Talking in Circles: Examining Co-Rumination in Parent-Child Reminiscing and Future Event Conversations as an Intergenerational Transmission Pathway for Internalising Symptoms

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Abstract

Middle childhood is a salient period of development (Mah & Ford-Jones, 2012). Internalising difficulties such as depression and anxiety often occur before the age of 15 (Lijster et al., 2017; Liu et al., 2011), and the burden of these difficulties continue into adolescence and adulthood (Caputi & Schoenborn, 2018; Garber & Horowitz, 2002). Previous research highlights the integral role that parent-child interactions play in the development of mental health concerns in children (Eisenberg et al., 1998; Goodman & Gotlib, 1999), with the discussion of emotions identified as a pathway which might support children's capacity to cope with emotional distress and buffer against the development of mental health difficulties in children (Bray et al., under review; Russell et al., 2024b; Swetlitz et al., 2021). On the other hand, parents may pass on their own cognitive biases through conversations about emotions with their child (Bray et al., under review). This study aimed to examine co-rumination within parent-child conversations about past and future negative emotional events, and whether this might act as a potential pathway for the intergenerational transmission of internalising difficulties between parents and their children. Participants were parent-child dyads from New Zealand (n = 51) and Australia (n = 54). Children were aged between 8 and 12-years-old. Parents and children completed relevant measures for mental health difficulties and engaged in two reminiscing conversations (one positive and one negative) and two future event conversations (one positive and one negative). Parent-child conversations were coded for co-rumination utilising an adapted co-rumination coding scheme (Rose et al., 2014). A series of Pearson correlations and simple mediation models were conducted to examine associations between parent and child mental health and co-rumination, and to test a potential pathway of intergenerational transmission of internalising difficulties through co-rumination. Results indicated that parent and child rumination were

correlated, suggesting a dyadic style of rumination developing during middle childhood. No empirical support was identified for an indirect effect of parent to child internalising symptoms through co-rumination. Recommendations for future research are discussed.

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Overview

Depression and anxiety account for a majority of the burden within childhood mental health issues (World Health Organization, 2021). Anxiety and depression are among the most prevalent mental health diagnoses across the lifespan and rates rapidly increase in adolescence (Fitzgerald et al., 2025; Spytska, 2023; Wittchen et al., 2003). Therefore, understanding factors which may be related to the development of such internalising difficulties within middle childhood is important.

Middle childhood is a critical but often overlooked developmental age. From the ages of 6 to 12, thoughts, behaviours, and emotions are becoming more refined (Mah & Ford-Jones, 2012), allowing children to engage with the expanding world around them more effectively. New roles within the social and family environment combined with the developing emotional skills may leave a child vulnerable to mental health difficulties (Bhana, 2010).

The development of child mental health difficulties is likely multifactorial, involving genetic, biological, environmental and wider socio-cultural mechanisms (Mendes et al., 2013). Within this complex picture, parents may play an important role, with previous studies suggesting that mental health disorders may be transmitted from parent to child through an array of pathways (Bifulco et al., 2002; Goodman & Gotlib, 1999). Emotion socialisation describes the way in which parents may (or not) explore with their child their understanding of emotional events, feelings, and behaviours (Eisenberg et al., 1998). In particular, high-quality parent-child conversations about emotional events the child has already experienced may be an especially important context for emotional socialisation, as these occur outside of the ‘heat of the moment’ (Salmon & Reese, 2016). Future-focused conversations may also allow children to plan ahead to utilise skills for anticipated future emotional events (Russell

et al., 2024a). Although discussing emotions may support a child's emotional socialisation, persistent focus on negative emotions and events may become counterproductive (Rose et al., 2014).

Rumination – defined as a repetitive focus on negative aspects or problems without productive resolution (Nolen-Hoeksema, 1991) – has been identified as a transdiagnostic factor involved in the development and maintenance of a number of mental health disorders, including anxiety and depression (Drost et al., 2014; McLaughlin et al., 2014; McLaughlin & Nolen-Hoeksema, 2011; Nolen-Hoeksema, 2000). There have been recent calls for prevention and intervention studies to focus on this underlying vulnerability (McLaughlin & Nolen-Hoeksema, 2011). While rumination can occur silently, within the individual, rumination may also be shared with others. Known as co-rumination, this style of conversing has typically been explored during adolescence, with evidence suggesting that adolescents co-ruminate during conversations with both their peers and parents (Grimbos et al., 2013; Loffe et al., 2020; Rose et al., 2014).

Several studies have investigated co-rumination within dyad conversations specifically focused on problem discussion tasks (Borowski et al., 2018; Miller et al., 2020; Rose et al., 2014); however, few studies have focused on co-rumination in the context of past and future conversations between parents and their children and the association of internalising difficulties within middle childhood. This research will examine co-rumination during past and future conversations between parents and their 11- to 12-year-old, and associations with both parent and child mental health. This introduction will describe child mental health and internalising difficulties, emotional socialisation during middle childhood, parent-child reminiscing and co-rumination between parents and children. Gaps in the literature will be identified and the current study outlined.

Childhood Mental Health

Middle Childhood

Middle childhood spans an age range of 6 to 12 years (Mah & Ford-Jones, 2012) and encompasses the development of various important stepping stones that support children on their journey through adolescence and into adulthood (Bhana, 2010; Carr, 2017). The journey through middle childhood allows children to comprehend more abstract phenomenon and solve and master more complex problems and tasks (Collins & Madsen, 2019). Alongside important cognitive developments, physical growth and social skills develop within a similar timeframe (Del Giudice, 2014). This developmental period also provides children with new opportunities to develop independence through their new roles in both family and social settings (Collins & Madsen, 2019; Mah & Ford-Jones, 2012). For example, children may engage in activities (e.g., helping parents and siblings) that support the functionality of their family (Del Giudice, 2014).

It is clear that middle childhood brings various new experiences which children learn to navigate; however this developmental phase in particular has often been overlooked by psychological literature (Mah & Ford-Jones, 2012). The focus has instead been on the more rapid developmental progressions of the preschool years, or the more intense and challenging social and emotional stage of adolescence (Mah & Ford-Jones, 2012). However, even before adolescence, children are moving through new social terrains where heightened emotional reactions and interpersonal difficulties may arise (Denham, 2007). These new aspects of development may be an exciting time for children, however, the transition into adolescence may be more overwhelming for children with less social and emotional resources (Collins & Madsen, 2019).

Internalising and Externalising Difficulties

Internalising and externalising disorders are generalised labels for difficulties grouped together by their symptom similarity (Achenbach, 1966). *Internalising difficulties* refer to symptoms and behaviours that an individual experiences independently (Frye et al., 2018). Symptoms such as melancholy, hopelessness, fear, and worry are key characteristics of internalising problems (Hughes & Gullone, 2008; Nikstat & Riemann, 2020; Schwartz et al., 2011). Without intervention, these symptoms may progress into difficulties such as a loss of interest in once enjoyed activities, reduced self-confidence, sleep and/or appetite disruptions, as well as worsening concentration and memory abilities (Bhowick et al., 2012); leaving individuals vulnerable to develop diagnosable depression and anxiety disorders (Hughes & Gullone, 2008). Internalising difficulties may also result in extended difficulties within social aspects of one's life; with previous research suggesting that individuals may face difficulty within relationships and academic advancements (Hughes & Gullone, 2008; Liu et al., 2011). For example, Nezlek et al. (1994) examined the influence of depressive symptoms in a community sample of college students on their social interactions. Using the Center for Epidemiological Studies Depression Scale and a self-report measure of social interactions, this study revealed that individuals who met the criteria for being 'at-risk' of depression were more likely to have social interactions with others that were less fulfilling (Nezlek et al., 1994). Furthermore, Owens et al. (2012) assessed anxiety and depression in youth aged 12- to 13-years old and examined association with their school examination performance, measured by scores from their National Curriculum Standard Assessment Test. Results suggested that young people's worry may exacerbate anxious feelings about completing tests, in turn, impacting overall academic performance (Owens et al., 2012). These studies highlight the direct impact of internalising difficulties on the individual and wider aspects of their life.

Externalising difficulties refer to more outwardly focused symptoms such as aggression, non-compliance, and other behaviours that place strain on relationships (e.g., friends, family, teachers, other individuals) (Nikstat & Riemann, 2020). Individuals with externalising difficulties may be vulnerable to diagnosable difficulties such as; attention deficit/hyperactivity disorder (ADHD), oppositional defiant disorder (ODD), and conduct disorder (CD) (Norozpour et al., 2023). Negative extended outcomes have also been identified for those who experience externalising symptoms; with common disadvantages falling within the social and physical health context (Colman et al., 2009).

Experiences of externalising and internalising difficulties play a large role in psychological outcomes for children (Liu et al., 2011; Nikstat & Riemann, 2020). For the purpose of this research study, specific focus is drawn to internalising difficulties within middle childhood for two important reasons. Firstly, due to the nature of internalising difficulties, individuals who experience internalising difficulties may withstand the challenges discreetly, elevating the potential for the symptoms to go unnoticed for an extended period of time (Stormont et al., 2015; Zahn–Waxler et al., 2000). Previous research has identified that parents and children often disagree about the occurrence of child internalising symptoms (Orchard et al., 2019). Therefore, it may only be once internalising difficulties develop into diagnosable disorders such as depression and anxiety that adults are able to identify their presentation (Flett et al., 2018). Furthermore, the long-term implications of overlooking internalising difficulties within middle childhood may lead to psychological difficulties that continue into adolescence (Wang et al., 2018). As discussed above, the burden of depression and anxiety has been observed to extend to impact professional, personal, and other aspects of an individual's life (Lépine & Briley, 2011). Moreover, understanding the underlying mechanisms of internalising difficulties may support a more comprehensive

understanding and the prevention of future mental health difficulties within adolescence (Nikstat & Riemann, 2020; Zahn–Waxler et al., 2000).

Prevalence of Internalising Difficulties

Depression and anxiety disorders are the most prevalent mental health difficulties (Silva et al., 2020), with one in five adults experiencing a common mental health difficulty in a 12-month period (Steel et al., 2014). Depression has been estimated to impact one in 10 people in the general population (Tolentino & Schmidt, 2018), whilst anxiety is one of the most common psychological disorders identified in childhood (Rapee et al., 2023). The World Health Organization (2021) estimates that one in seven youth aged 10 to 19 are living with a current mental health condition. Furthermore, anxiety disorders have been estimated to impact around 4% of youth aged 10 to 14 and depression has been estimated to impact approximately 1% of youth aged 10 to 14 (World Health Organization, 2021). Moreover, it has been suggested that nearly half of all psychological difficulties begin by at least the age of 14 (Kretzer et al., 2024; Werner-Seidler et al., 2022); indicating that internalising difficulties may often be initially detected during middle childhood. More specifically, the average age for the onset of both depression and anxiety has been identified as prior to 15 years old (Lijster et al., 2017) and the trajectory of the rates of these difficulties continue to climb into adolescence (Caputi & Schoenborn, 2018; World Health Organization, 2021).

New Zealand Prevalence of Internalising Difficulties

Mental health concerns in childhood have become an increasingly critical concern for the New Zealand public, academics, and health professionals. Unfortunately, compared to other developed countries, New Zealand consistently ranks above average in global trends that are focused on youth suicide (Disley & Coggan, 1996; Thom et al., 2012). In a country-by-country study, Glenn et al. (2020) found that youth aged 10 to 19 in New Zealand had a

suicide mortality rate of 9.36 per 100,000 people. Furthermore, Roh et al. (2018) found that New Zealand ranked the highest for adolescent suicide rates in comparison to 29 other countries that were included in their study. Considering these concerning findings, there have been extended efforts towards identifying the specific mental health challenges that the New Zealand youth population is facing.

Notably, the longitudinal *Growing Up in New Zealand* study has been collecting information on the important determinants of overall wellbeing for youth, including the mental health condition of youth in the New Zealand at different stages of their life. In regards to the trajectory of internalising difficulties over time, between the ages of 8 to 12, 52% of the children within the cohort experienced an increase in depressive symptoms (Fletcher et al., 2023). Whilst the cohort appeared to have an overall decrease in anxiety symptoms, a large portion of the cohort (37.2%) reported an increase in these symptoms (Fletcher et al., 2023). International research has also highlighted that children who experience an internalising difficulty may be likely to see a continuation of that difficulty into adolescence. For example, studies conducted by Ashford et al. (2008) and O'Connor et al. (2021) both suggest that the experience of an internalising difficulty during the ages of 4 and 5 may predict the appearance of internalising difficulties in middle childhood and adolescence. Furthermore, young adolescents who experience internalising difficulties with limited social support may encounter serious consequences of depression and anxiety such as suicidal ideation and self-harming behaviours (Patel et al., 2007). The potentially harmful outcomes of internalising difficulties highlight the importance of investigating the underlying mechanisms, origins, and progression of mental health difficulties, especially within middle childhood, where internalising difficulties most commonly appear to begin (Kretzer et al., 2024; Lijster et al., 2017; Werner-Seidler et al., 2022).

Gender Differences

Gender differences in youth internalising difficulties are consistently identified. O'Connor et al. (2021) found that 25.9% of adolescent females reported experiencing internalising difficulties compared to 14.7% of males. These patterns are also seen in Aotearoa New Zealand. *Growing Up in New Zealand* found that at age 12 years, both males and females in the cohort exhibited similar levels of depressive symptoms (Fletcher et al., 2023). However, reports of anxiety symptoms differed, with females in the cohort indicating a higher level of anxiety symptoms (Fletcher et al., 2023). Similarly, the *Christchurch Longitudinal Study* found at the age of 15, females were more likely to experience a mental health disorder in comparison to males (Fergusson & Horwood, 2001). These findings align with the large pool of international research that suggests that females tend to experience higher rates of internalising symptoms in comparison to males (Bask, 2015; Bor et al., 2014; Patel et al., 2007; Steel et al., 2014; Toumbourou et al., 2011; Yoon et al., 2023).

Why might adolescent females be at an increased risk of internalising difficulties? Puberty has been identified as a predictor for many internalising difficulties, including depression, anxiety, self-harming behaviours, and eating disorders (Viner, 2015), with females as young as age 10 entering the pubescent stage before males (Reena, 2015). The onset of puberty increases hormones that influence both brain development and social behaviours in youth (Blakemore et al., 2010), and a combination of both physical and social advancements may play an immense role in the emerging mental health difficulties that can be observed in middle childhood (Dahl & Gunnar, 2009; Reena, 2015).

