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Maternal Reminiscing and Children’s Socioemotional Development: Evidence from a Large Pre-Birth Longitudinal Cohort Study, *Growing Up in New Zealand*

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ABSTRACT

The aim of the present study was to explore how maternal reminiscing relates to socioemotional development during middle childhood. Specifically, analyses explored the link between maternal reminiscing and children’s internalizing (emotional problems and peer problems), externalizing (hyperactivity and conduct problems) and prosocial behavior within a large and diverse sample of New Zealand families, after controlling for a range of child and maternal sociodemographic factors. A subset of 1404 mother-child dyads (663 boys) were selected from the longitudinal study *Growing Up in New Zealand’s* 8-year data collection wave. Mother-child reminiscing conversations about a past negative emotional event were coded using a scale-based measure of maternal elaboration. After controlling for child and maternal sociodemographic characteristics, regression analyses identified unique associations between maternal reminiscing style and children’s concurrent scores on the Strengths and Difficulties Questionnaire. Overall, greater maternal elaboration was associated with fewer child emotional problems and greater child prosocial behavior. This study presents novel data exploring the importance of mother-child reminiscing interactions at a critical and sensitive time in child development. Future research should explore bidirectional influences across time between mothers’ elaborative reminiscing and children’s socioemotional development.

Parent-child reminiscing is emerging as a critical contributor to children’s socioemotional development (e.g., Swetlitz, Lynch, Propper, Coffman, & Wagner, 2021 see Salmon & Reese, 2016). These conversations about past events, particularly those of emotional importance, are significant in shaping our understanding of the past and creating a unique environment through which to interpret past experiences (Bohanek, Marin, & Fivush, 2008). Young children are not able to build these connections by themselves. Instead, they rely on parents to guide their understanding and further evaluation of past experiences and the emotional outcomes (Fivush, Berlin, McDermott Sales, Mennuti-Washburn, & Cassidy, 2003). Conversations about the past may be an especially important context for emotion socialization, as parents scaffold children’s emotional understanding and regulation after the event

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has occurred (Fivush, Haden, & Reese, 2006; Salmon & Reese, 2016). Both the elaborative style and emotional content of reminiscing appear to have important implications for children's socioemotional development and consequent behavioral functioning (Leyva et al., 2020; McDonnell, Lawson, Speidel, Fondren, & Valentino, 2022; Van Bergen, Salmon, & Dadds, 2018). To date, however, much of the parent-child reminiscing research is limited to preschool children. Yet, reminiscing conversations and emotion regulation development continue well into adolescence (e.g., Manczak, Donenberg, & Emerson, 2018; Reese, Macfarlane, McAnally, Robertson, & Taumoepeau, 2020). Thus, the primary objective of the current study was to explore the association of elaborative reminiscing between mothers and 8-year-old children with children's expression of internalizing (emotional problems and peer problems), externalizing (hyperactivity and conduct problems) and prosocial behavior. Mental health difficulties have traditionally been viewed within a diagnostic, categorical model; yet evidence suggests that specific disorders likely reflect underlying, transdiagnostic processes. In particular, individuals' symptoms have repeatedly been found to cluster around internalizing, externalizing and thought disorder dimensions (Carver, Johnson, & Timpano, 2017; Caspi et al., 2014), with some evidence that a general psychopathology "p" factor centering around reactivity to emotions may best explain difficulties during childhood (Martel et al., 2017).

Reminiscing styles

Parents differ in the ways they reminisce with their children. A substantial body of research has identified clear individual differences in how parents structure talk about the past (see Fivush, Haden, & Reese, 2006 for a review; Waters, Camia, Facompré, & Fivush, 2019 for a meta-analysis). Nearly all of this research has focused on mothers. Overall, maternal elaboration (provision of new details about the event) has been identified as a key feature on which mothers vary. Along this dimension of elaboration, two distinct reminiscing styles have been identified: high elaborative and low elaborative reminiscing (Fivush & Fromhoff, 1998). Highly elaborative parents engage in long and detailed conversations about the past, asking various open-ended questions and providing a detailed account of the event, while praising and encouraging the child's active participation (Fivush, Marin, McWilliams, & Bohanek, 2009). Conversely, low-elaborative mothers engage in reminiscing conversations with less elaborative detail in their recounts (Reese, Haden, & Fivush, 1993). Although these mothers still pose questions, they do not do so in a way that promotes active participation from the child; instead, they tend to ask the same questions repeatedly. When discussing past emotions, low-elaborative mothers may therefore be less likely to elaborate upon the associated emotions, thus limiting opportunities to create connections between event context and emotional recognition and regulation (McDonnell et al., 2016).

A highly elaborative reminiscing style is linked to preschool children's ability to tell more coherent narratives (Cleveland, Reese, & Grolnick, 2007) and to have advanced language (Leyva, Sparks, & Reese, 2012), self-regulation (Leyva & Nolivos, 2015), and socioemotional skills (Laible, 2004; Laible, 2010; Leyva et al., 2014; Leyva et al., 2020; McDonnell, Lawson, Speidel, Fondren, & Valentino, 2022). Importantly, maternal reminiscing style remains consistent across time (Reese, Macfarlane, McAnally, Robertson, & Taumoepeau, 2020) and siblings (Haden, 1998), yet is a highly modifiable practice (Speidel, Valentino, McDonnell, Cummings, & Fondren, 2019; Van Bergen, Salmon, & Dadds, 2018). Intervention studies, in

which one group of mothers is coached to become more elaborative in their reminiscing compared to a control group, demonstrate benefits for children's autobiographical memory and narrative skills (Cleveland & Morris, 2014; Peterson, Jesso, & McCabe, 1999; Reese & Newcombe, 2007) and their emotion understanding (Valentino et al., 2019; Valentino, Comas, Nuttall, & Thomas, 2013; Van Bergen, Salmon, Dadds, & Allen, 2009).

Many reminiscing studies have examined implications of parent-child discussion about positive events for children's socioemotional development (e.g., Laible, 2004; Reese, Bird, & Tripp, 2007). Yet it is the quality of reminiscing about negative emotions and negative events that may be most critical for children's socioemotional skills (Laible, 2004, 2010; Laible, 2010; Leyva et al., 2020; McDonnell, Lawson, Speidel, Fondren, & Valentino, 2022). In elaborating sensitively upon the causes and consequences of negative emotions, and in providing a resolution, parents help children build important connections between their experiences and related emotional responses when no longer in the heat of the moment (Fivush, Berlin, McDermott Sales, Mennuti-Washburn, & Cassidy, 2003). For example, McDonnell, Lawson, Speidel, Fondren, and Valentino (2022) examined maternal reminiscing across a community sample and a separate maltreated sample (total $N = 337$) of preschoolers discussing four emotional events (one positive event and three negative events). Reminiscing was defined by three distinct dimensions: elaborative structure; emotional attributions; and sensitive guidance, each of which demonstrated unique concurrent associations with child outcomes. Elaborative structure was associated with fewer internalizing problems, and sensitive guidance was associated with fewer internalizing and externalizing behaviors. Greater emotional attributions, however, were associated with more child internalizing difficulties.

