Parental Mind-Mindedness and Children's Helping Behaviour

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Abstract

Prosocial behaviour in children is related to many positive outcomes in the social and educational domains. Therefore, it has been of interest to researchers to study the antecedents of these behaviours. This research project examines the relationship between parental mind-mindedness and children's helping behaviours, exploring whether mind-mindedness could be an antecedent. Parental mind-mindedness has been found to relate to children's social competence development, such as acceptance and interactions with school-aged peers. However, few studies have looked at mind-mindedness in relation to early developing prosocial behaviour. This study hypothesized that mind-mindedness would be positively associated with toddler's prosocial actions as measured by their readiness to help an experimenter in need. One hundred and eighty-four parent-child dyads were assessed for parental mind-mindedness and helpful behaviour on helping tasks ranging in difficulty.

The results showed that the relationship between mind-mindedness and children's behaviour on simple helping tasks was weakly, but statistically significantly correlated. However, this association went away after controlling for parental verbosity. Mind-mindedness was unrelated to children's performance on more difficult helping tasks. These findings were not aligned with the expectation. Reasons why were outlined and future recommendations were made to examine the relationship between children's developing prosocial behaviour and the role that parental behaviour and language, such as mind-mindedness might play.

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Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

Signed:

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Parental Mind-mindedness and Children's Helping Behaviours

Mind-mindedness

Mind-mindedness is primarily explored in the context of a parent or caregiver, capturing the parent's proclivity to treat an infant or child as an individual who has a mind of their own (Meins & Fernyhough, 2015). It involves a caregiver's attention to, and understanding of their infant's mental state and the interpretation of the child's behaviour being a result of those mental states (McMahon & Bernier, 2017). A mental state is defined as the current state of a person's mind and includes emotions, preferences, motivations, and goals (McMahon & Bernier, 2017). Mind-mindedness is understood and researched through parents' speech toward their children and centres on mind-related comments. Mind-related comments consist of the parents voicing aloud what they determine is on their child's mind and their attributions of their child's internal mental state (Meins, 2013). These comments are categorised into either appropriate or non-attuned comments. An appropriate mind-mindedness comment occurs when the parent's comment seems to be an accurate representation of the child's internal state (e.g., a parent saying, 'You found that funny didn't you?' when a child is laughing). A non-attuned comment occurs when the parent seems to be misreading the child's internal states (e.g., 'You're feeling happy.' when the child is crying) (McMahon & Bernier, 2017). Mind-mindedness is understood as an aspect of the caregiver-child relationship and therefore a relational construct, focused on the proclivity of a parent to interpret their child's behaviour as a function of their mental states and voice this (Meins, et al., 2011). The concept emerged through drawing from attachment and social-cognitive theory, with the suggestion that it was an aspect of parental responsiveness and sensitivity.

Conceptualization. Mind-mindedness was conceptualized by Meins (1997), who hypothesized that it was an important concept in developing children's social and cognitive capacities and was central to the cultivation of a secure attachment (Meins, 1997; Meins et al., 2001). Mind-mindedness stemmed from early attachment security research. It was based on Ainsworth's (Ainsworth et al., 1974) proposal that a mother's ability to see something from the child's perspective and, to accurately gather the intention of an infant's signals was needed for the mother to provide an appropriate response to the

child's need (McMahon & Bernier, 2017; Meins, 2013). Ainsworth proposed that this ability was called parental sensitivity, which refers to the degree to which a parent is able to interpret and respond accordingly to an infant's cues (Ainsworth et al., 1974). The concept of mind-mindedness was developed to refine the measurement of sensitivity as there seemed to be a lack of consensus around the exact behaviours encompassing parental sensitivity (Meins et al., 2001). For instance, in Ainsworth's maternal sensitivity scale, no guidelines are provided about what specific behaviours to look for or if the frequency of seeing those behaviours present in the mother should be considered important (Meins et al., 2011; Pederson et al., 1990). Subsequent research (e.g., Shai & Meins, 2018) shows that mind-mindedness is a separate but connected linguistic component of the broader construct of sensitivity (see also McMahon & Bernier, 2017). Shai & Meins, (2018) measured attachment and both maternal mind-mindedness and sensitivity. They found mind-mindedness to be an independent predictor of attachment security which demonstrates that mind-mindedness is a construct that does not include and is separate from the nonverbal aspect of sensitive parenting.

The second influence on the conceptualisation of mind-mindedness was Vygotsky's theory (Vygotsky & Cole, 1978) that higher mental functions are learned through interacting with others and mediated linguistically. Children's social and cognitive understandings are developed through the scaffolded reflections of their and others' behaviours (Carpendale & Lewis, 2004; McMahon & Bernier, 2017). Therefore, parents who vocalise the attributed meaning behind children's behaviours, (e.g., a parent commenting that the child threw their food because they did not like it) help those children to develop an understanding of those mental states. Thus, further aiding in the development of awareness of those mental states and their connection to their and others' behaviours (McMahon & Bernier, 2017).

Mind-mindedness and Developmental Outcomes. Since its development mind-mindedness has been researched alongside several psychological constructs. This literature suggests that it is related to a host of positive social and cognitive outcomes for children (for a review see, McMahon & Bernier, 2017). To demonstrate, Meins, Centifanti et al., (2013) studied the relationship between mothers' appropriate mind-minded comments and children's behavioural difficulties. They found that

internalised (e.g., withdrawal) and externalised (e.g., aggression) behavioural difficulties at 44 and 61 months old were negatively related to higher maternal mind-mindedness. However, this relationship was only found in the low socioeconomic groups and not in the high. They theorized that these results could be due to increased mind-mindedness promoting a reduction of maternal stress and thereby a reduction of hostile responses to the child. To elaborate, it is theorised that having access to the thoughts and feelings that determine the child's behaviour, allows the mother to cope with behaviours that were difficult and would otherwise be interpreted as simply misbehaving. In line with the above findings, other studies have explored mind-mindedness and how it relates to attachment security (Arnott & Meins, 2007; Lundy, 2003; Shai, & Meins, 2018), behavioural and educational outcomes (Colonnesi et al., 2019; Meins, Centifanti et al., 2013; Meins et al., 2018), emotion understanding (Centifanti et al., 2015), and the theory of mind (Goffin et al., 2020; Kirk et al., 2015; Lundy, 2012; Meins et al., 2002).