Moreover, environmental mechanisms have also been recognised as crucial in the development of internalising symptoms for pre-adolescent and adolescent females (Brook & Schmidt, 2008). Younger females are often exposed to social, body image, and media stressors that are different from males (Mahon & Hevey, 2021). Social media engagement is

particularly popular amongst pre-adolescent and adolescent females, and users may be at risk for frequent comparisons between themselves and the 'ideal version' of others (Fardouly & Vartanian, 2016; Sukamto et al., 2019). Furthermore, Choukas-Bradley et al. (2022) suggests that specific aspects of social media such as the widely available and permanent access to photos of peers and celebrities may contribute to internalising symptoms, body image difficulties, and disordered eating behaviours.

Additionally, gender differences in emotion socialisation for young girls may exacerbate internalising difficulties, more specifically, the interactions that parents have with their girls and boys may differ (Keenan & Shaw, 1997). Some research has found, for example, greater parental encouragement of daughters' expression of sadness, and worry, and discouragement of emotions such as anger (Chaplin et al., 2010). Additionally, similar findings were also identified by Kuebli and Fivush (1992), where both mothers and fathers spoke about emotions with their daughters more than with their sons. Taken together, unique stressors and specific socialisation practices that female adolescents' encounter may increase their risk of experiencing internalising difficulties, emotional distress, and low affect (Scully et al., 2023).

Parenting and Internalising Difficulties

Diverse variables such as personal factors, social support, family situation, and environmental elements may work together as either protective or risk factors that may impact an individual's vulnerability to develop mental health difficulties in their life (Heinsch et al., 2022; Washington, 2009). More specifically, factors within the individual's family context have been highlighted as a potential avenue for the development of internalising difficulties in children (Rapee, 2012; Wille et al., 2008). Children may be at a higher risk of adverse mental health outcomes if their family experiences stressors such as financial

difficulties, marital conflict, and strain within parent-child relationships (Essex et al., 2006). More specifically, 'parenting' in general has been highlighted as a prominent risk factor in the potential development of psychopathology for children (Bhana, 2010; Ryan et al., 2017).

As children progress through middle childhood, they may engage in more peer-relationships and their interactions with parent figures may decrease (Collins & Madsen, 2019; Seibert & Kerns, 2009). Although support circles for children during this age may extend to include peers and other individuals (e.g., teachers) (Levitt et al., 2005), parental figures remain part of the key support system for much of this period of children's development (Bosmans & Kerns, 2015). During this time, parents pass down important skills, values, and knowledge that support their children to learn how to appropriately connect with the world around them through the process of socialisation (Grusec, 2002; Zahn-Waxler, 2010). During middle childhood, parents may support their children's developing independency through teaching them appropriate self-regulation of emotions and social behaviours (Collins & Madsen, 2019). However, socialisation may be a complex task for parents as the process requires parents to make decisions about how they interact with their child to ensure their socialisation goals for their child are successful (Grusec et al., 2000). Moreover, socialisation difficulties may be heightened during middle childhood, with Eccles (1999) suggesting that parents may find it challenging to adapt to their child's expanding social and emotional requirements during this developmental age.

Emotional Socialisation

Parents play a central role in their child's development of emotional regulation skills (Sebastião et al., 2023). Children learn how to cope with their emotions in a way that follows societal norms through emotional socialisation (Chan, 2011). This process begins before children can talk, with research suggesting that parents support their child's emotional understanding from infancy (Stone et al., 2017). Eisenberg et al. (1998) highlighted three

main avenues in which parents can support their child's emotional development. Firstly, parents may *react* to their child's display of negative emotions either positively or negatively (Eisenberg et al., 1998). Secondly, parents who *express* their emotions to their children may also support their child's understanding of other's emotional reactions (Eisenberg et al., 1998). Lastly, parents can engage in *discussions* about emotions with their child in order to support emotional socialisation (Eisenberg et al., 1998). When parents talk with their child about emotions, they may choose to discuss the causes, the experience, and/or the consequences of emotions (Eisenberg et al., 1998; Fivush et al., 2003). The benefits for children include enhanced emotional language, a developing understanding of emotions, and enhanced regulation of emotions (Eisenberg et al., 1998). Supportive reactions to their child's emotions (e.g., comforting the child) may enhance the development of constructive emotional regulation skills (Eisenberg et al., 1998); however, non-supportive reactions to emotional displays (e.g., minimising or discouraging), may teach children to cope with their feelings through dysregulated behaviours, potentially leading to the development of internalising difficulties (Eisenberg et al., 1998; Sebastião et al., 2023).

Sebastião et al. (2023) examined parent emotion socialisation, the development of emotional schemas for children, and psychological outcomes later in life. Utilising the Emotional (In)Validation Experiences Scale, this study examined recollections of emotional socialisation practices within the first 18 years of life in a community sample of Portuguese adults aged between 18 and 73 years old (Sebastião et al., 2023). Overall, results from this study supported their proposed mediation model and revealed that participants who recall their parents engaging in non-supportive emotional socialisation practices were more likely to display their own negative schemas about emotions and report higher levels of psychological distress (Sebastião et al., 2023).

Similarly, Boucher et al. (2013) proposed and examined a mediation model with a specific focus on parents' emotional socialisation practices regarding sadness. Participants of this study were university students with a mean age of 21.5 years (Boucher et al., 2013). Researchers proposed that negative cognitive biases about sad emotions would mediate the relationship between unsupportive parental emotional socialisation practices in childhood and the development of depression later in life (Boucher et al., 2013). Boucher et al. (2013) also found that four identified emotional schemas mediated the relationship between unsupportive parental emotional socialisation practices and depression symptoms later in life.

Taken together, there appears to be some support for parental emotional socialisation practices during childhood predicting the outcome of psychological wellbeing later in life. More specifically, the use of discouragement, minimising and other unsupportive emotional socialisation practices may hinder the child's ability to cope with their emotions in a constructive way (Boucher et al., 2013; Eisenberg et al., 1998; Sebastião et al., 2023). It is important to note, however, that these studies are reliant on retrospective recall of young adults' experiences during childhood, which may be biased by their current mental health symptoms. In addition, with all constructs measured by youth self-report, findings may be impacted by shared measurement bias (Rosenman et al., 2011). Further research is needed during development and using observational measures rather than relying solely on self-report.

Parental Psychopathology

Parental mental health difficulties have long been identified as a prominent risk factor for children and their potential to develop mental health difficulties (Grimbos et al., 2013). For example, children of parents who experience a depressive disorder are more than twice as likely to experience depressive symptoms at an earlier onset and with an increased risk of reoccurrence later in their life (Hammen, 2003). Similar findings were identified by *Growing*

Up in New Zealand: at the age of 12, maternal depression symptoms were associated with an increase in depression symptoms for children in New Zealand, even after controlling for other potentially influencing factors (e.g., demographic, socioeconomic) (Fletcher et al., 2023).

Similar themes have been identified for anxiety, with children being at an increased risk of meeting the diagnostic criteria for an anxiety disorder diagnosis in their life if their parents have previously experienced an anxiety disorder (Bögels & Brechman-Toussaint, 2006; Cobham et al., 1998; Micco et al., 2009; Rapee, 2012).

In order to understand the intergenerational transmission of internalising disorders such as depression and anxiety, it is essential to examine the potential pathways by which parents may pass on their own internalising vulnerabilities to their children. A seminal model developed by Goodman and Gotlib (1999) provides a framework to consider four potential pathways to explain the intergenerational transmission of mental health difficulties from parent to child. It is important to note that this framework was originally developed to understand the transmission of depression symptoms from mother to child, but has since been expanded to consider caregivers and mental health symptoms more broadly (e.g., Lopez, 2021). Within this model, Goodman and Gotlib consider: (1) the genetic predisposition to depression; (2) possible differences in the neurological framework of children born to mothers who experience depression; (3) the child's exposure to the mother's negative thought processes and emotional states; and (4) additional stressors in the immediate environment associated with parental mental health difficulties (Goodman & Gotlib, 1999). Pathway (3) is of most relevance to the current thesis.

Previous research has suggested that mothers who experience depression are likely to be less involved, less responsive, and display their low moods to their children (Cimino et al., 2020; Downey & Coyne, 1990; Lovejoy et al., 2000). Similarly, mothers who experience anxiety may be more likely to be more controlling of interactions and dismissive of their

child's input during interactions, and (Cimino et al., 2020; Ginsburg et al., 2005). Parents may also express their own cognitive biases during discussions with their child (Grimbos et al., 2013); with previous research suggesting that mothers who experience depression may be more likely to repetitively talk about negative emotions and aspects of situations during interactions with their children (Grimbos et al., 2013). Furthermore, parents who experience an anxiety disorder may focus more on their own worries during conversations with their children (Rapee, 2012), and children who are exposed to particular parenting behaviours of parents with an anxiety disorder may have less confidence in themselves (Ginsburg et al., 2005). Additionally, Eley et al. (2015) studied the intergenerational transmission of anxiety by examining children of twin parents. The results of this study revealed support for environmental mechanisms such as parenting behaviours that may be likely to influence the transmission of anxiety from parents to their children (Eley et al., 2015). These findings align with Nolte (2013), who suggested that mental health difficulties may impact parental behaviours which may increase the risk of children experiencing psychopathology.

Taken together, parents who experience their own internalising difficulties may find it difficult to engage with their children in positive and emotionally enriching ways. Children who are exposed to maladaptive biases from their parents during interactions may be more likely to develop similar self-schemas, potentially increasing their risk of developing future internalising difficulties such as depression and/or anxiety (Sojta & Strzelecki, 2023).

On the other hand, conversations about emotions between parents and children may be a particularly salient avenue to support a comprehensive understanding of emotions (Eisenberg et al., 1998). When parents directly talk about specific emotions with their children, they open space for the child to understand and label their emotions and find positive ways to cope with those emotions (Gentzler et al., 2005; Suveg et al., 2008). Furthermore, discussing past events that have an emotional association may be a specific

avenue in which parents can support their child's understanding of emotions (Fivush & Salmon, 2023; Gentzler et al., 2005). In this way, understanding the quality of emotional conversations may have important implications for the messages that are conveyed about emotions, the self, others and the world, and ultimately for children's developing mental health.

Reminiscing Conversations

Parents often engage in joint-reminiscing conversations with their children; with research suggesting that recounting past experiences is a phenomenon that occurs even before children are fully verbal (Fivush, 2014). Conversations about the past may also play a crucial role in emotional socialisation for children, offering a unique opportunity to talk about emotions outside of the context in which they originally occurred (Fivush & Salmon, 2023; Salmon & Reese, 2016; van Bergen & Salmon, 2010). Reminiscing conversations may also allow children an opportunity to reflect on their feelings and actions when they are no longer directly experiencing them (Bird & Reese, 2006; Gentzler et al., 2005). Additionally, conversations about the past may also provide children with the opportunity to understand their own and others' emotions (Cimino et al., 2020; Fivush & Salmon, 2023; Habermas et al., 2021), develop plans for anticipated emotional events based on their previous experience (Fivush, 2014; Kulkofsky & Koh, 2009), and through repeated conversations develop an understanding of 'who I am' (Bird & Reese, 2006). Taken together, reminiscing conversations have been identified as a way that parents and children interact with each other and may support the development of both communication skills and emotional regulation strategies for children (Kulkofsky & Koh, 2009; Wang & Fivush, 2005).

Reminiscing begins at an early age and is a frequent daily occurrence (Fivush, 2014); therefore, talking about past emotional events may be an important pathway in which parents'

can provide their child with adequate emotional socialisation (Kulkofsky & Koh, 2009; van Bergen & Salmon, 2010). Existing research has typically considered two key aspects of reminiscing conversations: the emotional content of the conversation, and the elaboration style of the parental figure (Fivush et al., 2003; Fivush & Salmon, 2023; Russell et al., 2024a; van Bergen & Salmon, 2010).

Elaboration Style Within Reminiscing Conversations

Elaboration style within reminiscing conversations has been identified as a primary pathway in which parents can support their children to understand past experiences (Fivush et al., 2003; Wu & Jobson, 2019). Parents who have a highly elaborative style typically engage in conversations in-depth by asking open-ended questions, responding to their child's input, and adding additional details about the event (Fivush et al., 2003; Reese et al., 1993; Salmon & Reese, 2016; Wu & Jobson, 2019). High elaboration within parent-child discussions has been linked to positive cognitive outcomes for children (Waters et al., 2019), with previous literature consistently highlighting advancements in memory skill as a way that children benefit from talking elaboratively about the past (Bird & Reese, 2006; Hedrick et al., 2009; McGuigan & Salmon, 2004; Peterson et al., 2007; Waters et al., 2019; Wu & Jobson, 2019).

For example, McGuigan and Salmon (2004) investigated the specific timing of elaborative talk about an event on children's memory ability. Sixty-three children aged between 3 and 4-years of age, and 65 children aged between 5 and 6-years of age experienced a staged 'zoo' event with props and participated in an interview about the event two weeks later (McGuigan & Salmon, 2004). During the study children were exposed to both empty and elaborative talk by the researcher either before the event, during the event, and after the event (McGuigan & Salmon, 2004). Free and prompted recall was utilised to examine the child's memory of the event, as well as picture cards of props that were involved and not involved in the zoo were shown to the child (McGuigan & Salmon, 2004). Results revealed

that elaborative talk *after* the event had the strongest impact on their ability to recall correct and specific event details; with children in this group reporting more correct information than children who were exposed to elaborative talk before the event and during the event (McGuigan & Salmon, 2004).

Similarly, a study conducted by Hedrick et al. (2009) investigated elaboration styles associated with memory skills for children aged 3 to 6-years of age. In this study, children were exposed to a story by the researcher about camping that involved various camping activities, where the researcher engaged in either high or low elaborative talk (Hedrick et al., 2009). Child memory was examined through the child's use of features and elaborative components in response to open-ended questions and yes/no questions by the researcher (Hedrick et al., 2009). Furthermore, child memory was assessed at one day and three weeks after the event. Results indicated that children at both time periods were able to recall more event details when they had been exposed to high elaborative talk during the story or during the initial memory recall session (Hedrick et al., 2009). These findings support the use of elaborative talk both during an event and after the event has occurred (Hedrick et al., 2009). Taken together, highly elaborative parents may engage in reminiscing conversations with greater detail (Fivush et al., 2003; Fivush & Salmon, 2023), thus, children may experience more opportunities to get in-depth practice at recalling specific event details (Bird & Reese, 2006).