When discussing past negative events, parents are likely to ask more open-ended questions and provide more causal emotional explanations than when discussing positive events (Sales, Fivush, & Peterson, 2003). Further, stylistic variations also exist for different event types, even within the context of negative emotional events. For example, Pavlova et al. (2019) found significant differences in maternal reminiscing style for the discussion of pain or sadness events with children aged between 5 and 7 years. Overall, when discussing sadness, mothers were more elaborative, provided emotional explanations, and promoted children's autonomy. Differences resulting from negative emotional context may reflect socially normative differences in pain reactions, which usually requires immediate attention rather than reflection. Sadness, however, requires prolonged responses beyond what is required at the immediate event. These negative events are seen as teaching moments, a time where parents can reflect on an experience and focus on causal information. Thus, it appears to be the quality of maternal reminiscing, specifically about negative events, that relates to children's emotional understanding and corresponding socioemotional functioning.

Maternal reminiscing style and child outcomes during middle childhood

Middle childhood (ages 6–12 years) is a distinct developmental period marked by the beginning of several social, cognitive, and physical changes, facilitating one's progression into adolescence (Carr, 2017). It is a time when children gain access to diverse new experiences, broadening their social environment with more complex and novel stressors. Middle childhood is associated with advances in: emotional understanding and regulation;

decentered perspective taking; understanding of mental states; language and communication skills; and the ability to enact learned coping mechanisms (Davies, 2011; Nelson, 2005; Wainryb, Brehl, & Matwin, 2005). These developmental changes occur simultaneously with a shift in maternal reminiscing style. By middle childhood, children have grasped basic competencies of emotion reminiscing, and thus rely less on parental scaffolding to facilitate the conversation. Instead, reminiscing with children of this age is more likely to be a collaborative task, including more frequent elaborations and confirmations from both parent and child (Reese, Macfarlane, McAnally, Robertson, & Taumoepeau, 2020). Thus, reminiscing likely remains an important emotion socialization tool into middle childhood, despite a relative dearth of reminiscing research during this stage.

Middle childhood may be an especially important time to consider associations of reminiscing with socioemotional development, as this is a time during which early behavioral difficulties can progress to clinical diagnoses, and rates of internalizing difficulties begin to increase, particularly among girls (Costello, Copeland, & Angold, 2011; Mesman, Bongers, & Koot, 2001). Several small-sample studies have explored the relationship between maternal reminiscing and socioemotional functioning during middle childhood. For example, Sales and Fivush (2005) examined the concurrent relationship for 27 dyads (mothers and 8–12 year old children) between reminiscing about negative events and their children's scores on the Child Behavior Checklist (CBCL). Children of more elaborative mothers were more elaborative themselves and presented with fewer internalizing and externalizing problems. Notably, this relationship was only observed when discussing chronic stressful events, during which parents were better able to elaborate on the causes and consequences associated with the emotional event. Fivush, Marin, McWilliams, and Bohanek (2009) also examined concurrent associations between reminiscing and child wellbeing among 40 mothers, fathers and their 9–12 year-old children. They found that mothers who were more elaborative and evaluative about past negative events had children who presented with fewer internalizing behaviors.

Moreover, concurrent research with small clinical samples (with less than 60 dyads) have suggested that elaborating on emotion causes and consequences is uniquely linked to children's adaptive emotion and behavioral functioning (Suveg et al., 2008; Suveg, Zeman, Flannery-Schroeder, & Cassano, 2005). For example, Suveg et al. (2008) evaluated emotion socialization techniques in parents with children (aged 8–13 years) with an anxiety disorder compared to those with no diagnoses. Parents of children with an anxiety disorder more frequently discouraged emotional discussions and were less likely to use explanatory emotion talk. This cohort of children engaged more frequently in maladaptive emotion strategies and elicited fewer problem-solving strategies than children without an anxiety disorder (Suveg et al., 2008). Van Bergen, Salmon, and Dadds (2018) found that before a reminiscing intervention, mothers of children (aged 3 ½ to 5 years) clinically referred with externalizing difficulties (conduct problems) were less elaborative than matched community mothers. Together these findings show differences in reminiscing style and content for child clinical samples with both externalizing and internalizing difficulties.

A larger longitudinal study (with over 200 dyads) showed that mothers' elaborations during reminiscing about novel mother-child shared events at age 5 predicted children's later externalizing behavior at age 7, but not their internalizing behavior (Swetlitz, Lynch, Propper, Coffman, & Wagner, 2021). Collectively, these findings support the role of reminiscing in the development of socioemotional competence and mental health

symptoms during middle childhood, and suggest different protective roles for reminiscing about positive versus negative events for children's later socioemotional functioning. The research to date, however, is mixed on whether maternal reminiscing is equally associated with children's internalizing and externalizing behavioral difficulties. Differences in findings may, at least partly, be a function of the age of the children observed and the informant. As noted above, internalizing difficulties increase as children move toward adolescence; and there is support for associations of reminiscing with externalizing difficulties in the preschool years (McDonnell, Lawson, Speidel, Fondren, & Valentino, 2022; Van Bergen, Salmon, & Dadds, 2018) and with internalizing difficulties in middle childhood (Suveg et al., 2008; Suveg, Zeman, Flannery-Schroeder, & Cassano, 2005). Internalizing difficulties may also be more challenging for others to report on, compared with externalizing difficulties which may be more apparent to those in the system surrounding the child. Swetlitz et al. (2021) noted their use of teacher reported difficulties as a potential reason why they found associations with externalizing but not internalizing symptoms. Further research is needed to understand how reminiscing relates to measures of both externalizing and internalizing difficulties in middle childhood.

Differential associations between reminiscing and child outcomes: moderation by culture

Parents around the world reminisce with their children on a regular basis (Miller, Potts, Fung, & Hoogstra, 1990; Mullen & Yi, 1995; Schröder et al., 2013). Thus, the practice of reminiscing is widespread, but the extent to which it is valued and integrated into parenting practices is culturally dependent (Fivush, Haden, & Reese, 2006). The specific aspects of reminiscing conversations that are emphasized appears to be shaped by cultural experiences, values, and beliefs (Yang & Wang, 2019).

Much of the research on cultural differences in maternal reminiscing style is based upon cross-cultural studies comparing dyads from various Western and East Asian cultures (see Wang, 2021 for a review; but see Schröder et al., 2013 for a broader range of cultures). These studies show that, in general, independence-oriented Western mothers adopt a more elaborative and child-focused style of reminiscing with their young children than East Asian mothers (e.g., Sahin-Acar & Leichtman, 2015; Schröder et al., 2013; Wang & Fivush, 2005). In turn, interdependently-oriented East Asian mothers talk more about other people and about desired behavior when reminiscing. Wang (2021) interprets these differences as stemming from a culture's relative emphasis on individual autonomy and emotional expression versus group harmony and emotion minimization. In New Zealand, Māori (Indigenous) mothers are more elaborative than New Zealand European mothers about events of significance to the extended family (e.g., birth of a child) versus everyday events that are primarily important for the child or the dyad alone (Reese, Bird, & Tripp, 2007). When discussing everyday child-focused events, Māori mothers more frequently repeat previously stated information than European mothers. This pattern likely reflects the importance of repetition in cultures with rich oral traditions, whereby key points are repeated to reiterate the central point of the narrative (Neha, Reese, Schaughency, & Taumoepeau, 2020). Thus, cultural differences in maternal reminiscing style appear to

reflect the dominant values of the culture as well as being shaped by the nature of the event under discussion.

