psychopathology (statement of attitude, excessive detail) and positive comments were related to lower levels of child psychopathology. In contrast, all of the critical criteria related positively to child psychopathology.

In Daley et al.'s (2003) adjusted criteria for scoring the FMSS, positive remarks have been removed from the criteria for emotional over-involvement and they have created a separate category: positive comments. This is a frequency count of positive comments given during the FMSS. In their study, they found that mothers of children with Attention Deficit Hyperactivity Disorder (ADHD) gave more critical comments and fewer positive comments compared to non-clinical controls. However, emotional overinvolvement scores did not differentiate the two groups. This would seem to support the decision to score positive comments as a separate

category, as would be suggested by the results of McCarty and Weisz's (2002)'s study.

The inclusion of a separate frequency count for positive comments may be especially useful in studying parenting factors in rumination, given preliminary findings from Gate et al. (in press) that low maternal positivity could be linked to the development of rumination in adolescents. Both high levels of criticism and low levels of positive comments have been shown to be related to psychopathology in youth samples (e.g., Daley et al., 2003; McCarty and Weisz's, 2002; Wambolt et al., 2000) and both of these factors have been hypothesised to be linked to the development of rumination (Nolen-Hoeksema, 1991; Gate et al., in press).

1.6.1 Summary of the Five Minute Speech Sample and its application in rumination research.

Reviewing research exploring the developmental antecedents of rumination revealed a lack of research using observational measures to explore the relationship between parenting characteristics and rumination in offspring. Here it is proposed that the FMSS may provide a convenient observational measure of parenting characteristics. Whilst this measure was originally developed to assess expressed emotion in the area of adult mental health, it has now been applied in a wide range of populations, including youth samples. However, some have questioned the direct application of expressed emotion concepts to younger populations. Daley et al. (2003) have adjusted the scoring criteria of the FMSS to make it more age-appropriate. Amongst other variables, the adjusted criteria provided by Daley et al. (2003) give positive and critical comment frequency counts, which may allow the exploration of the role of parental positivity and criticism in the development of rumination. Given the practical benefits of using the FMSS, in addition to its status

as a direct observational measure, the FMSS seems to be an ideal tool to explore the relationship between parenting characteristics and offspring rumination.

1.7 A Proposed Population for Research

A review of the research suggests that using the FMSS with parent-child dyads could be a useful avenue for future studies. Here it is proposed that studies focusing on mother-daughter dyads could be the most fruitful for research into the development of rumination.

Firstly, examining rumination in females may have the greatest clinical benefit, given that females experience higher levels of rumination and that they are more prone to depressive symptoms from adolescence onwards (e.g., Costello, Erkanli & Angold, 2006; Jose & Brown, 2008; Rood et al., 2009; Twenge & Nolen-Hoeksema, 2002).

Whilst there has been insufficient research to date to compare the role of paternal vs. maternal parenting characteristics in the development of rumination in offspring, some findings from the depression literature may provide some guidance. Alloy, Abramson, Smith, Gibb and Neeren (2006) reviewed evidence investigating the role of parenting in the development of depression and they identified five studies that took parent and child gender into account. They found that in four out of the five studies a relationship between parenting style and depression was only found in same-sex parent-child dyads. Given that depression and rumination are closely related, it is possible that there may be a stronger relationship between maternal characteristics than paternal characteristics in female adolescent rumination. Additionally, Gate et al.'s (in press) findings also indicate relatively stronger effects of same-sex parenting. Therefore, given evidence of higher rates of rumination in females and a potentially stronger relationship between maternal behaviour and

daughter rumination, it is proposed that mother-daughter dyads may be a useful group in which to investigate the role of parenting factors in the development of rumination.

As stated in section 1.5.1, it may also be helpful to recruit daughters during their late adolescent years (e.g., 16 – 18 years), as this may aid appropriate questionnaire selection. This could allow mothers and daughters to complete the same adult questionnaires, making it easier to interpret a low correlation between maternal and daughter rumination scores, as this could not be attributed to the completion of different rumination measures.

As rumination has been linked to a number of different clinical presentations (e.g., Harvey et al., 2004), it might be difficult to select one clinical group in which to investigate parenting and rumination. Instead, it might be appropriate to select high and low ruminating adolescents using a non-clinical sample. This also avoids using a disorder-specific approach, as discussed by Harvey et al. (2004). Using Daley et al.'s (2003) adjusted criteria for the FMSS may be more sensitive for use with non-clinical populations. Clark and Coker (2009) used these criteria and detected group differences in maternal speech samples for non-clinical adolescents with high and low perfectionism scores.

Overall, the proposed method and population for examining the role of parenting in the development of rumination extends previous research in a number of ways. This is only the second study to use a direct observational measure of parenting in this area of the literature. In comparison to Gate et al.'s (in press) research, this study will use an older sample of offspring. In addition to aiding questionnaire selection, this may also allow for the detection of cross-sectional relationships between offspring rumination and parenting characteristics, as

rumination may have emerged more fully at this later point in development. This is in contrast to Gate et al.'s (in press) study in which the first assessments were conducted with 12 year old offspring. In addition to including parental criticism as well as positivity, the FMSS also measures more tightly specified constructs than the LIFE microsocial coding system employed by Gate et al. (in press) and may therefore have increased sensitivity (Creswell et al., 2011).

1.8 Chapter Overview and Focus of the Current Study

According to Nolen-Hoeksema's (1987, 1991) Response Styles Theory, the way an individual responds to low mood can determine the severity and chronicity of these symptoms. Nolen-Hoeksema (1987, 1991) proposed that some individuals ruminate in response to their distress, which exacerbates their symptoms. Since this theory was proposed, a significant body of research has demonstrated a cross-sectional and prospective relationship between rumination and depression in adults (Nolen-Hoeksema et al., 2008). Research also suggests that the tendency to ruminate is stable over time and that it can account for the gender difference seen in depressive disorders during adulthood (e.g., Bagby et al., 2004; Butler & Nolen-Hoeksema, 1994).

Since the publication of early research into rumination, the literature has expanded to show that rumination appears to be an important risk factor for depression in young people, as well as in adults, and also that rumination may play an important role in a number of psychological disorders. More recent research has linked rumination to a wide range of clinical presentations, including social anxiety, PTSD, OCD, eating disorders, borderline personality disorder, substance misuse, sleep disturbance and bipolar disorder (e.g., Baer et al., 2012; Carney et al., 2010; Cowdrey & Park, 2012; Gruber et al., 2011; Nolen-Hoeksema et al., 2007; Watkins,

2009). Such findings have led researchers to suggest that a transdiagnostic focus could be more beneficial than a diagnostic approach, given that there appear to be more similarities than differences in the processes that maintain supposedly distinct psychological disorders (Harvey et al., 2004).

Given research showing rumination's influence in a wide range of disorders across different ages, research elucidating the developmental origins of rumination would seem particularly important in developing interventions and preventative strategies. Nolen-Hoeksema (1991) and Gate et al. (in press) have suggested four parenting characteristics which could lead to the development of rumination in offspring: (a) modelling, (b) criticism, (c) control, and (d) low positivity.

Relatively little research has investigated these hypotheses. To date, there have only been two studies investigating the role of modelling (Gardner & Epkins, 2012; Gibb et al., 2012), four studies into the role of control (Hilt et al., 2012; Manfredi et al., 2011; Spasojevic & Alloy, 2002; Vatanasin et al., 2012), one study into parental positivity (Gate et al., in press) and no studies directly investigating the role of parental criticism. Most of the literature that does exist to date has a number of methodological weaknesses. All studies but one have relied on questionnaire reports of parenting and all of the studies have used broad measures of parenting. Similar issues exist in research investigating the relationship between rumination and the broader concept of attachment style. Additionally, the role of parental modelling has only been explored using parent-child dyads and not with parent-adolescent dyads (Gardner & Epkins, 2012; Gibb et al., 2012). Investigating the role of modelling during adolescence may be important, as rumination starts to become a more powerful predictor of depressive symptoms and gender differences in these

symptoms during adolescence (Rood et al., 2009). Reviewing the research reveals a need for future studies to use specific observational measures of parenting.

It has been argued here that the FMSS (Magana et al., 1986) would be an appropriate means of investigating the role of criticism and positivity using an observational measure. Since its original development in the area of adult mental health, applications of the FMSS have diversified and more recently the measure has been used with the parents of younger samples (e.g., Asarnow et al., 1993; Bolton et al., 2009; Brennan et al., 2003; Clark & Coker, 2009; Frye & Garber 2005; Gar & Hudson, 2008). In order to make the measure more age-appropriate, some adjustments have been made to the scoring criteria by Daley et al. (2003). It has been proposed that the critical comment and positive comment frequency counts may provide a useful way of addressing Nolen-Hoeksema's (1991) hypothesis about the role of maternal criticism and Gate et al.'s (in press) hypothesis about the role of parental positivity in the development of rumination.

Finally, it has been proposed that given a higher prevalence of depression in females from adolescence onwards (e.g., Costello et al., 2006; Jose & Brown, 2008; Rood et al., 2009; Twenge & Nolen-Hoeksema, 2002) and also research suggesting a stronger relationship between same sex parenting style and offspring depression (Alloy et al., 2006), that mother-daughter dyads may form a useful group in which to investigate the role of parenting in the development of rumination. Recruiting older adolescents (e.g., age 16 – 18 years) may also facilitate questionnaire selection.

1.8.1 The current investigation.

The aim of the proposed investigation is to explore the relationship between maternal criticism, positivity and modelling with rumination in their adolescent daughters. This is an exploratory study. If mothers are transmitting ruminative

responses to daughters via modelling then we would expect rumination in mothers and their daughters to be positively correlated. Similarly, if maternal criticism is a risk factor for rumination in daughters and if maternal positivity is protective, these behaviours observed directly from mothers on the FMSS should be significantly associated with rumination in daughters. As symptoms of mother and daughter negative affect are likely to be related to both daughter rumination and elements of parenting (Lovejoy, Graczyk, O'Hare, & Neuman, 2000; Nolen-Hoeksema et al., 2008; Rood et al., 2009), it would be informative to see if any statistically significant findings remain significant after controlling for mother and daughter affect.

The proposed study builds on previous research by using direct observational measures of maternal criticism and positivity rather than questionnaire data. It is hoped that the findings may help inform the formulation and intervention of rumination in clinical groups and possibly the development of preventative approaches. Additionally, the findings could have implications for a wide range of clinical presentations, given the transdiagnostic nature of rumination.

1.8.2 Research questions.

1.8.2.1 Primary research questions.

1. Is the tendency to ruminate correlated in mothers and their adolescent daughters?
2. Do mothers of high rumination daughters make fewer positive comments about their child than mothers of low rumination daughters?
3. Do mothers of high rumination daughters make more critical comments about their child than mothers of low rumination daughters?

1.8.2.2 Secondary research question.

1. If tests addressing the primary research questions are statistically significant, do they remain significant when controlling for maternal and adolescent affect?

2. Method

2.1 Chapter Overview

This chapter begins by outlining the design and the procedure of this two-stage study. Information about ethical issues is given throughout the procedure, including the consideration of consent and confidentiality. Next, demographic information (age and ethnicity) is outlined for both mothers and daughter participants, before considering the properties of the questionnaire measures in detail. Finally, the required sample size and plans for data analysis are outlined.

2.2 Design

A cross-sectional two-stage design was utilised. During the first stage, sixth-form girls (see section 1.7) and their mothers were invited to complete two questionnaires measuring rumination and affect. Brief demographic information was also collected. At stage two, mothers of high rumination and low rumination daughters were invited to complete the Five Minute Speech Sample which was administered by telephone (see section 2.6).

2.3 Procedure and Ethical Issues

2.3.1 Stage one.

Ethical approval for the study was requested and granted from the Faculty of Medicine and Health Sciences Research Ethics Committee at the University of East Anglia (see Appendix A).

Six sixth forms were approached and invited to participate in the study. Head teachers were sent a letter and a brief outline of the study (see Appendix B). The researcher then followed up the letter with a telephone call. Four of the sixth form Head teachers agreed to take part in the study and a delegate member of staff was nominated to facilitate correspondence with the researcher regarding the practical

details of advertising and recruitment. All of the sixth forms were state-maintained. One was a mixed sixth form college, one was a single sex sixth form school and two were mixed sixth form schools. Two of the sixth forms were based in Cambridgeshire, one was based in Greater London and one was based in Hampshire. Recruitment from the four sixth forms was staggered in order to monitor the accumulating sample size. For more information about recruitment numbers from each site, see Appendix C.

At each sixth form, the researcher gave a talk to students about the study during either a lunch break or during a sixth form assembly. Each sixth form also put posters up to advertise the study and the delegate member of staff emailed an information sheet (see Appendix D) and contact details for the researcher to their sixth form students. As a recruitment incentive, mother and daughter dyads were entered into a prize draw to win £50 of vouchers (£25 each) and this was advertised to students in the talk, the email and the posters and also to mothers in the packs that were sent home. Information sheets were emailed to students approximately two weeks before the testing date so that they had the chance to consider whether or not they wanted to participate. Information about seeking further advice about mental health (e.g., www.youngminds.org.uk, www.mind.org.uk) was included in the Information Sheet and students were given full information about the study, including the need to recruit themselves and their mothers. Students were invited to email the researcher to book a time to participate on the predetermined testing date (during school hours) and in order to ask any questions about the study. At two sixth forms, sixth form parents were also emailed brief information about the study and contact details for the researcher were provided (see Appendix F).

At the start of the testing sessions, students were told that they could withdraw at any time and they were invited to ask questions. Before filling in any questionnaires, students were asked to read the information sheet (see Appendix D), which explained that their questionnaire responses would remain confidential. Participants were also requested to complete a consent form (see Appendix E). As all students were aged 16 or over, they were deemed able to give consent for themselves. Participants were then asked to complete three questionnaires which measured brief demographic information, rumination and affect (see section 2.5). These testing sessions took approximately twenty minutes to complete.