In contrast, parents with a less elaborative reminiscing style may be distant with their explanations of past events and offer less than adequate recognition of their child's contribution to the discussion at hand (Fivush et al., 2003; Salmon & Reese, 2016; Wang & Fivush, 2005; Wu & Jobson, 2019). Various individual characteristics may influence parental reminiscing styles (e.g., personality, social, and cultural factors); however, parental psychopathology has also been highlighted as a potential explanation for less elaboration

within reminiscing (Reese et al., 2019). For example, parents who experience depression may be at a heightened risk of forgetting key aspects of an event, potentially shaping a less elaborative reminiscing style about past important events with their child (Swetlitz et al., 2021).

Reese et al. (2019) explored the role that several factors play in maternal elaborative reminiscing style. Utilising the Beck Depression Inventory, researchers assessed maternal depressive symptoms when the child was 8 months, 15 months, 26 months, and 44 months of age (Reese et al., 2019). At the final phase of this study (44-months of age), parent-child dyads took part in two reminiscing discussions (one positive and one negative), and utterances from both parent and child were coded for the frequency of elaboration (Reese et al., 2019). While the results of this study revealed that other factors such as maternal sensitivity were greater predictors of elaboration engagement in parent-child reminiscing conversations, maternal depressive symptoms were indicative of less sensitivity during these conversations (Reese et al., 2019). These results suggest that maternal depression symptoms may indirectly contribute to the way mothers engage in elaborative reminiscing conversations with their children (e.g., being less sensitive to their needs or comments in reminiscing conversations) (Reese et al., 2019).

Furthermore, Russell et al. (2023) examined how parental mental health symptoms, their emotional regulation skill, and mindfulness related to emotional reminiscing conversations with their children. A combined community and clinical sample of parents and their children (aged between 8 and 12), engaged in one positive and one negative joint-reminiscing conversation about a recent event (Russell et al., 2023). These conversations were then coded for emotion exploration (joint score between parent and child), dyad emotion closure using the closure of emotion subscale of the Autobiographical Events Emotion Dialogue (AEED) coding scheme, and the quality of the parents' elaboration during

these conversations was coded utilising a 1 (low elaboration) to 5 (high elaboration) scale (Russell et al., 2023). Parent and child mental health symptoms were also measured. Results revealed that parents in the community cohort who indicated increased depression symptoms were more likely to display a less elaborative and less emotionally focused reminiscing conversation with their child. Interestingly, similar results were not identified for the clinical cohort of participants (Russell et al., 2023).

Swetlitz et al. (2021) examined associations between maternal depression, maternal elaborative reminiscing and child risk of mental health difficulties (3 months to 7 years). Maternal depression symptoms were measured by the Brief Symptom Inventory-18 when their child was 6 months old, and then again when their child was 18 months old (Swetlitz et al., 2021). When the child was 5 years of age, mothers and their children engaged conversations about three shared events and maternal elaborative reminiscing during reminiscing task was coded for the use of open-ended questions utilising an adapted coding scheme (Swetlitz et al., 2021). Additionally, at age 5, parents and children engaged in a free-play task in order to observe maternal parenting behaviour (Swetlitz et al., 2021). Finally, child mental health difficulties were reported by their teachers at age 7 using the Child Behavior Checklist Teacher's Report Form (Swetlitz et al., 2021). Overall, results revealed that lower maternal elaboration in reminiscing conversations with children mediated the association between mothers' depressive symptoms during the child's early childhood and the child's later externalising difficulties; however, these findings were not found for internalising difficulties (Swetlitz et al., 2021).

These studies suggest that parental mental health difficulties may either directly or indirectly influence the outcome of parental engagement in high or low elaboration during reminiscing conversations with their children. Moreover, parents who experience mental health challenges may offer their children less opportunity to elaborate on emotional aspects

within their conversations, potentially impacting the outcome of child emotional regulation skills (Russell et al., 2023). There is also some evidence for reminiscing as a potential avenue through which parents may pass on mental health vulnerabilities to their children (Swetlitz et al., 2021).

Emotional Content of Reminiscing Conversations

The content of what is discussed during joint reminiscing may further provide opportunity for children to understand emotions (Bird & Reese, 2006). For example, discussions about past positive emotional events (e.g., a holiday or a birthday party) may be an avenue in which parents are enhancing the bond with their child (Wang & Fivush, 2005); whilst discussions about past negative emotional events (e.g., a conflict, a separation, a loss or disappointment) may serve as a learning tool in which parents support their child to understand the situation, causes and consequences of the emotion and enhance problem-solving skills (Fivush & Salmon, 2023; Shiu & Wang, 2024; Wang & Fivush, 2005). Furthermore, parents may choose to focus on different emotional aspects of past events (e.g., the causes and consequences or the emotion) (Fivush et al., 2003; Fivush & Salmon, 2023) based on the overall goals of emotional socialisation for their child (Waters et al., 2019).

Fivush et al. (2003) examined the functions of reminiscing about negative events with parents and their children at 3 to 4 years of age. Dyads participated in discussions about three negative emotions (sadness, anger, and fear) and utterances were coded for emotional content (factual, emotional, attribution, cause, and solution) and style (evaluation, elaboration, repetition) using an adapted coding scheme. Furthermore, the theme of the content for dyads was categorised by researchers. Findings revealed that fearful events elicited more factual discussion, allowing parents to help their child understand the probability that the event may/may not happen, and discussions focused on anger encompassed low elaboration, and were typically left unresolved (Fivush et al., 2003). Finally, parents were found to be both

evaluative and resolution-focused in conversations about sad events (Fivush et al., 2003). These findings highlight that parents may have different emotional socialisation goals when they are talking about specific negative emotions with their children; ultimately providing an opportunity (or not) for children to explore how to cope and resolve negative emotions they experience (Fivush et al., 2003).

Moreover, parents and children discuss negative past experiences and emotions more thoroughly in comparison to positive past experiences and emotions (Sales et al., 2003; Salmon & Reese, 2015). Lagattuta and Wellman (2002) examined the differences between positive and negative discussions in an in-depth longitudinal sample of six parents and children aged between 2 and 5 years. Each utterance of emotion was categorised as positive (e.g., happy) or negative (e.g., worried) including temporal references, casual explanations, emotion causes, emotion consequences, and mind-emotion connections (Lagattuta & Wellman, 2002). Results indicated that although parents and their children talked about positive and negative emotions at a similar rate, the discussions about negative experiences tended to focus on past emotional experiences and include greater talk about the causes of the negative emotion, and dyads also connected to other mental states during these conversations (Lagattuta & Wellman, 2002).

Furthermore, van Bergen and Salmon (2010) examined the association of the emotional content, parental reminiscing style, and their preschool aged child's emotion knowledge within parent-child reminiscing conversations. Researchers utilised an utterance-level coding method to assess the reminiscing style (high or low elaboration) and emotional content as factual or emotional and then further coded into attributions, causes, or consequences (van Bergen & Salmon, 2010). Results revealed a moderate, but non-significant association between parents' reminiscing style and their discussion of emotional

content; however, parents' discussing the *causes* of emotions was associated with their child's higher emotional knowledge score (van Bergen & Salmon, 2010).

Moreover, gender differences in parent-child emotional discussions have also been identified. Kuebli and Fivush (1992) identified that mothers spoke about emotions more than fathers, however, both mothers' and fathers' spoke about emotions with their daughters more than they did with their sons. Additional gender differences within reminiscing conversations were identified by Fivush et al. (2003), with parent-daughter dyads tending to engage in more emotionally rich discussions in comparison to parent-son dyads (Fivush et al., 2003). These findings show some support for reminiscing conversations about emotions being an avenue that parents may be socialising their children to engage in specific emotional talk (Fivush et al., 2003).

Future Conversations

Conversations about future events are common between parent-child dyads from a young age and are likely to occur just as often as reminiscing conversations do (Hudson, 2002, 2006). As an example, parents may discuss with their child what they are having for dinner later that day, or a birthday party they are scheduled to attend during the upcoming weekend. The current research on future event conversations between parent-child dyads is limited and has primarily focused on describing these conversations in terms of temporal concepts (e.g., Hudson, 2002, 2004, 2006). Nonetheless, Hudson (2004) did suggest that future research should investigate associations with parent-child discussions about anticipated events and the development of advancements outside of temporal concepts.

Only one study has examined parent-child future conversations and associations with child outcomes. Russell et al. (2024a) examined how dyads spoke about 'worrying' past and future events. Half of the *Talking About Life with Kids (TALK)* sample of 8- to 12-year-olds

were referred to a university mental health clinic for anxiety. The remaining dyads were a matched community sample. Russell et al. coded conversations for emotion exploration, emotion resolution, and the quality of elaboration within conversations (Russell et al., 2024a). Emotional exploration during conversations was coded for the use of explanations, talking about consequences of emotions, using validating statements, and any emotional talk that was considered 'general' (Russell et al., 2024a). Overall, results revealed that dyads within the community cohort engaged in more emotionally elaborative conversations about the future compared to the clinical sample. Emotional elaboration was identified as a protective factor for children in the community cohort and talking about negative emotions may support the child's ability to utilise constructive coping skills for future events (Russell et al., 2024a). Alternatively, avoidance was identified as a potential explanation for less elaboration within the clinical sample; dyads may have refrained from speaking about the negative event due to the underlying psychological distress of the child (Russell et al., 2024a). Taken together, findings from this study suggest that discussions about future emotional events may be an important avenue for emotional socialisation, with capacity to support the development of constructive coping skills for children (Russell et al., 2024a). However, further research needs to be conducted with independent measures of child functioning to examine associations between future conversations and child functioning. In addition, although talking and thinking about both past and future emotional events may enhance emotional understanding for children (Cimino et al., 2020; Russell et al., 2024a); persistently focusing on negative emotions or aspects of emotional events may be counterproductive (Rose et al., 2014).

Rumination

Rumination has been defined as both the passive and repetitive focus on negative emotions or negative aspects of situations (Nolen-Hoeksema, 1991). Nolen-Hoeksema's (1991) Response Styles Theory posits that individuals who engage in ruminative responses may exacerbate their vulnerability to experience or prolong their experience of low moods. These ruminative tendencies may leave individuals unable to effectively problem solve, preventing them from altering their emotional state, in turn, placing them at a higher risk of experiencing or prolonging their depressive symptoms (Nolen-Hoeksema, 1991). Ruminative cognitions that are often associated with depression often manifest as extensive negativity about the self and surrounding environment (Pietromonaco & Markus, 1985), and examples of these negative cognitions may be "*I just don't feel like doing anything*", and "*What does it mean that I feel this way*?" (Nolen-Hoeksema et al., 1994, p. 92). Furthermore, it is important to note that the Response Styles Theory was initially developed for the examination of depressive episodes; however, it has been extended to include other internalising disorders such as anxiety, reflecting a growing interest in transdiagnostic processes that underlie different mental health diagnoses (Drost et al., 2014; McLaughlin et al., 2014; McLaughlin & Nolen-Hoeksema, 2011; Nolen-Hoeksema, 2000).

Nolen-Hoeksema (2000) examined rumination as a predictor for depression and anxiety disorders amongst participants aged between 25 and 35, 45 and 55, and 65 and 75 across one year. Preliminary depressive symptoms were measured by the 13-item Beck Depression Inventory and a follow-up of depressive symptoms was completed the 17-item Hamilton Rating Scale for Depression directly after the initial interview. The Structured Clinical Interview for DSM-IV was also utilised (Nolen-Hoeksema, 2000). Anxiety symptoms were measured in a similar way with participants self-reporting their anxiety symptoms using the Beck Anxiety Inventory and then completing a global scale (0 to 4) of anxious symptoms

after the interview (Nolen-Hoeksema, 2000). In order to measure rumination, the Response Styles Theory Questionnaire was utilised (Nolen-Hoeksema, 2000). Results indicated that rumination predicted anxiety, depression, and mixed anxiety and depression symptoms, suggesting rumination as a potential mechanism for comorbidity of these internalising difficulties (Nolen-Hoeksema, 2000).

Within the Response Style Theory, Nolen-Hoeksema (1991) considered various origins of the development of ruminative coping mechanisms. As such, research has extended to further examine specific areas in which individuals may learn such maladaptive cognitions. Shaw et al. (2019) posited a conceptual framework similar to Goodman and Gotlib (1999)'s seminal model of the intergenerational transmission of depression. This developmental model highlights factors that may exacerbate an individual's use of ruminative responses to low mood such as (1) an individual's temperament, (2) an individual's experience of a stressful environment, (3) potential genetic heritability, (4) cognitive control, (5) gender, and (6) exposure to parental behaviours and parental rumination (Shaw et al., 2019). Moreover, Shaw et al. (2019) suggest that it may be through both direct and consolidation pathways that parents may influence the development of ruminative cognitions. For example, children may develop an automated ruminative response style when their parent(s) exhibit negative parenting techniques, or they may learn through observations of their parent's own problem-solving skills that engaging in ruminative cognitions is an acceptable way to deal with negative affect and situations (Shaw et al., 2019).

A recent study conducted by Bray (under review) examined a simple mediation model of the transmission of negative cognitive biases from parents to their children though reminiscing conversations. This study utilised data from several data collection waves (9 months, 54 months, and 8 years) of the *Growing Up in New Zealand* study. Mothers' depression symptoms were measured utilising the Edinburgh Postnatal Depression Scale and

the Patient Health Questionnaire-9 and child internalising symptoms were measured utilising the Strengths and Difficulties Questionnaire, Centre for Epidemiological Studies Depression Scale-10, and the Paediatric Patient-Reported Outcomes Measurement Information System Anxiety short-form scale (Bray et al., under review). In order to examine cognitive biases, the authors developed a novel coding scheme that analysed different negative cognitive biases at an utterance and idea unit level. This coding scheme was applied to a mother-child reminiscing conversation, where dyads could choose to discuss either a time the child had a social disagreement, a time the child hurt themselves, or a time the child didn't do as well as they wanted to (e.g., in a test or a sports game) (Bray et al., under review). Overall, the results of this study revealed that mothers who had experienced elevated depressive symptoms were more likely to express negative cognitive biases during reminiscing conversations and that, in turn, these cognitive biases were positively associated with the child's internalising symptoms (Bray et al., under review). Although no independent measure of children's cognitive bias was collected, these findings suggest that reminiscing may be one context through which children internalise negative biases expressed by their parent(s).