Another study examined the relationship between mother's and father's mind-mindedness on behavioural difficulties, as well as their positive behavioual aptitudes. Colonnesi's et al., (2019) investigated the combined effect of mother and father's appropriate and non-attuned mind-related comments at four, 12 and 30 months, on children's social competence and externalising and internalising behavioural problems at four and a half years. Social competence was defined as being able to take others' perspectives and to comfort, help, collaborate and negotiate with others. They hypothesized that parents' mind-mindedness could aid in children's social competence and behavioural problems by enhancing children's trust in parents, self-regulation (e.g., taking time to themselves when they feel overstimulated) and socio-emotional development. The results showed that mothers and fathers' mind-mindedness compensated for one another, but if both parents were low in appropriate mind-minded comments at 12 and 30 months, children had more externalising problems at four and a half years. If both parents had more non-attuned comments at 12 months then this was correlated to children's lessened social competence. They also found that mothers' non-attuned mind-mindedness at 12 months and fathers' non-attuned mind-mindedness at 30 months were predictive of children's externalising behaviours. They theorised that the consistent misunderstanding of children's mental states (i.e., high non-attuned mind-minded comments) and the lack of correct interpretation (i.e., low

appropriate mind-minded comments) could be obstructing the development of children's ability to interpret others' mental states. This could in turn lead to more externalising problems and decreased social-competence. Thus, mind-mindedness is a useful and important concept because it is linked to children's behavioural outcomes and therefore, understanding the antecedents of it and continuing to determine its outcomes is a worthy pursuit.

The above papers demonstrate that parents who show more appropriate mind-mindedness have children who are more securely attached, better able to perceive and understand emotions and mental states, show fewer internalising and externalising problem behaviours and overall seem to do better in school (McMahon & Bernier, 2017). However, there has been less focus on how mind-mindedness relates to younger children's social behaviour towards other people. One area of research related to mind-mindedness and children's interpersonal interactions is in the realm of theory of mind.

Theory of Mind

The construct of theory of mind (ToM) is defined as the general ability to understand one's own mental state and to comprehend that other people possess their own mental state and therefore understand that others have their own perspective (Eggum, et al., 2011; Imuta, et al., 2016). ToM is then used to understand the mental processes of others, such as their goals, beliefs, desires, and emotions, and to recognise how this influences others' behaviours. ToM understanding when an individual is an infant has been shown to be related to their understanding of ToM later in life, as well as to academic performance, memory, sociomoral competence and positive social relations (Goffin, et al., 2020; Wellman, 2018). A meta-analysis on ToM and popularity and acceptance among peers found that better ToM significantly predicts increased peer acceptance (Slaughter et al., 2015). Additionally, it was found that ToM predicted peer social maturity and helped children to develop positive relationships with their peers and teachers (Wellman, 2018). Which in turn affected their academic performance (Buhs, & Ladd, 2001; Wellman, 2018). This shows that ToM is an important concept across many aspects of psychology and in particular, for interpersonal outcomes.

Mind-mindedness and Theory of Mind. Growing research demonstrates that appropriate mind-minded comments aid the development of ToM (Devine & Hughes, 2018; Goffin et al., 2020; Kirk et al., 2015; Lundy, 2012; McMahon & Bernier, 2017; Meins et al., 2002). Meins et al., (2002) investigated the relationship between appropriate and non-attuned mind-minded comments, security of attachment and children's subsequent ToM. Mothers were videotaped interacting with their six-month-olds in a 20-minute free play session and their utterances were coded for mind-mindedness. ToM was measured at two age phases (i.e. 45 months and 48 months old), using age-appropriate tasks including the deceptive box and the unexpected transfer task. The results showed that children performed better on the ToM tasks if they had higher verbal IQs, mothers who were more highly educated, and mothers who commented appropriately on their mental states and processes at six months. ToM performance was not related to the mother's non-attuned mind-minded comments, attachment security or the number of older siblings. Of particular significance, there was no relation between attachment security and ToM, demonstrating that mind-mindedness was a better predictor of ToM than the attachment style of the child.

Similarly, Kirk et al., (2015) studied the relationship between maternal mind-mindedness at 10, 12, 16 and 20 months of age and children's ToM at five to six years of age. Mother's mind-mindedness was assessed in home during a free play task and children's ToM was measured using 12 strange stories (e.g., a story about lying, Happé, 1994). They found that appropriate mind-related comments at 10, 12 and 20 months had a significant positive correlation to children's scores on the strange stories task. They found no relationship between non-attuned comments and children's ToM. It is theorised (Meins, et al, 2002) that the mechanism underlying how mind-mindedness affects ToM is that children make the connection between what they are doing, their behaviour, and the external comment made by their parent which references a mental state term (i.e., an appropriate mind-minded comment). Hearing and seeing these links between behaviour and appropriate mental state terms repeatedly, serves as a scaffold to improve their understanding of their own and others' mental states (i.e., their ToM). Meins, et al., (2002) theorised that the mechanism of this could be that exposure to mind-minded language from a

very young age provides children with a scaffold upon which they can decipher and understand that their behaviour is related to their mental states

The above evidences a growing number of studies that demonstrate that mothers' appropriate mind-minded comments scaffold infants' emerging understanding of mental states underlying their own behaviours allowing them the insight to understand the mental states of others. These results are particularly important as there is a strong link between a lack of ToM and negative social interpersonal outcomes for children (Kirk et al., 2015), including diminished prosocial behaviour.

Prosocial Behaviour

Increased appropriate mind-minded comments have been shown to promote the development of ToM. An important related aspect of this is the ability of children to act on their ToM understandings. Prosocial behaviour is an example of this, as it requires the child to first understand other people's mental states, such as their perspectives, goals and emotions, and then to act upon that understanding to help others. Prosocial behaviour is defined as voluntary action that promotes another's well-being and benefits them (Grazzani et al., 2015; Imuta et al., 2016). It includes behaviours such as sharing, cooperating, comforting and helping (Grazzani et al., 2015; Imuta et al., 2016).

Prosocial Behaviour and Theory of Mind. There are many studies that explore the relationship between ToM and developmental social outcomes, sociomoral competence, understanding of morals, criticism, and conduct (Eggum et al., 2011; Goffin, et al., 2020; Imuta, et al., 2016; Slaughter et al., 2002; Slaughter et al., 2015; Wellman, 2018). Furthermore, many studies have specifically explored ToM and prosocial behaviour (Imuta, et al., 2016). Imuta et al., (2016) conducted a meta-analysis of 76 studies from 12 different countries, including 6,432 children between two and 12 years old. The analysis demonstrated that ToM is significantly related to children's prosocial behaviour. It was a small but robust effect, as the meta-analysis covered all types of ToM tasks and three types of prosocial behaviour, helping, comforting and cooperating. It was hypothesized (e.g., Imuta et al, 2016) that the mechanism behind the relationship between ToM and prosocial behaviour could be due to the

awareness of others' needs, goals and feelings and utilising this awareness to perform prosocial voluntary actions. Furthermore, there could be a feedback loop whereby engaging in prosocial behaviours encourages the development of a more nuanced ToM. In other words, as children act prosocially they learn more about the emotions and feelings that these acts produce.