At the end of the session, participants handed questionnaire responses to the researcher and this afforded an opportunity to ask the participants how they had found completing the questionnaires, in order to check for any signs of distress. Participants were also asked if they had any further questions and they were given a pack to take home to give to their mother, which contained a letter with information about the study (see Appendix G) with the researcher's contact details, a consent form (see Appendix H), the same questionnaires the daughters had completed (measuring rumination and affect) and a slightly more detailed demographic information sheet (see section 2.5.1). The information letter made it explicit that participation was voluntary and that all responses would remain confidential. The consent form included an invitation to provide their contact details for taking part in stage two and if so participants were asked when would be the most convenient time to be called. Mothers were asked to put their completed consent form and questionnaire responses into an enclosed envelope and daughters were requested to return these to the school or college reception or office. The returned envelopes were collected by reception staff but they were only opened by the researcher. Reception

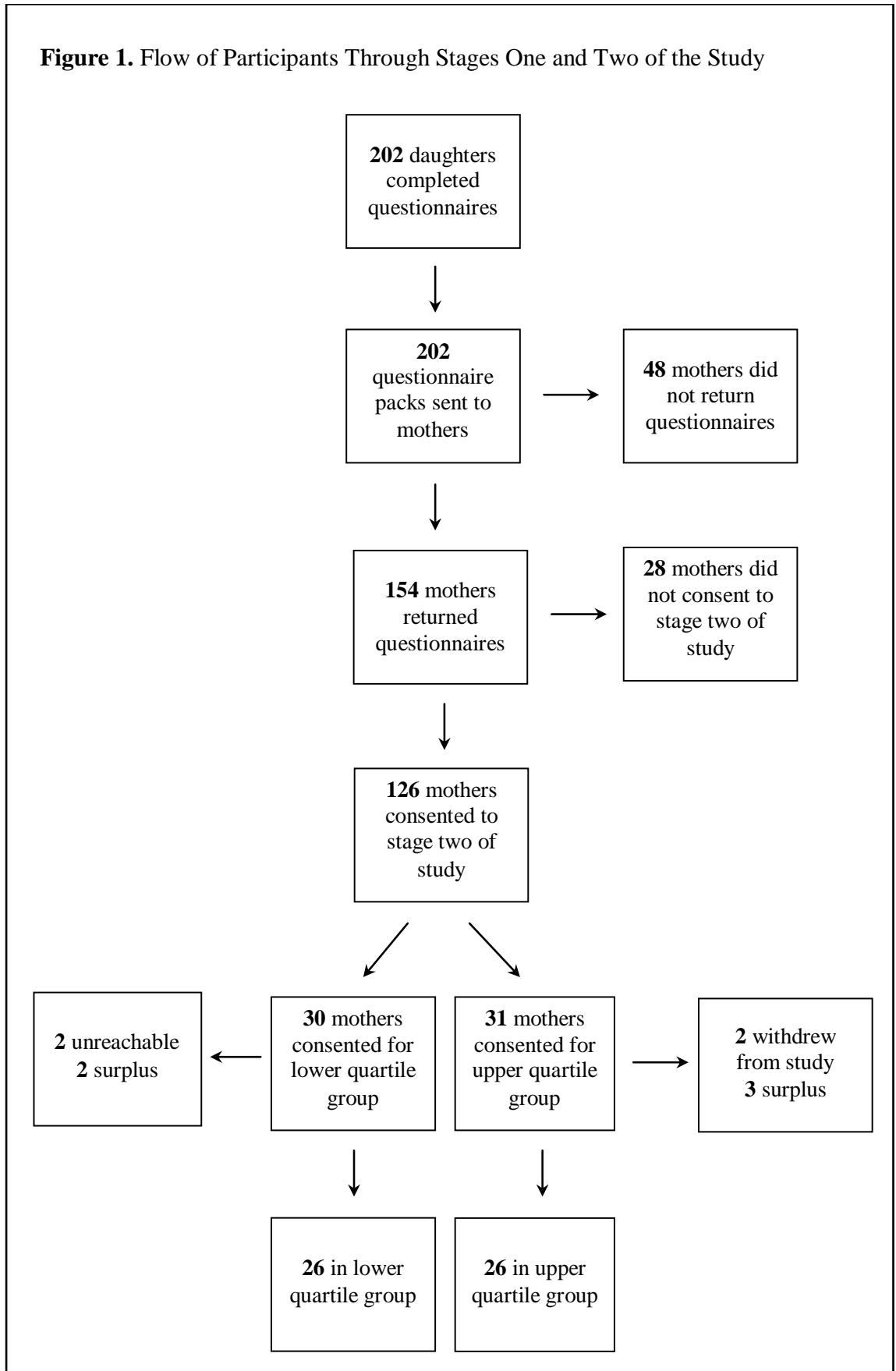
staff were made aware that the contents of the envelopes were confidential and so staff ensured that the return box was not left unattended.

Each dyad was assigned a code and this code was printed on the questionnaire measures. A list of the participant names and the associated codes was kept separately from the questionnaires and the list was stored with the consent forms so that the participants' identities and their results were not stored together. All documents were kept in a locked filing cabinet in a secure office or were stored electronically on a password protected computer or memory stick. The information will be securely archived at the University of East Anglia for 5 years. It will then be destroyed securely by shredding any paper records and permanently deleting information held on a computer.

2.3.2 Stage two.

After daughters had completed their questionnaires, the researcher waited a minimum of three weeks for daughters to return their mothers' questionnaires to the school or college. Out of the 202 daughters that had taken part, 154 (76%) mothers returned the questionnaires, which exceeded the required sample size (see section 2.7). Of the 154 mothers who returned the questionnaires, 126 also consented to taking part in stage two of the research (62% of $N = 202$). For full details of participant flow through the study, see Figure 1.

The mothers of daughters scoring in the upper or lower quartile of the brooding subscale were selected. Out of the 51 mothers in the upper and lower quartiles, 30 in the lower quartile and 31 in the upper quartile had consented to participate in stage two of the study. The total brooding scores of all daughters in the lower quartile ranged from 6 to 9 and the total scores ranged from 14 to 20 in the upper quartile (for more details, see section 3.4.1). There was an overlap of

Figure 1. Flow of Participants Through Stages One and Two of the Study

daughters scoring 9 between the top end of the lower quartile and the middle 25 to 75% of participants and so the four required participants scoring 9 were randomly selected from all participants that scored 9.

Of those that had consented to take part in stage two of the study, two participants from the lower quartile were not contactable (more than three contact attempts made during their preferred time) and so they were excluded. Additionally, two participants from the upper quartile no longer wanted to participate when they were contacted. This left 28 potential participants in the lower quartile and 29 in the upper quartile. Each participant was contacted in turn until a sample size of 26 (required sample size, see section 2.7) was attained for each quartile.

Mothers were contacted via telephone. They were reminded that they had the right to withdraw at any time and that their responses would remain confidential. They were invited to ask any questions before the speech samples were collected. Mothers were asked to go into a room on their own where there would not be any distractions prior to collecting the speech samples and permission was requested from mothers to start recording before the researcher commenced recording. Phone calls were made using a landline telephone and calls were recorded using a phone adapter and a digital tape recorder. The speech samples were then transferred onto an encrypted memory stick.

The FMSSs were sent securely to a transcription service using a programme which transfers files using a technology called Secure Sockets Layer, which is a similar technology to that used to make online bank transfers. The company also signed a confidentiality agreement (see Appendix I).

Once the data had been transcribed, the researcher checked all of the transcriptions against the original recordings to check for accuracy and any minor

alterations were made. After this, the researcher rated all of the FMSSs for positive and critical comments. A Clinical Psychologist who was not supervising the research and who had been trained in the use of the FMSS scoring criteria created by D. Daley trained the researcher to use this method and provided inter-rater reliability (see section 2.6).

Once the data analysis had been completed, a brief explanation of the results was disseminated to the participating sixth forms (see Appendix J).

2.4 Participants

Two hundred and two sixth form girls took part in the study. These participants were aged 16 to 18 years ($M = 17.1$ years, $SD = .57$, range: 16.0 - 18.1 years). There were no exclusion criteria as the study aimed to recruit a broad sample. The only inclusion criteria were that participants had to be female and aged 16-18 years. The sixth formers were 73% White British. Further information regarding ethnicity can be found in Table 1.

Table 1
Ethnicity of Sixth Form Daughters (n = 201)

Ethnicity	Frequency	Percentage* (to 1 d.p.)
White British	147	73.0
Any Other White	12	6.0
Mixed White and Black / Asian / Other	11	5.5
Asian (Indian / Pakistani / Chinese / Other)	28	14.0
Black (Caribbean / African)	2	1.0
Other	1	.5
Total	201	

* Percentage corrected for one item of missing data

All of the mothers of the 202 sixth formers were also invited to take part in the study. The 154 mothers that returned the questionnaires were 75% White British

(see Table 2 for more details) and they were aged 35 to 58 years old ($M = 47.7$ years, $SD = 3.9$; see Appendix K for further demographic information).

Table 2
Ethnicity of Mothers (n = 154)

Ethnicity	Frequency	Percentage (to 1 d.p.)
White British	116	75.3
Any Other White	16	10.4
Mixed White and Black / Asian / Other	0	0.0
Asian (Indian / Pakistani / Chinese / Other)	17	11.0
Black (Caribbean / African)	2	1.3
Other	3	1.9
Total	154	

2.5 Stage One Measures

The measures that were used in the study are given below in the order that they were administered to participants. The measures and the order of administration was the same for both mothers and daughters. However, there were some differences in the demographic information obtained from mothers and daughters (see section 2.5.1). Measures have not been included in the Appendix due to concerns regarding reproduction, however they can each be requested directly from their original authors free of charge.

2.5.1 Demographic information.

Participants completed a brief demographic questionnaire. Daughters were asked to provide information regarding their age, year at school or college and ethnic group. Mothers were asked to provide information regarding their relationship to the young person, marital status, current age, age at leaving full-time education, highest qualification and ethnic group. Ethnic group was structured according to the census questions provided by the Office for National Statistics for both mothers and

daughters. Demographic information was obtained in order to help characterise the sample (see section 2.4), to explore any demographic differences between mothers who participated at different levels in the study (see section 3.8) and to explore any demographic differences in participants in the upper and lower quartiles (see section 3.4.2).

2.5.2 Positive and Negative Affect Scale (Watson, Clark & Tellegen, 1988).

A measure of affect was included in order to address the secondary research question, which was to ascertain if any statistically significant findings for the primary research questions remained significant after controlling for mother and daughter affect. The Positive and Negative Affect Schedule (PANAS) is a brief measure and it is simple to use. It consists of two ten-item subscales, one measuring positive affect (PA) and one measuring negative affect (NA). The instructions asked participants how they had been feeling over “the last few weeks”. Each subscale has a minimum score of 10 and a maximum score of 50, where higher scores indicate a greater level of positive or negative affect depending on the subscale in question. A large UK study (Crawford & Henry, 2004; $N = 1003$) revealed good internal reliability for the PANAS in an adult sample (Cronbach’s α : PA: .89, NA: .85) and good convergent and divergent validity with the Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983) and the Depression Anxiety and Stress Scale (Lovibond & Lovibond, 1995), which are well-established measures of anxiety and depression.

The PANAS has also been used with adolescent samples, with studies showing good internal consistency (Cronbach’s α : PA: .84 - .90, NA: .80 - .87; Joiner, Catanzaro & Laurent, 1996; Melvin & Molloy, 2000; Molloy, Pallant,

Cantas, 2001). Additionally, PANAS scores with adolescents also show good convergent and divergent validity with well-established measures of anxiety and depression in youth samples (Joiner et al., 1996).

In this study, the internal consistency was acceptable for both daughters (Cronbach's α PA: .81, NA: .72) and mothers (Cronbach's α PA: .86, NA: .84; Field, 2013).

2.5.3 Ruminative Responses Scale (Nolen-Hoeksema & Morrow, 1991).

The Ruminative Responses Scale (RRS) is a widely used 22-item measure of rumination. The RRS has good internal reliability, with Cronbach's alpha values ranging between .88 and .93 in adult (Luminet, 2004) and adolescent samples (Kercher & Rapee, 2009). Additionally, scores on the RRS predict concurrent and prospective depressive symptoms in adults (e.g., Nolen-Hoeksema et al., 2008) and adolescents (e.g., Kercher & Rapee, 2009).

However, some authors (e.g., Conway, Csank, Holm & Blake, 2000) have criticised the content validity of the RRS because some of the items may overlap with depression (e.g., "think about how hard it is to concentrate"). Consequently, a two-factor scale from the RRS items has been developed which eliminates items which may overlap with depressive symptoms, leaving the factors "brooding" and "reflective pondering" (Treyner, Gonzalez & Nolen-Hoeksema, 2003). Of these two constructs, brooding is thought to represent a maladaptive thinking process (Treyner et al., 2003, p.252). Treyner et al. (2003) found acceptable internal reliability for the five-item brooding subscale in a non-clinical adult sample (Cronbach's $\alpha = .77$) and Cox, Funasaki, Smith and Mezulis (2012) reported a similar finding in a non-clinical adolescent group (Cronbach's $\alpha = .79$). The brooding subscale also has good concurrent and predictive validity regarding its relationship with depressive

symptoms and the subscale mediates the gender difference in depression (Treyner et al., 2003).

For mothers in this sample, the internal reliability of the brooding subscale was in the acceptable range (Cronbach's $\alpha = .73$; Field, 2013). However, for daughters in this sample, the internal reliability was just below .70 (Cronbach's $\alpha = .69$). In contrast, the internal reliability of the full 22-item scale was acceptable for both mothers and daughters (Cronbach's $\alpha = .91$, Cronbach's $\alpha = .85$, respectively). Despite this, the brooding subscale was still preferred over the full 22-item measure because of the validity issues outlined above. Additionally, the internal reliability of the brooding subscale in daughters was thought to be close enough to the acceptable range, given that the measure is only composed of five items.

Given that the RRS was used with both mothers and daughters, the second item on the RRS ("I won't be able to do my job if I don't snap out of this") was adjusted ("I won't be able to do my *work* if I don't snap out of this") in order to make the item equally applicable to mothers and daughters, although this item did not form part of the five-item brooding subscale. Each of the items on the RRS is rated on a scale of one to four and so the total possible brooding score ranges from five to twenty, where higher scores represent a greater tendency to brood.

2.5.4 Treatment of missing data for stage one measures.

For the PANAS, three participants missed out one item and so these items were replaced by the mean average of the other nine items on the same ten-item scale. For the brooding subscale on the RRS, two participants had missing data. One participant had not completed one item from the brooding subscale and so this item was replaced by the mean of the other four items. The other participant had not completed two items from the brooding subscale and so this participant's brooding

data was excluded because the amount of missing data (40%) was considered too high. As none of the main research questions related to demographic variables, any missing demographic data were not replaced.

2.6 Stage Two Measure: The Five Minute Speech Sample (Magana et al., 1986; Daley, Songua-Barke and Thompson, 2003)

During the Five Minute Speech Sample (FMSS; Magana et al., 1986) the parent is asked to comment on their relationship with the child and to talk about what sort of person the child is. The FMSS is normally collected face to face. However, one study has compared the ratings of FMSSs conducted over the phone with those conducted face to face with a pilot sample ($n = 6$) of mothers of children and adolescents (Beck, Daley, Hastings, & Stevenson, 2004). They found 100% agreement between ratings obtained via these two methods, suggesting that data collection over the phone does not affect the results and so this approach was utilised. This study used the manual created by Daley et al. (2003) and according to the instructions, the researcher reads the following information to the participant:

I'd like to hear your thoughts and feelings about (child's name), in your own words and without my interrupting with any questions or comments. When I ask you to begin I'd like you to speak for five minutes, telling me what kind of a person (child's name) is and how the two of you get along together.

After you begin to speak, I prefer not to answer any questions until after the five minutes are over. Do you have any questions before we begin?

The manual provides information regarding how to respond to questions posed either before or during the speech sample collection. If the participant asks for clarification on what exactly to focus on before giving the speech sample, the

researcher states “whatever you think is important about (child’s name) and how you get along together”.

During the speech sample, if the participant asks for reassurance on how they are doing, then the researcher should say “fine”. If the participant asks how long they have left, then the researcher is scripted to say “a couple more minutes” or “about a minute”. The researcher is advised not to say the exact time that is left, in order to avoid creating anxiety. If the participant asks whether a specific topic should be talked about, then the research should say “please tell me anything about (child’s name) for a few more minutes”. This same prompt is used if the participant stops speaking before the five minutes have finished. However, the manual states that the researcher should wait for thirty seconds first as the participant is likely to continue talking without prompting.

The researcher is also instructed to not make any sound during the speech sample (e.g., “hmm”). As these samples were conducted over the phone, participants were informed about this before completing the speech sample, so that they knew that the line had not been cut off. Additionally, the manual states that the researcher must not make any additional prompts, other than those detailed above. For example, the researcher cannot ask for clarification or ask the participant to expand on certain points. When the FMSS is conducted face to face, the researcher is instructed to avoid eye contact and to make notes, although the notes are not used afterwards. Obviously, no eye contact was made in this study as the speech samples were collected over the phone.

