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Children's Emotion Regulation and Interparental Cooperation: Reciprocal Effects in Middle Childhood

Hovedoppgave i Profesjonsstudiet i psykologi

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Kunnskap for en bedre verden

Preface

Acknowledgements

First, we would like to thank Nina Jakhelln Laugen and Beate W. Hygen for guiding us through the process of writing our thesis. Together they have shown great interest, encouragement, and commitment to the project. We are grateful to Nina Jakhelln Laugen for giving us valuable input and feedback from start to finish, and Beate W. Hygen for assisting with the statistical analysis and for helping us understand the research method. Furthermore, we would like to thank Jolene Van der Kaap-Deeder for giving us insight in the field of research on emotion regulation (ER), as well as providing useful input for our discussion. Finally, we are grateful to all children and parents participating in the Trondheim Early Secure Study (TESS), and to our partners, families, and friends for cheering us on in this process.

Division of Labour

In each stage of writing our graduate thesis, we have divided the necessary tasks as equally as achievable. During the initial stages of our work, we both prepared for the writing process by attempting to gain an overview of the research field regarding child emotion regulation and parental effects. This was done by using the literature review software Distiller, in which we specifically searched for key terms in line with our topic of interest. After discussing potential research questions with our supervisors, we decided to initiate the writing process by presenting our theoretical background relating to our two main variables: emotion regulation and interparental cooperation. The remaining part of the graduate thesis was further divided so that each of us had the main responsibility for writing certain parts. However, we both were responsible for making sure that all parts of our work were coherent and covered the necessary criteria.

Thea had the main responsibility for the following parts: acknowledgements, abstract, what is interparental cooperation? The family systems theory and spillover hypothesis, does interparental cooperation influence child emotion regulation? Description of the current study, gender and socioeconomic effects, method and results, including most tables and charts, the subsection of the discussion involving effects of control variables, and finally, the conclusion. Mathilde had the main responsibility for the following parts: division of labour and the collaborative process, introduction, what is emotion regulation? Model of parental socialization of emotion, the transactional model of development, does children's ER

influence interparental cooperation? Children's ER and interparental cooperation: a bidirectional relationship? Discussion of our main findings, implications, strengths and limitations of the study, and finally the list of applied references.

Throughout the process we continuously reviewed the course of our writing, discussed the findings and implications of our work, and we have both taken responsibility in reviewing the entirety of what we have produced before and after turning it in to our supervisors for feedback. Towards the end of the process, we both reviewed and made changes to our thesis numerous times in order to achieve a coherent final product.

The Collaborative Process

Our main goal throughout this process has always been to strive for equality in our sense of ownership of our thesis. We deem the entirety of the process successful and have enjoyed each other's companionship throughout this journey. Our expectations regarding the writing process itself have been met, as we have had a mutual understanding of what could be expected from each other from the very start. Finally, we are pleased with the result of our collaboration, and hope that our common understanding of the subject and findings related to our research question is presented in a well-coordinated and comprehensible manner.

Sammendrag

Forskning på foreldrerelasjoner og effekter på barns emosjonsregulering har tradisjonelt vært orientert rundt foreldrekonflikt og foreldreeffekter på barn. Her studerer vi de potensielle positive følgene av prososial konfliktløsning i form av foreldresamarbeid, og vi undersøker om barns emosjonsregulering kan påvirke foreldres kapasitet til å samarbeide. Vi undersøker mulige resiproke sammenhenger mellom foreldresamarbeid og barns emosjonsregulering i et utvalg av norske barn ved 6 år ($n = 749$), med oppfølging i alderen 8, 10 og 12 år. Det kontrolleres for kjønn og sosioøkonomisk status. Resultatene viste at høyere nivå av foreldresamarbeid da barnet var 6 og 10 år gammelt predikerte bedre emosjonsregulering hos barnet da det ble målt to år senere, ved henholdsvis 8 og 12 år alder. Bedre emosjonsregulering hos barnet i en alder av 8 år predikerte høyere nivåer av foreldresamarbeid to år senere, da barnet var 10 år gammelt.