Early Prosocial Behaviour. Past research has focused on examining the contribution of parents to their child's developing prosocial behaviour. Brownell (2016) argues that early prosocial behaviour is socialized, and that parents begin this socialisation process as early as infancy. This can be done by providing prosocial standards such as caring, sharing and helping around the house to their toddlers. Brownell, et al. (2012) found that parents who more often labelled and explained emotions had children who more readily helped and shared. Additionally, studies have shown that empathetic prosocial responses to others in children between 18 and 30 months of age are related to responsive and emotionally available parenting by mothers (Brownell, et al., 2012; Kiang, et al., 2004; Moreno, et al., 2008), reasoning-based discipline, modelling of prosocial behaviour and encouraging children to contribute for the good of the family (Brownell, & Drummond, 2018; Eisenberg et al., 2015).

Prosocial behaviour is a broad concept that encompasses multiple subtype behaviours including helping, comforting, sharing and cooperating (Imuta et al., 2016). Helping seems to be the first subtype of prosociality that emerges, typically after a child turns one-year-old (Ross & Lollis, 1987). In the second year of life, children start to better understand the mental states of others (Brownell & Carriger, 1990; Imuta et al., 2016) and children's prosocial behaviour gradually increase and becomes more nuanced, diverging into sharing, comforting and cooperating behaviours (Brownell, 2016; Warneken & Tomasello, 2007; Imuta et al., 2016). Therefore, past research has explored prosocial behaviour in young children using helping tasks (Svetlova et al., 2010). Even within one subtype of prosocial behaviour (e.g., helping), there can be different types. Svetlova et al., (2010) explored the developmental trajectory of children's helping between the ages of 18 months and 30 months, focussing on three types of helping and the different understanding required for each: children's instrumental helping, empathetic helping and altruistic helping. Instrumental helping involved helping the

experimenter with a goal-oriented action (i.e., helping an experimenter reach a means to their end) and required an earlier developing understanding of goals and goal-oriented behaviour. Empathetic helping involved the child acting to alleviate a negative emotion of another. This demands the ability to respond prosocially to another's emotional distress, which is associated with the growing development of self-awareness (Brownell, 2016). Finally, altruistic helping meant that the children would have to give something of their own to help the experimenter. Altruism involved a cost to the child. For each of the conditions, the children received a score of one to eight with eight being the highest (i.e., most spontaneously helpful) and one reflecting only helping after the experimenter explicitly asked them to perform the helping action (e.g., 'Can you bring me the toy'). The results showed that there was a significant difference between age groups, with the 30-month-olds helping more often than the 18-month-olds. Older children demonstrated more helpful behaviour across all three types of helping tasks. Children of 30 months had a greater ability to infer others' needs based on more subtle behavioural cues (Svetlova et al, 2010), likely their ability to infer the needs of others is related to their understanding of internal mental states (e.g., how they would feel if they gave up a toy and how the experimenter would feel upon receiving that toy (altruistic condition)). Furthermore, in the instrumental helping condition both groups of children brought the target object significantly more often and earlier than in the empathetic condition, and they did so significantly more in the empathetic condition than in the altruistic one. This is reflected in the finding that the cognitive and affective demands on children to understand and also differentiate from their own emotions are much higher in empathetic and altruistic, helping tasks than in instrumental action-based helping tasks (Svetlova et al., 2010). Thus, whilst Svetlova's study and those investigating ToM in relation to prosocial behaviour (e.g., Imuta et al., 2016) show a link between mental state understanding and children's prosocial responding, these studies do not include any measures of parental discussion of mental states. However, based on the above-summarised literature, it is understood that children's understanding of internal mental states (e.g., emotions) is related to their parents' use of mind-related comments. Therefore, it would be important to discern if variation in children's prosocial behaviour (e.g., helping) is related to their parent's speech about the mental states required to act in prosocial ways.

Mind-mindedness, Theory of Mind and Prosocial Behaviour. As previously mentioned mind-mindedness is associated with ToM and an important topic for exploration is the ability of children to act upon ToM understandings, such as through prosocial behaviour. One study that has explored something similar is Goffin, et al., (2020), where the relation between parental mind-mindedness and children's conscience as understood through children's ToM was investigated. In Goffin's study, their measure of prosociality is conscience, defined as the inner moral sense of what is right or wrong that monitors and determines actions. Prosociality was measured in the study through children's discomfort after reading about transgressions (e.g., when a protagonist has to choose between stopping to help an injured person which would mean missing out on their plans with their friend) and the choice that the child would have made if they were the protagonist (Goffin et al., 2020). Children's prosocial choice (e.g., choosing to help the injured) were scored higher than non-prosocial choice (e.g., go see the friend instead). Goffin et al., (2020) examined parental mind-mindedness when the children were seven months and used false belief tasks to measure children's ToM at four-and-a-half years old and five-and-a-half years old. Finally, they measured the above-described discomfort following reading about transgressions and prosocial third-party judgements based on a story at six-and-a-half years old. Goffin and colleagues determined that an increase in mothers' but not fathers' appropriate mind-minded comments was associated with greater ToM skills at four-and-a-half years old and five-and-a-half years old. Further, children's ToM was associated with conscience measures. To elaborate, better ToM skills were associated with more prosocial judgement to help the injured. Therefore, they determined that maternal mind-mindedness had an indirect effect on child conscience (i.e., prosociality), mediated by ToM. This study demonstrates that maternal mind-mindedness mediated by ToM does affect children's prosocial reactions. However, prosocial reactions were measured in an indirect way in the Goffin et al. study, relying on six-and-a-half-year-olds' judgments of what they would do if they were a protagonist in a story involving someone who was hurt. This third-party judgment does not guarantee that children's real-life physical behavioural responses would be similarly helpful. Furthermore, six-and-a-half-year-olds have had experience socialising with children at school, thus it is difficult to know for sure if socialization at school may have accounted for some of the prosocial responses on the third-party story task. As indicated above in the literature, children far younger than six and a half are capable of

engaging in prosocial behaviour including helping behaviour (Svetlova et al, 2010). Further researchers (Brownell et al, 2012), have demonstrated that parents can socialize their pre-schoolers to be more prosocial. Therefore, research is needed to see if the link between parental mind-mindedness and prosocial behaviour is evident at an earlier age (preschool) and when children must engage in prosocial behaviour in a first-person manner. Thus, the current study aims to address the gap in the research examining young children's prosocial behaviour and parental mind-mindedness.