The FMSS can be coded using a number of subscales, including the frequency of critical and positive comments made by the parent. For example “she is a pretty girl” would constitute a positive comment and “she is lazy” would constitute

a critical comment, provided that neither comment was qualified (e.g., “she is lazy sometimes” would not count as a critical comment). The coding system developed by Daley et al. (2003) has excellent inter-rater reliability when used with the mothers of non-clinical adolescents ($r = .96$, for positive comments, $r = 1.0$ for critical comments; Clark & Coker, 2009).

The majority of research using the FMSS with children and adolescents has focused on the role of parental criticism as opposed to positive comments. Higher rates of parental criticism are associated with internalising and externalising symptoms in children and adolescents (e.g., Frye & Garber, 2005; Hirshfeld, Biederman, Brody, Faraone & Rosenbaum, 1997). McCarty, Lau, Valeri and Weisz (2004) showed that FMSS criticism was related to parental antagonism, negativity and disgust observed during a parent-child interaction task, suggesting that FMSS criticism is related to negative parent-child interactions. However, they did not address the relationship between positive comments and interaction variables. McCarty and Weisz (2002) explored the role of both critical and positive comments and they found that child psychopathology was associated with more critical comments and fewer positive comments, suggesting predictive value of the frequency of positive comments in addition to critical comments.

The Clinical Psychologist that provided the researcher with training in using the FMSS, and who was blind to rumination scores, also rated eight (15.4%) of the FMSSs. The critical and positive comments subscales were simply the frequency of these comments during the speech sample. Intra-class correlations were conducted in order to investigate the degree of inter-rater reliability. These analyses revealed excellent inter-rater reliability (positive comments ICC = .98, critical comments ICC = 1; see Appendix L for more details).

2.7 Required Sample Size

Power analyses were conducted for the primary research questions. A straightforward power analysis was precluded by the fact that no studies had been published reporting the relationship between offspring rumination and any observational measure of parenting at the time that the study was designed. Consequently, an estimate of effect sizes was obtained from related research.

A number of studies have investigated the rates of positive and critical comments expressed by parents of depressed young people. Given the strong association between rumination and depression (Mor & Winquist, 2002), it is likely that these young people also exhibit high levels of rumination and so these studies may provide a rough estimate of effect sizes.

Vostanis et al. (1994) found that mothers of children with an emotional disorder made significantly fewer positive comments than the mothers of non-clinical control children with a large effect size (Cohen's $d = 1.4$). Additionally, Hirshfeld et al. (1997) investigated the frequency of mood disorders exhibited by children of mothers with high or borderline critical comments and low critical comments on the FMSS. The rate of mood disorder was significantly higher in the high criticism group, yielding a very large effect size ($OR = 15.8$).

G Power Version 3 was used to conduct power calculations. Using a conservative effect size based on these findings (Cohen's $d = .7$), significance at $p = .05$, and 80% power gave a required sample size of $n = 26$ per group for a one-tailed test. This gives a total sample size of 104 adolescent mothers (26×4) to consent to take part in stage two of the research in order to select 26 participants in the upper and lower quartile groups. This would mean that 104 mother and daughter dyads

needed to be recruited where the mother not only completed the questionnaires at stage one but who also agreed to take part in stage two of the research.

Given a sample size of 104, significance at $p = .05$ and 80% power, a one-tailed correlation between mother and daughter rumination would need to reach or exceed an effect size of .24 to be detectable. This was considered sufficiently sensitive and so an overall sample size of 104 was decided upon. The required sample size was reached in the present study.

2.8 Plan of Analysis

The original plan of analysis is outlined below in reference to each of the research questions, subject to the results of normality tests.

2.8.1 Research question one: is the tendency to ruminate correlated in mothers and their adolescent daughters?

A Pearson's correlation was planned in order to examine the relationship between mother and daughter rumination.

2.8.2 Research questions two and three: do mothers of high rumination daughters make more critical comments and fewer positive comments about their child than mothers of low rumination daughters?

Independent-samples t -tests were decided upon in order to investigate differences in the mean number of critical and positive comments given by mothers of daughters in the upper and lower quartiles for rumination.

2.8.3 Secondary research question: if tests addressing the first three research questions are statistically significant, do they remain significant when controlling for maternal and adolescent affect?

If hypothesis one was found to be significant, then a hierarchical multiple regression was planned in which the affect variables would be entered first in order

to act as control variables in predicting the relationship between maternal rumination (predictor variable) and daughter rumination (outcome variable).

If hypotheses two or three were significant then independent-samples *t*-tests were to be conducted to see if there was a significant difference in positive or negative affect scores for mothers or daughters in the upper and lower quartile groups. If any of these differences were significant then an ANCOVA was planned to see if the group difference in positive and / or critical comments remained significant whilst controlling for affect variables obtained from the PANAS.

3. Results

3.1 Chapter Overview

The section begins by outlining the approach taken to data analysis. Then, the results relating to each research question are described in turn. Prior to examining group differences between the upper and lower quartile groups for the second and third research questions, analyses are conducted to assess that the difference in brooding scores between the upper and lower quartile groups is meaningful and analyses are also conducted to check for differences in demographic characteristics between the groups. Of the three primary research questions, just one shows a significant difference and so, in line with the secondary research question, analyses are conducted to see if this result remains significant whilst controlling for mother and daughter affect variables. Finally, supplementary analyses are provided which investigate whether or not there were differences in the demographic characteristics of individuals that consented to take part at different stages of the study.

3.2 Treatment of the Data

The statistical tests proposed in section 2.8 were parametric tests and these require that the data are normally distributed (Field, 2013). First, the normality of the distributions of the variables was assessed visually using histograms, stem and leaf diagrams and Q-Q plots. Secondly, normality was explored by examining the significance of the skewness and kurtosis values and also the significance of the Shapiro-Wilk test. All tests employed considered significance at the $p = .05$ level. Consequently, the z scores of the skewness (z_s) and kurtosis (z_k) values were considered significant if their standardised form ($|z|$) exceeded 1.96. The Shapiro-

Wilk test was preferred over the Kolmogorov-Smirnov test, as it is thought to be more accurate (Field, 2013).

If normality could not be assumed due to the results of either visual or numerical information, then the data were transformed as appropriate and re-tested for normality using the above procedure. If the transformed data were normally distributed then parametric tests were utilised, performing corrections for unequal variances as required.

If the data did not display a normal distribution following transformation of the data, then bootstrapping was utilised with the original untransformed data. Bootstrapping estimates the characteristics of the sampling distribution by using the sample data itself. This involves taking numerous bootstrap samples from the data set. The test statistic of interest is calculated in each bootstrap sample and the standard deviation of the sampling distribution of the bootstrap samples is used to estimate the standard error of the statistic of interest. This standard error allows for the generation of significance values and confidence intervals. Bootstrapping does not change the statistic in question (e.g., the mean difference) but it estimates how accurate it is (Wright, London & Field, 2011). Whilst bootstrapping was first introduced over thirty years ago (Efron, 1979), the use of these methods has only increased recently, due to the development of appropriate computer programmes. Statistical analyses for this study were conducted using SPSS Version 19, which supports bootstrapping procedures for a number of different tests. The default setting of 1,000 bootstraps was used and bias corrected and accelerated confidence intervals were selected, as recommended by Field (2013).

Bootstrapping is a very flexible technique as the data do not have to be normally distributed and it can be used with a wide range of test statistics (Wright et

al., 2011). This is an important feature in clinical psychology as clinically-relevant psychological constructs are especially prone to non-normal distributions. This is particularly true when clinical measures are used with non-clinical samples, as is the case in this study (for overview, see Wright et al., 2011).

Bootstrapping techniques were preferred over non-parametric tests as non-parametric tests also make assumptions about the underlying distribution of the data, namely, that compared samples have similar underlying distributions (Gray & Kinnear, 2012; Wilcox, 2009). Some argue that current bootstrapping techniques render non-parametric tests obsolete (Howell, 2007). However, the results of non-parametric tests are provided for the primary research questions for reference purposes.

3.3 Research Question One: Is the Tendency to Rumininate Correlated in Mothers and Their Adolescent Daughters?

Brooding rumination data from the RRS were available for 153 mother-daughter dyads. Whilst 154 mothers returned their questionnaires, one of the mother's brooding scores was excluded due to having too many missing items (see section 2.5.4). Demographic information for all mothers ($n = 154$) and daughters ($n = 202$) that took part in the study are available in section 2.4. Demographic information for the 153 mothers and daughters whose data were used to investigate the first research question can be found in Appendix M. Descriptive statistics for mother and daughter brooding scores are given in Table 3.

A sample size of $n = 153$ exceeded the required sample size (see section 2.7) and the results of a calculation conducted in G Power Version 3 revealed that this sample size should have been sufficient to detect an effect size of .2, given use of a

Table 3
Descriptive Statistics for Mother and Daughter Brooding Scores on the RRS
(n = 153)

	Possible Range of Scores	Range in Sample	<i>M</i>	<i>SD</i>	<i>Mdn</i>
Mother	5 - 20	5 - 20	9.31	2.84	9
Daughter	5 - 20	6 - 19	11.34	3.25	11

one-tailed test at the $p = .05$ and 80% power. This is a small effect size, according to Cohen (1988).

Examining the data for mother and daughter brooding scores revealed that both variables were positively skewed (e.g., mother $z_s = 6.07$, daughter $z_s = 3.16$; see Appendix N for more details). Applying transformations recommended by Field (2013) to the data did not produce a normal distribution. Consequently, the Pearson's correlation was bootstrapped. This revealed a nonsignificant positive correlation of extremely small effect size ($r = .05$, 95% CI: $-.115, .200$, one-tailed). The result of a Spearman's rho correlation revealed the same finding ($r_s = .04$, $p = .330$, one-tailed). Consequently, the results show that brooding rumination was not correlated in mothers and daughters in this sample. Graphical representations of these data can be found in Appendix O.

3.4 Characteristics of the Upper and Lower Quartile Groups

Before looking at the group differences in positive or critical comments for research questions two and three, preliminary analyses were conducted to confirm a meaningful difference in brooding scores between daughters in the upper and lower quartile and also to check whether mothers and daughters in these two groups were similar on key demographic variables.

3.4.1 Brooding scores in the upper and lower quartile groups.

There were 26 participants in both the upper and lower quartile groups. The brooding (5-items) and full-scale rumination scores (22-items) of the RRS are displayed in Table 4. Whilst only brooding scores are used in this study, the full-scale rumination scores are also provided in order to aid comparison with samples used in other studies. The rumination scores of daughters in the upper quartile were comparable to those reported from clinical samples. For example, Kuyken, Watkins, Holden and Cook (2006) reported a mean full-scale rumination score of 62.0 ($SD = 9.65$) in a group of currently depressed adolescents. In the upper quartile in this study, the mean full-scale RRS score was 58.2 ($SD = 9.31$). The data reported by Kuyken et al. (2006) for the brooding subscale is not comparable to the brooding data in this study as their five-item “brooding” subscale was not composed from the items outlined by the authors (Treyner et al., 2003).

There is a lack of data available to indicate average brooding scores for depressed youths. However, results from an adult study reported a mean brooding subscale score of 12.2 ($SD = 4.25$) for a sample of depressed adults (Joorman, Dkane & Gotlib, 2006), which is comparable to a mean score of 15.7 ($SD = 1.62$) for daughters in the upper quartile in this study.

The distribution of brooding scores was significantly negatively skewed in the lower quartile group and significantly positively skewed in the upper quartile group, lower quartile $W(26) = .87, p = .003$, upper quartile $W(26) = .85, p = .001$. Consequently, transformations could not be applied to the data. Therefore, a bootstrapped independent-samples t -test was used to compare brooding scores between the upper and lower quartile groups. This revealed a significant difference, mean difference = 8.04, $p < .001$, one-tailed.

Table 4
Rumination Scores (from RRS) for Daughters in the Upper and Lower Quartiles
(n=26 in each group)

		Possible Range	Range in Sample	Mean	SD	Median
Lower Quartile	Brooding Score	5 - 20	6 - 9	7.62	.94	8
	Full Scale Score	22 - 88	28 - 53	39.92	7.40	39
Upper Quartile	Brooding Score	5 - 20	14 - 19	15.65	1.62	15
	Full Scale Score	22 - 88	34 - 79	58.25	9.31	58.50

3.4.2 Demographic characteristics of participants in the upper and lower quartile groups.

3.4.2.1 Daughters.

Exploring the distributions of the ages of daughters in the upper and lower quartile revealed approximately normal distributions in both groups (z_s , z_k , and Shapiro-Wilk all nonsignificant at the $p = .05$ level). An independent-samples t -test revealed that the difference in age between participants in the lower quartile ($M = 16.92$, $SD = .62$) and the upper quartile ($M = 17.07$, $SD = .57$) was nonsignificant, $t(49) = .95$, $p = .348$, two-tailed.

A chi-square analysis was used to compare the ethnic background of daughters in the upper and lower quartile groups. Daughter ethnicity was categorised as “White British” or “Any Other Ethnic Background”. This was to ensure that the minimum expected count exceeded five in each category (Field, 2013). Using a dichotomous categorisation meant that the minimum expected count was 5.39. In both groups there were 20 participants from a White British background. There was one item of missing data for the lower quartile data, meaning that there were six participants from a different ethnic background in the upper quartile group and five in the lower quartile from this background. The results revealed that there was not a

significant difference in ethnicity between daughters in the upper and lower quartile groups, $\chi^2(1) = .07, p = .789$, two-tailed.

3.4.2.2 Mothers.

Exploring the data for the age of mothers of daughters in upper and lower quartile groups revealed a positive skew in the upper quartile group, Shapiro-Wilk results: $W(26) = .91, p = .031$. Transformations did not correct the data and so a bootstrapped independent-samples *t*-test was used. These results indicated that the ages of mothers of daughters in the upper quartile ($M = 46.65, SD = 4.06$) and the lower quartile ($M = 47.60, SD = 3.24$) were not significantly different, mean difference = .95, 95% CI: -1.16, 3.07.

The ethnic background of the mothers of daughters in the upper and lower quartile groups was categorised as “White British” or “Any Other Ethnic Background” in order to ensure that the minimum expected count exceeded five (Field, 2013). Exploring the data revealed that there were 19 White British mothers and 7 mothers from other ethnic groups in each quartile group and so a chi-square analysis was not required to check for group differences.

3.4.3 Summary of characteristics of the upper and lower quartile groups.

Daughters in the upper quartile group reported brooding scores that were on average double those in the lower quartile group ($M = 15.65, M = 7.62$, respectively) and this difference was statistically significant, suggesting that the upper and lower quartile groups were meaningfully different on brooding scores. Additionally, the brooding and full-scale rumination scores of individuals in the upper quartile group were similar to those reported by clinical samples (Joorman et al., 2006; Kuyken et al., 2006).

Additionally, no significant differences were found for age or ethnicity between daughters in the two groups or between mothers of daughters in the two groups. This suggests that any group differences cannot be accounted for by differences in these variables.

3.5 Research Question Two: Do Mothers of High Rumination Daughters Make Fewer Positive Comments About Their Child Than Mothers of Low Rumination Daughters?