Culture is not the only dimension along which maternal reminiscing style differs. Differences have also been documented by child gender, with mothers being more elaborative when reminiscing with daughter than sons (e.g., Reese & Fivush, 1993), although recent studies showed that child gender differences were minimal (Aznar & Tenenbaum, 2020; McDonnell, Lawson, Speidel, Fondren, & Valentino, 2022; Waters, Camia, Facompré, & Fivush, 2019). Less research has focused on the socioeconomic context of families, maternal education and age as contributors to maternal reminiscing style. A longitudinal analysis of the *Growing Up in New Zealand* sample identified maternal education as the strongest sociodemographic predictor of mothers' reminiscing, with more educated mothers being more elaborative (Swearingen et al., 2023). This same study also identified maternal ethnicity as a unique predictor of maternal reminiscing. When discussing negative past events with their 8-year-olds, European mothers were more elaborative than non-European mothers, and Asian mothers were less elaborative than non-Asian mothers. There were no significant differences between Māori and non-Māori mothers.

In addition to cultural differences in reminiscing style and content, it may also be that reminiscing relates to child outcomes in different ways for various cultural groups. In other words, culturally specific patterns of emotion socialization may in turn have culturally specific impacts on children's socioemotional and behavioral functioning. There is evidence that across cultures, more elaborative and emotional reminiscing is positively associated with children's emotional knowledge and self-concept (Wang, Doan, & Song, 2010; Yang & Wang, 2019). However, we know of two studies that highlight different associations between reminiscing and child outcomes across cultures. Carmiol and Schröder (2019) found that greater maternal emotion talk during reminiscing was concurrently associated with lower child problem-solving skills for Costa Rican dyads but not for German dyads. Interestingly, they did not note culturally specific associations for maternal book reading style, suggesting reminiscing may be an especially salient context. It should be noted that interaction effects were not specifically tested, rather correlations were run separately for the two cultural groups. The specific context of the conversation may also make a difference. Koh and Wang (2021) found a significant interaction between culture and reminiscing in predicting child mental health. Elaborating on negative emotions when discussing socially expected behavior was positively associated with children's later psychological functioning in a Chinese immigrant sample ($n = 22$), but the same technique was not associated with child outcomes in a Euro-American ($n = 33$) sample. Thus, cultural values may shape not only maternal reminiscing style, but also the function that reminiscing plays in children's adaptive socioemotional development.

The current study

To date, there are mixed findings regarding an association between reminiscing and internalizing and externalizing difficulties. Existing literature during middle childhood has been limited by small, selective samples. The present study sought to address this gap by examining whether maternal reminiscing relates to internalizing and externalizing difficulties during middle childhood within a large, diverse cohort: *Growing Up in New Zealand*. *Growing Up in New Zealand* has collected multiple measures across the domains of

child development over time, allowing us to control for a number of different covariates that might be related to both reminiscing style and children's internalizing and externalizing difficulties. The present study is a concurrent analysis of mothers' elaborative reminiscing and children's socioemotional functioning during middle childhood, when rates of both internalizing and externalizing difficulties are of concern and the evidence base is particularly limited.

Growing Up in New Zealand has followed almost 7000 children since the antenatal period. At the age 8 data collection wave (DCW), a total of 4476 participants completed the reminiscing task and provided consent for audio recording. Due to resource constraints, it was not feasible for all conversations to be transcribed and coded for the present study. Thus, of the total *Growing Up in New Zealand* participants, the decision was made to transcribe and code a subsample based on temporal order of collection. The 1404 mother-child dyads from the first phase of the age 8 DCW who consented to recording were included in the current study (see Morton et al., 2020 for more details). When children were 8 years old, dyads participated in a reminiscing task about a negative child-focused past event in the home. Transcribed conversations were coded using scale-based coding to measure maternal elaborative reminiscing (Laible et al., 2004). Scale-based coding of elaborative reminiscing is a better predictor of children's socioemotional functioning than is utterance-based coding, perhaps because the scale considers the overall balance of elaborations and repetitions in the conversations (Leyva et al., 2020). Unique associations were then tested between maternal reminiscing and children's internalizing and externalizing behavior, as rated by mothers on the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). A range of child, sociodemographic, and ethnic variables related to maternal reminiscing were also included within our analyses.

Based on our earlier research, the current study tested two hypotheses related to associations between maternal reminiscing and children's socioemotional functioning. Our primary hypothesis was that higher maternal elaboration would be associated with lower child scores on both internalizing (emotional problems and peer problems) and externalizing (hyperactivity and conduct problems) SDQ subscales, as well as total difficulties (internalizing plus externalizing subscales), after controlling for known sociodemographic predictors (see Swearingen et al., 2023) and for children's concurrent language skill. Given the relationship between elaborative reminiscing and emotion regulation, the latter of which has been found to play a role in enabling prosocial behavior (Eisenberg & Fabes, 1992), we also formed an exploratory hypothesis with this age group. Specifically, we predicted that children with more elaborative mothers would also score higher on the SDQ prosocial scale than children with less elaborative mothers, similar to Laible's (2011) findings with preschoolers.

Thirdly, we predicted that maternal ethnicity would moderate associations between maternal reminiscing and children's socioemotional functioning, as found in Koh and Wang (2021) and suggested by Carmiol and Schröder (2019). The four main ethnic groups of mothers in the study were New Zealand European, Asian, Māori, and Pacific (see Swearingen et al., 2023). Specifically, we predicted that mothers' elaborative reminiscing about these child-focused events would be associated with better socioemotional functioning for children of European mothers, but not necessarily for children of Asian mothers. We had no specific predictions for children of Māori or Pacific mothers, given that no research

has yet explored links between maternal reminiscing in those cultures and children's socioemotional development.

Method

Participants

The subsample for this study was selected from the broader cohort of participants involved in the longitudinal pre-birth cohort study, *Growing Up in New Zealand*. Detailed explanations of *Growing Up in New Zealand's* recruitment process and design are explained elsewhere (Morton et al., 2013, 2014). In brief, pregnant women were invited to participate in *Growing Up in New Zealand* if they resided within Auckland, Counties Manukau, or Waikato District Health Board (DHB) regions of the central North Island of New Zealand, and they had an estimated delivery date between April 25, 2009 and March 25, 2010. These DHB areas were chosen to ensure participants would be broadly representative of New Zealand's current population – particularly in terms of ethnicity, socioeconomic position, and urban or rural living environments.

The initial *Growing Up in New Zealand* cohort included 6848 children and is closely aligned with the New Zealand national birth data from this time (Morton et al., 2014). Face-to-face data collection waves (DCWs) began in late pregnancy (antenatal interview) and continued at 9-months, 24-months, 54-months, and 8-years. The current study primarily utilizes maternal sociodemographic data measured antenatally and child data collected at age eight. Mothers reported on children's gender in a telephone call at six weeks of age.

Initially, the current study included a subset of 1404 participants randomly selected from dyads who participated in the reminiscing task at age 8 ($n = 4476$). From this initial subsample, multiple births were removed from the dataset to avoid including the same mothers more than once ($n = 47$). An additional 58 conversations were excluded as they did not meet the criteria for coding: 1) the audio could not be transcribed; 2) the mother did not discuss a past event; 3) the conversation did not take place with the child's mother; 4) the dyad failed to choose a topic; 5) the dyad did not discuss one of the three event prompts; 6) the conversation was about a fantasy event; 7) the dyad chose not to participate; or 8) the conversation took place in a language other than English. Following these exclusions, the final sample consisted of 1299 participants (see Table 1 for a breakdown of participant demographics).