Co-Rumination

Instances of rumination may also be shared interpersonally (Rose, 2002); as such, co-rumination is characterised by repetitively engaging in discussions or speculation about problems or negative feelings or events with mutual encouragement from another party (Rose, 2002). With the shift into independence during this developmental phase, children may begin to rely on their peers for support with emotions and problems more than they do their parents' (Waller et al., 2014). Peer engagement in co-rumination has been identified as a way that children may enhance positive feelings within peer-relationships such as closeness and honesty (Rose et al., 2007), suggesting possible benefits to co-rumination for young adolescents.

Peer Engagement in Co-Rumination

Rose et al. (2014) examined specific aspects of co-rumination that may contribute to the quality of friendships in youth dyads in seventh and tenth grade. Friendship dyads were given a set amount of time to engage in a problem-talk task and were instructed to talk for as long as they wished about their highlighted problem (Rose et al., 2014). Conversations were coded for different aspects of co-rumination, each rated by observers from 1 (not at all/very little) to 5 (very much). These aspects included (a) discussing the same problem repeatedly, (b) speculating about different aspects of the problem, (c) dwelling on the associated negative emotion, and (d) the encouragement displayed to their partner. Additionally, each dyad was given a score for the amount of time they spent talking about the problem (Rose et al., 2014). Overall, results revealed that when friendship dyads were co-ruminating, they typically engaged in supportive ways (mutually encouraging) that extended their engagement in the co-rumination cycle with one another (Rose et al., 2014). Interestingly, specific aspects of co-rumination such as their mutual encouragement of one another, speculating about their issue, and re-hashing their problem were associated with higher quality friendships (Rose et al., 2014).

Similar results were found by Felton et al. (2019) when examining co-rumination and friendship quality along with other key factors in an adolescent sample. In this study, co-rumination was assessed through the Co-Rumination Questionnaire, and friendship quality was assessed through the Network of Relationships Inventory-Behavioral Systems Version (Felton et al., 2019). Results of this study revealed a reciprocal relationship between co-rumination and positive friendship quality (Felton et al., 2019), These findings indicate that although co-rumination may support positive friendship quality, that quality of friendship may also supports dyadic engagement in longer term co-rumination and individual rumination (Felton et al., 2019).

While there are some instances where co-rumination may support the development of high-quality friendships (e.g., Felton et al., 2019; Rose et al., 2014), overall, engagement in co-rumination may amplify negative affect and curate poorer psychological outcomes for adolescents (Rose, 2002; Rose et al., 2007). For example, Rose (2002) examined the impact of co-rumination on friendship and emotional outcomes for school aged children (third and fifth, and seventh and ninth grade) by administering the following questionnaires within a classroom setting. Co-rumination within friendship interactions was measured utilising the 27-item Co-Rumination Questionnaire – a novel measure created for this study (Rose, 2002). Rumination was measured utilising a revised version of the Responses to Depression Questionnaire for youth (Rose, 2002). Results revealed that although co-rumination was associated with both high quality, and close friendships, it was simultaneously associated with internalising symptoms (Rose, 2002).

Moreover, it may be common for adolescents to seek support from peers when they endure difficulties (Huang et al., 2022; Skinner & Zimmer-Gembeck, 2007), however a study conducted by Mackenzie et al. (2023) found that once these supportive conversations included aspects of co-rumination, the positive outcomes for seeking external support decreased. For example, Huang et al. (2022) examined the moderating impact of co-ruminating about a negative peer victimisation experience on adolescents' mental health. Youth involved in this study were recruited from middle schools, with a mean age of 12-years-old (Huang et al., 2022). Co-rumination in conversations was measured utilising the Co-Rumination Questionnaire. The results of the moderation analysis revealed that engaging in co-rumination with peers about the experience of bullying exacerbated both depressive and anxiety symptoms for adolescents (Huang et al., 2022).

Furthermore, Stone et al. (2011) examined the association of co-rumination and the onset of depressive symptoms in youth aged 11 to 15 years old. This study utilised two

measures for child co-rumination, a Co-Rumination Questionnaire, and the rumination subscale of the Children's Response Styles Questionnaire in order to examine the key factors within this study (Stone et al., 2011). As part of the study, children engaged in follow-up questions about their mental health at 6, 12, 18, and 24 months following the initial session (Stone et al., 2011). Results of this longitudinal study revealed that engagement in co-rumination predicted an earlier onset of depressive symptoms for adolescents (Stone et al., 2011). Overall, these findings suggest that although co-rumination may be used by adolescents as a social coping mechanism to support problem solving, engaging in co-rumination may ultimately increase the vulnerability of future mental health difficulties (Rose et al., 2007; Spendelow et al., 2017).

As noted above, adolescent females are at an increased risk of internalising difficulties. These gender differences are also reflected in co-rumination, with girls being identified as the main adopters of co-rumination compared to boys (Rose, 2021). Similar gender differences were found in the aforementioned studies conducted by Rose (2002) and Felton et al. (2019), indicating that girls reported engaging in co-rumination at a higher level than boys did within their friendships. These associations have also been identified by further research studies. For example, Tompkins et al. (2011) identified gender differences in co-rumination when investigating co-rumination, gender, and internalising and externalising difficulties in adolescents. Girls were also found to report more engagement in co-rumination in a study conducted by Chow et al. (2017) in their investigation of the mediating role of co-rumination in sleep difficulties and depression symptoms. The differences observed in co-rumination between male and female young adolescents may be explained by the socialisation process (Felton et al., 2019), and girls may be likely to adopt more disclosure with their friends and talk about emotions more often than boys (Felton et al., 2019).

Parent-Child Co-Rumination

Youth co-rumination is not limited to peer relationships, with more recent research examining the occurrence of co-rumination within parent-child conversations. Abel et al. (2023) examined how children's response to stress may influence co-rumination between parents and their children aged between 13 and 17 years old who had both experienced a natural disaster in prior years. Dyads spoke with each other about their experience with prompts from the researcher and conversations were later transcribed verbatim (Abel et al., 2023). Co-rumination during parent-child conversations was coded utilising an adapted version of Rose et al. (2014)'s co-rumination coding scheme, and dyads were rated by the researchers on a scale from 0 (not very much) to 5 (very much) based on their interaction of each co-rumination component; (a) dwelling on the event, (b) mutual encouragement of problem talk, (c) restating negative aspects, (d) speculating (Abel et al., 2023). Emotional regulation for youth was measured utilising resting respiratory sinus arrhythmia (RSA), youth stress symptoms were measured by the PTSD-Reaction Index, and depression and aggression difficulties for youth were measured through the parent-report Behavior Assessment System for Children (Abel et al., 2023). The results of this study identified that co-rumination between parents and their child occurred within these conversations, even though the conversation prompts were not designed to elicit co-rumination (Abel et al., 2023). Finally these findings suggest that the combination of heightened stress in youth and the difficulty in managing associated symptoms may exacerbate their tendency to dwell on the associated negative aspects/emotions of an event, in turn, potentially increasing the likelihood that youth engage in co-rumination (Abel et al., 2023).

Furthermore, a study conducted by Waller and Rose (2010) examined co-rumination between mother and adolescent relationships within fifth, eighth, and eleventh grade. Utilising self-report measures both mother and adolescents reported, co-rumination was

measured utilising a revised version of the 27-item Co-Rumination Questionnaire (Waller & Rose, 2010). Both mother and adolescent reported on self-disclosure using a similar adaptation of the Self-Disclosure Questionnaire (Waller & Rose, 2010). Additionally, youth also reported on their relationship quality with their mother using the Network of Relationships Inventory, enmeshment using the Family Adaptation and Cohesion Scales IV, and both depressive and anxious symptoms using the anxiety and depression symptoms using the Youth Self-Report (Waller & Rose, 2010). Overall, results revealed that mother-adolescent dyads indicated engaging in co-rumination in their relationship, and that co-rumination was positively associated with youth internalising difficulties (Waller & Rose, 2010). Additionally, gender differences were also identified within this study, revealing that mothers engaged in more co-rumination with their daughters than with their sons (Waller & Rose, 2010).

A study conducted by Grimbos et al. (2013) investigated co-rumination and difficulties in problem solving as mediators for the transmission of maternal depressive symptoms to child internalising and externalising difficulties. Children who participated in this study were aged between 7 and 12 years and were recruited from community mental health services for externalising difficulties and mother's also reported their own depressive symptoms (Grimbos et al., 2013). During this study, parent-child dyads engaged in one negative discussion (problem-solving task) and finished with a positive discussion (Grimbos et al., 2013). Depressive symptoms for mothers were measured using the Beck Depression Inventory II and both internalising and externalising were measured through the parent-report Child Behaviour Checklist (Grimbos et al., 2013). Negative conversations were rated by researchers at 2-minute intervals on a 5-point scale for the amount of co-rumination or problem solving that occurred. On the other hand, positive conversations were only rated for co-rumination (Grimbos et al., 2013). Results revealed that co-rumination and problem-

solving did not mediate the association between maternal depression and child psychopathology; however, mothers' depressive symptoms were associated with internalising, externalising, co-rumination, and problem-solving independently (Grimbos et al., 2013). Furthermore, children and their mother who indicated depressive symptoms engaged in more co-rumination (Grimbos et al., 2013). Taken together, these results indicate that discussions about emotional events may be an avenue where mothers who indicate higher depressive symptoms may model ineffective coping strategies to their child (Grimbos et al., 2013).

The majority of co-rumination research has utilised either self-report measures (e.g., Waller & Rose, 2010; Rose, 2002), or explicitly asked dyads to discuss or solve a personal problem (e.g., Rose et al., 2014; Grimbos et al., 2013). A handful of studies have considered co-rumination within a broader range of dyadic conversational contexts (e.g., Miller-Slough & Dunsmore, 2021; Abel et al., 2020; 2023). It is here that the co-rumination research has begun to 'cross over' with reminiscing research. The theoretical stance and related coding of these two fields may, in parts, be contradictory. For example, a parent who is asking many (unique) open-ended questions and confirming the child's response (which would be considered a highly elaborative reminiscing style), may also be co-ruminating (Abel et al., 2020). Furthermore, questions such as '*what else made you feel sad?*' and confirmations of the child's sadness, fear, or anxiety, without an adaptive resolution, may inadvertently be functioning as co-rumination. Although high-quality elaboration about negative emotions may be supportive for both social and emotional outcomes for children (Abel et al., 2020), repeatedly elaborating on negative aspects of events or emotions may prove unhelpful (Miller-Slough & Dunsmore, 2021).

A study by Abel et al. (2020) reflects one approach to teasing apart the nuances of emotional discussion versus co-rumination in parent-adolescent dyads. More specifically, this study focused on parental reward of negative emotions in discussions with their children. Adolescent participants were aged between 12 and 17 years of age and both the caregiver and adolescent had experienced a natural disaster in the years prior to the current study taking place (Abel et al., 2020). Parent-adolescent dyads conversed about their experiences of the natural disaster with the support of five open-ended prompts from the researcher (Abel et al., 2020). The coding scheme utilised in this study was adapted from the Emotion Discussion Coding System where caregiver speech during the joint-reminiscing task was de-constructed into segments and coded as either *present* or *absent* for the reward of negative emotion elicited from the adolescent (Abel et al., 2020). For example, any speech segment from the caregiver that included (1) the encouragement of expression of negative emotion, (2) reflecting on emotions, (3) validating emotions, (4) empathising with emotions, (5) questions directed at negative emotions, and (6) supporting their adolescent to understand negative emotions and was in direct response to the adolescent's expression of emotion received a '*present*' code (Abel et al., 2020). Overall, findings revealed that extensive discussion about negative emotions was associated with child anxiety symptoms (Abel et al., 2020). It may be that when a parent encourages the expression of negative emotions in their children, they may inadvertently support a cycle of co-rumination, potentially increasing anxiety symptoms over time (Abel et al., 2020).

Moreover, Bird and Reese (2006) suggest that negative emotions may require a more in-depth discussion for children to be able to comprehend the associated causes and consequences. Additionally, dyads may elaborate about negative emotions/events more in-depth compared to positive emotions/events due to their disruptive nature (Lagattuta &

Wellman, 2002). In turn, parents may inadvertently move towards co-rumination by trying harder to get their child to recall specific aspects of negative events (Sales et al., 2003). Taken together, these findings appear to indicate that there may be a fine line between supportive emotional elaboration and co-rumination during parent-child reminiscing conversations (Abel et al., 2020; Stone et al., 2017).

Intergenerational Transmission Through Parent-Child Conversations

As discussed above, Goodman and Gotlib (1999) proposed that a child's exposure to their parents negative thought processes and emotional states may help explain the intergenerational transmission of internalising difficulties. Three studies have specifically examined this potential pathway considering reminiscing as the context through which these thought process and emotional states are expressed. As outlined above, Bray et al. (under review) specifically coded for maternal expression of cognitive biases during reminiscing conversations collected as part of the *Growing Up in New Zealand* longitudinal study. Russell et al. (2024b) also utilised reminiscing data from *Growing Up in New Zealand,* however they measured both elaboration and resolution quality. Although there was no support for an indirect pathway between maternal depression symptoms and child symptoms; results revealed support for serial mediations including the maternal reminiscing variables and child language on child mental health outcomes (Russell et al., 2024b). Furthermore, Swetlitz et al. (2021) examined the mediating role of maternal elaborative reminiscing and the association of maternal depression symptoms during infancy with later mental health outcomes for children. Overall, results indicated that maternal elaborative reminiscing mediated the association between maternal depression symptoms during infancy and externalising difficulties later in life for children (Swetlitz et al., 2021). Although these results were not found for child internalising difficulties, they do provide support for maternal

reminiscing as a pathway for the potential transmission of maternal depression to adverse mental health outcomes for children (Swetlitz et al., 2021).