Examining the data revealed that the number of maternal positive comments for daughters in the lower quartile was marginally negatively skewed ($z_s = -.73$), whereas positive comments were positively skewed in the upper quartile ($z_s = 1.97$; see Appendix P for more details). Due to different directions of skew, transformations could not be applied and so an independent-samples *t*-test was bootstrapped. The results indicated that mothers of daughters in the lower quartile made more positive comments about their daughters ($M = 6.08$, $SD = 3.15$, 95% CI: 4.76, 7.32) than those in the upper quartile ($M = 3.38$, $SD = 2.48$, 95% CI: 2.58, 4.28) and that this difference was statistically significant, mean difference = 2.69, $p = .004$, 95% CI: .78, 4.16, one-tailed. Calculating Cohen's *d* from the group means and the pooled estimate of the standard deviation (Gray & Kinnear, 2012) revealed a large effect size ($d = .95$), according to Cohen's (1988) classification.

The results of a Mann-Whitney U test revealed the same finding ($U = 175$, $p = .002$, one-tailed) for the median difference in positive comments between the upper quartile ($Mdn = 3$, range = 10) and lower quartile groups ($Mdn = 7$, range = 10). Additionally, the Glass rank biserial correlation indicated a medium to large effect size ($r_g = .48$), according to Cohen's (1988) classification.

Overall, the results indicated support for the hypothesis that mothers of high rumination daughters make fewer positive comments about their child than mothers of low rumination daughters.

3.6 Research Question Three: Do Mothers of High Rumination Daughters Make More Critical Comments About Their Child Than Mothers of Low Rumination Daughters?

In contrast to the positive comments subscale, the frequency of critical comments in this sample was extremely low. Most mothers did not make any critical comments at all, according to Daley et al.'s (2003) criteria. One mother in the lower quartile made three critical comments about her daughter whereas the remaining 25 mothers in this group made no critical comments. In the upper quartile group, five mothers made critical comments about their daughters, with three mothers making one critical comment and two mothers making two critical comments.

Due to the low frequency of critical comments, using categorical data was considered more appropriate. Each observation was dichotomised as either containing no critical comments or one or more critical comments. As the frequency count of mothers displaying critical comments in the lower quartile was less than five, a chi-square analysis was not considered appropriate. Fisher's exact test was used instead, as this is more appropriate when dealing with low frequencies (Field, 2013). The results suggested a trend for mothers of daughters in the upper quartile to display more critical comments than the lower quartile group, however this difference was not significant at the $p = .05$ level ($p = .095$, one-tailed). Consequently, support was not shown for the hypothesis that mothers of daughters in the upper quartile report more critical comments about their daughters, although this

result should be treated with caution, due to the low frequency of critical comments in this sample.

In Clark and Coker's (2009) study with mothers and their adolescent children (aged 12 – 15 years), the mothers of children in the high perfectionism group showed relatively low levels of critical comments during the FMSS using Daley et al.'s (2003) scoring criteria ($M = 1.68$, $SD = 1.25$). However, this was still significantly greater than the number of critical comments exhibited by the mothers of children in the low perfectionism group ($M = .71$, $SD = .96$). In Daley's et al.'s (2003) study, mothers of children with ADHD gave 7.1 critical comments on average, compared to a mean of 3.3 critical comments for non-clinical controls. Mothers in both of these studies (Clark & Coker, 2009; Daley et al.'s, 2003) all gave more critical comments than the mothers affiliated with the high rumination ($M = .27$, $SD = .60$) or low rumination groups in this study ($M = .12$, $SD = .59$). The differences between the critical comments frequency in this study and other research is discussed further in section 4.2.3.1.

3.7 Secondary Research Question: If Tests Addressing the First Three Research Questions are Statistically Significant, do They Remain Significant When Controlling for Maternal and Adolescent Affect?

Only tests addressing the second research question were statistically significant. As stated in section 2.8.3, independent-samples *t*-tests were conducted first in order to see if there were any group differences in mother and daughter affect that needed controlling for, as measured by the PANAS.

3.7.1 Group differences in daughter affect.

The distributions of positive affect scores reported by daughters in the upper and lower quartile groups were both approximately normally distributed (z_s , z_k , and

Shapiro-Wilk all nonsignificant at the $p = .05$ level) and so an independent-samples t -test was utilised. The results of this test revealed that the difference in positive affect in daughters in the upper quartile ($M = 30.56$, $SD = 6.62$) and the lower quartile ($M = 31.81$, $SD = 5.11$) was nonsignificant, $t(50) = .76$, $p = .225$, one-tailed.

In contrast, daughters' negative affect scores were significantly positively skewed in the lower quartile group ($z_s = 2.13$). There was also a non-significant trend towards positive skew in the upper quartile group ($z_s = 1.06$). Applying a logarithmic transformation reduced the skew of the data to acceptable levels (z_s , z_k , and Shapiro-Wilk all nonsignificant at the $p = .05$ level). An independent-samples t -test was applied to the transformed data. As would be expected from the literature (Rood et al., 2009), daughters in the upper quartile exhibited significantly higher negative affect scores ($M = 23.27$, $SD = 6.17$) than daughters in the lower quartile group ($M = 19.00$, $SD = 4.99$), $t(50) = 2.78$, $p = .004$, one-tailed.

3.7.2 Group differences in maternal affect.

The distributions of positive affect scores for mothers of daughters in the upper and lower quartiles groups were both approximately normally distributed (z_s , z_k , and Shapiro-Wilk all nonsignificant at the $p = .05$ level). Consequently, an independent-samples t -test was utilised. The results of this test revealed that the mothers of daughters in the lower quartile experienced greater levels of positive affect ($M = 37.60$, $SD = 5.36$) than the mothers of daughters in the upper quartile ($M = 34.50$, $SD = 6.15$) and this difference was statistically significant at the $p = .05$ level, $t(50) = 1.94$, $p = .030$, one-tailed.

For negative affect scores, the Shapiro-Wilk results showed that the data from the mothers of daughters in the upper quartile group were positively skewed, $W(26) = .90$, $p = .015$. The data from the mothers of daughters in the lower quartile

group were normally distributed (z_s , z_k , and Shapiro-Wilk all nonsignificant at the $p = .05$ level). Applying a logarithmic transformation reduced the skew of the data to acceptable levels (z_s , z_k , and Shapiro-Wilk nonsignificant at the $p = .05$ level). An independent-samples t -test was applied to the transformed data and this revealed a nonsignificant difference in negative affect scores between the mothers of daughters in the upper and lower quartile groups, $t(50) = 1.12$, $p = .135$, one-tailed.

3.7.3 Comparing trends across the data set.

Exploring the relationship between daughter brooding and daughter and maternal affect variables across the whole dataset ($N = 153$) using bootstrapped Pearson correlations revealed similar results. Namely, there was a nonsignificant correlation between daughter brooding and daughter positive affect ($r = -.08$, 95% CI: $-.238, .085$, one-tailed) and a nonsignificant correlation between daughter brooding and mother negative affect ($r = .07$, 95% CI: $-.093, .237$, one-tailed). Additionally, daughter brooding and daughter negative affect were significantly correlated ($r = .39$, 95% CI: $.224, .523$, one-tailed). However, across the sample, the relationship between daughter brooding and maternal positive affect did not reach statistical significance, although it was in the expected direction ($r = -.11$, 95% CI: $-.284, .046$, one-tailed), suggesting that the relationship between daughter brooding and maternal positive affect was more pronounced when comparing the two quartile groups than when assessing the association across the sample as a whole. Descriptive statistics for PANAS scores for the 154 mother-daughter dyads can be found in Appendix Q.

3.7.4 Does the group difference in maternal positive comments remain significant when controlling for daughter negative affect and maternal positive affect?

Originally, an ANCOVA was planned in order to see if group differences in positive comments remained significant between the two quartile groups when entering affect variables as covariates. However, the data did not meet the assumptions of parametric tests and applying transformations to the data did not correct this problem (see section 3.5). Additionally, bootstrapping analyses are not well supported for ANOVA in SPSS (A.Field, personal communication, February 18, 2013). Therefore, logistic regression was used instead, in which membership of the upper or lower quartile group (dichotomous outcome variable) was predicted by the number of positive comments on the FMSS, whilst controlling for maternal positive affect and daughter negative affect. This was achieved by using a hierarchical approach, in which the affect variables were entered into the first block of the model and positive comments was entered into the second block. The results show the contribution of a variable whilst controlling for all other variables entered (Brace, Kemp & Sneglar, 2012).

Bootstrapping was not required for this analysis, as the assumptions of logistic regression were met. First, logistic regression assumes that there is a linear relationship between the logit of the outcome variable and continuous predictor variables. Linearity can be assumed if the interaction term between a predictor and its log transformation is nonsignificant. In this study, the interaction terms for daughter negative affect, mother positive affect and positive comments on the FMSS were all nonsignificant (all $p > .2$), therefore the linearity assumption was met.

Logistic regression also requires that predictors are not too highly correlated. Tolerance values and VIF values for daughter negative affect, mother positive affect and positive comments on the FMSS did not indicate a multicollinearity problem (all tolerance values greater than 0.2, range: .97 - .99; all VIF values less than 10, range: 1.01 - 1.03). Additionally, reviewing the collinearity diagnostics indicated condition indices of a similar order (range from 1 to 18) and different predictors did not exhibit high proportions on the same eigenvalues. Overall, these tests indicated that the predictors were not too highly correlated.

Entering the affect variables into the first block (daughter negative affect and maternal positive affect) revealed that the full model significantly predicted quartile membership, omnibus $\chi^2(2) = 10.6, p = .005$. The Cox and Snell R^2 and the Nagelkerke R^2 values indicated that the model accounted for between 18.4% and 24.6% of the variance in quartile membership, respectively. The Hosmer and Lemeshow test was nonsignificant, indicating that the model was an adequate fit to the data, $\chi^2(8) = 11.3, p = .19$. Table 5 displays the beta value, Wald statistic, significance value and odds ratio for each predictor. The results indicate that daughter negative affect was a significant predictor of quartile membership, even when maternal positive affect was controlled for, $b = .14, OR = 1.15, 95\% CI = 1.02, 1.29, p = .018$. However, maternal positive affect was not a significant predictor of group membership, when controlling for daughter negative affect, $b = -.10, OR = .90, 95\% CI = .81, 1.02, p = .089$.

Table 5
Logistic Regression Results for First Block (Affect Variables Only, n = 52)

	<i>b (SE)</i>	Wald	<i>p</i>	Odds Ratio (95% CI)
Daughter Negative Affect	.14 (.06)	5.58	.018	1.15 (1.02, 1.29)
Mother Positive Affect	-.10 (.06)	2.90	.089	.90 (.81, 1.02)
Constant	.69 (2.38)	.09	.771	2.00

Entering positive comments into the second block revealed that this model also significantly predicted quartile membership, block omnibus $\chi^2 (1) = 10.2, p = .001$. Adding positive comments as a predictor increased the variance explained from 18.4 – 24.6% to 32.9% - 43.9% (from Cox and Snell R^2 and Nagelkerke R^2 values, respectively). As with the first block, the Homer and Lemeshaw test indicated that the model was an adequate fit to the data, $\chi^2 (8) = 3.16, p = .924$. Examining the residuals also indicated that the model was an adequate fit to the data, as outlined by Field (2013). This model correctly classified 76.9% of participants into either the upper or lower quartile, whereas the first model only correctly classified 65.4% of participants.

The results in Table 6 indicated that adding in positive comments as a predictor variable did not affect the significance of daughter negative affect ($p = .015$) or maternal positive affect ($p = .176$) in predicting quartile membership. Moreover, the results show that even when controlling for the effects of maternal positive affect and daughter negative affect, the number of positive comments made during the FMSS was a significant predictor of quartile membership, $b = -.35, OR = .71, 95\% CI = .56, .90, p = .004$. The odds ratio indicated that an increase in one positive comment on the FMSS resulted in a decrease in the odds of being in the upper quartile brooding group of .71 (95% CI: .56, .90). Consequently, these results

Table 6
Logistic Regression Results for Second Block (Including Positive Comments, n = 52)

	<i>b (SE)</i>	Wald	<i>p</i>	Odds Ratio (95% CI)
Daughter Negative Affect	.17 (.07)	5.87	.015	1.18 (1.03, 1.35)
Mother Positive Affect	-.09 (.07)	1.83	.176	.91 (.80, 1.04)
FMSS Positive Comments	-.35 (.12)	8.21	.004	.71 (.56, .90)
Constant	1.50 (2.78)	.29	.590	4.47

indicate that the group difference in maternal positive comments remains significant even when controlling for relevant affect variables.

3.8 Additional Analyses: Checking for Demographic Differences in Mothers and Daughters According to the Level of Mother Participation in the Study

Age and ethnicity data for mothers and daughters were compared according to the level of participation of the mothers. This was done in order to examine whether or not there was any bias in the final sample.

3.8.1 Daughter variables.

The distributions of the age data for daughters whose mothers (a) did not return the questionnaires ($n = 48$), (b) returned the questionnaires but did not consent to taking part in stage two of the study ($n = 28$), and (c) returned the questionnaires and did consent to take part in stage two ($n = 126$) were explored. This revealed that each group had an approximately normal distribution (z_s , z_k , and Shapiro-Wilk all nonsignificant at the $p = .05$ level). An ANOVA revealed a nonsignificant difference in the ages of daughters in each of these three groups, $F(2, 198) = .63$, $p = .536$. For reference, mean ages for each of the groups were as follows: (a) $M = 17.13$, $SD = .57$, (b) $M = 17.04$, $SD = .56$, (c) $M = 17.02$, $SD = .58$.

A chi-square analysis was used to compare the ethnic background of daughters in the three groups listed above. Daughter ethnicity was categorised as “White British” or “Any Other Ethnic Background” in order to ensure that the

minimum expected count exceeded five (Field, 2013). Using this categorisation, the minimum expected count was 7.62. The results of this analysis were significant, $\chi^2(2) = 11.4, p < .01$, two-tailed. The results indicated a small to medium effect size, Cramer's $V = .24, p < .01$. Looking at the data in more detail revealed that 69% of the mothers of White British daughters consented to complete the whole study (i.e., including stage two) whereas only 44% of the mothers of daughters from other ethnic backgrounds consented to this (values to the nearest per cent). Whilst this may suggest that the mothers of White British daughters were more likely to take part in all parts of the study, for the six combinations of level of mother participation and daughter ethnicity, the standardised residuals were all nonsignificant (all < 1.96).

3.8.2 Mother variables.

Exploring the data for the ages of mothers who returned the questionnaires and who either did ($n = 126$) or did not ($n = 28$) consent to taking part in stage two of the study revealed that the data for the ages of those who did not consent significantly deviated from the normal distribution, Shapiro-Wilk: $W(28) = .92, p = .031$. Transformations were unable to correct this. Consequently, a bootstrapped independent-samples t -test was used to assess the age difference between the two groups (consenters to stage two: $M = 47.82, SD = 3.87$; non-consenters to stage two: $M = 46.96, SD = 3.96$). This revealed a nonsignificant difference in age between the two groups, mean difference = .852, 95% CI: -.60, 2.46.

A chi-square analysis was used to compare the ethnic background of consenters and non-consenters for stage two of the study. Ethnicity was categorised in the same way as the daughters' data (see section 3.8.1) and the minimum expected count was 6.91. The results of this analysis were significant, $\chi^2(1) = 8.71, p < .01$, two-tailed. The results indicated a small to medium effect size, Cramer's $V = .24$,

$p < .01$. Looking at the data in more detail revealed that 34% of mothers from Any Other Ethnic Background did not consent to stage two of the study, compared to only 13% of White British mothers (values to nearest per cent). This would suggest that mothers of non-White British backgrounds were more likely to decline participation in stage two and the standardised residual for this combination of ethnicity and participation was significant (standardised residual = 2.3). The standardised residuals for the other three combinations were non-significant (all standardised residuals < 1.96).