Data availability

Growing Up in New Zealand data is available by a formal data access application process only. Therefore data for this study is not openly available.

Procedure

Ethical approval for *Growing Up in New Zealand* was granted by the Ministry of Health Northern Y Regional Ethics Committee in 2008 before commencing the broader study (Morton et al., 2013) and ethical approval is sought before each new data collection point (approximately every two to three years). Data collection

Table 1. Breakdown of participant demographics for current subsample (N = 1299).

Maternal Characteristics	n	%
Age (years) at 8-year DCW (n=1299)		
<30	125	9.6
30–39	532	41.0
40–44	424	32.6
45+	218	16.8
Ethnicity (total response) (n=1293)*		
European	902	69.4
Māori	249	19.2
Asian	228	17.6
Pacific	153	11.8
MELAA**	24	1.8
Other (including New Zealander)	32	2.5
Highest education (n=1296)		
No secondary school qualification	63	4.8
Secondary School	277	21.3
Diploma/trade certificate	390	30.1
Bachelor's degree	340	26.2
Postgraduate degree(s)	226	17.4
Deprivation Index (3 groups) (n=1299)		
<3: Low	324	24.9
4–7: Medium	544	41.9
8–10: High	431	33.2
Child Characteristics		
Gender of Child (n=1299)		
Male	663	51.0
Female	636	49.0

Note: * Despite the small amount of missing data, the total response is more than 100% because mothers could nominate more than one ethnicity.

**Middle Eastern, Latin American and African.

for parent reports was completed via computer-assisted personal interviews, alongside child observation and parent-child data which was electronically recorded during the interviews. During these face-to-face collection points, trained interviewers visited children and parents in their home to obtain information across six domains; the current study will primarily include data collected from the parent-child observation task. An overview of measures used in *Growing Up in New Zealand* is recorded elsewhere (*Growing Up in New Zealand, 2018*). Separate informed consent for audio recording was obtained before commencing the interview. When permission was not granted, dyads were still able to proceed with the activity without audio recording.

Reminiscing conversations occurred near the end of the interview, when dyads were asked to discuss a time the child felt mildly upset, choosing from one of three event prompts: (1) disappointment: a time the child felt disappointed about something, such as a test or a sports game; (2) disagreement: a time the child was involved in a social disagreement with another child; or (3) injury: a time the child hurt themselves a little bit. Interviewers instructed dyads to choose one of the three topics and discuss the event as they usually would for as long as they usually would. Alongside verbal instruction from interviewers, dyads were provided with picture cards depicting each event category (e.g., the injury card depicted a child falling off their bike). Parent-child conversations were audio-recorded in their entirety for later transcription.

Measures and coding

Maternal elaboration

Audio recordings of the parent-child conversations were transcribed verbatim, with all identifying information removed. All conversations were first read and categorized into one of the event prompts: disappointment; disagreement; injury; other; or unable to be coded. In instances where dyads discussed more than one topic, the longest conversation was coded.

Transcribed conversations were coded using an adapted version of the scale-based coding scheme from Leyva et al. (2020) (see Appendix A). The original scheme was designed for use with preschool children and thus was adapted for use with the current age 8 cohort (see Swearingen et al., 2023). In brief, inferential yes/no questions, which function to continue the shared narrative with older children, were included as elaborative questions. Additionally, forced-choice questions were categorized as factual yes/no questions.

Using this scheme, mothers were assigned a final score between 1 (low) and 5 (high) reflecting the quality of their elaborative reminiscing style. Mothers who scored on the lowest end of the scale (1 point) predominantly introduced information in the form of factual yes/no questions, frequently repeated ideas, negated or failed to confirm the child's statements and restricted the child's opportunities to contribute to the conversation. Mothers scoring in the middle of the scale (3 points) used a balance of open-ended and closed questions, asked a moderate number of repetitive questions and confirmed and elaborated on about half of the child's conversational turns. Mothers given the highest score (5 points) primarily introduced new information in the form of open-ended questions, confirmed and elaborated on the child's input on most conversational turns and requested in-depth information about the event.

From the initial sample ($n = 1404$), a subset of 13.0% of the transcripts ($n = 173$) were coded by two independent coders for reliability. Inter-rater reliability was determined by an absolute agreement, mixed model, single measure intraclass correlation (ICC) value of .81. The remaining conversations were divided between the two coders, with each coder assigned roughly half of the conversations. Given the long duration of the coding process, earlier conversations were then re-checked to guard against coding drift. Once reliability was achieved, the two coders discussed any conversations where either coder was uncertain of a score and then agreed on a final score.

Strengths and difficulties questionnaire

The SDQ (Goodman, 1997) was used to measure children's socioemotional functioning in the current study. The SDQ is a widely used screening tool for child and adolescent psychological health and consists of 25 items, each rated by the child's parent on a 3-point Likert scale from 0 being "not true," 1 being "somewhat true," and 2 being "certainly true." Within the SDQ there are five subscales, four of which correspond to problem behaviors (emotional problems, conduct problems, hyperactivity, and peer problems), alongside one measure of prosocial behavior. The emotional problems and peer problems subscales assesses internalizing difficulties; the conduct problems and hyperactivity subscales assess externalizing difficulties.

Within the *Growing Up in New Zealand* 8-year DCW, mothers completed the SDQ via an electronic questionnaire before the face-to-face interview was conducted. Mothers answered

each of the 25 questions relating to their child's behavior over the last six months. SDQ scores were generated following the SDQ scoring manual with positively worded items reverse-coded for inclusion in problem subscales (www.sdqinfo.com). Composite scores were calculated by summing together children's scores for each of the five items within a subscale, with totals ranging from 0 through to 10, assuming all five items have been answered. Scale reliability of each subscale was assessed using Cronbach's alpha, with coefficients greater than .60 considered acceptable for the SDQ (Hawes & Dadds, 2004; Van De Looij-Jansen, Goedhart, De Wilde, & Treffers, 2011). For the current subsample, scale reliability was as follows: Emotional Problems ($\alpha = .66$); conduct problems ($\alpha = .61$); hyperactivity/inattention ($\alpha = .79$); peer problems ($\alpha = .64$); total difficulties score ($\alpha = .82$); prosocial behavior ($\alpha = .73$).

Children's language

During the child observation component at the 8-year DCW, children took part in the NIH Toolbox Cognition Battery. The measure consists of six different subdomains of cognitive functioning, all of which have been explained in detail in Weintraub et al. (2013). The current study used only the Picture Vocabulary Test (PVT), a measure of children's receptive vocabulary. In this task, children were presented with four images on an iPad paired with a spoken word and asked to identify which picture best matches the spoken word. Using Item Response Theory, a theta score was calculated for each child, depicting their overall performance in the measure. The current study used the child's age-adjusted scores to analyze children's performance in relation to the average vocabulary ability for their age group.

Sociodemographic variables

Maternal and child sociodemographic variables were measured repeatedly but for the current analyses were primarily taken from the antenatal or six-week timepoint to be consistent with Swearingen et al. (2023): maternal socioeconomic status; maternal ethnicity; maternal education; and child gender. Maternal age was at the time of the age 8 DCW. Area-level socioeconomic deprivation was measured using the New Zealand Deprivation Index 2006 (NZDep, Salmond, Crampton, & Atkinson, 2007) from the household address at the antenatal DCW. NZDep measures (in deciles) the level of deprivation within census areas based on variables measured during the 2006 census and was used as an indicator for the family's socioeconomic status. NZDep categories for the current study were: least deprived (deciles ≤ 3), moderately deprived (deciles 4–7) and most deprived (deciles 8–10).