Abstract

Research on interparental relationship and the effects on children's emotion regulation have traditionally been oriented around parental conflict and the parental effects on children. Here, we study the prospective positive effects of prosocial conflict resolution in the form of interparental cooperation, as well as looking at how children's emotion regulation may also affect parent's ability to cooperate. We examine potential reciprocal relations between interparental cooperation and emotion regulation in a community sample of Norwegian children at 6 years old ($n = 749$), and follow-ups at ages 8, 10, and 12, controlling for gender and socioeconomic status. Results revealed that higher levels of interparental cooperation when the child was 6 and 10 years old predicted better child ER when measured two years later, at ages 8 and 12 respectively. Better child ER at age 8 predicted higher levels of interparental cooperation two years later, when the child was 10.

Children's Emotion Regulation and Interparental Cooperation: Reciprocal Effects in Middle Childhood

The studies of child development are essential in promoting health and wellbeing (Gregory et al., 2021). Research has typically focused on interparental conflict (as opposed to cooperation) and the diverse effects that this can have on child development. It does however seem likely to us that parents who model constructive cooperative behaviours may create an environment for their children which is essential to their development of emotion regulation (ER) skills. Research has also typically focused on how parents are able to affect their child's development (Maccoby, 2000), and not necessarily how children over time may affect their parents' behaviour. It is plausible that the two phenomena of interparental cooperation and child ER can affect each other reciprocally, and that these effects can be empirically documented during middle childhood.

Emotion regulation happens when an individual monitors, evaluates and modifies their emotional responses to accomplish one's goals (Thompson, 1994). The development of ER abilities is important because the child needs to learn how to manage their emotional responses in a socially adaptive way. If these abilities are not well developed, it may affect how the child relates and interact with other people, which may over time make it challenging for the child to succeed socially, and potentially academically (Graziano et al., 2007). Moreover, research (McLaughlin et al., 2011) suggests implementing preventive interventions during crucial developmental periods for ER abilities. These recommendations are based on findings which show that emotion dysregulation represents an essential transdiagnostic factor that raises the risk for a broad range of different outcomes of psychopathology during adolescence.

Davies et al. (2016) found that interparental conflict involving hostility was a significant predictor of children's development of emotional insecurity and externalizing difficulties. However, this does not sufficiently explain whether interparental cooperation is of importance in providing a positive counterbalance in the child's environment that aids in their development of ER skills. Research has shown that levels of constructiveness in interparental conflict is related to less physical pain, fewer infectious diseases and fewer emotional problems in children (Zemp et al., 2020). If constructiveness in conflict is comparable to cooperation, interparental cooperation can be essential to children's physical health and development of emotional problems and abilities.

This physical aspect (as well as the psychological aspect) of parental effects on their children has been supported by findings made by Troxel and Matthews (2004). They suggested that destructive interparental conflict (as opposed to constructive interparental cooperation) can negatively affect children's health through a heightened physiological stress response system, impaired neurotransmitter functioning and via health risk behaviours. They suggested that destructive interparental conflict affects their children's ER and emotional security via impaired parenting, such as negative communication and decreased monitoring. They also found that emotional dysregulation and a decrease in emotional security in children can induce affective, cognitive, and behavioural reactivity in the children. The question remains whether positive effects between interparental cooperation and child ER also can be empirically documented.