3.8.3 Conclusions.

The results of these analyses show that there was not a significant difference in the age of mothers or daughters according to the level of participation of the mothers. However, there may have been a tendency for mothers from non-White British backgrounds or mothers of non-White British daughters to decline consent to take part in stage two of the study, suggesting a potential bias in the sample towards White British participants at stage two.

3.9 Summary of The Results

Overall, the results indicated that there was no relationship between maternal and daughter brooding. There was also a nonsignificant difference between the number of critical comments made by mothers affiliated with the upper and lower quartile brooding groups, although this finding is difficult to interpret due to a low frequency of critical comments. However, there was a significant difference between the number of positive comments made by the mothers of daughters in the upper and lower quartile groups, whereby mothers of daughters in the lower quartile group made twice as many positive comments as the mother of daughters in the upper quartile group. This difference remained significant after controlling for maternal

positive affect and daughter negative affect. Additionally, this difference cannot be explained by differences in the age and ethnicity of mothers and daughters between the two groups, as these differences were nonsignificant. However, the results should be interpreted with caution as they may not apply to non-White British families, as there was limited ethnic diversity within the sample and non-White British families were less likely to consent to taking part in stage two of the research.

4. Discussion

4.1 Chapter Overview

The methodological strengths and weaknesses of the study are considered before outlining the study results in relation to both the research hypotheses and the results of previous studies. Finally, clinical implications and directions for future research are considered.

4.2 Methodological Strengths and Weaknesses

4.2.1 Design.

Whilst the current design allowed for the exploration of the role of maternal factors in a non-clinical population of adolescents, one weakness is that maternal measures were completed in an uncontrolled environment. For example, daughters could have discussed the questionnaires with their mothers or mothers could have been distracted whilst completing the measures at home, which could have affected the results. Whilst inviting mothers into a controlled environment may have been preferable, this was not feasible. However, all of the daughters completed their questionnaires at their sixth form in a designated classroom and so the daughter's responses were less likely to have been influenced by external factors.

Additionally, as this study was correlational in nature, it is not possible to infer causality. Therefore, it cannot be concluded that low maternal positivity causes the development of rumination in adolescent females. It could be that daughters who tend to ruminate in turn elicit less praise from their parents.

Finally, using a quartile design was a possible weakness of the study as this can result in a loss of statistical power when working with a continuous variable (i.e., rumination) as opposed to a dichotomous variable (Field, 2013). However, the

selection of upper and lower quartile rumination groups was done in order to reduce the amount of data collection required.

4.2.2 Sample.

The sample size was one strength of the study. The estimated required sample size was reached or exceeded for each of the three primary research questions. This reduces the chances of incorrectly rejecting the research hypothesis in favour of the null hypothesis due to a lack of statistical power (i.e., a Type II error).

Another strength of the current sample was that the upper and lower quartile groups were very similar in age and ethnicity, which meant that group differences could not be explained by these variables. Additionally, the rumination scores reported by the upper quartile group were comparable to clinical samples (see section 3.4.1) and therefore the results may have relevance to clinical groups. However, the fact that the daughters were recruited from sixth forms and the fact that males were not included may mean that the current findings are not generalizable to males or to groups that drop out of education before 16 years of age.

Finally, there was not much ethnic diversity in the sample, as approximately three quarters of the mothers and daughters that took part were White British (see section 2.4). Supplementary analyses also indicated that there may have been a tendency for mothers from non-White British backgrounds or for the mothers of non-White British daughters to decline consent to take part in stage two of the study. Consequently, these findings may not generalize to more ethnically diverse samples. Whilst this is a weakness of the study, the response rate of 76% of mothers completing the questionnaires at stage one of the study and 62% of mothers consenting to stage two of the research was reasonable.

4.2.3 Measures.

4.2.3.1 *The Five Minute Speech Sample (FMSS).*

The main methodological strength of the current study was the use of an observational measure of parenting. This is only the second study to use an observational measure to explore the relationship between parenting factors and rumination in offspring. Additionally, the FMSS allowed for the measurement of specific, well-defined behaviours, as recommended by Creswell et al. (2011).

However, whilst the FMSS provided a useful measure of positive comments, the results suggest that the critical comments frequency count criteria might have been insensitive. In Clark and Coker's (2009) study with mothers and their adolescent children, the mothers of children in the high perfectionism and low perfectionism groups both gave more critical comments ($M = 1.68$, $SD = 1.25$, $M = .71$ $SD = .96$, respectively) than the mothers affiliated with the high rumination or low rumination groups in this study ($M = .27$, $SD = .60$, $M = .12$, $SD = .59$, respectively). This is also the case with the results of Daley et al.'s (2003) study. They found that the mothers of children with ADHD gave 7.1 critical comments on average on the FMSS, compared to a mean of 3.3 critical comments for non-clinical controls.

Daley et al.'s (2003) study was conducted with the mothers of preschool children. Clark and Coker's (2009) sample was more similar to the sample used in this study, as they recruited a non-clinical school sample of 12 – 15 year olds. However, there were a number of differences between Clark and Coker's (2009) study and the present study, including the inclusion of an older and female only offspring group who had opted to engage in education beyond 16 years of age. It is possible that the mothers of daughters that go on to study at sixth form are less

critical than those that do not pursue education beyond 16 years of age. This is because the offspring of critical parents may perceive themselves to be less competent and therefore feel less confident about continuing in education. This is only a tentative suggestion, as the study did not have a comparison group of daughters who were no longer in education.

Another difference between this study and the studies completed by Clark and Coker (2009) and Daley et al. (2003) is that the FMSS was collected on the telephone in this study. Whilst the pilot study by Beck et al. (2004) found complete agreement between ratings obtained via face to face and telephone administration of the FMSS, this was only based on a pilot sample of six participants. It is possible that a larger sample size may have revealed differences. Additionally, Beck et al. (2004) used mothers with younger participants (children aged 4 – 14 years) and it could be that there is a stronger relationship between face to face and telephone interview scores when the FMSS is conducted with the mothers of younger participants.

It is possible that mothers are less likely to be critical about their children during a telephone interview than they would be face to face as it is possible that a telephone interview may have created more anxiety generally (for example, as a result of reduced social cues) which may have led to a greater sense of evaluation apprehension. Consequently, mothers may have wanted to present themselves and their daughters in the best light possible. Additionally, conducting the FMSS face to face may help the participant to feel that they know the researcher slightly better and they may therefore trust them more. This could cause mothers to be more honest about how they feel about their child.

Alternatively, conducting the FMSS on the telephone could have also reduced experimenter bias effects as none of the mothers received auditory or visual feedback from the experimenter, unless the participants directly addressed the researcher. In these instances, responses were read from a script and so these were the same for all participants.

Another consideration is that the sixth form years represents a period of transition for many families, as a number of young people consider moving away from the family home for work or to engage in further education. A number of mothers talked about their child's plans beyond sixth form and reflected on what it would be like when their child moved away from the family home. The developmental timing of collecting the FMSS may have meant that mothers were more likely to reminisce on the positive attributes of their child and their relationship with them. Mothers may also have been more likely to take a more balanced perspective on their child's more difficult attributes as they may have learned to accept these at this later point in development. These hypotheses are purely speculative and are based on anecdotal information only.

Furthermore, it could be argued that the scoring criteria outlined by Daley et al. (2003) for critical comments on the FMSS are too strict. According to these criteria, critical comments are not counted if the statement is qualified (e.g., she is lazy sometimes). This meant that a number of negative comments did not contribute to the critical comments frequency count. It could be that a second, less stringent frequency count would have revealed group differences. However, future research would need to investigate the validity of an adjusted measure. This issue may be particularly problematic in non-clinical samples, where mothers may show lower levels of criticism. The FMSS was originally developed for use with the family

members of clinical samples and so it may not be as sensitive with non-clinical groups. However, it is difficult to evaluate this hypothesis as a number of research studies do not give the break down of individual subscale scores (e.g., critical comments frequency count) on the FMSS (e.g., Bolton et al., 2009, Frye & Garber, 2005, McCarty et al., 2004).

Another weakness of using the FMSS was that the investigator was not blind to group membership. This was because there was only one researcher working on the study. However, a second rater was blind to membership and rated 15% of the samples. The inter-rater reliability was extremely high for both positive and critical comments (both $ICC \geq .98$), suggesting that the primary researcher's coding had not been biased due to a lack of blinding.

Additionally, it is important to note that the FMSS does not provide a measure of parental control which, according to Nolen-Hoeksema (1991), could be a key parenting factor in the development of rumination. The absence of a parental control measure in this study was a further weakness of the research. However, measures of parental control are currently underdeveloped.

4.2.3.2 The Ruminative Responses Scale (RRS).

Unfortunately, the reliability of the brooding subscale of the RRS did not reach .70 for daughters in this study (Cronbach's $\alpha = .69$). An alternative approach could have been to use a child rumination measure with the daughters rather than using the same adult measure with both mothers and daughters. This approach may have yielded higher internal consistency for the daughters' rumination scores. For example, the Children's Response Styles Scale (CRSS; Ziegert & Kistner, 2002) and the Children's Response Styles Questionnaire (CRSQ; Abela, Rochon & Vanderbilt, 2000) have been designed for use with younger participants and so they may be more

suitable for an adolescent sample than the RRS. However, these measures have typically been used with older children and young adolescents, rather than 16 - 18 year olds (e.g., Abela, Aydin & Auerbach, 2007; Abela, Brozina & Haigh, 2002; Driscoll, Lopez & Kistner, 2009; Ziegert & Kistner, 2002). Additionally, it was thought that the use of the same measure of rumination in both mothers and daughters would help to address the first research question more adequately, which seeks to ascertain whether the tendency to ruminate is correlated in mothers and daughters. If mothers and daughters had completed different rumination measures then it would be unclear if a low correlation was caused by differences in the measures employed or by a genuinely small association between mother and daughter rumination. Additionally, it should be noted that the internal reliability score for daughters was not much lower than that obtained with the mothers in this sample (Cronbach's $\alpha = .73$) or dramatically lower than that reported by the subscale authors in a much larger sample (Cronbach's $\alpha = .77$, $N = 1328$; Treynor et al., 2003).

The relatively low internal reliability values obtained in this study are probably partly due to the fact that the brooding subscale is composed of just five items. This is a result of the refinement of the original 22-item measure in which questions that overlapped with depression too closely were removed (12 items) and the remaining ten items were separated into reflection and brooding subscales (Treynor et al., 2003). Whilst the new 5-item measure may have greater validity as a measure of rumination, this has been at the expense of the internal reliability of the measure.

4.2.3.3 *The Positive and Negative Affect Scale (PANAS).*

Unlike the RRS, the internal reliability of the positive and negative affect subscales of the PANAS were all in the acceptable range for both mothers and daughters (Cronbach's α range: .72 - .86). Consequently, this measure appeared to provide a quick and reliable measure of affect in the mother and daughter samples.

4.2.4 Statistical Approach.

The use of bootstrapping techniques was a strength. In this study, the data were often not normally distributed and in some instances the shapes of comparison distributions were different. Consequently, the assumptions of both parametric and non-parametric assumptions were often violated (Gray & Kinnear, 2012; Wilcox, 2009; Wright et al., 2011). However, bootstrapping is not limited by these factors and therefore provided a suitable approach to data analysis.

However, one possible criticism of the statistical approach employed is the use of one-tailed tests. Whilst there is debate about the use of one vs. two-tailed statistical analyses, some argue that two-tailed tests are preferable as they allow conclusions to be drawn regardless of the direction of the effect (Field, 2013). However, the use of two-tailed tests would not have changed the results of this study. The significance of the group difference in positive comments between the upper and lower quartile groups both before and after controlling for relevant affect variables (both $p = .004$) would have remained significant if using two-tailed tests, where the significance values are doubled (both $p = .008$).

4.2.5 Summary.

A number of methodological strengths of the investigation have been outlined. These include the use of an observational measure of parenting, the obtained sample size, the internal reliability of the PANAS subscales, the similar

demographic characteristics of the upper and lower quartile groups and an acceptable response rate from mothers. However, a number of methodological weaknesses were also outlined. The key weakness that affects the interpretation of the results is the fact that causality cannot be inferred as the study design was non-experimental. Additional concerns include the use of a quartile design, the internal reliability of the brooding subscale in daughters, a lack of experimenter blinding, queries regarding the sensitivity of the critical comments subscale on the FMSS, the absence of a measure of maternal control and the fact that mothers completed their questionnaires in an uncontrolled environment. Additionally, there may be limits on the generalizability of the results, although the brooding scores of the upper quartile participants may suggest similarity with clinical groups.

4.3 Study Findings and Relation to Theory and Existing Research

4.3.1 Research question one: Is the tendency to ruminate correlated in mothers and their adolescent daughters?

If parents are modelling ruminative coping styles to their children, as predicted by Nolen-Hoeksema (1991), then we would expect there to be a significant positive correlation between parent and child rumination scores. The results of this study concur with the findings of Gibb et al. (2012) and Gardner & Epkins (2012), who found that rumination was not significantly correlated in mother-child dyads in a younger sample of offspring (children aged 8 – 12 years). Gibb et al.'s (2012) study recruited children of both genders, whereas Gardner & Epkins (2012) recruited daughters only, as in this study. Taken together, these results show a lack of support for Nolen-Hoeksema's (1991) modelling hypothesis using both same sex and opposite sex mother-child dyads.

In Gibb et al.'s (2012) study, they examined the mechanisms of risk of intergenerational transmission outlined by Goodman and Gotlib (1999) more broadly. For example, they also investigated the role of genetic factors. They did not find evidence to support the role of shared genetic factors or parental modelling. The only factor that appeared to predict brooding in offspring was a history of previous depressive episodes so it may be that factors that predict early onset depression may also predict brooding in offspring.

Although the research to date may not support Nolen-Hoeksema's (1991) modelling hypothesis, it is possible that lower levels of internal reliability generally on the RRS for mothers (Cronbach's $\alpha = .73$) and daughters (Cronbach's $\alpha = .69$) in this study could have increased the chance of a nonsignificant correlation of small effect size between these two measures. However, the magnitude of the correlation obtained in this study was extremely small ($r = .05$). It is possible that if an increase in the internal reliability of the measures had resulted in an increase in the association between mother and daughter RRS scores, then the magnitude may still have been small and of limited interest. Any further investigation of the modelling hypothesis is limited by the current lack of availability of rumination questionnaires that have good validity and reliability and which are suitable for use with both parents and children.

In evaluating Nolen-Hoeksema's (1991) modelling hypothesis, some might argue that parental behaviours other than rumination could be modelled which could lead to the development of rumination in offspring. For example, Rose (2002) has suggested that co-rumination may be an important factor in the development of emotional difficulties. Co-rumination is an interpersonal process which can be defined as "discussing the same problem repeatedly, mutual encouragement of

discussing problems, speculating about problems, and focusing on negative feelings” (Rose, 2002, p. 1830). Waller and Rose (2010) investigated the relationship between co-rumination and emotional difficulties in mothers and their 10-17 year old children. They found that mothers were more likely to co-ruminate with their daughters and that co-rumination was correlated with offspring anxiety and depression.