Maternal ethnicity was collected at the antenatal DCW, and categorized into Māori and the broad ethnic groups of European, Pacific, Asian, Middle Eastern, Latin American and African (MELAA) and Other. Ethnicity data used in the current study is presented using the total response method (Reid et al., 2016). This method counts each mother within all the ethnic groups with which they have identified. Because mothers can identify with multiple ethnic groups, this practice can result in overlapping ethnicities, and responses therefore exceed 100%. In analyses, dummy variables were created separately for each ethnicity contrast (European vs non-European, Asian vs non-Asian, etc.).

Mothers also reported their highest level of education at the antenatal DCW. Education was scored as follows: No secondary school qualification (0); secondary school qualification (equivalent to 11 or 12 years of schooling) (1); secondary school diploma or trade certificate (2); bachelor's degree (3); or postgraduate degree (4).

Data analytic approach

Missing data

The amount of missing data varied across measures. For maternal sociodemographic variables, missing data was reported for total ethnicity ($n = 6$) and maternal education ($n = 3$). Children with two or more missing answers for a SDQ subscale were excluded from corresponding analyses. Specific participant numbers for the SDQ are presented in Table 2. Some missing data ($n = 126$) was also recorded for the PVT.

Selection of covariates

As reported in Swearingen et al. (2023), dyads who conversed about a past injury had significantly lower elaboration scores than dyads who chose social disagreement or achievement topics. Mothers' elaboration scores did not differ significantly by child gender, but mothers were more elaborative with children who had better concurrent language skills. These analyses also indicated differences in maternal elaboration scores as a function of maternal age, deprivation status, education, and ethnicity. Older mothers, those living in less deprived areas, those with higher educational qualifications, and those of European ethnicity were more elaborative in their reminiscing with their 8-year-old children (Swearingen et al., 2023). Specifically, mothers in the lowest deprivation areas were more elaborative than mothers in the highest deprivation areas. Mothers with a graduate degree were more elaborative than mothers with lower educational qualifications, and mothers with a bachelor's degree were more elaborative than mothers without a secondary school qualification. Finally, mothers of European ethnicity were more elaborative than those of non-European ethnicity, and mothers of Pacific and Asian ethnicities were less elaborative than mothers who did not report either Pacific or Asian ethnicities. We included all of these child and sociodemographic variables that were significantly associated with maternal elaboration in the main analyses.

Regression approach

To assess the unique associations between maternal elaboration and children's problem behaviors and prosocial functioning (Hypotheses 1 and 2), we then conducted a series of linear regression analyses using Hayes (2018) PROCESS with models predicting SDQ scores. Because our main focus was on understanding variation in SDQ subscales as a function of maternal elaborative reminiscing, maternal elaboration at age 8 was used

Table 2. Descriptive statistics and correlations between maternal elaboration, children's language, and children's SDQ scores.

Variable	N	M	SD	1	2	3	4	5	6	7
1. Maternal Elaboration	1299	2.92	0.97	–						
2. Child PVT	1173	102.01	13.29	.082**	–					
SDQ Scales	1156	1.53	1.70	–.082**	–.037	–				
3. Emotional										
4. Peer	1156	1.35	1.60	–.072*	–.05	.416**	–			
5. Hyperactivity	1153	3.07	2.31	–.039	–.090**	.251**	.299**	–		
6. Conduct	1156	1.36	1.45	–.041	–.115**	.318**	.337**	.493**	–	
7. Prosocial	1156	8.14	1.80	0.05	–.042	–.156**	–.273**	–.306**	–.491**	–
8. Difficulties	1156	8.05	6.03	–.092**	–.095**	.593**	.644**	.750**	.750**	–.459**

Note: ** $p < 0.01$, two-tailed.

* $p < 0.05$ level, two-tailed.

as a predictor variable of SDQ subscales, along with all significant covariates of maternal elaboration (maternal age, maternal ethnicity, area deprivation, education and child language). Both area deprivation (low vs. medium/high deprivation) and maternal education (University or trade qualification vs. secondary school/no formal qualifications) were dummy coded for inclusion in models. We ran separate regression models for each SDQ subscale: emotional problems, peer problems, hyperactivity, conduct problems, prosocial, and total difficulties. Maternal ethnicity was included as the moderator variable in each model to test Hypothesis 3, that the negative association between maternal elaboration and SDQ problem behaviors would be strongest for European mothers. Ethnicity was thus dummy coded to produce four cultural contrasts: European vs non-European; Māori vs non-Māori; Pacific vs non-Pacific; and Asian vs non-Asian. Thus, in each model testing the unique prediction of maternal elaboration to SDQ subscales, only one ethnicity dummy variable was included. Regression models were checked for distributions of normality and multicollinearity and there were no violations.

Results

Main analyses

Maternal Elaboration and Children's SDQ Scores

Overall, significant but weak correlations were observed between maternal elaboration and children's scores on SDQ subscales. Specifically, significant negative correlations were observed between maternal elaboration and children's emotional problems, peer problems and total difficulties scores on the SDQ. In all cases, higher maternal elaboration scores were associated with children's lower problem behavior scores. No significant association was observed between maternal elaboration and children's prosocial behavior. Bivariate correlation coefficients are presented in Table 2.

“Difficulties” = total difficulties score.

Regression analyses

Across all regression models with maternal elaboration predicting SDQ subscales, R^2 values ranged from .01 to .06, suggesting that the predictor variables collectively accounted for between 1% and 6% of the variance in SDQ subscales. The significance of all maternal demographic variables altered slightly with different regression models. Notably, maternal ethnicity never significantly moderated the association between maternal elaboration and SDQ subscales for any model (see Tables 3 and 4 for regression values for elaboration within each model and interaction terms). Below, we present each SDQ subscale separately in relation to maternal elaboration.

Models with emotional problems

Maternal elaboration was a unique negative predictor of children's scores on the emotional problems subscale for the models controlling for European ($B = -.23$, $p = 0.02$), Pacific ($B = -.12$, $p = 0.03$) and Asian ($B = -.12$, $p = 0.04$) participants. Thus, children who had more elaborative mothers scored lower for emotional problems (internalizing symptoms), even after accounting for other significant predictors.

Table 3. Regression model values for maternal elaboration predicting SDQ subscales (emotion problems, peer problems and hyperactivity) and moderation elaboration by ethnicity.