Together these three studies provide some support for reminiscing as a potential mechanism for the transmission of cognitive and emotional vulnerabilities from parent to child. We know of no research to date, however, that has explicitly considered co-rumination during parent-child conversations as a mechanism for intergenerational transmission of internalising symptoms. This is important given both the central role of rumination as a transdiagnostic factor in the development of internalising disorders (Drost et al., 2014; McLaughlin & Nolen-Hoeksema, 2011) and the need for clarity around whether in-depth discussion of a child's emotions functions as elaboration or co-rumination (Abel et al., 2020).

Current Study

This literature review has highlighted parent-child conversations about both past and future emotional events as an important mechanism for emotion socialisation. Parents who experience an internalising difficulty may be more likely to pass on their negative cognitive biases to their children through emotional socialisation, particularly through conversations about emotions (e.g., Bray et al., under review). Additionally, previous literature has identified that youth may engage in co-rumination with both peers and parents about their difficulties (Abel et al., 2023; Rose et al., 2014; Waller & Rose, 2010). However, previous studies primarily focus on co-rumination in the context of problem-solving interactions, and there appears to be limited research that focuses on co-rumination as a pathway between parent to child internalising difficulties, in particular, through conversations about past and future emotional events.

Therefore, this study will examine the intergenerational transmission of internalising symptoms from parent to child through the potential pathway of co-rumination during past

and future negative event conversations. Data will be drawn from two diverse samples during middle childhood: one a mixed clinical-community sample from Australia (Russell et al., 2024a) and the other a community sample from New Zealand. Importantly, the Australia sample also includes an independent measure of children's rumination, which will allow for associations between parent-child co-rumination and children's rumination to be examined.

Based on previous literature, we hypothesised that:

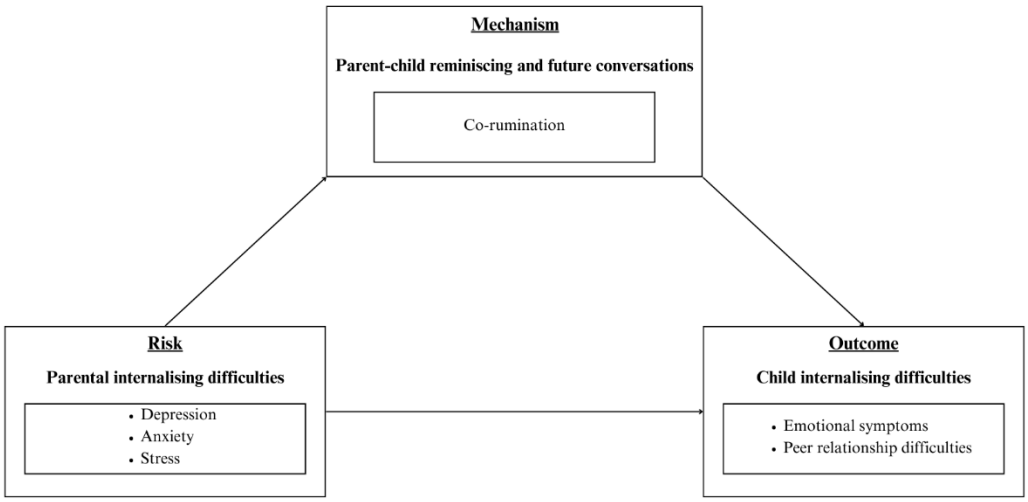
(1) Parent-child co-rumination would be associated with an independent, interview-based measure of children's rumination;

(2) Co-rumination would be associated with both parent and child internalising symptoms, such that parents and children with higher internalising symptoms would be more likely to engage in co-rumination;

(3) Co-rumination would mediate the association of parent and child internalising symptoms (see Figure 1 for a conceptual model).

Figure 1

Conceptual Simple Mediation Model of Parent to Child Transmission Pathway of Internalising Difficulties Adapted From Goodman and Gotlib (1999)



Chapter 2: Methodology

Ethics

The *TALK* (*Talking About Life with Kids*) study received ethical approval from the University of Wollongong Human Research Committee (2018/492) and the State Department of Education (19/184120) (Russell et al., 2024a).

The *Talking Together* study received ethical approval from the University of Auckland Human Research Committee (AH24920) and received ratification from the University of Waikato Human Research Ethics Committee in March of 2024.

Design

Both the *TALK* and the *Talking Together* studies utilised a cross sectional and observational design to examine associations between parent and child mental health and wellbeing, and conversations about past and future events between children and their parents. For the *TALK* study, approximately half of the sample were recruited through the University mental health clinic, based on child referral for anxiety; whilst the other half of the sample were recruited through local primary schools (Russell et al., 2024a). For the *Talking Together* study, participants were recruited in New Zealand through social media, local primary schools and snowballing.

For both studies, children took part with a primary caregiver. Within the sessions, participants engaged in various conversations focused on two past events (one positive and one negative) and two future events (one positive and one negative). Parents were also invited to share a story from their own childhood, and in the *TALK* study dyads also engaged in a conflict resolution discussion (Russell et al., 2024a). For the current project, only the past negative and future negative conversations from both studies were included.

Participants

TALK study*:* Parents of 8- to 12-year-old children were invited to take part in this study (Russell et al., 2024a). The clinical group (n = 28) were recruited through the University of Wollongong community mental health clinic, with a primary referral reason for the child of anxiety. A matched community sub-sample (n = 26) was recruited through local primary schools. A primary caregiver was asked to take part with their child. The sample consisted of 26 girls and 28 boys, and the mean age of child participants was 9.63. This study also included 46 mothers, eight fathers and one other primary caregiver. Both child and parent were also required to be fluent in English and residing in Wollongong, Australia (Russell et al., 2024a).

Talking Together study*:* Parents of 11-12-year-old children were invited to take part in this study via their child's school (five of 13 schools contacted agreed to pass on information), Facebook and snowballing (n = 51). A primary caregiver was asked to take part with their child. The mean child age was 11.40 and the sample consisted of 26 girls and 25 boys, with 44 mothers, five fathers and two other primary caregivers. Both child and parent were also required to be fluent in English and residing in New Zealand.

Measures

Depression Anxiety Stress Scale-21

The Depression Anxiety Stress Scale-21 (DASS-21) is a scale utilised to measure levels of depression, anxiety, and stress within an individual over the timeframe of the past seven days and across a 4-point Likert scale (Lovibond & Lovibond, 1995). For both the *Talking Together* and *TALK* studies, the DASS-21 was utilised to measure levels of depression, anxiety and stress within parent participants (Russell et al., 2024a). Total DASS-21 scores as well as separate depression, anxiety and stress scores were used in the current

study. The utilisation of the DASS-21 has shown to be both reliable and valid by consistently producing stable results across different populations (Osman et al., 2012), and acceptable construct validity for all three subscales (Henry & Crawford, 2005). Additionally, the DASS-21 has been used in both Australian and New Zealand samples (Lovell et al., 2015).

Strengths and Difficulties Questionnaire

The Strengths and Difficulties Questionnaire (SDQ) is a commonly utilised screening tool that consists of 25-items that aim to identify internalising and externalising difficulties in youth. The SDQ consists of five subscales (conduct issues, hyperactivity/inattention, emotional symptoms, peer relationship difficulties, and prosocial behaviours) encompassing five items each (Goodman et al., 2003). For the purposes of the *Talking Together* study, the youth self-report version of the SDQ was utilized. However, the *TALK* study utilised the parent-report version, allowing parents to answer on behalf of their children (Russell et al., 2024a). To suit the overall focus of this study, the emotional symptoms and peer relationship difficulties sub-scores were totalled to give an overall internalising difficulties score, ranging from 0-15. Using one general internalising score from the SDQ has been shown to be supportive in cohorts of low risk, and has displayed good construct validity in samples of 5 to 16-year-olds (Goodman et al., 2010). Furthermore, both the self-report and parent-report versions of the SDQ have produced acceptable internal consistency results (Mieloo et al., 2012; Muris et al., 2003).

Kids Rumination Interview (TALK study only)

The Kids Rumination Interview (KRI; Baiocco et al., 2017) is a validated measure for children aged 7 to 12 years and was utilised to assess the severity of rumination in child participants of the *TALK* study (Russell et al., 2024c). This task involves four vignettes that represent typical scenarios in children's life. In order to check for comprehension, child

participants were asked to describe the scenario. Children were then asked to indicate between 0 (never) and 5 (always) how often they think back on that negative scenario at different points (i.e., later that day, that evening, the next day). Scores across all vignettes were summed to create a rumination index. Higher scores for this measure are indicative of a higher level of rumination for that child (Russell et al., 2024c).

Peabody Picture Vocabulary Test – Fourth Edition (TALK study only)

To assess children's receptive vocabulary, the *TALK* study utilised the Peabody Picture Vocabulary Test – Fourth Edition (PPVT-4; Dunn & Dunn, 2007). Children were presented four images in which they paired with the related spoken word. From this, scores for each child were standardised in line with age-based norms (Russell et al., 2024a).

Verbal Fluency (Talking Together study only)

In order to assess verbal functioning of child participants the Verbal Fluency task (Henry et al., 2015) was utilised. Following the SDQ at the end of the discussion tasks, child participants were given one minute to say aloud as many words as they could think of that began with the letter "S". Similarly, children were given one additional minute to list as many animals as they could think of. Following the completion of all dyad conversations, both lists were combined to create a verbal fluency score for each child participant. Furthermore, this task has been utilised as a covariate in other narrative research with young adolescents (e.g., Mitchell et al., 2020).

Sociodemographic variables

Sociodemographic factors for the *Talking Together* study were collected during the parent online survey section of this study. During the survey, parents self-reported on their marital status, ethnicity, partner, education status, their child's age and their own age, as well as if the participating child had siblings, including their age also. Similarly, parents who

participated in the *TALK* study completed a demographic questionnaire that included the same variables, before the study commenced (Russell et al., 2024a).

Parent-Child Conversations

For both the *TALK* and the *Talking Together* studies, parents and children were asked to choose two past (worry and happy for the *TALK* study; upset and happy for the *Talking Together* study) and two future events (worry and happy for the *TALK* study; upset and happy for the *Talking Together* study) to talk about together. In the *TALK* study, parents chose the conversations topics (although this could be changed if the child wanted to discuss something else) (Russell et al., 2024a).

In the *Talking Together* study, dyads chose events together. Dyads were prompted to discuss the events in the following order: past negative, past positive, future negative, future positive, to ensure that conversations finished on a positive note. However, in practice, dyads could change the order of discussion if they wanted to. Dyads were asked to talk about the events as they usually would, for as long as they usually would, and to let the interview know when they were finished. For the in-person *TALK* study, the interviewer left the room for the conversations (Russell et al., 2024a). For the online *Talking Together* study, the interviewer turned off their camera so that dyads would be encouraged to speak more openly with one another. After the completion of the individual conversations, the dyad stopped to answer a short question asking to rate their emotion at the time of the event on a scale of one (mild emotion) to five (intense emotion). Parent-child conversations were recorded and later transcribed verbatim, with any identifying information (e.g., names and dates) removed. Only negative past and future conversations (worry or upset) were coded and analysed in the current study, due to the explicit focus of this project on negative emotion rumination.

Co-Rumination Coding Scheme

The co-rumination coding scheme utilised in the current study was adapted from an established co-rumination coding scheme (Rose et al., 2014). The original coding scheme was developed to examine co-rumination (i.e., the time spent talking about problems, mutual encouragement of problem-talk, rehashing problems, speculating, and dwelling on problems, and dwelling on negative affect) during problem-focused discussions between adolescent friend dyads (Rose et al., 2014). Additionally, the original coding scheme included a scale for researchers to rate (1 – not at all to 5 – all the time) the degree to which each dyad engaged in specific aspects of co-rumination across the conversation as a whole (Rose et al., 2014). Scores for each aspect of co-rumination were then totalled to determine the overall co-rumination score for the dyad (Rose et al., 2014).

In order to successfully measure the focus of our study, several modifications were made. Firstly, we redefined co-rumination 'problem-talk' aspects to suit co-rumination during reminiscing and future conversations about emotional events between parents and their children. For example, *mutual encouragement of problem-talk* was redefined as *mutual encouragement of negative talk*. Furthermore, attributes of each co-rumination aspect were redefined to focus on negative emotions and aspects of events rather than problem discussion. Additionally, the revised coding scheme (see Appendix) adapted the original scales to an utterance level and frequency-based coding scheme focused on co-rumination, constructive exploration, solution focused talk and neutral event talk. The decision to utilise a 'zoomed in' approach (Grysman & Mansfield, 2020) was made in order to try and better understand the context of each phrase or idea unit, specifically whether it functioned as co-rumination or emotion elaboration (see Abel et al., 2020). Each idea unit was coded separately for parent and child as either: co-rumination, constructive exploration, resolution or neutral event talk. Only the co-rumination variable was utilised in the current study. Co-rumination codes were

totalled for parent and child separately in each conversation to provide a total co-rumination frequency. In order to identify the extent in which co-rumination occurred within dyadic conversations compared to other idea units, we opted to also utilise proportional co-rumination scores for parent and child separately by dividing co-rumination codes by all other codes. This rationale follows previous research studies that have also utilised the total frequency and proportion of utterances in subsequent data analyses for parent-child conversations (e.g., Dunn et al., 1987; Kelly et al., 2022).

In order to determine the reliability for the revised coding scheme, two researchers (AW and supervisor AB, an experienced reminiscing coder) individually coded 20% (n = 20) of the total parent-child conversation transcripts (Syed & Nelson, 2015). Each conversation received four Cohen's kappa scores (past negative parent, past negative child, future negative parent, future negative child). From this, an overall Cohen's kappa of .81 was obtained from the total reliability conversation transcripts. The Kappa obtained from reliability testing of this coding scheme exceeded the common threshold for satisfactory inter-rater reliability of .70 (Cohen, 1960). Once a satisfactory inter-rater reliability was determined, the author (AW) continued coding the remainder of both the *TALK* and *Talking Together* study parent-child conversation transcripts (Syed & Nelson, 2015).