Importance and Rationale

To summarise, research shows that children's prosociality relates to a host of social and educational outcomes. This includes social functioning, positive peer and adult relationships, status and popularity, academic achievements, and accomplishment of own needs (Brownell, & Drummond, 2018; Eisenberg, et al., 2006; Eisenberg, et al., 2015; Eggum, et al., 2011; Rose-Krasnor & Denham, 2009). Additionally, children who are less prosocial are more likely to behave aggressively and disruptively, deal with peer rejection and have poorer academic achievements (Brownell, & Drummond, 2018; Eisenberg, et al., 2006). Children with higher prosociality enhance their classroom functioning via initiating positive interactions with their peers and being responsive and respectful towards adults. Prosocial behaviour and all it encompasses is fundamental to social organisation and to human morality (Brownell, 2016).

As its importance is evidenced, the desire to understand what promotes prosocial behaviour in children naturally strengthens. There is a need to examine and explain the antecedents to it and the reasons behind variations in individuals. As previously mentioned, an important aspect of acquiring and learning prosociality is socialisation, through things such as verbal encouragement, responsive parenting, and labelling emotions (Brownell, et al., 2012; Brownell, & Drummond, 2018; Eisenberg et al., 2015; Kiang, et al., 2004; Moreno, et al., 2008). Subsequentially, research shows that increased prosocial behaviour has been linked to increased ToM in children (Imuta, et al., 2016; Sukru Aydin, & Karakelle, 2016). This is likely due to the increased understanding of mental states and that other people have their own mental states. This awareness allows children to act in ways that respond to said mental

states, whether that be another person's goals, happiness, sadness, or desires. Svetlova et al. (2010) theorised that different forms of helping require a stepwise understanding of mental states starting with inferring another's goals to more complex understandings of how others are feeling. Further examination of helping behaviour in children could involve exploration of parental differences and how this accounts for differences in children's helping scores. Based on this research, the current study hypothesizes that mind-mindedness could be of particular relevance to developing and promoting prosocial behaviour in children. Mind-mindedness is a result of parents being more attuned to their children's mental states (McMahon & Bernier, 2017). Exposure to appropriate mind-minded comments allows children to make sense of their behaviour according to the language that describes the mental states that lie beneath the behaviour. This allows them to understand that other people's behaviour is a result of their personal thoughts and perspectives. This in turn would likely result in children who are more likely to understand and respond to the mental states of others by helping them. Following this rationale, it is probable that we will see a relationship between parental mind-mindedness and children's helping behaviours.

Current Study

The current study will explore whether there is a positive relationship between parental mind-mindedness and their children's helping behaviour. Helping has been selected as the focus of the present study as helping behaviour is a subtype of prosociality that is one of the earliest to emerge in young children (Imuta et al., 2016). Further, the one other study which has investigated a link between mind-mindedness and children's prosocial responses used a third-party vignette involving helping as the target behaviour (Goffin et al., 2020). This research is a quantitative design where parents' mind-mindedness scores will be compared to the corresponding child's scores on four helping tasks which cover instrumental helping (e.g., picking up a dropped item) to empathetic helping (e.g., providing an item to cheer up someone who is sad). It is hypothesised that similar to past studies (e.g., Goffin et al., 2020) non-attuned mind-mindedness scores will not be associated with children's helpfulness. It is hypothesised that parents with higher appropriate mind-mindedness scores will have children with

better/higher helping scores. This is likely due to mind-mindedness allowing children to better take the perspectives of others, such as their goals and emotions and act accordingly.

Methods

Participants

Participants in the sample were a part of a larger longitudinal study conducted at the Early Learning Lab (University of Auckland) investigating prosocial behaviour development across early childhood. Participants in the longitudinal study were recruited from a database of families who expressed interest in being a part of developmental research. The current study utilizes sample data from timepoint four when children were nearly two years of age. The initial longitudinal sample consisted of 254 parent-child dyads. Of those 254, 59 parent-child dyads were excluded because they did not complete the task used for mind-mindedness coding and 13 were excluded because they did not complete the helping tasks used for the helping scores. The total sample after the exclusions was 182 parent-child dyads.

Parents. There were very few occasions where it was neither the mother nor father who brought the child into the lab. There were five non-parent dyads, and, in those instances, it was required that the person was still a primary caregiver of the child. The sample consisted of a vast majority of mothers, with 161 women, 15 men and six of whom did not report gender. Parents were between 24.83 and 50.5 years of age ($M = 34.72$, $SD = 4.69$). Of the 137 who reported, 67% of parents completed some other tertiary qualification.

Children. The children consisted of 97 males and 83 females, with two not reporting gender. Their ages ranged from 20.83 months to 27.56 months ($M = 22.70$, $SD = 1.29$). Parents and caregivers reported their children to identify with the following ethnic groups: New Zealand European ethnicity (62%), New Zealand European and Māori ethnicity (.09%), New Zealand European and Asian ethnicity (.06%), New Zealand European and other European ethnicities (.03%), and New Zealand European and

Pacific ethnicity (.02%). Eight percent included solely Māori, Pacific, Asian, Asian and other European ethnicities, New Zealand European and Middle Eastern Latin American African ethnicity, those of three ethnicities or more, and unspecified other ethnicities, and an additional 11 participants did not report.

Measures and Procedures

Parent-child dyads came to The University of Auckland to participate in multiple tasks as part of the fourth wave of data collection, including the helping and mind-mindedness play sessions. The data was gathered in one visit.

Parental Mind-mindedness

Parental mind-mindedness was assessed during a two-minute parent-child puzzle play session when children were aged approximately 22 months. Parents were asked to engage in a structured play task in which a puzzle is provided, and the parent was instructed that the puzzle did not need to be finished but to play with their children as they typically would at home. Then parents and children were left alone in the room to play as they would do at home.

Coding. These interactions were videotaped, and the videotaped sessions were later transcribed verbatim, each comment was recorded on a single line. A comment was defined by temporal discontinuity, utterances were separated by at least a one-second pause. The transcript and videos were then coded according to Meins and Fernyhough's (2015) Mind-Mindedness Coding Manual. The transcripts were used to code parents' mind-minded language. Mind-minded language includes comments that explicitly refer to the child's mental state, such as, what the child may be thinking, experiencing, or feeling or comments that 'put words in the child's mouth', where the parent is talking on the child's behalf (Meins & Fernyhough, 2015). For example, 'You like puzzles, don't you?' which reflects a child's desire.