	<i>B</i>	<i>p</i>	<i>SE B</i>	<i>95% CI</i>	<i>R</i> ²	<i>Ethnicity: interaction with elaboration</i>	ΔR^2	<i>F</i>	<i>p</i>
<i>Models predicting SDQ emotion problems</i>									
Elaboration	-.23	.02	.09	-.41, -.04	.02	European vs non-European	.00	2.1	.14
Elaboration	-.10	.07	.06	-.22, .01	.02	Māori vs non-Māori	.00	.48	.48
Elaboration	-.12	.03	.05	-.23, -.01	.02	Pacific vs non-Pacific	.00	.03	.87
Elaboration	-.12	.04	.06	-.23, -.00	.02	Asian vs non-Asian	.00	.00	.98
<i>Models predicting SDQ peer problems</i>									
Elaboration	-.04	.63	.09	-.21, .13	.06	European vs non-European	.00	.01	.98
Elaboration	-.10	.07	.05	-.20, .01	.05	Māori vs non-Māori	.00	.56	.46
Elaboration	-.05	.31	.05	-.15, .06	.05	Pacific vs non-Pacific	.00	.85	.36
Elaboration	-.06	.29	.05	-.16, .05	.04	Asian vs non-Asian	.00	.35	.56
<i>Models predicting SDQ hyperactivity</i>									
Elaboration	-.11	.42	.13	-.37, .15	.02	European vs non-European	.00	.65	.42
Elaboration	-.02	.80	.08	-.18, .14	.02	Māori vs non-Māori	.00	.03	.85
Elaboration	.01	.93	.08	-.14, .16	.02	Pacific vs non-Pacific	.00	1.05	.30
Elaboration	-.02	.77	.08	-.18, .13	.02	Asian vs non-Asian	.00	.01	.93

Note: All models included the following covariates: maternal age, deprivation, education and child language. The ΔR^2 value and the *F*-value are presented for the moderator effect of ethnicity.

Table 4. Regression model values for maternal elaboration predicting SDQ subscales (conduct problems, prosocial and total difficulties) and moderation elaboration by ethnicity.

	<i>B</i>	<i>p</i>	<i>SE B</i>	<i>95% CI</i>	<i>R</i> ²	<i>Ethnicity: interaction with elaboration</i>	ΔR^2	<i>F</i>	<i>p</i>
<i>Models predicting SDQ conduct problems</i>									
Elaboration	-.05	.52	.08	-.21, .11	.02	European vs non-European	.00	.08	.77
Elaboration	-.06	.25	.05	-.15, .04	.02	Māori vs non-Māori	.00	.35	.56
Elaboration	-.03	.49	.05	-.13, .06	.02	Pacific vs non-Pacific	.00	.10	.75
Elaboration	-.08	.10	.05	-.18, .02	.02	Asian vs non-Asian	.00	2.40	.12
<i>Models predicting SDQ prosocial</i>									
Elaboration	.16	.13	.10	-.04, .36	.01	European vs non-European	.00	.35	.55
Elaboration	.11	.02	.06	.02, .26	.01	Māori vs non-Māori	.00	.78	.38
Elaboration	.11	.06	.06	-.00, .23	.01	Pacific vs non-Pacific	.00	.01	.93
Elaboration	.13	.04	.06	.01, .25	.01	Asian vs non-Asian	.00	.70	.40
<i>Models predicting SDQ total difficulties</i>									
Elaboration	-.65	.12	.34	-1.3, .01	.04	European vs non-European	.00	1.05	.31
Elaboration	-.36	.08	.20	-.76, .04	.04	Māori vs non-Māori	.00	.56	.45
Elaboration	-.33	.09	.20	-.71, .05	.04	Pacific vs non-Pacific	.00	1.13	.29
Elaboration	-.46	.03	.21	-.86, -.06	.04	Asian vs non-Asian	.00	.19	.66

Across all regression models, ethnicity was not a unique predictor of children’s scores on the emotional problems subscale. With respect to covariates, maternal age was also identified as a unique negative predictor of children’s scores on the emotional problems subscale for all ethnicity models (all *B*s = -.02, *p*s = .02-.03), with children of older mothers scoring lower for emotional problems.

Models with peer problems

Maternal elaboration did not remain a unique predictor of children’s peer problems in any model. Of the covariates, maternal age (all *B*s = < -.04, *p*s = < .00) and deprivation (all *B*s = < -.04, *p*s = < .00) remained unique negative predictors across all models. Thus, older mothers and mothers with lower levels of deprivation had children who scored lower on peer problems, even after accounting for other significant predictors. Additionally, for models for European (*B* = -.23, *p* = 0.04) and Asian (*B* = -.24, *p* = 0.03) mothers, education was

identified as a unique negative predictor of children's scores on the peer problems subscale. Mothers with higher levels of education had children with lower scores for peer problems.

Models with hyperactivity

Maternal elaboration did not remain a unique predictor of children's hyperactivity symptoms in any model. Of the covariates, maternal age (all $B_s = -.03$, $p_s < .04$) and maternal education (all $B_s = -.42$, $p_s < .02$) remained unique negative predictors across models. Thus, older mothers and mothers with higher levels of education had children who scored lower on the hyperactivity subscale. The significance level of other covariates varied depending on ethnic identification. For the models for European ($B = -.01$, $p = 0.03$), Pacific ($B = -.01$, $p = 0.04$), and Asian ($B = -.01$, $p = 0.03$) mothers, children's language scores were also unique negative predictors of children's scores on the hyperactivity subscale.

Models with conduct problems

Maternal elaboration did not remain a unique predictor of children's conduct problems in any model. Of the covariates, only children's language scores (all $B_s = -.01$, $p_s = .00$) remained a unique negative predictor across all models, with higher language scores predicting lower scores for conduct problems. In the model including Asian maternal ethnicity, ethnicity was a unique negative predictor of children's conduct scores ($B = -.08$, $p = 0.05$). Thus, children of Asian mothers had lower scores on the conduct problems subscale than did children of non-Asian mothers included in the current sample.

Models with prosocial behavior

Maternal elaboration was a unique positive predictor of children's scores on the prosocial behavior subscale for models with Māori ($B = .14$, $p = 0.02$) and Asian ($B = .13$, $p = 0.04$) maternal ethnicity. Thus, children of mothers who were more elaborative scored higher on the prosocial subscale, when accounting for all other significant predictors and Asian or Māori maternal ethnicity. Of the covariates, children's language was identified as a unique negative predictor of children's prosocial scores, but only for models with European ($B = -.01$, $p = 0.04$) and Māori ($B = -.01$, $p = 0.03$) maternal ethnicity. In both instances, higher language scores were associated with lower scores on the prosocial subscale.

Models with total difficulties

We also conducted a final set of models for children's total internalizing and externalizing difficulties scores on the SDQ, which is the total of the emotional problems, hyperactivity, peer problems, and conduct problems subscales. Maternal elaboration was a unique negative predictor of children's scores on the total difficulties subscale for the model controlling for Asian maternal ethnicity ($B = -.46$, $p = 0.02$). Thus, children who had more elaborative mothers scored lower for total difficulties (internalizing and externalizing symptoms), even after accounting for other significant predictors. Of the covariates, only maternal age (all $B_s < -.11$, $p_s = .00$) and education (all $B_s < -1.05$, $p_s < .03$) remained significant negative predictors of children's total difficulties scores. Additionally, children's language scores were identified as a unique negative predictor of total difficulties scores, however, only for the model with Asian maternal ethnicity ($B = -.03$, $p = 0.05$).

Discussion

The present study is unique in examining associations of maternal reminiscing with children's socioemotional functioning during middle childhood, within a large, sociodemographically diverse national cohort study. Prior research with this sample examined longitudinal maternal, child and sociodemographic predictors of maternal elaborative reminiscing (Swearingen et al., 2023). Maternal ethnicity, age, education, personality and infant temperament were identified as unique predictors of reminiscing. Our analyses predominantly focused on two aims: firstly, to understand how maternal elaborative reminiscing style was associated with children's internalizing and externalizing difficulties and prosocial behavior (as measured on the SDQ); and secondly, whether maternal ethnicity moderated an association between child functioning and maternal elaboration. Partially in line with our predictions, maternal elaboration was negatively associated with children's internalizing behavior (as measured on the emotional problems subscale) and positively associated with children's prosocial behavior, albeit weakly, after controlling for multiple sociodemographic factors. Contrary to our expectations, maternal elaborative reminiscing was not uniquely associated with children's externalizing behavior. Nor did maternal ethnicity moderate the relationship between maternal elaboration and children's internalizing or externalizing behavior. Overall, these findings provide important insights to the understanding of maternal reminiscing style and children's developing socioemotional competence during middle childhood, particularly in the unique cultural context of New Zealand.