Procedure

TALK study: This study was administered by two postgraduate students from the University of Wollongong during 2018 and 2019 (Russell et al., 2024a). The study took place in person, at the university developmental lab. Following completion of informed consent, parent and child conversations were recorded in a comfortable space. Parents and children separately completed measures via an iPad. The Kids Rumination Interview was administered by a trained interviewer to the child while the parent completed measures in another room. Duration of these sessions was approximately 60-90 minutes. At the end of the session,

parents and children thanked for their time and the child was asked to choose a small thank you gift (Russell et al., 2024a).

Talking Together study: This study was administered by three postgraduate students from the University of Waikato, and two postgraduate students from the University of Auckland during 2023 and 2024. There were three major components to this study: the parent online survey, a Zoom parent and child interview, and the child survey. For the online parent survey, parents were guided to complete a voluntary online survey at a time convenient to them, but before the video call session. This survey included questions that supported an understanding of the family context and parental mental health and wellbeing. For the Zoom observation session, parents and children took part at an agreed time by research students and the parent. Duration of these sessions typically ranged around 45 minutes. The parent-child conversations occurred at the beginning of the session and then the parent left the room while the interviewer completed the child survey measures with the child via share screen. At the end of the session, parents and children were thanked for their time and a thank you voucher was emailed or posted, depending on the family's preference.

Data Analysis

All data analyses were conducted using IBM SPSS v.30. Preliminary analyses (t-tests, one-way ANOVAS, and Pearson correlation coefficients) were conducted to examine associations between child gender, ethnicity, parent education, and cohort and mental health and co-rumination variables. Hierarchical regression analyses were then conducted with either KRI or a co-rumination narrative variable as the dependent variable, significant covariates entered at Step 1 and the parent/child mental health variable(s) entered at Step 2. Finally, mediation was examined using PROCESS macro for SPSS (Hayes, 2018), controlling for sociodemographic covariates. PROCESS is a contemporary statistical approach for testing mediation that is more robust to non-normality and asymmetry and also

addresses concerns of power and validity (Hayes, 2009, 2013). Rather than *p* values, confidence intervals that do not cross 0 are interpreted as support for mediation. Estimates were based on 5000 bootstrap samples with 95% confidence intervals (CI) (Preacher & Hayes, 2004, 2008).

Mental health and co-rumination variables were examined for skewness and kurtosis. Three of the total rumination variables contained outliers (parent past co-rumination, child past co-rumination, child future co-rumination). These were confirmed as true outliers, and all three variables were winsorized (Field, 2024). Following winsorization, skewness and kurtosis values for all narrative variables fell within +/- 2 and were considered acceptable (George & Mallery, 2016). The skewness values for all mental health variables were considered acceptable, however, kurtosis values for DASS depression and DASS anxiety marginally exceeded the acceptable cutoff. This small cluster of outliers was likely due to one quarter of the overall sample being clinical (Blanca et al., 2013). Given that regressions and PROCESS are more robust to non-normality, DASS scores remained untransformed. Additionally, in order to consider child language scores across both cohorts, the child language scores (PPVT and verbal fluency) were converted into separate z-scores which were then combined into a single child language z-score (Andrade, 2021).

Chapter 3: Results

Descriptive Analyses

Descriptives for each of the mental health and narrative variables is shown in Table 1.

Table 1

Normality of Raw and Proportional Co-Rumination Covariates for Past and Future Conversations Parent and Child Mental Health Covariates

	N	Range	Mean	SD	Skewness	Kurtosis
Past negative conversations						
Parent total co-rumination	105	0 - 1	10.86	8.853	1.206	.993
Child total co-rumination	105	0 - 1	10.49	9.484	1.322	1.365
Parent proportion co-rumination	105	0 - 1	0.399	0.230	0.514	-0.082
Child proportion co-rumination	105	0 - 1	0.575	0.268	-0.112	-0.622
Future negative conversations						
Parent total co-rumination	105	0 - 1	6.07	5.513	1.136	.644
Child total co-rumination	105	0 - 1	8.98	8.028	1.506	1.800
Parent proportion co-rumination	105	0 - 1	0.274	0.237	1.059	0.568
Child proportion co-rumination	105	0 - 1	0.581	0.266	-0.179	-0.709
Parent mental health variables						
DASS depression	103	0-19	2.99	4.016	2.092	4.636
DASS anxiety	103	0-14	1.91	2.737	2.126	5.296
DASS stress	103	0-21	5.80	3.838	1.059	2.038
Child mental health variables						
SDQ parent-report internalising	53	0-15	6.72	4.426	.232	-.994
SDQ self-report internalising	51	2-13	5.63	2.742	.620	-.025

Preliminary Analyses

Independent sample *t*-tests were conducted to examine potential differences in mental health and co-rumination variables as a function of child gender. There was a significant difference in child self-reported SDQ internalising scores ($t = 3.795$, $p = <.001$), with female children reporting higher internalising symptoms ($M = 7.00$) compared to male children ($M = 4.41$). There were no other significant child gender differences. One-way ANOVAs were conducted to examine differences in narrative variables and mental health variables by parent education, child ethnicity and cohort (*Talking Together* sample, *TALK* community sample and *TALK* clinical sample).

There was a significant association between parent education and parent reported SDQ internalising symptoms ($F= 5.489$, $p = .002$). Parents with a doctoral level education ($M = 3.00$) or a Bachelors or Honours degree ($M = 5.73$) reported lower internalising symptoms in their children compared with parents with a Trade or Diploma qualification ($M = 9.10$) or a High School qualification ($M = 9.50$). There was a significant association between parent education and parent total co-rumination for future conversations ($F= 3.273$, $p = .024$). Parents with a High School education ($M = 3.67$) or Trade or Diploma qualification ($M = 3.53$) co-ruminated within future negative conversations overall less than parents with a Bachelor or Honours education ($M = 6.55$) or Masters or Doctorate education ($M = 7.96$).

There was a significant association between child ethnicity and the proportion of child co-rumination within past negative conversations ($F = 3.143$, $p = 0.47$). Children of Asian ethnicity spent proportionally less time co-ruminating ($M = 0.336$) compared with children of European ($M = 0.594$). or Māori, Pacifica or Aboriginal ($M = 0.601$) ethnicity.

There was a significant association between the cohorts and parent past negative total co-rumination ($F = 11.957$, $p = <.001$), child past negative total co-rumination ($F = 8.308$, $p = <.001$), parent future negative total co-rumination ($F = 8.272$, $p = <.001$), and child future

negative total co-rumination ($F = 16.362$, $p = <.001$). Overall, parents ($M = 14.80$) and children ($M = 14.12$) in the *Talking Together* cohort and parents ($M = 7.38$) and children ($M = 7.27$) in the *TALK* community cohort, co-ruminated more during past negative conversations compared to the parents ($M = 6.89$) and children ($M = 6.86$) in the *TALK* clinical cohort. Similarly, parents ($M = 7.71$) and children ($M = 12.98$) in the *Talking Together* cohort and parents ($M = 6.38$) and children ($M = 6.12$) in the *TALK* community cohort, co-ruminated as a total more in comparison to the parents ($M = 2.79$) and children ($M = 4.36$) of the *TALK* clinical cohort within their future negative conversations.

Similarly, there was a significant association between the cohort and proportion of co-rumination for parents within future negative conversations ($F = 4.652$, $p = 0.12$). There was a significant association between cohort and proportion of co-rumination for parents within future negative conversations ($F = 4.652$, $p = 0.12$). Participants within the community *TALK* ($M = .393$) cohort proportionately co-ruminated more than the *Talking Together* ($M = .231$) and clinical *TALK (M* = .243) cohorts.

There was a significant association between cohort and DASS anxiety scores ($F = 5.794$, $p = .004$). Parents within the clinical *TALK* cohort indicated higher anxiety symptoms ($M = 3.42$) in comparison to parents from the community *TALK* cohort ($M = 1.38$) and the *Talking Together* cohort ($M = 1.41$). There was a significant association between cohort and DASS depression scores ($F = 4.712$, $p = .011$). Similarly, parents from the clinical *TALK* cohort indicated higher depression symptoms ($M = 4.92$) in comparison to parents from the community *TALK* cohort ($M = 2.88$) and the *Talking Together* cohort ($M = 2.06$). There was a significant association between cohort and DASS stress scores ($F = 6.091$, $p = .003$). Parents of the clinical *TALK* cohort indicated higher stress symptoms ($M = 7.96$) in comparison to parents of the community *TALK* cohort ($M = 5.12$) and the *Talking Together* cohort ($M = 5.04$).

Correlations were conducted to examine associations between narrative and mental health variables with continuous covariates. Higher parent age was significantly correlated with higher child rumination interview scores (r = .474, p = .002), and lower parent DASS anxiety (r = -.256, p = .011) and stress (r = -.290, p = .004) scores. With respect to child language, higher child PPVT scores were associated with proportionately less child co-rumination during future conversations (r = -.294, p = .031) (*TALK*) and higher verbal fluency scores were correlated with lower parent DASS stress scores (r = -.298, p = .034) (*Talking Together*). Higher child age was significantly associated with higher parent co-rumination (r = .330, p = <.001) and child co-rumination (r = .357, p = <.001) in past negative conversations, as well as with child co-rumination within the future negative conversations (r = 379, p = <.001).

Main Analyses

Pearson correlation coefficients examining associations of parent and child mental health and narrative variables are shown in Table 2.

Table 2

Pearson Correlation Matrix Between Co-Rumination and Parent and Child Mental Health Covariates

	Parent mental health				*Child mental health*		
	DASS depression	DASS anxiety	DASS stress	DASS total	Parent report SDQ internalising	Child report SDQ internalising	KRI
Past negative conversations							
Parent total co-rumination	-.137	-.149	-.165	-.170	-.085	-.184	-.155
Child total co-rumination	-.133	-.048	-.076	-.102	.020	-.089	.347*
Parent proportion co-rumination	-.002	-.014	.039	.011	-.268	.044	-.225
Child proportion co-rumination	-.101	-.060	.002	-.060	.169	.221	-.048
Future negative conversations							
Parent total co-rumination	-.066	-.196*	-.226*	-.178	-.185	-.167	-.062
Child total co-rumination	-.228*	-.121	-.148	-.194	-.093	.086	.231
Parent proportion co-rumination	.084	-.008	.028	.045	-.166	-.182	-.006
Child proportion co-rumination	-.038	.020	.043	.007	-.108	.176	-.056

Note. * $p < 0.05$

A significant association was identified between child total co-rumination within past negative conversations and their KRI scores (r = .347, p = .017). There were two significant associations identified for parent and child total co-rumination for future conversations. Parents who reported higher symptoms of anxiety (r = -.196, p = .048) and stress (r = -.226, p = .022) engaged in less total rumination in future conversations with their children. Similarly, children co-ruminated less when their parents indicated higher depression symptoms (r = -.228, p = .021).

Pearson correlation coefficients examining associations of raw and proportional parent and child co-rumination variables for both *Talking Together* and *TALK* studies are shown in Table 3. The total amount of co-rumination during past conversations between child and parent was significantly associated (r = .447, p = <.001). Similarly, the proportion that both parent and child co-ruminated during their conversation was also positively associated (r = .329, p = <.001).

Parents both totally (r = .540, p = <.001) and proportionally (r = .492, p = <.001) co-ruminated across both the past and future negative conversations. Results for children were similar in that the total children co-ruminated across both conversations was significantly associated (r = .637, p = <.001).

Table 3

Pearson Correlation Matrix Between Raw and Proportional Co-Rumination Covariates for Both Talking Together and TALK Studies

	1	2	3	4	5	6	7	8
Past negative conversations								
1.Parent total co-rumination	1							
2.Child total co-rumination	.447**	1						
3.Parent proportion co-rumination	.380**	.063	1					
4.Child proportion co-rumination	.005	.305**	.329**	1				
Future negative conversations								
5.Parent total co-rumination	.540**	.237*	.074	-.114	1			
6.Child total co-rumination	.274**	.637**	-.073	.016	.201*	1		
7.Parent proportion co-rumination	.004	-.076	.492**	.144	.274**	-.197*	1	
8.Child proportion co-rumination	-.200*	-.013	.192	.160	-.236*	.105	.308**	1

Note. *$p < .05$, ** $p < .01$

Hierarchical Multiple Regression Analyses

Several hierarchical multiple regression analyses were conducted to explore the variance within significant covariates that were previously identified. All regression coefficients for each model are displayed in Table 4. A two-step hierarchical multiple regression was conducted with KRI as the dependent variable. Parent age was entered at Step 1 and child total co-rumination was entered at Step 2. Both parent age and child total co-rumination were unique predictors of children's KRI scores, with parent age accounting for 22.5% of the variance in children's KRI scores, and child total co-rumination in past negative conversations accounting for an additional 13.1% of the variance.

A second two-step hierarchical multiple regression was conducted with parent total future co-rumination as the dependent variable. Cohort, parent age, and child language scores were added in Step 1 and parent DASS stress was entered at Step 2. Cohort remained a significant predictor in the final model, but neither the other covariates nor parent stress symptoms were significant predictors of parent total future co-rumination.

Finally, a third two-step hierarchical multiple regression was performed with child total future co-rumination as the dependent variable. Cohort was entered at Step 1, whilst parent DASS depression was entered at Step 2. Cohort was a significant predictor of children's total future co-rumination accounting for 22.8% of the variance. Parent DASS depression scores did not contribute significantly to the final model.

Mediation Analyses

Finally, a series of simple mediation models were conducted to examine if parent and child internalising symptoms were associated through the pathway of co-rumination. For both the *Talking Together* (Table 5) and *TALK* study (Table 6) cohorts, co-rumination was not found to be a mediator of parent to child internalising symptoms.