These comments were then compared to the observational videos to assess whether they fit into one of two categories: appropriate or non-attuned. A mind-minded comment was categorized as

appropriate if it met one of three criteria (Meins & Fernyhough, 2015). First, if the researcher agreed with the parent's reading of the child's current internal mental state, (e.g., 'Are you excited?', when their child smiles and laughs). Or second, if the comment links the child's current activity with similar events in the past or future, (e.g., 'You like puzzles, you do them all the time at home'). Or third, if the comment clarifies how to proceed after a lull in the interaction (e.g., 'Do you want to play with the puzzle?' after their child has been standing, not attending to anything specific for a moment). A mind-minded comment was categorized as non-attuned if it met the following criteria. The researcher disagrees with the parent's reading of the child's current internal state (e.g., 'You want to play with the puzzle' when the child drops a puzzle piece and moves away from the puzzle), the comment refers to a past or future event that is unrelated to the child's current activity (e.g., 'Do you want to see Nana tonight?' when there has been no mention of Nana before this), or the parent asks what the child wants to do or suggests that they become involved in a new activity when the child is already actively engaged playing with or attending to something else (e.g., 'Do you want to do this puzzle piece?' while the child is actively using another puzzle piece). In other instances, the parent may appear to be attributing internal states that are not implied by the child's behaviour and which appear to be projections of the adult's own internal states onto the child, or the referent of the parent's comment is not clear (e.g., 'You want to see Daddy, don't you?' while the child is happily playing) (Meins & Fernyhough, 2015).

To summarize, for each transcript, the individual instances of mind-minded speech were identified, and then those comments were compared to the behavioural observation of the interaction in the video to identify if the comment was appropriate or not attuned. A second researcher coded 20% of the sessions; the interrater agreement was $\kappa = .87$. For both appropriate and non-attuned, mind-mindedness scores were calculated using the total number of mind-related comments (frequency scores) and as a proportion of total comments (proportional scores) to control for verbosity. Thus, for instance, the higher a parent's appropriate mind-minded score, the more often the caregiver used appropriate mind-minded comments.

Children's Helping Behaviour

Children completed four helping tasks, two instrumental helping tasks and two empathetic helping tasks. All tasks were video recorded, roughly taking two minutes each. The order of the tasks was randomized both within and between children.

Peg Clipping Task. The peg clipping task was adapted from Warneken & Tomasello, (2006). It is an instrumental helping task as it requires the child to aid the experimenter in achieving an interrupted goal. The experimenter clips square pieces of fabric to a clothesline and proceeds to drop a clothespin out of reach. The child's target behaviour was to hand the clothespin to the experimenter.

Hair Clipping Task. This clipping task is adapted from Svetlova et al., (2010). The experimenter first shows the child a hair clip that they have and demonstrates their hair being in their eyes and how they use the clip to keep it out of their eyes. Later, the assistant experimenter places a tray with three items, including one hair clip, in front of the child and the experimenter shows the child that their hair is in their eyes and demonstrates their goal by unsuccessfully trying to move their hair away from their face. While Svetlova et al., (2010) categorized this as an empathetic helping task, they acknowledged that the lines were blurred as this task was also in response to the blocked goal of needing to get the hair out of the experimenter's eyes. Here we have categorized this as an instrumental task as it is goal-directed and requires the child to aid the experimenter in completing the action of moving their hair from their face that has been interrupted. The child's target behaviour is to hand the hair clip to the experimenter.

Wrapping Task. The blanket wrapping task is adapted from Svetlova et al., (2010). The experimenter shows the child their blanket and whilst wrapping it around themselves reminds the child that it keeps them warm. A little later, the assistant experimenter places a tray with three items, including the blanket, in front of the child and the experimenter shows the child that they are cold. They shiver, rub their arms, and say 'brr', while looking distressed. The aim is for the child to relieve the experimenter's distress; therefore, this is categorized as empathetic helping. The child's target behaviour is to hand the blanket to the experimenter.

Toy Dog Task. This task is adapted from Svetlova et al., (2010). In this task, the experimenter shows the child a toy dog and explains to the child that this dog makes them happy while hugging it. A few minutes later the assistant experimenter places the dog on a tray with two other items, near the child. The experimenter shows the child that they are sad, sitting down, crying and sighing. Once again, the aim is for the child to relieve the experimenter's distress, making this an empathetic helping task. The child's target behaviour is to hand the toy dog to the experimenter.

Communicative Cues. During each task, the experimenter gradually provides more explicit communicative cues regarding their goal. The children are scored based on which point they help the experimenter. The scores range from zero to three. A score of zero means that the child did not help, they did not perform the target behaviour at all. A score of one means that the child did perform the target behaviour but only after they were explicitly asked by the experimenter, (e.g., 'Please, can you give me the blanket?'). A score of two is given when the child performs the target behaviour after the experimenter verbally communicates that there is something in general that they are in need of, (i.e. 'I'm cold.'). A score of three is given if the child performs the target behaviour based on the experimenter's non-verbal cues such as rubbing arms or crying. Therefore, higher scores indicate a child who more spontaneously or readily helped when they saw the experimenter drop or desire an object.

Coding. Post-session, the video observations were coded using the above communicative cues coding scheme. The experimenter gives the child gradually more explicit communicative cues regarding what their goal is and the children were scored based on the point that they perform the target behaviour. For each child, zero to three was assigned for each helping task that they completed. A second blind researcher coded 20% of the videos to ensure that coding was reliable, peg task ($\kappa = 1$), hair clip task ($\kappa = 1$), blanket task ($\kappa = 1$), dog task ($\kappa = 1$).

Results

A spearman's rho correlation was used to analyse the relationships between variables and to test the hypothesis that an increase in parental mind-mindedness would correlate with an increase in children's helping scores. The non-parametric correlation was used as the data did not meet all of the assumptions of a Pearson's correlation.

Preliminary Analyses and Descriptive Statistics

We first examined whether demographic variables of maternal age, caregiver gender, qualification, child gender and child age correlated with any of the main variables of interest. As expected, parents' age had a very weak but statistically significant correlation; $r(134) = .18, p = .04$, to parents having a tertiary qualification. Children's age had a very weak but statistically significant negative correlation with the total number of comments made by parents; $r(180) = -.15, p = .04,$ and non-attuned comments; $r(180) = -.21, p = .005$. Thus, the older the child, the more their parents speak to them during the puzzle session and the less likely their parents are to produce non-attuned mind-related comments. Child gender was found to be significantly positively correlated with helping scores on the wrapping task; $r(174) = .25, p < .001,$ and the hair clipping task; $r(172) = .22, p = .004$. Parents' appropriate mind-minded comments had a very weak positive correlation to their total comments; $r(180) = .29, p < .001$, as did parents' non-attuned mind-related comments; $r(180) = .18, p = .01$. There were no other significant correlations between the demographic variables and the main variables of interest.

The helping tasks were expected to correlate highly with each other as children who do well in one task were hypothesized to do well in other helping tasks. However, there were only weak positive correlations between most of the helping tasks. As shown in Table 1 below, the peg task was very weakly positively correlated at the $p < .05$ level to the hair clipping task and at the $p < .01$ level to the toy dog task. The hair clipping task was also weakly positively correlated at the $p < .01$ level to the wrapping task and the toy dog task. The wrapping task was also weakly positively correlated at the $p < .01$ level to the toy dog task. But the peg task and the wrapping task were not significantly correlated

with one another. Therefore, in the main analyses, we examined helping scores separately for each of the tasks rather than amalgamating them into one total helping score.