Maternal elaborative reminiscing and children's SDQ scores

Our finding that maternal elaborative reminiscing is uniquely associated with children's lower emotional problems (a component of internalizing difficulties) joins a growing body of literature examining associations between reminiscing and children's socioemotional functioning. Our reminiscing and SDQ data is concurrent, so we cannot make inferences about the direction of causality. But these findings are in line with suggestions that more elaborative reminiscing may be positively associated with children's developing socioemotional capabilities. We know from earlier literature that engaging in elaborative and emotion-rich reminiscing has positive effects for children's understanding of their emotional self and emotion regulation skills (Laible, Panfile Murphy, & Augustine, 2013; Laible, 2011; Salmon & Reese, 2016). Moreover, poor emotion regulation has been identified as a unique predictor of children's increasing internalizing symptomology (Kim-Spoon, Cicchetti, & Fred, 2013). Conceptually, elaborative reminiscing should be associated with fewer internalizing behavioral problems by strengthening children's emotional regulation skills. This link has been validated in clinical populations, such that mothers of children with internalizing disorders engage in less elaborative reminiscing with their children (Suveg et al., 2008; Suveg, Zeman, Flannery-Schroeder, & Cassano, 2005). Further, maternal sensitive guidance during reminiscing mediated the relationship between child maltreatment (by parent) and child emotion regulation. These findings point to reminiscing as a potential mechanism in the development of child emotion regulation (Speidel, Valentino, McDonnell, Cummings, & Fondren, 2019).

It may also be that parents of children with fewer emotional difficulties are elaborating more on negative emotional topics because they perceive their children as capable of regulating through the discussion. In turn, parents of children experiencing more emotional difficulties may be elaborating less in an attempt to manage perceived distress, essentially engaging in less in-depth discussions in an attempt to protect their child; or parent low elaboration may reflect emotional or experiential avoidance (Tiwari et al., 2008). Our data cannot speak to either direction of causality nor parent rationale. These findings do however contribute to a small body of literature highlighting an intriguing association between parental reminiscing and child socioemotional functioning. Further longitudinal research with repeated measures of reminiscing and child functioning is needed to tease apart the direction of causality and better understand the parental mechanisms that underlie this relationship.

Contrary to our predictions, maternal elaborative reminiscing was not negatively associated with children's externalizing behaviors (conduct problems and hyperactivity). Instead, associations were solely observed with internalizing behaviors (as measured on the emotional problems subscale). Our results are in line with most earlier work depicting a significant association with internalizing behavior during middle childhood (Fivush & Sales, 2005; McDonnell, Lawson, Speidel, Fondren, & Valentino, 2022; Suveg et al., 2008; Suveg, Zeman, Flannery-Schroeder, & Cassano, 2005). There may be several reasons why we did not find an association between elaboration and externalizing behavior as demonstrated in some prior studies. Both Van Bergen, Salmon, and Dadds (2018) and Swetlitz, Lynch, Propper, Coffman, and Wagner (2021) who did find an association measured reminiscing at a mean age of 5 years. It may be that elaborative reminiscing functions differently in the preschool/early childhood stage compared with middle childhood (Loth, Drabick, Leibenluft, & Hulvershorn, 2014). Generally, across development there is a decrease in the exhibition of externalizing behaviors, in parallel with an increase in internalizing behaviors (Gilliom & Shaw, 2004). This behavioral pattern has been attributed to age-related cognitive maturation, which allows children to better reflect on the past and their actions, in turn, increasing potential for ruminative behavior (Gilliom & Shaw, 2004). Our findings of an association with internalizing, but not externalizing, difficulties in this older age group may reflect this. Cultural differences across the samples may also help to explain the different findings. While the New Zealand, Australian (Van Bergen, Salmon, & Dadds, 2018) and US (Swetlitz, Lynch, Propper, Coffman, & Wagner, 2021) cultures share similarities, direct comparisons have not been drawn between reminiscing and we can expect that cultural differences would arise. For example, Russell, Hart, Robinson, and Olsen (2003) identified difference in aggressive and sociable child behavior and parenting styles across Australian and US contexts.

Although Swetlitz's (2021) design was longitudinal, like our study, we both measured maternal reminiscing at only one point in time. Thus, it is important to consider the potential direction of the observed relationship between maternal reminiscing and children's behavior. It may be that mothers are adapting their reminiscing style based on their children's externalizing or internalizing behavior difficulties. For example, children with externalizing behavioral problems may have more difficulty attending to and engaging in reminiscing conversations. Consequently, mothers may struggle to facilitate highly elaborative conversations, in turn, developing a low-elaborative reminiscing style. Future longitudinal research should include measures of parent attachment or

sensitive responding. It may be that some parents respond and adapt their reminiscing to their child's style, which may be potentially influenced by early temperamental tendencies (Swearingen et al., 2023), whereas others do not. In addition, findings may differ for children with externalizing symptoms within a population cohort such as *Growing Up*, compared with children experiencing clinical conduct problems. There is some evidence of an association between conduct disorder and attachment insecurity (Theule, Germain, Cheung, Hurl, & Markel, 2016) and that parents of children with conduct disorder may become "stuck" in negative coercive cycles when interacting with their children (Granic & Patterson, 2006).

With regard to children's prosocial behavior, we found a novel association between maternal elaborative reminiscing and children's higher scores on the prosocial subscale. This finding likely arises due to the important role emotional regulation plays in one's ability to react in socially adaptive ways and enact prosocial behaviors (Williams & Berthelsen, 2017). More elaborative mothers may also be supporting children to develop more adaptive social resolution strategies (Bird & Reese, 2006), and/or parents of more prosocial children may feel more comfortable to engage in elaborative discussion about negative emotions. While a link between reminiscing and prosocial behavior has been less extensively studied, earlier research has connected increases in prosocial behavior with elaborative reminiscing through the development of emotion knowledge and regulation. For example, Laible (2011) found an association between maternal elaboration during negative past-event talk and preschool children's higher prosocial relationship behavior. In this study, mothers' validation of negative emotions was positively associated with children's representation of prosocial relationship themes during the conflict task in the MacArthur story-stem battery (Laible, 2011).

Interestingly, however, the present study did not identify maternal elaboration to be correlated with prosocial behavior in bivariate analyses. Instead, this association only emerged within regression models and was significant for when controlling for Māori and Asian maternal ethnicity. This pattern likely explains why maternal elaboration was not initially correlated with prosocial behavior, given European families made up the majority of the present sample. Moreover, differences in prosocial effects may reflect a cultural variance in the reason families engage in reminiscing conversations. For example, non-Western cultures more commonly utilize reminiscing for teaching purposes, focusing on appropriate behavior within the group context (Doan & Wang, 2010). This emphasis on teaching appropriate behavior, particularly within the context of maintaining group harmony, may in turn be associated with increases in prosocial behavior for non-western cultures. As noted previously, Koh and Wang (2021) found evidence for cultural moderation for mothers' confirmation of children's emotional causes during reminiscing. Cultural differences in the significance of reminiscing for children's prosocial behavior could thus reflect variations in reminiscing content, which were not explicitly coded for in the current study. More detailed analyses regarding cultural and ethnic differences in reminiscing content are crucial for better understanding our present findings. Following Koh and Wang (2021), prosocial effects may be specific to elaboration upon emotion causes and consequences, indicating a need for the inclusion of emotion resolution coding.