Williford et al. (2007) found that child emotion dysregulation and child anger proneness (in addition to factors of maternal psychopathology and single parenthood) predicted parenting stress. Also, the stability of parenting stress depended on child emotion regulation and externalizing problems. In other words, cooperative coparenting can be affected by parenting stress, which can be affected by child emotion regulation/dysregulation and externalizing problems. Durtschi et al. (2017) found that parents who reported to have a more supportive coparenting alliance (here viewed in relation to interparental cooperation) were less affected by a low marital quality and higher levels of parental stress compared to parents with less supportive coparenting alliance. The presence of cooperative parenting could therefore mean that these parents are better equipped when responding to challenges in everyday family life. This could mean that the ability of parents to cooperate constructively could counteract effects of parental stress, which could further counteract potential negative effects of child emotion regulation and anger proneness, and that these effects possible could be bidirectional.

The current research sets out to explore the possible bidirectional and prospective effects between child emotion regulation and interparental cooperation. As far as we know, previous research has not yet investigated this relationship specifically, especially during middle childhood. During such sensitive developmental periods the child becomes more cognitively abstract and develops an ability to mentalize and to be more aware of the feelings of others and themselves (Mah & Ford-Jones, 2012). To contribute towards the aim of developing more effective mental health interventions targeting child emotional wellbeing, the investigation of these two variables is deemed necessary.

What is Emotion Regulation?

Even though it has proven difficult to agree upon clear definitions of the terms *emotion* and *emotion regulation (ER)*, there are some definitions that are repeatedly used in the studies of child and adolescent development. First and foremost, several researchers claim that any definition of emotion needs to recognize the role of neurobiological processes and neural circuits, the subjective feeling or experience of the individual, and the perceptual - cognitive processes involved (Izard, 2010). Secondly, Thompson (1994) defines the regulation of such emotions in this way: "Emotion regulation consists of the extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features, to accomplish one's goals" (pp. 27-28). John and Gross (2004) explained such goals as something we try to achieve through social navigation, which we mediate by our ability to regulate our emotions, in order to maintain relationships with those around us. In our study, emotion regulation is broadly measured by the child's ability to regulate their emotions in a flexible and socially adaptive manner (Steinsbekk & Wichstrøm, 2018).

McRae and Gross (2020) proposed what they named *the process model of ER*, a model that differentiates between five groups of ER strategies that are mainly categorized by *when* they impact the process of emotion generation. The model describes the ER strategies in stages: firstly, the need for regulation is recognized. Secondly, a strategy for ER is selected and executed, and finally there is a monitoring of the degree to which the ER was successful or not. One of the strategies that has received a lot of attention in research is *cognitive reappraisal*. This strategy involves the adjustment of how one thinks about a certain situation, to shape the emotional response that follows.

For example, a child may recognize that they are sad about something, and that they no longer want to be sad. Secondly, they may select the strategy of seeking comfort from their mother and proceed to do so. Ultimately, whether they receive satisfactory comfort from their mother, may affect whether the child's emotions are successfully regulated or not. Their subjective experience of the mother's response to their need for comfort may influence whether they choose to seek comfort in the future. This may over time become an interactional pattern between the two. In other words, how well and how often people use different ER strategies is shaped both by individual and environmental factors.

ER as a part of emotional competence (EC)

Emotional competence can be defined as the ability to display emotion in a contextually appropriate manner. It also includes the ability to regulate internal and expressed emotion and the resulting behaviour, in a socially acceptable and goal - oriented way. Finally, it includes the ability to understand one's own and other people's emotions (Eisenberg et al., 1998). Therefore, the term ER falls within the category of emotional competence, as it pertains to the modulation and inhibition of emotion and related behaviour. Secondly, the term *social competence* is closely related to the term emotional competence, and has context - dependent, goal - specific and transactional characteristics (Rose-Krasnor, 1997). These characteristics ultimately affect the resulting degrees of individual effectiveness in socio - emotional interaction with others.

Why is ER important?