During the puzzle session, parents produced on average 58 comments, but few of those were mind-minded in nature. Female caregivers ($M = 59.63$, $SD = 20.20$) on average produced significantly more overall comments than did male caregivers ($M = 51.93$, $SD = 8.85$); $t (174) = -1.5$, $p = .15$. There were no significant differences between male ($M = 1.67$, $SD = 1.54$) and female ($M = 1.76$, $SD = 1.94$) caregivers in the number of appropriate mind-minded comments $t (174) = -.18$, $p = .86$. Nor between male ($M = .80$, $SD = 1.01$), and female ($M = .80$, $SD = 1.30$) caregivers in the number non-attuned mind-minded comments $t (174) = -.004$, $p = 1.0$.

As seen from the means and standard deviations presented in Table 1 below, children showed better helping on average in the peg task than in the other three tasks. Furthermore, there was greater variability in children's helping scores in the peg task than the other three tasks. Independent t-tests were performed for each of the helping tasks to test for gender differences. Female children ($M = 1.11$, $SD = .95$) scored significantly higher than male children ($M = 0.68$, $SD = .78$) in helping in the wrapping task; $t (17) = -3.3$, $p = .001$. Additionally, female children ($M = .93$, $SD = .70$) scored significantly higher than male children ($M = 0.64$, $SD = .60$) in helping in the hair clipping task; $t (17) = -2.9$, $p = .004$.

Main Analyses

Table 1 presents the observed means, standard deviations, and correlations among the frequency of parents' mind-minded comments and children's helping behaviours. There was a statistically significant positive association between parents' appropriate mind-minded comments and non-attuned mind-minded comments. The correlation was weak and significant at the $p < .001$ level. Parents who used more appropriate mind-minded comments were also likely to provide more non-attuned mind-minded comments. There was a very weak but statistically significant positive correlation between parents' appropriate mind-minded comments and children's helping scores on the peg clipping

task. Parents who provided more appropriate mind-minded comments had children who scored higher in helping on the peg-clipping task However, there was no significant relationship between appropriate mind-minded comments and the hair clipping, wrapping or toy dog task. Furthermore, parents, non-attuned mind-minded comments were unrelated to children's scores on the four helping tasks.

Table 1. *Spearsman Rho Correlations between Mind-mindedness and Helping Scores*

Measure	*M(SD)*	1	2	3	4	5	6
1. Appropriate Mind-minded Comments	1.75 (1.91)	---					
2. Non-Attuned Mind-minded Comments	0.80 (1.8)	.32**	---				
3. Peg Clipping Task	2.18 (1.7)	.15*	.07	---			
4. Hair Clipping Task	0.88 (0.89)	-.03	-.04	.17*	---		
5. Wrapping Task	0.75 (0.70)	.09	.10	.14	.39**	---	
6. Toy Dog Task	0.79 (0.67)	.03	.06	.23**	.32**	.41**	---

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

Given that parents varied in their total number of comments made during the puzzle task and that there were gender differences in the total number of comments made. It could be that parents who produced mind-minded comments, in particular, appropriate mind-minded comments, were those who overall just talked more (which is likely given the positive correlation between total comments and appropriate mind-minded comments and non-attuned seen in the preliminary analyses). To control for this possibility, we examined mind-minded comments as a proportion of the total comments that parents made, thus controlling for overall verbosity. Table 2 presents the observed means, standard deviations, and correlations among the proportional mind-minded comments of parents and children's helping behaviours. When controlling for parental verbosity appropriate and non-attuned mind-minded comments were still positively correlated at the $p < .01$ level, this time the correlation was very weak. However, there is no longer a correlation between parents' appropriate mind-minded comments and children's performance on the peg task. There remained no correlation between appropriate mind-minded comments and the other helping tasks and between non-attuned comments and all helping tasks.

Finally, it was intended to run a multiple linear regression. However, the main variables of interest, appropriate and non-attuned comments and helping scores, were not linearly correlated with each other, therefore, the regression was not gone ahead with.

Table 2. *Spearman Rho Correlations between Proportional Mind-mindedness and Helping Scores*

Measure	*M(SD)*	1	2	3	4	5	6
1. Appropriate Mind-minded Comments	1.75 (1.91)	---					
2. Non-Attuned Mind-minded Comments	0.80 (1.8)	.28**	---				
3. Peg Clipping Task	2.18 (1.7)	.10	.05	---			
4. Hair Clipping Task	0.88 (0.89)	-.01	-.03	.17*	---		
5. Wrapping Task	0.75 (0.70)	.09	.10	.14	.39**	---	
6. Toy Dog Task	0.79 (0.67)	.02	.08	.23**	.32**	.41**	---

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

Discussion

Summary

The purpose of this study was to examine the relationship between parental mind-mindedness and children's helping behaviours. Both frequency and proportional correlations were run with slightly differing results. When using the frequency scores of parental mind-mindedness, the results showed that there was a weak positive association between parental appropriate mind-minded comments and children's scores in the peg clipping task. However, when controlling for parental verbosity and using the proportional scores this association was no longer seen. There were no significant relationships between appropriate comments and the other helping tasks. Nor was there a significant association between non-attuned comments and any of the helping tasks. Child gender was significantly positively related to the wrapping and hair clipping helping scores. Female children scored significantly higher in the wrapping and hair clipping task than male children. These findings are discussed in more detail below.

Parents' Appropriate Mind-mindedness and Children's Helping Behaviour

The main hypothesis for this study was that parents who produced more appropriate mind-minded comments would have children who helped others more spontaneously. At first, this association was weakly supported when correlations were run with frequency scores of parents' appropriate mind-related comments and children's helping scores on the peg task. In line with expectations, parental mind-related comments which were attuned to their child's mental states positively related to how children performed on the peg clipping task. Goffin et al., (2020) also found that appropriate mind-mindedness was related to an increase in prosocial behaviour. These weak findings suggest a trend supporting the theorised mechanism between mental state understanding and prosocial responding, which is that children who have more repeated exposure to their parents using mental state comments which accurately reflect their behaviour are also the children who are better able to engage in a behaviour response when shown an experimenter who evidences a goal they cannot attain alone (goals

being one example of a mental state). However, when proportion scores were used to control for parents' verbosity the association was lost. Thus, there is not enough evidence to draw any conclusions between mind-mindedness and helping at this time. Likely any high frequency scores in appropriate mind-mindedness that was seen were simply representative of parents who talked more overall. Once that was controlled for, and likely in the process removed any outliers, the association with helping goes away. Interestingly, in the mind-mindedness literature, both frequency and proportional scores are used. Sometimes, research papers will only report frequency data (Crucianelli et al., 2019; Laranjo et al., 2008) which begs the question if controlling for verbosity should be a requirement for all who are doing mind-mindedness research.