Ethnic moderation of the link between maternal elaboration and children's socioemotional functioning

As demonstrated in an earlier analysis of the longitudinal predictors of maternal reminiscing on this sample (Swearingen et al., 2023), we found differences in mothers' elaborative reminiscing as a function of their ethnicity. Asian mothers were less elaborative, and European mothers were relatively more elaborative in their reminiscing. Despite these differences, and inconsistent with our hypotheses, maternal ethnicity was not found to moderate the association between maternal elaboration and children's socioemotional functioning. This finding partially aligns with earlier literature, suggesting that more elaborative and emotion-focused reminiscing is universally beneficial to children's psychosocial adjustment (Koh & Wang, 2021). However, as proposed in Wang (2021), the operationalization of reminiscing within a cultural context means both reminiscing style and socioemotional outcomes are culturally defined. Hence, much of this earlier literature shows a slight variance in the socioemotional implications of reminiscing, resulting from culturally specific stylistic differences. For example, reinforcing children's socially expected behavior has been linked with Chinese children's increased adaptive behaviors but not European children's (Koh & Wang, 2021). Thus, although elaborative reminiscing may be generally beneficial, there appear to be certain aspects of reminiscing of which the psychosocial implications are culturally dependent. It will be important to develop new ways of understanding and coding reminiscing conversations among other cultural groups. For example, kaupapa Māori describes an approach to research that steps away from Western ideologies and is developed by Māori, for the benefit of Māori (Walker, Eketone, & Gibbs, 2006). Such an approach to reminiscing would likely identify aspects to these conversations that are important beyond elaboration (see Neha, Reese, Schaughency, & Taumoepeau, 2020; NiaNia, Bush, & Epston, 2016). Further reminiscing research with non-Western cultures should also consider the type of events being discussed. Previous research in New Zealand has found that Māori mothers were more elaborative when discussing events of relevance to the wider system rather than child-centric conversations (Reese et al., 2008). Any moderation of a relationship between SDQ and reminiscing by ethnicity may also be impacted by the validity of the SDQ across ethnicities. Research within New Zealand suggests that the "screening for problems" focus of the SDQ was perceived as unhelpful by Māori, Pacific, Asian and immigrant parents, and does not adequately consider the cultural contexts within which children are developing (Kersten et al., 2014).

Limitations

The present study yields clearer insight into the socioemotional implications of emotion reminiscing during middle childhood. Nonetheless, there are a number of limitations which must be accounted for when interpreting results. Firstly, the effect sizes of the overall models were weak. For instance, the predictor variables included in current analyses accounted for only up to 7% of variance in children's SDQ scores, with maternal elaboration accounting for a significant but small portion of this variance. Effect sizes this small limit conclusions which can be drawn about the practical importance of reminiscing. The effect sizes in the current study are smaller than those typically found for associations of reminiscing with child outcomes. There are a number of issues related to data collection

which may have contributed to error in measurement of both reminiscing and child outcomes. Only one reminiscing conversation was able to be included (due to the large, transdisciplinary nature of the *Growing Up in New Zealand* study) whereas most reminiscing studies ask dyads to talk about two or three events. The reminiscing conversation also occurred toward the end of a relatively long data collection session in participants' homes; multiple potential distractions may have meant that the conversations were truncated or stylistically different to their typical way of interacting. In addition, we measured elaboration using a scale-based coding approach. There may be specific aspects of an elaborative style that are particularly important for socioemotional outcomes during middle childhood (e.g., elaborative questions related to the child's emotional experience or how they managed a situation) that were not measured. Children's own contributions may also account for a significant amount of variance during middle childhood, but were not able to be measured as well given the large sample size. The SDQ was based on parent report, and youth self-report, particularly of internalizing symptoms, may be a more sensitive indicator.

Secondly, the concurrent and correlational study design presents a critical shortcoming in understanding any direction of causality between reminiscing and child functioning. While our pattern of results suggests that maternal elaboration is uniquely associated with positive implications for children's internalizing and prosocial behaviors, the present study design impedes our ability to infer causation or capture the direction of this relationship. Instead, our results could be interpreted as an increased capability for mothers to engage in elaborative reminiscing when their children present with fewer internalizing problems and greater prosocial skills. Although no claims can be made with the current data, it is likely that the observed relationship between maternal elaboration and children's socioemotional skills is bidirectional. Previous longitudinal research shows that young children's characteristics and participation shape mothers' early elaborative style, which then shapes children's contributions to reminiscing conversations (Farrant & Reese, 2000; Haden, Ornstein, Rudek, & Cameron, 2009; Reese, Haden, & Fivush, 1993). As the present study was the first to look at children's problem behavior as a correlate of maternal elaboration, further research is required to ascertain the direction of this association. Such research would be longitudinal in the first instance, with both maternal reminiscing and children's socioemotional functioning measured at all datapoints. If maternal reminiscing does predict decreases in children's later internalizing difficulties, then researchers could adopt an experimental study design to test whether increasing maternal elaborative reminiscing in turn decreases children's internalizing problems during middle childhood.

Like much of the emotion reminiscing research, the present study focused solely on the role of mothers. However, fathers too contribute to reminiscing conversations, and potentially exhibit differences in reminiscing styles compared to mothers (Fivush, Marin, McWilliams, & Bohanek, 2009; Zaman & Fivush, 2013). Additionally, as children progress through to adolescence, their relationships with peers take on increasing importance (Davies, 2011). Subsequently, these conversations with friends and romantic partners are also likely to support (or not) their emotional processing. Thus, future research could expand beyond the scope of mother-focused reminiscing to include children's conversations with peers and fathers, or other family members. Such research may increase our understanding of the socioemotional implications of reminiscing

within a context which more accurately reflects the evolving social landscape of middle childhood and adolescence.

Conclusions

In sum, the present study provides evidence of unique associations between maternal elaboration and internalizing and prosocial behaviors during middle childhood. To date, this is the only study to examine this association within a large, culturally, and socio-demographically diverse sample. Notably, the current study fills a gap in the literature, displaying the importance of emotional reminiscing beyond the preschool years for children from a diverse range of socioeconomic and cultural backgrounds.

Looking forward, our results may be useful in informing intervention studies. Experimental research would help clarify the direction of current results and have important implications in the development of reminiscing based interventions during middle childhood. To date, the majority of reminiscing interventions have focused on encouraging parents to engage in elaborative and emotion-rich conversations about the past. Reminiscing interventions have been with either typically developing, socio-economically disadvantaged or externalizing problem populations (Corsano & Guidotti, 2019). The current findings add to the reminiscing literature by suggesting that reminiscing interventions may also have potential benefits for children with internalizing difficulties during middle childhood. These interventions may support children to develop the necessary socioemotional skills to ease their transition into adolescence, in turn, playing a part in mitigating the progression of early problem behaviors to clinical diagnoses. Moreover, the field should continue to expand on current cultural knowledge, recognizing cultural deviations from the Euro-centric classification of “adaptive” emotion socialization techniques.

Disclosure statement

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