Empirical findings have for many years supported the fact that emotion knowledge of pre-schoolers can predict later classroom adjustment, which is an essential part of the puzzle that makes up their development (Shields et al., 2001). This connects aspects of child emotional competence to early positive academic outcomes, and points to some of the consequences of good or inadequate ER. Furthermore, a study performed by O'Hara et al. (2019) found that a focus on improving the general capacity to cope adaptively to adverse situations could counteract the negative effects children and youths face when experiencing divorce characterized by high levels of interparental conflict. This ability to cope adaptively underlines the importance of socialization of emotional and social competence, where the parents often have the central responsibility. Furthermore, Aldao et al. (2009) performed a meta-analytic review and found that maladaptive ER strategies were more strongly associated with psychopathology (depression, anxiety, eating - and substance use disorder) than adaptive ER strategies were.

This leads us to the term *emotional dysregulation*, where the individual struggles to modulate the frequency, intensity and duration of their emotions and behaviour (Eisenberg et al., 1998). The dysregulation often lies within a physiological overarousal, which in turn can result in emotion - based behaviour that is disproportionate to the demands of the context (i.e., during social interaction in school). If a child struggles to manage their emotions in a socially appropriate way, other people may struggle to properly relate and interact with this child, which may make it harder to succeed socially, and perhaps over time also academically (Graziano et al., 2007). This point can be connected to John and Gross' (2004) definition of

the goals of emotion regulation, which describes this regulation as successful only if the individual is able to achieve their own goals, for example social acceptance, a sense of belonging, or maybe conflict resolution. They also underline the importance of understanding how both over - and under control of emotions are related to difficulties regarding socio - emotional development.

How ER develops during middle school

According to Glazer (2021), moral and social emotions are regulated states that are carefully developed over time. He argues that these emotions can only promote successful cooperation if they are given the opportunity to properly develop in childhood. For example, if a child grows up watching their parents avoid conflict instead of displaying a range of emotions and ways to dissolve conflict via successful cooperation, the child might over time believe that suppressing their emotions in order to achieve harmony is the only option they have. This underlines the importance of functional ER, and how the child can be given the opportunity to develop this ability.

During the ages of 6 to 12, there is an array of developmental changes taking place. According to Thompson (2011), the six-year-old can regulate negative emotions such as fear and sadness by choosing different strategies for regulation, such as playing, singing, or seeking out comfort from someone. Additionally, a major change takes place around the age of 7 and 8 years in children's ability to think in a less egocentric manner. More specifically, their cognitive abilities grow more complex in a way which makes them more aware of other people's perspectives. This allows them to better understand how different situations may create and allow different emotional responses for different individuals (Piaget, 1981; Pons et al., 2004; Sabatier et al., 2017). Furthermore, children around the age of 9 generally recognize how emotional expressions of sadness and anger often are considered less socially acceptable than displays of more positive emotional expressions like for instance joy and excitement (Pons et al., 2004; Sabatier et al., 2017). This is not to say that displays of sadness and anger *should* be less socially acceptable, but positive emotional expressions may make peers less uncomfortable as they contribute to a more harmonious social climate.

Research has shown that the most common coping strategies for 10-year-olds are: *acceptance of the situation, reappraisal, planning and distraction* (Sabatier et al., 2017; Garnefski et al., 2007), and that they are able to apply these emotion regulation strategies without adult mediation. This may show that the parents generally take up a gradually smaller space in their child's development trajectory, as the child is maturing. It is also of importance

to mention that the time gap between the age of 11 and early adolescence is considered a critical part of the development of ER skills, with social status and the opinion of others taking more and more space in their development (Sabatier et al., 2017).

The 12-year-old is in a gradual transition from childhood to adulthood, and adolescence has been empirically associated with an increase in internalizing symptoms (Ahmed et al., 2015). Therefore, the critical development of ER abilities that takes place in middle school should be of interest to researchers. Although the research field has shown us what ER during certain ages should look like, there is less empirical evidence regarding what specifically predicts good ER, especially during the ages of 8-12. For example, we know that child reactivity and maternal responsiveness during preschool predicts ER abilities (Yagmurlu & Altan, 2010), but there is lacking research on predictors of ER for children that are older than preschool children.

What is Interparental Cooperation?