To date the rumination and co-rumination literatures have remained separate. Research has not investigated whether or not parental co-rumination is correlated with offspring rumination either cross-sectionally or prospectively. However, it is possible that modelling co-rumination as opposed to rumination more specifically, could lead to the development of rumination in offspring. Therefore, modelling could be an important parental influence although not in the direct way originally outlined by Nolen-Hoeksema (1991).

4.3.2 Research question two: Do mothers of high rumination daughters make fewer positive comments about their child than mothers of low rumination daughters?

Gate et al. (in press) extended the work of Nolen-Hoeksema (1991) by suggesting an additional parenting mechanism which could lead to the development of rumination in offspring. In line with operant conditioning theory, they suggested that when children show signs of active problem solving, if these behaviours are not met with positive reinforcement from parents, such as praise, then these adaptive behaviours may be less likely to continue. Consequently, they suggested that low levels of parental positivity may lead to passive modes of responding, such as rumination, in offspring.

Gate et al. (in press) found that low levels of maternal positivity predicted the increase in rumination in female adolescents over time. However, they did not find a cross-sectional relationship between rumination and maternal positivity in their sample. This contrasts with the findings of the present study, which did find a cross-sectional relationship between maternal positivity and low levels of rumination with a large effect size ($d = .95$). In this study, mothers of daughters in the low rumination group made twice as many positive comments as the mothers of daughters in the high rumination group. This relationship remained significant even when controlling for relevant mother and daughter affect variables. The difference between the two studies could be explained by the fact that this study used a very specific measure of positivity: the observed frequency of positive comments on the FMSS. In contrast, Gate et al.'s (in press) positive maternal behaviour score included "all codes with happy, pleasant, or caring affect, and approving, validating, affectionate, or humorous statements made with neutral affect" using the Life in Familial Environments (LIFE) microsocial coding system (Hops et al., 1995). A review of the parenting and child anxiety literature, which is more developed, suggests that observing specific parenting behaviours, rather than using more global constructs, can produce larger effect sizes (Creswell et al., 2011) and so this may explain the difference in cross-sectional findings between the two studies.

Another explanation for the difference in cross-sectional findings between this study and those of Gate et al. (in press) is that the offspring in this study were older and therefore rumination is likely to have been more fully developed. This may have resulted in a stronger relationship between parenting factors and offspring rumination.

Overall, the findings of this research and Gate et al.'s (in press) study demonstrate a relationship between low maternal positivity and rumination in adolescent offspring. As Gate et al.'s (in press) study is prospective, this may suggest support for a causal relationship between these two variables. However, the results of the current research cannot address the issue of causality as it is non-experimental.

4.3.3 Research question three: Do mothers of high rumination daughters make more critical comments about their child than mothers of low rumination daughters?

This was the first research study to attempt to explore the role of parental criticism specifically in the development of rumination in offspring. However, addressing the third research question was difficult because of the low frequency of critical comments in the current sample. Out of the 26 mothers affiliated to each of the upper and lower quartile groups, only one mother in the lower quartile group and five mothers in the upper quartile group made any critical comments during the FMSS. This is according to the criteria outlined and used by Daley et al. (2003), which was also utilised by Clark and Coker (2009). Consideration of what could have caused this low frequency is provided in section 4.2.3.1.

Due to this low frequency, each observation was dichotomised as either containing no critical comments or one or more critical comments in order to investigate group differences. The results of this analysis revealed a trend for a greater number of critical comments associated with the upper quartile group, however this did not reach significance at the $p = .05$ level ($p = .095$, one-tailed). The fact that a trend was shown with such low frequencies may suggest that there was a difference between the groups regarding criticism but that the measure was only detecting very high levels of criticism.

Overall, the results of this study are inconclusive with regards to the possible role of maternal criticism in the development of rumination in offspring. However, the trend shown in this study with such low frequencies may suggest that this concept should be explored further with a more sensitive measure of parental criticism.

4.3.4 Summary.

Overall, the results of the present study do not appear to support Nolen-Hoeksema's (1991) hypothesis that parental modelling may lead to the development of rumination in offspring, in line with the findings of two other recent studies (Gardner & Epkins, 2012; Gibb et al., 2012). However, parent-child co-rumination could form an important modelling process and this was not investigated in this study. Additionally, due to a low frequency of critical comments in this sample, it was difficult to evaluate Nolen-Hoeksema's (1991) hypothesis regarding the role of parental criticism as a developmental antecedent to rumination.

In contrast, support was found for the hypothesis outlined by Gate et al. (in press) that low parental positivity may be associated with rumination in offspring. In this study, mothers of daughters in the low rumination group made twice as many positive comments as the mothers of daughters in the high rumination group and this difference was statistically significant, even when controlling for mother and daughter affect variables. However, causality cannot be inferred due to the study design.

4.4 Clinical Implications

The results of this study suggest that low maternal positivity is related to rumination in adolescents, even when controlling for maternal and daughter affect. Consequently, this may suggest the need to include parents in interventions for

young people where rumination is found to be a key maintaining factor. Obviously, this may affect depression interventions with young people, and given the transdiagnostic nature of rumination (Harvey et al., 2004), including parents in interventions may be important for a range of other clinical presentations.

Positive parenting programmes may provide an appropriate intervention. Currently, these programmes are usually targeted at families struggling to manage children with behavioural disorders (e.g., Sanders, 2008). However, the results of this study may suggest a broader use of these interventions to include the parents of children with other disorders, including depression. This would require adaptation of the intervention, as these programmes are usually delivered to parents of preadolescent children (Thomas & Zimmer-Gembeck, 2007). Additionally, to date these programmes have not been used with the parents of young people with depression and so studies would need to assess the efficacy of the intervention in this group.

Current guidelines on the treatment of depression in young people recommend the use of psychological interventions as a first-line treatment (National Institute for Health and Clinical Excellence, 2005). The recommended psychological interventions include individual therapy (cognitive behavioural therapy and interpersonal therapy) and systemic therapy (short-term family therapy). If further research supports the role of parenting factors in the development or maintenance of rumination and consequently in depression, then this may indicate the importance of parenting or systemic interventions to treat depression in young people.

Given the finding that brooding in daughters was not related to maternal negative affect and only bore an inconsistent relationship with low maternal positive

affect (see section 3.7.3), clinicians should not be quick to attribute a young person's rumination to a mother's affective state.

Finally, as the results of this study and previous research do not support the modelling hypothesis outlined by Nolen-Hoeksema (1991), clinicians should not assume that the mothers of young people presenting with rumination also use rumination as an emotion regulation strategy.

4.5 Future Research

Given limited research investigating the developmental antecedents of rumination, there are a number of possible avenues for future research. These are outlined below with reference to study design, participants and measures.

4.5.1 Study Design and Type.

Future studies should aim to replicate the findings of this study and the study conducted by Gate et al. (in press), as replication is a key principle of the scientific method (Roediger, 2012). Additionally, future studies should use prospective longitudinal designs, as used by Gate et al. (in press) in order to measure factors as they emerge, rather than relying on cross-sectional or retrospective reports of parenting behaviours. Researchers should also aim to use more diverse samples and they should aim to identify if parenting factors are a causal or maintaining factor in adolescent rumination.

Additionally, future studies could use experimental designs to explore the impact of parental feedback on child performance and subsequent cognitive processing. This would allow the experimenter to infer causality. For example, a child could be given a task to complete and parents could be prompted to respond in a positive, neutral or critical way using statements provided by the investigator.

Child affect could be coded using observational measures and the child could be invited to complete a diary of thoughts and feelings following participation, which could be blindly coded for the frequency of ruminative statements. The coding of ruminative statements could be defined following a review of the rumination literature, with special consideration as to how these criteria apply in a child or adolescent population.

An experimental design could also be used to address the mechanism by which maternal positivity could protect against rumination. Gate et al. (in press) suggest that if active problem solving is not met with a positive response from parents then these behaviours are less likely to be repeated, leaving the child at an increased risk of developing passive modes of coping, such as rumination. However, this hypothesis is yet to be tested. An experimental observational design could be used in which parents are instructed specifically to ignore or to respond positively to the child's attempts at active problem solving. Again, child affect and subsequent cognitive processing could be examined to see if positive parental responses reduce the likelihood of engaging in rumination.

Finally, future studies should aim to investigate interventions targeted at treating rumination in young people specifically. Possible interventions include positive parenting programmes (e.g., Sanders, 2008). Additionally, research could investigate the effectiveness of Watkins et al.'s (2011) cognitive behavioural treatment for rumination with adolescents. It may be useful to compare the effectiveness of individual interventions with treatments including both parents and their children.

4.5.2 Participants.

As a result of research demonstrating higher rates of rumination in females (Rood et al., 2009) and a potentially stronger relationship between maternal behaviour and daughter rumination (Alloy et al., 2006), mother-daughter dyads were selected for this study. However, future research should also investigate the development of rumination in males and the role of other significant individuals, such as father, siblings and peers.

4.5.3 Measures.

Future studies should aim to use sensitive observational measures of parenting, rather than questionnaire measures, which the majority of studies have used to date. Questionnaire responses may be biased by a number of factors, including a lack of insight, self-presentation biases or the mood of the respondent when filling in the questionnaire (Aldao et al., 2010). Observational measures address a number of the issues associated with self-report measures and they generally produce results with greater effect sizes (Creswell et al., 2011).

Future research will also need to identify a suitable observational measure of parental criticism. The results of this study combined with the results of the study conducted by Clark and Coker (2009) may suggest that the criticism frequency count on the FMSS is inconsistent in its usefulness in non-clinical adolescent samples. One alternative could be to adjust Daley et al.'s (2003) criteria in order to make the frequency count more inclusive and therefore more sensitive. However, the validity of an adjusted subscale would need to be explored. Another alternative could be to code critical comments using an observational measure where both mothers and

daughters are engaging in a task, such as the activities completed by participants in Gate et al.'s (in press) study.

It would also be informative to use observational measures of parental control and relate this to offspring rumination. Whilst Nolen-Hoeksema's (1991) control hypothesis has been the most extensively investigated, with four research studies demonstrating the relationship between rumination and controlling parenting (Hilt et al., 2012; Manfredi et al., 2011; Spasojevic & Alloy, 2002; Vatanasin et al., 2012), all of these studies have relied on self-report measures of parenting.

Rumination measures are also in need of further development. The RRS is the most widely used measure of rumination. However, the brooding subscale on the RRS, which is what is typically reported in research, is composed of only 5 items. Improving the validity of the measure has resulted in a reduction in internal reliability. Further research could retain the current five brooding items and add, for example, an additional five items. This would be likely to increase the internal consistency of the measure, which could then be validated in adult and adolescent populations.

Finally, a number of other psychological constructs could be investigated in future research. First, the relationship between attachment and observed parenting behaviours in adolescent offspring could be better understood. Secondly, Gate et al. (in press) concluded by suggesting that mothers that are more positive may model more positive behaviours which then are copied by their children. Consequently, future research could investigate the relationship between adaptive emotion regulation strategy use in parents and their children, rather than the intergenerational transmission of unhelpful emotional regulation strategies. Thirdly, Nolen-Hoeksema

(1991) has implied that the relationship between unhelpful parenting behaviours and ruminative coping in offspring may be mediated via the child developing negative beliefs about themselves, such as a belief that they are incompetent. Future research should aim to use regression models to investigate this mediational hypothesis.

Finally, future research should investigate the relationship between parent-child co-rumination and child rumination as this may form a means of modelling a ruminative response style to distress.

4.5.4 Summary.

In an underdeveloped area of research, there are a number of important areas for future investigations. The use of replication, prospective longitudinal, experimental and intervention studies have all been recommended. Future studies will need to use observational measures of parental criticism, positivity and control. Rumination measures are in need of further development. Additionally, the current evidence base could be extended to investigate the role of peers and other family relationships, the role of attachment, the development of negative beliefs in offspring and the role of modelling positive parental behaviours and parent-child co-rumination in the development of rumination in offspring.

4.6 Overall Conclusion

The aim of this investigation was to explore the role of parenting in the development of rumination in offspring. Specifically, it has been hypothesised that parental control, low positivity, criticism and modelling of a ruminative response style may be developmental antecedents to rumination in offspring (Gate et al., in press; Nolen-Hoeksema, 1991). The current investigation focused on the role of modelling, criticism and positivity in a sample of sixth form girls and their mothers.

The results of the study indicated that rumination was not correlated in mothers and daughters. This finding was in line with the results of two previous research studies with younger participants. Taken together, these findings suggest a lack of support for the modelling hypothesis of rumination (Nolen-Hoeksema, 1991).

Maternal criticism and positivity were explored using the FMSS.

Unfortunately, a low frequency of critical comments prevented attempts to thoroughly investigate the relationship between maternal criticism and rumination in offspring. However, a trend towards more frequent critical comments in the mothers affiliated to the upper quartile rumination group encourages further testing.

Consequently, the findings of the current study were unable to fully address the criticism hypothesis.

In contrast, positive comments were given frequently by mothers. A group comparison indicated that mothers affiliated to the lower quartile rumination group gave twice as many positive comments as the mothers of daughters in the upper quartile rumination group. This difference had a large effect size and it was statistically significant. This result remained significant, even when controlling for mother and daughter affect variables. This finding provides further support for the hypothesis that low maternal positivity is related to rumination in adolescents. This is only the second study to investigate this hypothesis.

However, the study results should be interpreted in light of its methodological weaknesses. Most notably, the study was not experimental and therefore causality cannot be inferred. However, the longitudinal study conducted by Gate et al. (in press) indicated that low maternal positivity precedes the increase in rumination in adolescent females. There were also difficulties with the measures

employed, namely with the reliability of the RRS and also with the sensitivity of the FMSS. Regarding methodological strengths, the main advantage of this study was the use of an observational measure of parenting. Only one other study has done this to date (Gate et al., in press).

A number of clinical implications were outlined. A major consideration is which interventions will prove most effective for ruminating adolescents. Possible interventions include individual therapy targeting rumination, positive parenting programmes or interventions with both the parents and the young person, such as family therapy. Ultimately future research will need to compare the effectiveness of these interventions in young people.

Finally, a number of recommendations have been made for future studies in this underdeveloped area of the literature. Prospective longitudinal designs using observational measures will be especially helpful in investigating the developmental antecedents of rumination. In order to facilitate this, researchers will need to develop sensitive and reliable measures of brooding and parenting characteristics, such as control and criticism.

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Appendix A: Documents Detailing Ethical Approval

Below is correspondence showing that the study was given a favourable ethical opinion. The second letter is following a request from the researcher for an amendment in order to broaden the area of recruitment to include Hampshire, which was granted.

Faculty of Medicine and Health Sciences Research Ethics Committee



Jessica Douglas
 Doctoral Programme in Clinical Psychology
 Elizabeth Fry Building
 UEA
 Norwich
 NR4 7TJ

Research & Enterprise Services
 West Office (Science Building)
 University of East Anglia
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Telephone: +44 (0) 1603 591574

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Email: fmh.ethics@uea.ac.uk

Web: www.uea.ac.uk/researchandenterprise

28th June 2012

Dear Jessica

The Role of Parenting in the Development of Rumination (Lay Title: Thinking Styles of Mothers and Daughters): Reference 2011/2012-43

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

Please could you ensure that any further 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 cursive script that reads 'Yvonne Kirkham'.

Yvonne Kirkham
 Project Officer

Faculty of Medicine and Health Sciences Research Ethics Committee

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13th July 2012

Dear Jessica

The Role of Parenting in the Development of Rumination (Lay Title: Thinking Styles of Mothers and Daughters): Reference 2011/2012-43

Thank you for your e-mail dated (10.07.12) notifying us of the amendments you would like to make to your above proposal. These have been considered by the Chair of the Faculty Research Ethics Committee and we can now confirm that your amendments have been approved.