Table 4

Hierarchical Regression Analyses for Parent and Child Mental Health and Narrative Variables

Regression	Unstandardised *B*	Standardised *β*	*t*	*p*
DV: KRI				
Step 1: Parent age	.945	.476	3.707	<.001
Step 2: Child total past co-rumination	.569	.362	2.818	.008
DV: Parent total future co-rumination				
Step 1: Cohort	-2.360	-.213	-2.053	.043
Parent age	.021	.019	.182	.856
Child language	.311	.056	.559	.577
Step 2: DASS stress	-.230	-.151	-1.432	.155
DV: Child total future co-rumination				
Step 1: Cohort	-7.177	-.449	-5.017	<.001
Step 2: DASS depression	-.248	-.124	-1.386	.169

Note. DV (dependent variable)

Table 5

Indirect Effect Coefficients for Mediation Through Parent-Child Co-Rumination for the Talking Together Study

Rumination variable	*Direct effect:* DASS scores to child internalising	Parental DASS scores to rumination variable	Rumination to child internalising	Indirect effect of simple mediation model (through reminiscing m_1) *Effect* [95% CI]
Past negative conversation				
Parent total co-rumination	-.0468	-.4207	-.0368	.0155 [-.0081, .0479]
Child total co-rumination	-.0411	-.2943	-.0331	.0097 [-.0225, .0472]
Parent proportion co-rumination	-.0287	-.0056	.4827	-.0027 [-.0553, .0211]
Child proportion co-rumination	-.0020	-.0134	2.1890	-.0294 [-.0849, .0179]
Future negative conversation				
Parent total co-rumination	-.0393	-.1440	-.0553	.0080 [-.0211, .0522]
Child total co-rumination	-.0330	-.2756	-.0059	.0016 [-.0247, .0452]
Parent proportion co-rumination	-.0097	.0085	-2.5462	-.0216 [-.0930, .0306]
Child proportion co-rumination	-.0371	.0062	.9176	.0057 [-.0307, .0484]

Note. *$p < .05$, ** $p < .01$ ***, $p < .001$

The following covariates were included in all models: parent age, child verbal ability (verbal fluency), parent education and child gender.

Table 6

Indirect Effect Coefficients for Mediation Through Parent-Child Co-Rumination for the TALK Study

Co-rumination variable	*Direct effect:* parental DASS scores to child internalising	Parental DASS scores to co-rumination variable	Co-rumination to child internalising	Indirect effect of simple mediation model (through reminiscing m_1) *Effect* [95% CI]
Past negative conversation				
Parent total co-rumination	.0989	.0520	-.0625	-.0032 [-.0194, .0159]
Child total co-rumination	.0901	.1563	.0356	.0056 [-.0529, .0417]
Parent proportion co-rumination	.1021	.0009	-6.8970	-.0064 [-.0486, .0590]
Child proportion co-rumination	.0906	.0037	1.3544	.0050 [-.305, .0367]
Future negative conversation				
Parent total co-rumination	.0994	-.0484	.0781	-.0038 [-.0410, .0192]
Child total co-rumination	.0976	-.0954	.0206	-.0020 [-.0661, .0315]
Parent proportion co-rumination	.0937	-.0018	-1.1231	.0020 [-.0196, .0271]
Child proportion co-rumination	.0842	-.0053	-2.1492	.0114 [-.0135, .0595]

Note. *$p < .05$, ** $p < .01$ ***, $p < .001$

The following covariates were included in all models: parent age, child verbal ability (PPVT), parent education and child gender.

Chapter 4: Discussion

This study aimed to better understand parent-child co-rumination during discussion of past and future events. Across two samples (Australia and New Zealand, clinical and community dyads), parents and children discussed past and future emotional events. Specifically, we examined whether co-rumination during the negative emotional conversations was associated with both parent and child internalising symptoms, and with an independent measure of child rumination. Mediation analyses were conducted to examine whether co-rumination might act as a potential pathway for the transmission of internalising difficulties. Child co-rumination during past event conversations was significantly associated with children's independent rumination, after controlling for covariates. Parent and child co-rumination were correlated, suggesting a dyadic style of rumination present during middle childhood. Counter to predictions, greater parent anxiety, stress and depression symptoms were correlated with reduced parent co-rumination in some conversations, although these associations were no longer significant once covariates were included in regression models. Finally, there was no empirical support for an indirect effect of parent to child internalising symptoms through co-rumination.

Parent Mental Health and Co-rumination

Hypotheses for this study were based on two overall findings from previous research. Firstly, previous research has consistently demonstrated that mental health difficulties can be transmitted from parents to their children through an array of pathways (Goodman & Gotlib, 1999). More specifically, parents may pass on their negative cognitive biases to their children through discussions about emotions (Eisenberg et al., 1998). Additionally, research has revealed that youth engage in co-rumination during conversations with both their peers and parents (e.g., Abel et al., 2023; Huang et al., 2022; Rose, 2002; Rose, 2014). These findings,

paired with suggestions that middle childhood is both a vulnerable and often forgotten about developmental stage (Mah & Ford-Jones, 2012) influenced the aim of this study. Contrary to our hypotheses, parent DASS scores did not predict child internalising symptoms or co-rumination and co-rumination was not found to be a significant mediator between internalising difficulties from parent to child. There are several possible explanations for this. While every parental figure was a primary caregiver, it may be that the influence of multiple caregivers is especially important once children move into middle childhood. It may be that both caregivers or parents socialise children's co-rumination style, and measurement of both is important. There is certainly evidence to suggest that mothers and fathers play a unique role in reminiscing (Fivush et al., 2009). Peer influences and co-rumination in that context may also be important to consider (Rose et al., 2014). Finally, dyads were prompted to choose events based on the emotion they elicited for the child. It may be that specifically prompting for an event that the child is 'stuck' or needs help with (e.g., choosing a speech topic, how to talk with a friend about something difficult) might better elicit co-rumination differences.

Child Co-Rumination and Transdiagnostic Rumination

While there were no significant associations between child co-rumination and child internalising difficulties within this study, there was a significant association between child co-rumination within past negative conversations and their independent rumination (KRI) scores. A potential explanation for this finding may be that co-rumination may be related to child transdiagnostic rumination as measured by the KRI, however, has not yet impacted internalising symptoms for children. Rumination has been identified as a precursor for psychopathology (Nolen-Hoeksema, 1991). For example, McLaughlin et al. (2014) found that rumination increased the likelihood of internalising symptoms within males who experienced externalising difficulties. However, these findings were not identified for females

(McLaughlin et al., 2014). Similarly, Jandrić et al. (2023) also found that rumination predicted 30% of anxiety symptoms and 31% of depressive symptoms in adolescents experiencing one or more internalising disorder. Taken together, these findings suggest that rumination may develop *before* the onset of internalising disorders. Although direction of causality cannot be inferred with our cross-sectional data, our finding would be in line with the suggestion that engaging in co-rumination about past negative events could fuel personal ruminative tendencies. The following excerpt displays a past negative conversation about moving house between a caregiver and their child with an elevated KRI score:

Dyad A

Parent: *What were you worried about?*

Child: *I feel like when we were moving in, was an anxious [feeling] that I haven't really felt before. It was more like am I gonna enjoy this? Or is this gonna be fun? Or because like last time we moved I was in [redacted], and I don't remember that very well. So, I was also thinking, like I don't know how this is gonna work. Like are we gonna have enough time to pack everything up?*

Parent: *Mm-hmm (affirmative).*

Child*: Is the unpacking gonna be like…*

Parent: *Were you worried about the actual move? Or then, where we were gonna live at the end?*

Child: *I felt like I was kind of nervous about where we were as well.*

Parent: *Mm-hmm (affirmative).*

…

Child: *And another thing I was probably worrying about was not being able to go back to our old house.*

Parent: *Mm-hmm (affirmative).*

Child: *Because we have so many memories, we lived there for like four years*

…

Parent: *Yeah.*

Child: *Um. But yeah. I feel like that it was a hard time when we moved. Because of all the memories that I had in that room.*

In this excerpt, we see how the child focuses on their worries and the many unknowns in the process of moving house. The parent (although not contributing substantially) does ask the child to expand on the stressful aspects, thus engaging in co-rumination. Overall, this example demonstrates the cyclical pattern of co-rumination. A higher KRI score reflects that the child reports they are more likely to think back repeatedly on difficult events across hours and days (Baiocco et al., 2017). Shaw et al. (2019) suggests that engaging in rumination frequently may exacerbate one's tendency to continue using this negative response style in the future. Therefore, it may be that the rehearsal of co-rumination during conversations with others solidifies a negative and repetitive thinking style for youth. In turn, they may utilise rumination on their own in an attempt to cope with negative emotions or events. It could also be that children develop ruminative tendencies in other contexts, and the co-rumination observed during conversations with parents is simply a reflection of this. Longitudinal research measuring both parent and child independent rumination and co-rumination at multiple timepoints would help to better understand this. As discussed above, ruminative tendencies may increase the risk associated with internalising difficulties for adolescence (Jandrić et al., 2023). Although we did not find any association between child rumination and internalising difficulties within children, it may be that these ruminative tendencies can be

identified during middle childhood but have not yet impacted internalising symptoms for young adolescents.

Dyadic Engagement in Rumination

Parent anxiety and stress symptoms were negatively correlated with co-rumination in future conversations. Although this association was no longer significant once covariates were included in the regression model, the correlation was somewhat unexpected. We had predicted that individuals with higher anxiety would engage in more co-rumination about future negative events, due to anxiety consisting of future-driven fears (Grupe & Nitschke, 2013). A potential explanation for this finding may be that parents who are already experiencing anxiety and stress may prefer not to engage in conversations that may further elevate their symptoms. Avoidant behaviour is associated with anxiety (Hofmann & Hay, 2018; Zorowitz et al., 2020) and provides a temporary relief to thinking about or facing anxious and stressful situations (Zorowitz et al., 2020). Therefore, it may be that parents who were included within this study avoided talking with their children about anticipated negative events in order to avoid their own stress about the future. This finding aligns with a study conducted by Woodruff-Borden et al. (2002), where results revealed that parents who were diagnosed with an anxiety disorder were less engaged in the interaction activities at hand with their child. From their results, Woodruff-Borden et al. (2002) suggest that is through the parents' inability to manage their own anxiety levels that their avoidance impacts their engagement in the tasks at hand. Similarly, trends within previous research suggest that parents and children who experience anxiety are likely to have shorter conversations that encompass less emotional content (Russell et al., 2024a).

Interestingly, children engaged in less co-rumination during future conversations when their parents indicated higher symptoms of depression, although again this was not significant in the regression model. All discussions were directed to focus on events that were

deemed important to the child, therefore, it is interesting that children engaged in less co-rumination with their parents about their chosen event. A potential explanation for this unexpected finding may be that children refrained from discussing their chosen event in-depth in order to prevent worsening their parents' pre-existing low mood. Previous research by Van Parys and Rober (2013) identified eight themes that children of depressed parents may experience, including comforting their parent. Children of the study identified that they felt the responsibility to reduce the burden on their parents by changing their behaviour to suit their parent's mood (Van Parys & Rober, 2013). It may be that children within our study refrained from talking about negative events in depth to ensure their parents' mood did not worsen, resulting in a reduced amount of co-rumination within these dyads' conversations. Alternatively, parents who experience depressive symptoms may be more likely to engage differently with their children in comparison to parents who do not indicate symptoms; with more severe symptoms of depression potentially leading to poorer parent and child relationships (Downey & Coyne, 1990; Lovejoy et al., 2000). Less co-rumination for children with parents who have higher depressive symptoms may be explained as a reflection of parent-child interactions outside of the reminiscing and future conversation context, and children may have discussed their events in less depth if they are accustomed to receiving less supportive responses from their parents in other contexts (Downey & Coyne, 1990; Shaw et al., 2019).

Results from our study revealed that parent co-rumination and child co-rumination were significantly associated. This finding indicates that co-rumination occurred in dyadic conversations about past and future emotional events. This finding expands on previous research that has previously identified the occurrence of co-rumination within problem-solving tasks (e.g., Rose et al., 2014). Furthermore, co-rumination between parents and their children occurred at similar levels in both past and future conversation tasks. This suggests

that future conversations alongside reminiscing conversations may hold important value for both parents and their children when talking about their emotions. This finding provides support for the currently expanding literature regarding future conversations (e.g., Russell et al., 2024a). It has been identified that these discussions may be an important pathway that children learn healthy coping mechanisms and as an emotional socialisation pathway in which children can make meaning of anticipated emotions (Russell et al., 2024a).

Parent Age

Higher parent age was associated with increased child rumination as indicated by the KRI. This finding may suggest that older parents in some ways socialise greater rumination for their children. Older parents may face different social and personal stressors that may contribute to their overall psychological wellbeing (Lysons & Jadva, 2023). For example, older parents may experience social stigma related to older parenthood, and assisted conception or fertility difficulties may contribute to an increase in parental depression and anxiety in older parents (Lysons & Jadva, 2023). These associated mental health outcomes may undermine positive parenting qualities, in turn, impacting socialisation for children (Cimino et al., 2020; Nolte, 2013). However, we did not find an association with parent age and rumination within the reminiscing or future conversation context. Overall, this finding may suggest that if older parents are socialising rumination for their children, it may not be through this mechanism.

Cohort Differences

Significant differences in co-rumination were found across the three cohorts (New Zealand community, Australian community, Australian clinical) included within this study. As indicated above, child participants in the clinical sample were referred for anxiety difficulties. Based on previous research that suggests that rumination increases risk of experiencing both

depression and anxiety (Michl et al., 2013; Nolen-Hoeksema, 1991, 2000; Nolen-Hoeksema et al., 1994), it was hypothesised that participants in this sample would engage in higher rates of co-rumination during their negative event discussions. Unexpectedly, the clinical cohort engaged in significantly *less* co-rumination in their discussions in comparison to both community cohorts. As discussed above, a potential explanation is that clinical dyads may have been avoiding talking in-depth about negative emotions for both past and future events. Previous research has highlighted that parents of children diagnosed with anxiety tend to avoid conversation about potentially harmful events (Ginsburg et al., 2005). Similar findings were revealed in a clinical and community comparison utilising the *TALK* study conducted by Russell et al., (2024a). Although this study did not code for co-rumination, results revealed that children in the clinical sample were less likely to engage in exploration of emotions within their reminiscing conversations; however, both parent and child were less likely to engage in emotional exploration for future focused conversations compared to the community sample (Russell et al., 2024a). Therefore, a potential explanation for this finding may be that parents also did not extensively engage in conversations about negative events in order to refrain from upsetting their child further (Salmon & Reese, 2015).