One possibility as to why there was a weak correlation only between appropriate mind-mindedness scores and children's helping on the peg clipping task (prior to controlling for verbosity) was because there was more variability in children's scores on this task compared to any of the others. This meant that this variability could be compared to parents' mind-mindedness scores. Investigating if two variables have a linear relationship requires that there are some children who score high and others who score low in the data (in this case children's helping scores), in the case of the three other helping tasks there was very little variability in scores. What is seen are floor effects, whereby very few children (if not no children) scored higher than a one or a zero. This means that for the wrapping, hair clip and toy dog tasks, children either only performed the target behaviour after being explicitly asked or did not complete it at all. Therefore, because there were very few differences between the children it is hard to correlate these with the differences in parents. If there was more variability there might be more similar results to the peg task. However, the floor effect of seeing children score mostly zeros and ones suggests that children, at on average 22 months old, are finding these tasks difficult to perform.

Despite mind-mindedness and helping not being significantly correlated after controlling for parental verbosity, it was seen that children performed better overall on the peg clipping task, getting higher scores and being able to help more spontaneously. The results that the peg clipping task was easier for children than the wrapping and toy dog tasks met expectations as the peg clipping task is an

instrumental task. In the second year of life, there are big developmental changes in children's prosocial behaviour (Svetlova et al., 2010). Instrumental helping is aiding another person to reach an action-based goal. This appears to be the earliest helping behaviour, appearing at 12-14 months. Furthermore, it remains the most consistent type of helping behaviour from 12-30 months (Svetlova et al., 2010). This type of helping requires less complex inferences about another person's predicted action and goals, compared to emotion-based helping. The wrapping and toy dog tasks were categorised as empathetic helping. Empathetic helping emerges later in development, with research showing that there is an increase between 24-36 months old (Song et al., 2022). Empathetic helping requires children to use more sophisticated socio-cognitive abilities. Socio-cognitive development includes the cognitive changes in children that allow them to better perform in social situations (Hine, 2013). With empathetic helping, children have to recognise someone's emotional state, that this state is different from their own and then identify how to respond to the other person to help them (Song et al., 2022). The results from the current study are in line with the literature and demonstrate that the socio-cognitive abilities required for empathetic helping at these ages (i.e., 22 months) are still developing which could be why not much variance is seen in the helping scores for the empathetic tasks and more is seen for the peg task. Additionally, while some children did not complete the empathetic helping tasks, the ones that did required more communicative support from the experimenter than they did in the instrumental task. This aligns with the literature that children require more scaffolding and explicit communication for tasks that are more socio-cognitively challenging (Svetlova et al., 2010). This scaffolding and communication are likely part of the socialisation process and provide evidence that this is an essential part of children developing prosocial behaviour.

An unexpected result in this study was that children performed better on the peg clipping task than the hair clipping task. The hair clipping task was categorised in the instrumental helping condition due to it requiring the child to help the experimenter to complete the goal of getting their hair out of their eyes. As previously mentioned this helping task did have some blurred lines as to whether it was more appropriate to be categorized in the instrumental or empathetic condition. If the task required empathetic understanding, this meant that there was a need for children to recognise the experimenter's

frustration due to their hair being in their eyes. Additionally, the peg task had quite a clear goal. The experimenter dropped the peg on the ground while they were trying to hang something up. Whereas, for the hairclip task as well as the toy dog and wrapping tasks, children were presented with a tray that had three items on it. The child had to first identify which one was relevant to the experimenter before being able to perform the helping task. There were times when the child could identify that the experimenter needed something and would hand the experimenter an item from the tray but it was not the target item. Therefore, it was likely easier for children to identify the target object in the peg task as it was a single object to choose from and the experimenter had clearly just had it. The possible goal plus empathic understanding requirements in the hair-clip task could have led to these unexpected results of the peg task being easier for children (as seen in the higher average score on this task) than the hair clipping task despite them both being in the instrumental category. These results demonstrate that children are still developing the more complex abilities required to understand and identify less obvious goals based on communicative cues from others. This in addition to the previously mentioned reasonings could be leading to reduced variability and is potentially why there was no significant relationship between parental mind-mindedness and children's helping.

Parents' Non-Attuned Mind-minded Comments and Children's Helping Tasks

In line with the hypotheses, the results that parents' non-attuned comments were not significantly correlated to children's helping behaviour was not surprising. The literature suggests that mind-mindedness is a multidimensional construct with appropriate and non-attuned comments seeming to have unique and independent effects (Meins et al., 2011). Furthermore, Meins et al., (2002) and Kirk et al., (2015) found children's ToM performance was positively related to maternal appropriate mind-minded comments but had no relation to mother's non-attuned comments. If, as was hypothesised, any effects of parental mind-mindedness on children's prosocial behaviour is by means of its effect on children's understanding of their own and others' mental states, then these results are to be expected. Therefore, the current study results align with the literature that parental non-attuned comments do not significantly affect children's subsequent ToM. This suggests that non-attuned mind-related comments might not have any effect on children's helping behaviours as it does not seem to affect children's

ability to conceptualise that other people have independent mental states that influence their behaviour which in turn affects their engagement in prosocial behaviour based on those understandings.

Children's Gender and Helping Tasks

The results showed that there was a significant positive correlation between gender and the hair clipping and wrapping tasks. Independent t-test results showed that female children scored significantly higher than male children in the wrapping and hair-clipping tasks. Therefore, gender differences seemed to be accounting for some of the variances in children's helping scores (keeping in mind the low variability and floor effects). The results of this study align with many reports that girls perform better than boys in empathetic concern and prosocial behaviour (Eisenberg & Fabes, 1998; Imuta et al., 2016; Longobardi et al., 2019; Lonigro et al., 2014; Van der Graaff et al., 2018). Most research holds that emphasis is placed on different characteristics in the socialisation of girls and boys. Generally, girls are socialised to be more nurturing and empathetic, and boys are directed to being more assertive and competitive (Kuhnert et al., 2017; Longobardi et al., 2019). This could result in girls being more likely to engage in prosocial behaviour such as helping as this is what has been modelled and promoted during their early socialisation.