Please can you ensure that any further 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 can you also arrange to send us a report once your project is completed.

Yours sincerely,

A handwritten signature in black ink that reads 'Yvonne Kirkham'.

Yvonne Kirkham
Project Officer

Appendix B: Letter and Information Sheet for Head teachers



Doctoral Programme in Clinical Psychology
 Norwich Medical School
 Elizabeth Fry Building
 University of East Anglia
 Norwich
 NR4 7TJ

(School Address)

(Date)

Dear *(Head teacher)*,

Re: Research Study - Thinking Styles of Mothers and Daughters

I am writing to invite your school to take part in a research project. I am completing a Doctorate in Clinical Psychology at the Norwich Medical School. The aim of this project is to investigate thinking styles in adolescent women and their mothers. I would like to recruit young women aged 16-18 to take part in the study and I am approaching sixth forms to invite them to be involved. Specific thinking styles are risk factors for some common mental health problems and we are interested in finding out how these develop in young people. It seems likely that family influences are important and in this study we want to examine thinking styles in mothers and their daughters.

Enclosed is more information about the study which I hope you will find interesting. I would welcome the opportunity to discuss this with you, or another member of the school management team (e.g., Head of Sixth Form), either over the phone or face to face. I will contact the school in the next few days and hope to speak to you then. If your school does wish to become involved I would hope to discuss how best to approach your students and to encourage them to take part. I hope you agree that they might find the opportunity very interesting and useful.

I look forward to speaking to you in the near future.

Yours Sincerely,

Jessica Douglas, Trainee Clinical Psychologist

jessica.douglas@uea.ac.uk

Supervised by Professor Malcolm Adams, Course Co-Director

Research Study: Thinking Styles of Mothers and Daughters

Background

One in four teenage girls will experience depression before they turn 18. Rumination is a common thinking style which involves repetitive thinking about the causes and consequences of negative feelings. Rumination appears to be a risk factor for depression but we know very little about how it develops or is maintained. Understanding rumination will help us to support young people who experience difficulties like depression and may help us develop ways of preventing depression.

Aims

The current study aims to investigate rumination in mothers and their daughters.

Participants

I am hoping to recruit 104 sixth form girls and their mothers to take part in this project.

Practicalities

Young people will be asked to complete three short questionnaires at (*school / college*). Their mothers will also be asked to complete three short questionnaires at home. Half of the mothers will be invited to take part in a telephone interview lasting 5 to 10 minutes.

The research will start in September 2012 and finish in February 2013.

Ethical Considerations

Participation of young people and their mother is voluntary. All young people are over 16 years old and can give consent. Mothers and daughters will be given detailed information about the study. They will be encouraged to contact the researcher if they have any queries or concerns. Information about confidential and free sources of support will be provided to everyone who takes part in the study.

Appendix C: Site-Specific Information

Table A1
Details of Recruitment Numbers at Each Site

School or College Type	No. of Daughters at Stage One (D)	No. of Mothers at Stage One (% of D)	No. of Mothers Consented to Stage Two (% of D)
Mixed State Sixth Form School	26	20 (77%)	12 (46%)
Mixed State Sixth Form College	86	73 (85%)	66 (77%)
Mixed State Sixth Form School	22	18 (82%)	18 (82%)
Mixed State Sixth Form Grammar School	68	43 (63%)	30 (44%)
Total	202	154 (76%)	126 (62%)

* Stage One: completed questionnaires, Stage Two: consented to do Five Minute Speech Sample

Appendix D: Information Sheet for Daughters

Participant Information Sheet (Version 1, 21/01/2012)

**Thinking Styles of Mothers and Daughters****Invitation to take part in a study**

Thank you for your interest in taking part in this research study. Before deciding if you want to take part, it is important that you understand what this involves. Please take time to read all the information below. If you would find it helpful, you can talk to other people or the researcher about participating in the research.

Purpose of the Research

The aim of this research is to examine similarities and differences in the thinking styles of parents and their children. We are just beginning to find out about how thinking styles develop and there are differences between boys and girls, and between mothers and fathers. To start with we want to recruit daughters and their mothers.

Who is organising the research?

This research is being conducted by Jessica Douglas, who is a Doctoral Trainee Clinical Psychologist in the Norwich Medical School at the University of East Anglia. She is supervised by Professor Malcolm Adams.

Who can take part in it?

We are recruiting girls aged 16-18 years old and their mothers.

Do I have to take part in the research?

No, taking part in this research is completely voluntary. If you decide to take part, we will ask you to sign a consent form to show that you have agreed to participate. However, you are free to change your mind and stop taking part in the research at any time.

What will happen to me if I take part and what will I have to do?

If you decide that you would like to take part I will ask you to meet me during school hours. I will ask you to complete two brief questionnaires and to provide some information about your age and background. This should take about 20 minutes. I will also ask you to take home a research pack for your mother. This will include an information sheet for her and the same questionnaires for her to complete. We would also like to interview 50% of mothers by telephone, which will take about 5-10 minutes. However, you can choose to take part without your mother. Even if you take the information home to your mother, she does not have to take part but we hope that she will. Contact information for the researcher will also be provided in case your mother has any questions.

What are the possible problems or risks if I take part in the research?

We do not expect any problems or risks to you or to your mother. The questionnaires have been used many times with different people. However, if for any reason you become upset during testing, please talk to the researcher. You are also free to stop at any time without having to give a reason. If you have concerns about your mood or well-being you might find it useful to speak to your GP or to a parent or teacher. You can also find out more about mental health issues from www.youngminds.org.uk or www.mind.org.uk

What are the possible benefits of taking part?

This study will help us understand more about how thinking styles develop. We think that this will help us to understand how young people think and feel, and to support young people that might struggle with difficulties such as depression.

As a token of thanks, you and your mother will be entered into a prize draw for Amazon vouchers (£25 each).

Will my questionnaire responses be kept secret?

Yes, all the information we collect from you and about you is confidential. Your questionnaires will be assigned a participant code so that we can match your answers to your mother's answers. Only the researcher will have access to this information. All documents will be kept in a locked filing cabinet in a secure office or stored

electronically on a computer that is password protected. Your name will not be on your paper questionnaires or on data entered into the computer and therefore the data is not traceable to you. The information you provide will be looked after by the researchers for 5 years. It will then be destroyed securely by shredding any paper records and permanently deleting information held on a computer. The results of the research will be written up but no personal information will be disclosed.

What if there is a problem or I want more information?

If you are concerned about any part of the research or if you have any questions, please contact Jessica Douglas (jessica.douglas@uea.ac.uk). You may also find it helpful to speak with your teachers or parents. If you are not happy for any reason and have not been able to resolve this you can contact Professor Malcolm Adams on m.adams@uea.ac.uk who is supervising the research.

Who has reviewed the research?

This research has been approved by the Faculty of Medicine and Health Research Ethics Committee of the University of East Anglia.

How can I take part in this research?

If you would like to take part in this research, testing will occur on (insert date) at (insert times). Please contact Jessica Douglas (jessica.douglas@uea.ac.uk) to book a time to participate.

Appendix E: Consent Form for Daughters

Consent Form (Version 1, 21/02/2012)



Title of Project: Thinking Styles of Mothers and Daughters

Name of Researchers: Jessica Douglas, Professor Malcolm Adams

Please initial box

1. I confirm that I have read and understood the information sheet dated 21/01/2012 (Version 1) for the above research. I have had the opportunity to consider the information, ask questions and receive satisfactory answers.

2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason.

3. I agree to take part in the above research.

 Name of Participant

 Date

 Signature

 Name of Researcher

 Date

 Signature

Appendix F: Brief Email to Parents

Dear Parents,

I am conducting a piece of research at (*insert name of school / college*). The aim of the project is to investigate thinking styles in young people and whether they are similar or different in mothers and daughters. Understanding the way young people think will help us to develop ways of helping young people who experience difficulties such as depression.

A number of female students will be taking part in the study and they will bring home further information about the study and questionnaires for their mothers to complete. Participation is voluntary and if you would like further details, please do not hesitate to contact me on jessica.douglas@uea.ac.uk

I hope that you will be able to help. As a token of thanks, each participating mother and daughter pair will be entered into a prize draw for Amazon vouchers (£25 each).

Yours Sincerely,

Jessica Douglas

Trainee Clinical Psychologist

Appendix G: Information Letter to Mothers

Doctoral Programme in Clinical Psychology
Norwich Medical School
Elizabeth Fry Building
University of East Anglia
Norwich
NR4 7TJ

Dear (*inset mother's name*),

Re: Thinking Styles of Mothers and Daughters

I am sending you this letter to invite you to take part in a research study that is taking part at (*inset name of school / college*). Your daughter has already taken part and we have asked her to bring this information home to invite you to take part with her.

The aim of the research is to examine similarities and differences in the thinking styles of parents and their children. We are just beginning to find out about how thinking styles develop and there are differences between boys and girls, and between mothers and fathers. To start with we want to recruit daughters and their mothers. Understanding the way young people and their mothers think will help us to develop ways of helping young people who experience difficulties such as depression.

We hope that you will be interested in taking part in this research. If you would like to take part please fill in the enclosed questionnaires and return them to the (*school / college*) office using the envelope provided. They should take about 20 minutes to complete. Please note that participation in this research is completely voluntary and that you are free to withdraw at any time.

We would also like you to consider taking part in a second stage of the study. We would like to interview 50% of mothers by telephone. This will take about 5-10 minutes. As part of the data collection process a 5 minute section of the call would be recorded but you will be told before I start recording. If you are willing to help with the telephone interview please provide your contact details (e.g. home telephone number, mobile number, work number) and possible times when we might

contact you (e.g. evenings 7-10pm, weekends only, during the day). If you would like to complete the questionnaires but do not wish to be contacted for this short discussion, that is fine, just send back the questionnaires.

All the information collected is confidential. You and your daughter will be linked by a participant code so that I will be able to match your answers to your daughter's answers. Only the researcher will have access to this information. All documents will be kept in a locked filing cabinet in a secure office or stored electronically on a computer that is password protected. Your name will not be on your paper questionnaires or on data entered into the computer and therefore the data is not traceable to you. The information you provide will be looked after by the researchers for 5 years. It will then be destroyed securely by shredding any paper records and permanently deleting information held on a computer. The results of the study will be written up for publication but no personal information will be disclosed.

We do not expect there to be any risks or problems. The questionnaires have been used many times with no difficulties and the research has been approved by the Faculty of Medicine and Health Research Ethics Committee of the University of East Anglia. If you have any questions or concerns about the research, please contact me via email: jessica.douglas@uea.ac.uk. As a token of thanks, you and your daughter will be entered into a prize draw for Amazon vouchers (£25 each).

If you have concerns about your mental health, we would recommend that you speak to your GP about this. For further information about mental health, please visit www.mind.org.uk. You may also find it helpful to speak to other people before choosing to take part in this research.

If you are not happy for any reason and have not been able to resolve this you can contact Professor Malcolm Adams on m.adams@uea.ac.uk who is supervising the research.

Thank you for reading this information. I hope you will be able to help.

Yours Sincerely,

Jessica Douglas

Trainee Clinical Psychologist

jessica.douglas@uea.ac.uk

Supervised by Professor Malcolm Adams, Course Co-Director

Appendix H: Consent Form for Mothers

Consent Form (Version 1, 21/02/2012)



Title of Project: Thinking Styles of Mothers and Daughters

Name of Researchers: Jessica Douglas, Professor Malcolm Adams

Please initial box

1. I confirm that I have read and understood the information in the letter dated (*insert date of letter*) for the above research. I have had the opportunity to consider the information, ask questions and receive satisfactory answers.

2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason.

3. I agree to take part in the first stage of the above research, which involves completing the enclosed questionnaire.

4. If selected, I am happy to be contacted to take part in the second part of this research, which will involve a 5-10 minute phone call.

Please contact me on:

Telephone Number:

The best time to call would be:.....

 Email Address:
 (if you do not wish to take part in the second stage, please leave question 4 blank)

 Name of Participant

 Date

 Signature

Appendix I: Confidentiality Agreement from the Transcription Service



Head Office
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Borehamwood
Hertfordshire
WD6 2HP

T 0845 601 7726
F 070 9202 4222
W www.dictatenow.com

Jessica Douglas (Trainee Clinical Psychologist)
Doctoral Programme in Clinical Psychology
Norwich Medical School
Elizabeth Fry Building
University of East Anglia
Norwich
NR4 7TJ

Manchester Office
53 Fountain Street
Manchester
M2 2AN

T 0161 235 6484
F 0161 235 6485

6th November 2012

Belfast Office
Forsyth House
Cromac Square
Belfast
BT2 8LA

T 02890 511 256
F 02890 218 001

Dear Jess

Further to our email exchange, please find enclosed a signed Confidentiality Agreement for your records.

If you have any questions please don't hesitate to contact me.

With kind regards

ANNIE DOWNES

Enc



UK based typists



Dictation Outsourcing

Date: 6th November 2012

Name: Dictate Now ("The Firm") to Jessica Douglas ("the Customer")

CONFIDENTIALITY

All information concerning the Customer's clients and employees and their affairs of which the Firm become aware during their outsourcing work with the Customer will be regarded by the Firm as of the highest confidentiality. Accordingly, the Firm will not, whether during its outsourcing work with the Customer or at any time after its termination (save only in the proper performance of its duties):-

- (a) disclose or divulge to any third party or make use of for the benefit of the Firm or any third party any information whatsoever concerning the business or personal affairs or dealings or identities of any of the Customer's clients or employees which may come to the Firm's knowledge in the course of its outsourcing work.
- (b) (if relevant) take away, conceal, destroy, retain or disclose to any third party or make use of for the Firm's own benefit or the benefit of any third party any documents, correspondence, notes, memoranda or other records of any kind whether written or printed or stored on computer disk or in any other form whatsoever and all and any copies of any of the foregoing relating to or concerning the business or personal affairs or dealings or identities of any of the Customer's clients or employees.

During the course of the Firm's outsourcing work with the Customer, the Firm may also gain access to information in respect of the business, financing, dealings, transactions and affairs of the Customer and its partners, all of which information is likely to be highly confidential. Accordingly, the Firm will not, whether during the course of its outsourcing work or at any time after its termination:-

- (a) disclose or divulge to any third party or make use of for the benefit of the Firm or any third party any confidential information whatsoever concerning or relating to the business, financing, dealings, transactions and affairs of the Customer and its partners
- (b) (if relevant) take away, conceal, destroy, retain or disclose to any third party or make use of for the Firm's own benefit or the benefit of any third party any documents, correspondence, notes, memoranda or other

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records whether written or printed or stored on computer disk or in any other form whatsoever and all and any copies of any of the foregoing relating to or concerning the business, financing, dealings, transactions and affairs of the Customer and its partners.

All documents, correspondence, notes, memoranda and all other records whether written or printed or stored on computer disk or in any other form whatsoever and all and any copies thereof relating to or concerning the business or personal affairs or identities of any of the Customer's clients or the business, financing, dealings, transactions and affairs of the Customer and its partners which may come into the Firm's possession during the course of the Customer outsourcing work shall be the property of the Customer and shall be surrendered by the Firm to the Customer if requested at the termination of its outsourcing work with the Customer or at the Customer's request at any time during its outsourcing work with the Customer.