Another potential explanation for the differences between cohorts may be the time difference in which the data for each study was collected. The *TALK* study was collected during 2018 and 2019 before the global Coronavirus pandemic (COVID-19) occurred. On the other hand, the *Talking Together* study was collected in 2023 and 2024, three years after the pandemic began. Previous research has highlighted the potential negative outcomes of the pandemic for children, including overall negative impacts on education, behaviour and anxiety about future events (Gupta & Jawanda, 2020). More specifically, the COVID-19 pandemic may have contributed to increased rates of co-rumination for individuals (Starr et al., 2021), where depression and anxiety prevalence rates were much higher during this time

period (Lakhan et al., 2020). A study conducted by Mak et al. (2009) found that individuals who had experienced the previous Severe Acute Respiratory Syndrome (SARS) outbreak identified long-term psychological impacts of post-traumatic stress disorder (PTSD) and depression. Further research with both clinical and community cohorts is needed to better understand how ruminative tendencies and co-rumination are associated.

Gender

Previous research has identified gender differences in youth internalising difficulties (Bask, 2015; Bor et al., 2014; O'Connor et al., 2021; Patel et al., 2007; Steel et al., 2014; Toumbourou et al., 2011; Yoon et al., 2023) as well as in emotion socialisation (Chaplin et al., 2010; Keenan & Shaw, 1997). Although our findings for child internalising difficulties were in line with existing gender differences, it was somewhat surprising that we did not find gender differences in co-rumination or independent rumination. This may reflect social advances in gender inequities. For example, Waters et al. (2019) conducted a meta-analysis on reminiscing differences and found that earlier child gender differences identified in reminiscing conversations were less likely to be observed in more recent datasets. It may also be that different pathways to rumination exist based on child gender. For example, it may be that co-rumination is a stronger predictor of independent rumination (and possibly internalising difficulties) for girls than boys. For example, Gaté et al. (2013) observed family environment during a structured lab visit, coding both positive and aggressive parenting behaviours. Adolescents self-reported on rumination and depression symptoms. Parenting behaviour was associated with youth depression through youth rumination, but only for girls, not boys (Gaté et al., 2013). This finding suggests that further research examining differential pathways of intergenerational transmission for girls and boys is warranted.

Strengths

This thesis included two cohorts based in Australia (*TALK* study) and New Zealand (*Talking Together* study). The Australian sample consisted of one community and one clinical sample of participants, whilst the New Zealand sample consisted of all community dyads. Including both studies allowed for a more diverse sample expanding our findings to examine instances of co-rumination within a sample of children where internalising difficulties (anxiety) had been identified at a rate higher than the general community. To date, co-rumination has been largely examined in community parent-child dyads (e.g., Abel 2020; Waller & Rose, 2010), therefore, the inclusion of both samples allowed insight into co-rumination that potentially occurs in dyads seeking support for previously identified mental health difficulties. Although we found that clinical dyads did not engage in co-rumination at an increased rate, our findings contribute to an understanding of how clinical dyads may engage in reminiscing and future conversations.

Additionally, child participants in this study were aged between 8 and 12-years. Middle childhood has often been overlooked within psychological research (Mah & Ford-Jones, 2012); however, literature has identified the importance of this development stage and associations of mental health difficulties (Collins & Madsen, 2019; Kretzer et al., 2024; Werner-Seidler et al., 2022). Examining co-rumination in middle childhood has highlighted that there may be precursors for future mental health difficulties developing at this age.

Finally, this research study extended existing reminiscing research to examine co-rumination. As previously mentioned, co-rumination has been largely examined within parent-child interactions in problem-solving discussions, and it may be that these interactions are explicitly seeking to elicit ruminative tendencies within the participating dyads. Our study has highlighted the value that reminiscing conversations hold for emotional socialisation between parents and their children. However, reminiscing conversations have largely

dominated the emotional socialisation research field, and literature has only recently expanded to begin investigating the importance of anticipated future event discussions for parent-child dyads (e.g., Russell et al., 2024). This is the first study that we are aware of that has extended efforts to examine co-rumination across both past and future event conversations between parents and their children. Nonetheless, our findings join the early stages of research focused on the importance of anticipated event conversations as an emotional socialisation avenue for parents and their children.

Limitations

Although this thesis encompasses the results from two cohort studies, the differences in data collection methods may be an explanation for the significant cohort differences. *Talking Together* conversations were conducted through Zoom, whereas *TALK* conversations were held in-person. Overall, findings from this study indicate that participants in the *Talking Together* study tended to have longer conversations inclusive of significantly more co-rumination than the participants in the *TALK* cohort. Dyads who took part in the *TALK* study were required to meet with the researcher in-person. Parents and children may have felt less comfortable talking about negative emotional events in the presence of a stranger as well as being in an unfamiliar space. This may have led dyads to cut their typical conversation length shorter, or discuss their topics less extensively, ultimately engaging in less emotional discussion. Conversely, the dyads who took part in the *Talking Together* study took part in the study via Zoom from their homes. Dyads may have been inclined to speak for longer because they may have felt safe in their chosen environment. In turn, dyads may have been more comfortable sharing their negative events in greater depth and for longer. Regardless, this finding does contribute to a small body of existing literature indicating value in the online collection of parent-child interactions data (Chuey et al., 2021; Nelson et al., 2021; Waller et al., 2024).

Additionally, we only had an independent measurement of rumination for one portion of the sample (the *TALK* sample). This limitation means that we were only able to assess the associations of child rumination and other variables for half of our overall sample. This limits both our statistical power and the generalisability of findings that are associated with the KRI.

Future Research

As discussed above, middle childhood encompasses key avenues that may support or hinder psychological wellbeing in adolescence. Instances of co-rumination within peer relationships (e.g., Rose, 2002; Rose et al., 2014), paired with suggestions that youth become more reliant on their peers during adolescence (Rose, 2021; Seibert & Kerns, 2009) may drive future research to continue investigating co-rumination within these more dependent peer-relationships and interactions. This thesis focused on middle childhood, with child participants aged between 8 and 12-years-old. Considering previous research suggests that internalising disorders are most often identified during adolescence, future research may wish build upon these findings by conducting a longitudinal follow-up with the participants of both the *TALK* and *Talking Together* studies.

Additionally, future research may benefit from the development of independent measures of rumination and other cognitive biases alongside reminiscing conversations. The coding scheme utilised for co-rumination within this study was adapted from Rose et al. (2014), subsequently introducing frequency-based coding of co-rumination at an utterance level of each participating dyad to suit the research focus. In more recent literature, a novel coding scheme was created by Bray et al. (under review) in order to examine cognitive biases within parent-child reminiscing conversations. Similar calls for independent measures of cognitive biases were also made by Bray et al. As such, future research should extend to develop more in-depth independent measures of both cognitive biases and co-rumination

within these conversation types, accounting for contextual differences of reminiscing conversations and emotional socialisation goals for parent-child dyads.

Conclusion

To conclude, this thesis aimed to examine co-rumination as a potential mediator in the intergenerational transmission of internalising difficulties from parents to their children aged between 8 and 12-years-old. Co-rumination was studied in the context of both reminiscing and future event conversations between parent-child dyads. The results of this study revealed no indirect pathway for the transmission of internalising difficulties between parents and their children through co-rumination. This thesis has worked to address gaps within the literature associated with middle childhood and has expanded on the salient role that parents play in the development of internalising difficulties for children. This is the first study that we are aware of that has placed an emphasis on parent-child co-rumination within the context of reminiscing and future conversations. Therefore, future studies should include more specific and independent measures of rumination.

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Appendix

Co-Rumination Coding Scheme Adapted From Rose et al. (2014)

	Definition	Examples
Co-Rumination **Past event conversation** Parent: pRumPN Child: cRumPN **Future event conversation** Parent: pRumFN Child: cRumFN	**Rumination** includes a perseverative focus on a negative emotion or the negative parts of situation that triggered it. Dwelling on a negative emotion, over-analysing the emotion, arguing back and forward about the emotion or the situation (e.g., more than is necessary to demonstrate a point). Repeating the same negative emotions or aspects w*ithout moving forward towards a solution.* • May also be stating that the child was anxious when that has already been established. • When there is more than one emotion in a single sentence, each emotion gains one code. However, if synonyms of a single emotion are mentioned (e.g., anxious and worried) this counts as only **<u>one</u>** codable instance.	"I was so incredibly anxious about my speech, I felt sick." cRumPN "My performance was terrible." cRumPN "I'm nervous about moving house." pRumFN "What if we don't like the new neighbours?" cRumFN "I can tell I'm going to be scared." cRumFN "You usually get nervous about these kinds of things." pRumFN "Yeah." "Yip. I can't believe you're doing it when you know you will be scared." pRumFN "I was so nervous (cRumPN), and I felt angry that I couldn't focus during the test (cRumPN)." "Okay. So do you think you might feel angry (pRumFN), sad (pRumFN), or scared (pRumFN)?"
	Re-hashing: One or both members of the dyad talks about specific parts of the negative emotion or event over and over	"How did you feel about that?" pRumPN "Not very good. Scared as I said." cRumPN

	again; talking in details about the problem. It also includes re-stating the problem. • Emotion or negative aspects stated in other words. • Presenting one's view of the negative aspects in detail. • Talking/explaining in detail about the emotion, every possible part of the situation. • Linking to other negative past experiences (without solution). Arguing about the negative event can be considered rehashing.	"What were you scared would happen?" pRumPN "I didn't get picked for the school play." cRumPN "It's so frustrating when you give your best and still don't get what you hoped for." pRumPN "Why does this always happen to me?" cRumPN "I remember when I was your age, feeling the same way." pRumPN
	Speculating about problems One or both members of the dyad ponders the origins of the emotion or situation, why it is an issue, why it happens, what may happen as a result of this. • Talking about the potential causes and consequences of the emotion / situation. • Trying to understand the emotion or parts of the situation that are not understood (analysing in order to make sense of it).	"I got in trouble at school for talking too much in class." cRumPN "Was it because you were feeling distracted?" pRumPN "I have been so sad lately." cRumPN "Did something happen?" pRumPN " I don't know." "What are the things are going on for you?" pRumPN "Nothing." "Is it the dance competition making you upset?" pRumPN

	Mutual encouragement of negative talk One or both members of the dyad keep the negative emotion or situation talk going; trying to get each other to tell every detail. This may include trying to bring back the negative emotion after the topic has been switched. • Explicitly asking partner to talk about the negative emotion. • Asking questions about the negative emotion or negative aspects of the situation (*Note: this does not include exploring neutral aspects of the situation, for example, "when was it?*). • Some questions about the issue could be speculating (*e.g., "Could it be because of your intelligence or because of your father?"*) These questions would be considered both encouraging and speculating. • Prompting, cueing , eliciting partner to tell details.	"I feel frustrated about my friend." cRumPN "What's going on?" pRumPN "I don't know. I'm just frustrated." cRumPN "Frustrated about what exactly?" pRumPN "I don't like going to the pools." cRumFN "Tell me more about what you don't like about the pools." pRumFN
	Dwelling on negative affect One or both members of the dyad focuses on the experience of negative emotions like feeling worried, nervous, irritated, sad, anxious, angry, depressed, low, scared, distressed, anguished, shameful, embarrassed, frustrated, hopeless, defeated, stuck, etc.	"I was very worried when the elevator got stuck." cRumPN "I could tell that you were so nervous." pRumPN "I know. I nearly cried." cRumPN
Constructive exploration **Past event conversation**	**Constructive exploration** emphasises that talking about emotions or difficulties can have a purpose related to advancing forward with the issue, such as working towards a solution.	"I didn't get enough stickers for my chore chart this week." cRumPN

Parent: pExpPN Child: cExpPN **Future event conversation** Parent: pExpFN Child: cExpFN	With constructive exploration, there is a clear link the parent or child is talking about issues in order to understand / teach the child why and/or how they should manage things differently; constructive exploration often springboards into *or* is intermingled with a conversation about solutions. • Exploring or asking questions that lead to the exploration of solutions but don't explicitly make that connection yet. • Using an example of a different event for the purpose of demonstrating how things could be or were done differently. • "What if" scenarios • Focusing more on the *facts* of the situation rather than the negative emotions that are associated. • Validating feelings • Identifying a positive of the situation *Note*. Constructive exploration talk could still include any of the dimensions (e.g., rehashing, speculating, mutually encouraging, negative affect), but it must be clear that this is 'laying the groundwork', moving towards solution talk. • The first instance of exploration can be coded as Exp, however, if either party cycles back without moving forward this can then be coded as Rum.	"That's annoying. What made it hard this week to get enough stickers?" pExpPN "I kept forgetting." cRumPN "Do you think if you had a better way to remember, it might make it easier to stay on track?" pExpPN "I'm annoyed that we can't go to the park this weekend." cRumFN "What if we made an obstacle course in the backyard instead?" pExpFN "I felt sick last time we had to drive to the beach." pRumPN "Yeah. You had a vomit bucket with you that helped you to feel better." cExpPN "Why did that upset you?" pExpPN "Um…" "Why did you get stressed about it?" pRumPN
Solution	**Solution-talk** includes introducing solutions/ways to manage the situation (strategies, plans, directives, rules, alternatives	"I was really scared" cRumPN "You were so scared" pRumPN

Past event conversation Parent: pSolPN Child: cSolPN **Future event conversation** Parent: pSolFN Child: cSolFN	to/changing behaviour), negotiating solutions, talking about how solutions/changing behaviour will be beneficial, how to go about implementing solutions (next steps, what we will do tomorrow), back up plans for a solution, past solutions implemented, etc. *Note* that the dyad does not necessarily need to agree about solutions.	"And then what happened? pExpPN "What did you try that helped?" pSolPN "It's not so bad because I did well in the grand scheme of things." cSolPN
Neutral event talk **Past event conversation** cEventPN pEventPN **Future event conversation** cEventFN pEventFN	All talk about (or related to) the event chosen (can include related events but different events). This does not include off topic conversation including: • The phone rings • Off topic with siblings Examples of event talk include details about the event that are not valanced or emotional.	"Who was there?" pEventPN "My friends." cEventPN "When will you get home?" pEventFN "3 o'clock, I think." cEventFN "Did the teacher say anything about the time?" pEventPN "That we will leave at 3pm" cEventPN *Phone rings in background* P: "Hold on. Let me get this." C: "I'm too scared to pick up unknown numbers" (Example of a non-codable instance).