In contrast to this interpretation, Hine (2013) argued that the gender differences seen in prosocial behaviour were not a result of actual gender differences in prosocial proclivity but instead a result of research into prosocial behaviour using measures that were part of the feminine genre of prosocial behaviour and excluded masculine types of prosocial behaviour. He argued that the traditional behaviours studied such as helping, sharing, and comforting are not broad enough and do not encompass more masculine type prosocial behaviour such as providing physical assistance and standing up for others (Hine, 2016). One recent meta-analysis by Xiao et al., (2019) seemed to align with this interpretation. They found that gender differences in prosocial behaviour were small to medium but larger differences were found for 'gender-typed' prosocial behaviours (e.g., altruistic and public prosocial behaviours) than 'gender-neutral' ones (e.g., anonymous prosocial behaviour). The results showed that females performed better in the female-typed prosocial behaviour categories (i.e., altruistic,

compliant, and emotional) and males had higher scores for male-typed prosocial behaviour (i.e., public). These results suggest that there are gender differences in prosocial behaviour but that the types of prosocial behaviour being studied should be considered. This could be in part why gender accounted for some of the variances in helping scores in the current study. Additionally, it demonstrates the important role that socialisation plays in the way that children develop their prosociality.

Implications

Despite the results of the current study not supporting the proposed hypothesis, this study contributes to the understanding of mind-mindedness and prosocial behaviour in early childhood. Past research has examined parental mind-mindedness and its effects on children's behavioural outcomes (McMahon & Bernier, 2017). However, the current study is one of the first to look at mind-mindedness in relation to prosocial behaviour, specifically helping behaviour. Therefore, it adds to the literature that examines how parental language and responsive understanding of their child's wants, thoughts and emotions is related to children's developing socio-cognitive abilities and helping behaviour. Thus, laying the foundation for future research into these domains.

Children's prosocial behaviour is associated with numerous positive social and educational outcomes (Brownell, & Drummond, 2018; Eisenberg, et al., 2006; Eisenberg, et al., 2015; Eggum, et al., 2011; Rose-Krasnor & Denham, 2009). Therefore, it has captured the attention of many researchers, prompting them to explore the contributing factors to its development. One implication of these findings is that prosocial behaviour and the socio-cognitive abilities required to engage in it are still developing in the second year. This is demonstrated by the lack of helping scores above one in the more socio-cognitively demanding empathetic helping tasks. This shows that children require increased explicit communication to understand and act upon the more complex emotional needs of others compared to the goal-oriented needs of others. Following on from this, children's differing abilities in the helping tasks point to children's social understanding and ability to act helpfully towards others being linked. There seems to be clear evidence that children rely on explicit communication and scaffolding in their early years to promote their understanding of others' mental states and needs, and to know how to

engage in prosocial behaviour based on that. This aligns with the literature that emphasizes the vital role of human support as children obtain new abilities (Carpendale & Lewis, 2004; McMahon & Bernier, 2017; Svetlova et al., 2010; Vygotsky & Cole, 1978). These findings add to knowledge about the development of prosocial behaviour.

Limitations

There are some limitations in this research. The sample included modest ethnic diversity with the majority (63%) being of New Zealand European ethnicity. Additionally, during the study mind-mindedness was only assessed for two minutes, as it requires the use of a free-play session like the puzzle session and in the longitudinal study, this was the only free-play task utilized. Other studies spent up to 20 minutes assessing parental mind-mindedness (Meins, Centifanti, et al., 2013; Meins et al., 2018). This may limit the current study as had there been more time there could have been more opportunities for caregivers to make mind-related comments. Furthermore, the amount of mind-minded comments parents made was very low compared to previous studies (Meins, & Centifanti et al., 2013; Meins & Fernyhough et al., 2013). Had there been more time caregivers may have produced more comments and mind-minded comments allowing for more variation to work with.

Recommendations

Given the findings of this study, further research could assess parental mind-mindedness and children's prosocial behaviour at differing ages. The very little variability in three out of four helping tasks implies that children at on average 22 months still found these tasks difficult. Other studies such as Goffin et al., (2020) and Kirk et al., (2015) assessed children's ToM or conscience between four-and-a-half years to six-and-a-half years of age. Future research could follow this design and use an older sample of around four to six years old to test prosocial behaviour. At 22 months old children are finding the helping tasks quite difficult, producing a floor effect. Therefore, assessing prosocial behaviour at these older ages could allow for greater development in children's socio-cognitive abilities resulting in more variation in the helping tasks which could be correlated to mind-mindedness.

Additionally, although in the present review of the literature, the theoretical pathway between mind-mindedness and prosocial behaviour was via ToM, evidently, ToM was not measured in the current study. This is because the data was drawn from longitudinal data that had already been collected and ToM was not measured at the fourth time point. Furthermore, most tests of ToM suggest that an observable measure of passing ToM tasks tends to emerge when children are nearly four years of age, thus there are few measurements of ToM which could be implemented with children less than two years old. However, given the recommendation that the age of the sample of any future studies should be increased, false belief tasks (e.g., Wellman & Lui, 2004) would be suitable to include for future studies. Therefore, further research could investigate ToM as a mediator between parental mind-mindedness and children's prosocial behaviour. Exploring whether mind-mindedness indirectly impacts prosocial behaviour through ToM (e.g., Goffin et al., 2020).

Finally, further research could explore if there is an interaction between mind-mindedness, gender, and type of prosocial behaviour. The findings of this study showed that gender could be playing a part in some of the variations in the helping scores. Previous research has differing explanations as to why there are gender differences, including, research on prosocial behaviour exclusively measuring feminine subtypes of prosocial behaviour (Hine, 2016). Future studies could investigate the relationship between parental mind-mindedness and gender, and 'gender-typed' prosocial behaviours. Comparing male and female scores in female-type prosocial behaviour, such as comforting the experimenter, vs male-type prosocial behaviour, such as standing up to a bully for an experimenter. Thus, exploring how parental mind-mindedness and children's gender accounted for variance in prosocial behaviour, comparing typically female vs male typed behaviours.

Conclusion

This study investigated the relationship between parental mind-mindedness and children's helping behaviours. Mind-mindedness allows children to make sense of their mental states (e.g., emotions) and subsequently increases children's ToM. Following this rationale, the current study hypothesized that this would lead to increased children's ability to understand and respond to others'

mental states. Therefore, it was hypothesized that there would be a positive relationship between the parents' appropriate mind-minded comments and children's helping behaviour. The findings overall did not support the hypothesis, with there being no significant correlations between the main variables after controlling for parental verbosity. However, there was evidence of more variance in the instrumental peg task, this led to the interpretation that at 20-27 months children are still developing the socio-cognitive skills required to decipher others' complex emotion-driven goals and to engage in resulting prosocial behaviour. Furthermore, there seemed to be variance in the helping tasks that were associated with children's gender. This could be evidence for gender-specific socialisation of target prosocial behaviour, implying that socialisation plays a key role in children's developing prosocial behaviours. These results lead to recommendations for further research investigating parental mind-mindedness and children's helping behaviours across different ages, into the role of ToM mediation and examining differences in gender using gender-typed prosocial behaviour. The findings in the study add to the growing literature on children's developing prosocial behaviour and pave the way for further research into the role that parental behaviour and language, such as mind-mindedness play.

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