The firm will only allow access to the Customer's Confidential Information only to those employees who have reasonable need to see or use it for the Purpose and informing each of the said employees of the confidential nature of the Confidential Information and of the obligations in respect of the Confidential Information and ensuring such employees comply with the confidentiality and non-disclosure obligations contained in this agreement.

By signing a copy of this letter the Firm warrants that it will ensure that all its employees abide by the terms and conditions hereof.

Yours faithfully

DictateNow

We acknowledge and agree to the above terms

Signed:  Dated: 6th November 2012

Print Name: ANNIE DOWNES

Position: UK Sales Manager

Appendix J: Dissemination of Results to Sixth Forms

Thinking Styles of Mothers and Daughters – Study Results



Thank you very much to all the mothers and daughters that took part in this study. We are very grateful that you took the time to participate. In total, 200 sixth formers took part from Cambridgeshire, Hampshire and South West London. The study you took part in was investigating a particular thinking style called “rumination”, which is the tendency to dwell on negative feelings. Rumination can be a risk factor for some types of emotional difficulties. Firstly, we wanted to know if this thinking style might run in families and so we looked to see if there was an association between rumination scores in mothers and daughters. We found that there was no relationship whatsoever; the correlation was almost zero suggesting that this thinking style is not linked in mothers and daughters.

Another area we were interested in was whether mothers could do anything to protect their daughters from developing rumination and we investigated this during the phone interviews. We found that mothers of daughters in this study were generally very positive about their daughters and that they did not have many criticisms to make. This was a very encouraging finding. We found that the more positive comments mothers made during the phone interview, the lower the amount of rumination that was reported by the daughters. We also found that this finding remained strong even when we statistically controlled for mother and daughter positive and negative feelings (you gave us this information on one of the questionnaires you completed). This suggests that positive comments from mothers are related to lower rumination scores in daughters, even when you take into account how positive or negative mothers and daughters are feeling.

We are very excited about the study findings and we will be looking to publish them in a psychology journal later in the year (the way we report the study is completely anonymous so no-one will know who took part or what sixth form they went to). We hope that you enjoyed taking part in the study. If you have any questions about the results, please contact me on jessica.douglas@uea.ac.uk. Thanks again for your help with this study.

Appendix K: Additional Demographic Information for Mothers

In addition to age and ethnic background, mothers also provided information regarding their marital status and educational level.

Marital Status

Table A1
Marital Status of Mothers (n = 154)

Marital Status	Frequency	Percentage (to 1 d.p.)
Married	130	84.4
Cohabiting	7	4.5
Single	6	3.9
Separated	5	3.2
Divorced	5	3.2
Widowed	1	0.6
Total	154	

Educational Level

Mothers left full time education between the ages of 15 and 32 years ($M = 19.9$ years, $SD = 3.2$). Mothers also provided information regarding their highest qualification obtained (see table A2).

Table A2
Highest Qualification of Mothers (n = 154)

Qualification (or Equivalent)	Frequency	Percentage (to 1 d.p.)
CSE / O Level / GCSE	33	21.4
A Level	19	12.3
Undergraduate (2 years)	8	5.2
Undergraduate (3 years)	49	31.8
Postgraduate (e.g. Masters, PhD)	30	19.5
Unclear Response or Missing Data	15	9.7
Total	154	

Appendix L: Inter-Rater Reliability for FMSS Scores

Scores given by both raters are detailed below for both positive and critical comments.

Table A3

FMSS Scores Provided by Both Raters (n = 8)

Sample Number	Positive Comments		Critical Comments	
	Rater 1	Rater 2	Rater 1	Rater 2
1	2	2	0	0
2	5	4	0	0
3	2	3	0	0
4	1	1	0	0
5	9	9	0	0
6	9	8	0	0
7	3	3	0	0
8	2	1	1	1

Appendix M: Demographic Information for Mothers and Daughters for Research Question One Only

One hundred and fifty three sets of dyad data were used to explore the relationship between brooding in mothers and daughters. The demographic information for these participants is given below.

Daughter Age

There was one item of missing data. Of the remaining 152 daughters, the mean age was 17.02 years ($SD = .57$).

Daughter Ethnicity

There was one item of missing data. For the remaining 152 daughters, ethnicity is given in Table A4.

Table A4
Ethnicity of Sixth Form Daughters (n = 152)

Ethnicity	Frequency	Percentage (to 1 d.p.)
White British	118	77.6
Any Other White	9	5.9
Mixed White and Black / Asian / Other	9	5.9
Asian (Indian / Pakistani / Chinese / Other)	14	9.2
Black (Caribbean / African)	2	1.3
Other	0	0
Total	152	

Mother Age

There was one item of missing data. Of the remaining 152 mothers, the mean age was 47.70 years ($SD = 3.86$).

Mother Ethnicity

There were no items of missing data for mother ethnicity (see table below).

Table A5
Ethnicity of Mothers (n = 153)

Ethnicity	Frequency	Percentage (to 1 d.p.)
White British	115	75.2
Any Other White	16	10.5
Mixed White and Black / Asian / Other	0	0.0
Asian (Indian / Pakistani / Chinese / Other)	17	11.1
Black (Caribbean / African)	2	1.3
Other	3	2.0
Total	153	

Appendix N: Mother and Daughter Brooding Score Distributions

Both mother and daughter brooding scores were positively skewed. For more information, box plots are provided below.

Figure A1 Mother Brooding Scores

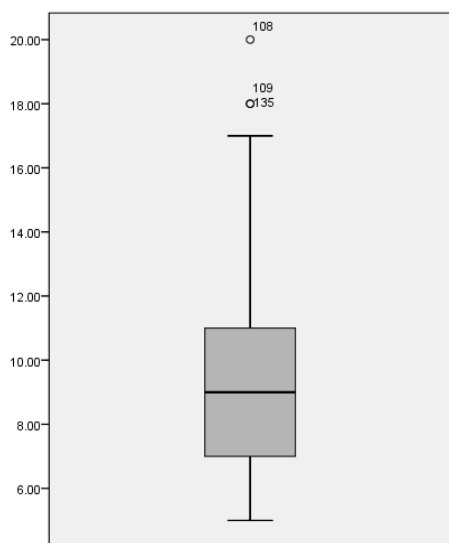
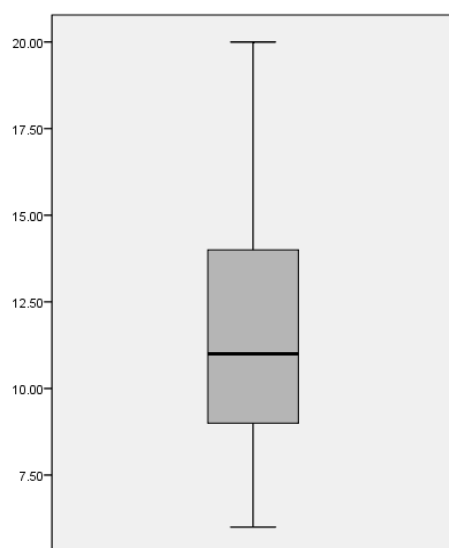


Figure A2 Daughter Brooding Scores



Appendix O: Research Question One Graphs

Figure A3 below is a scattergraph of the relationship between mother and daughter brooding scores. Due to the high number of points ($n = 153$), representing the data in this way can be problematic, as multiple points can occupy the same space. In Figure A4, maternal brooding has been split into four quartiles and the mean brooding values for daughters is provided (with associated 95% CI). Both of these graphs indicate that there is no difference in daughter brooding at different levels of maternal brooding.

Figure A3 The Relationship Between Mother and Daughter Brooding

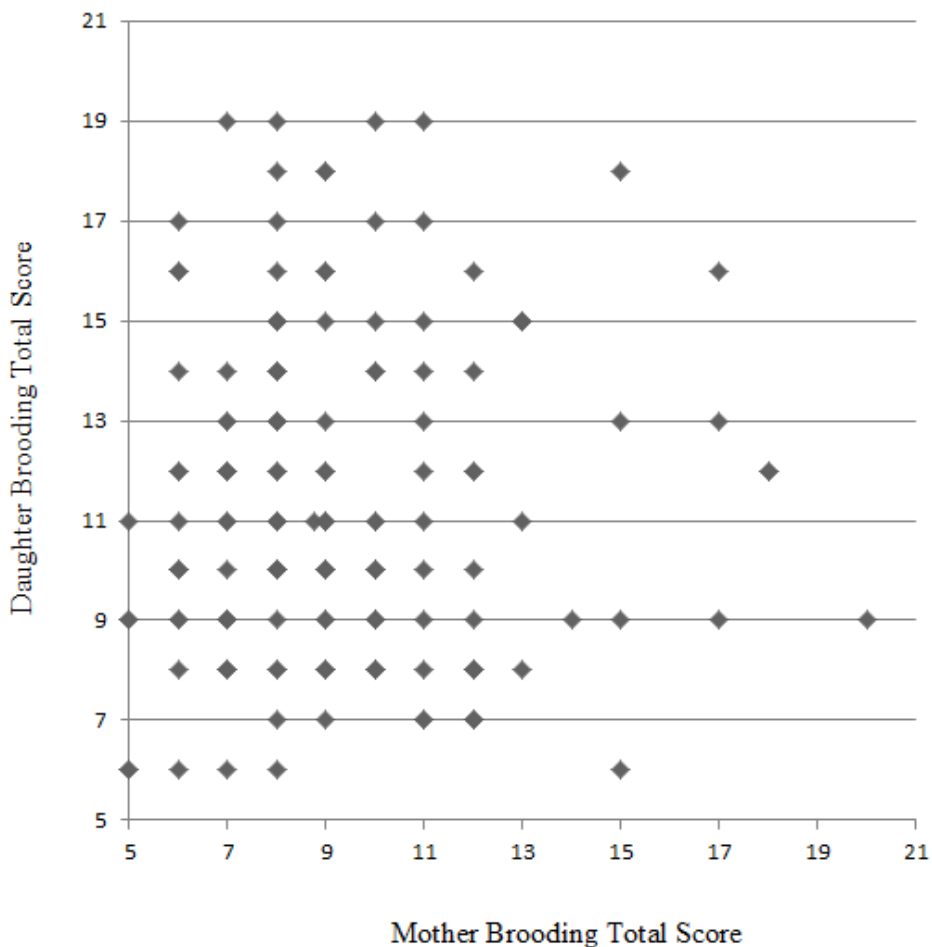
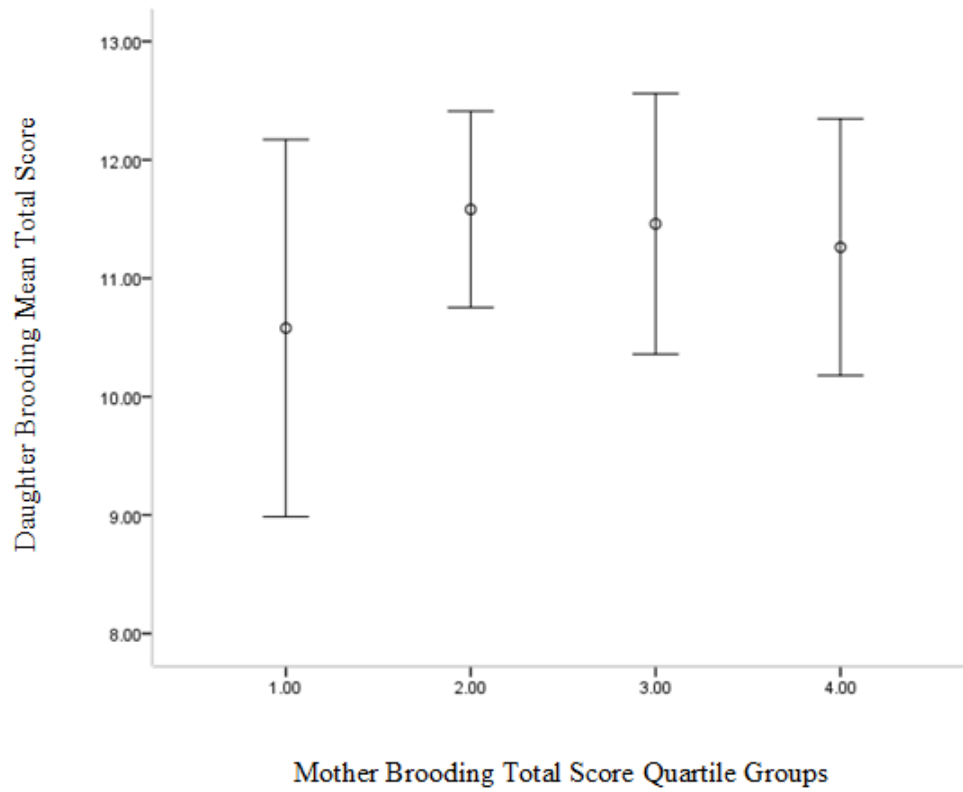


Figure A4 The Relationship Between Mother and Daughter Brooding by Quartile

Appendix P: Positive Comments Distributions

The number of maternal positive comments for daughters in the lower quartile was marginally negatively skewed, whereas positive comments were positively skewed in the upper quartile. For more information, box plots are provided below.

Figure A5 Positive Comment Scores Given by Mothers of Daughters in the Lower Quartile Group

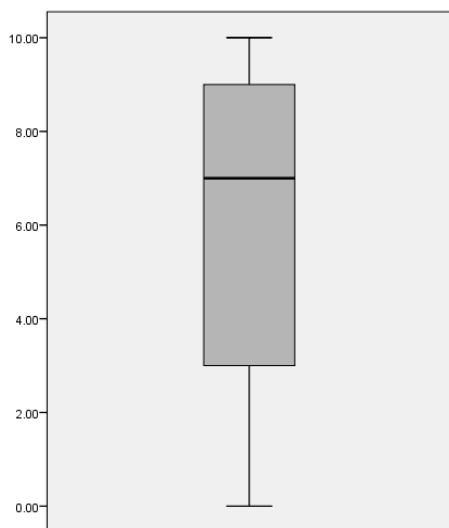
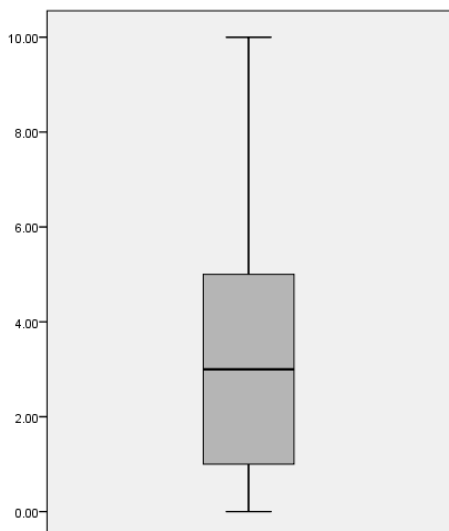


Figure A6 Positive Comment Scores Given by Mothers of Daughters in the Upper Quartile Group



Appendix Q: Descriptive Statistics for Mother and Daughter PANAS (Affect)

Scores

Table A6 below gives descriptive statistics for scores obtained on the PANAS for the 154 mother-daughter dyads.

Table A6
Descriptive Statistics for Mother and Daughter Affect Scores on the PANAS (n = 154)

	Affect Scale	<i>M</i>	<i>SD</i>	<i>Mdn</i>	Min	Max	Range
Mother	Positive	35.51	6.5	36	17	50	33
	Negative	18.85	6.24	18	10	43	33
Daughter	Positive	31.26	6.02	32	14	46	32
	Negative	21.01	5.15	21	12	39	27