Interparental Cooperation refers to the interparental interaction in which parents use constructive conflict resolution strategies (Kerig, 1996). While Kerig defines conflict as “a challenge to the maintenance of interpersonal harmony”, true collaboration occurs when “joint problem solving [is involved] to find a solution that takes into account both partners' needs” (Kerig, 1996, p. 3). When partners handle conflicts using behaviours of verbal and physical affection, support, and problem-solving, the conflict is said to be constructive (Goeke-Morey et al., 2003). *Constructive conflict resolution* is therefore related to interparental cooperation and may have the potential to positively influence children's physical and emotional wellbeing. As previously mentioned, levels of constructiveness in interparental conflict have been related to fewer infectious diseases, less physical pain, and emotional difficulties in children (Zemp et al., 2020). Constructive conflict resolution will be used as a synonym for interparental cooperation for the remainder of this thesis.

Factors that may affect children's outcomes may include how the interparental conflicts vary in terms of severity, how often they occur, the content of the disagreements, the strategies used to come to a resolution, and to what degree the child is involved in the conflict (Grych & Fincham, 1990). Parents often engage in a range of closely interconnected strategies (Li et al., 2018). For example, listening to each other's points of view and trying to understand what the partner is really feeling, are naturally co-occurring strategies, and represent prosocial problem-solving behaviours. On the other hand, strategies such as avoidance and verbal aggression are regarded as less constructive to conflict resolution. Thus,

it is the complex combination rather than single strategies that will characterize the quality of the cooperation between the parents (Li et al., 2018).

The Relationship Between Interparental Cooperation and Children's ER: Theoretical Background

Model of Parental Socialization of Emotion

In 1998, Eisenberg et al. published the first version of their model, claiming that parental socialization affects child emotional and social competence. The model provides a theoretical framework for understanding how children over time develop emotional and social competence, because of parental socialization effects. An example of such parental effects can be negative or positive reactions to children's emotional expression, which may lead to negative or positive emotionality within the child, based on whether the parental reactions are warranted. However, it is worth mentioning that the model was initially developed based on correlational data and that it has since been revised and had several minor changes made to it throughout the years as the research field has progressed (Eisenberg, 2020).

The term *socialization of emotional competence* refers to the process where parents attempt to transmit emotional skills, which ultimately affects the child's ability to regulate emotion (Denham, 1998). The goal is to provide the child with competencies that are necessary for their development, both socially and academically. In children's everyday contact with peers, teachers, caregivers, and parents, there is a bidirectional interaction between their emotional expressions and their surroundings. Parents can intentionally use their responses to their children's expression of emotions to increase competence. This can happen via the following mechanisms: *modelling* emotional expressiveness, *teaching* about emotion, and reacting to emotions (*contingent responding*) (Denham, 1998).

Another central aspect of the model is that parental displays of emotion, regardless of whether they are directed towards the child or not, are able to affect the child's arousal. Through the processes of *contagion*, the child might experience an indirect emotional reaction when observing their parent's emotional expression. Also, the meaning that the child attributes to the observed emotions can also affect this arousal. For example, if the child observes their parents in a good mood, this may indicate to them that the succeeding atmosphere and interaction within the family will be good, as opposed to if they observe their parents in a mood where they for instance are more easily irritated. This may in turn affect the child's arousal and how they behave towards their parents.

According to this model, parents can conduct emotion socialization through certain behavioural strategies. Firstly, *parental emotion-related socialization behaviours (ERSBs)* are influenced by characteristics of the parent themselves (e.g., ER abilities, parenting style, values, temperament), as well as by characteristics of the child (e.g., temperament, gender, age), and lastly, by the context, it takes place in (e.g., the family or culture) (Eisenberg et al., 1998). Moreover, ERSBs can lead to social and emotional competence through the previously mentioned strategies of modelling, teaching, and contingent responding. All these strategies are considered relevant when describing how parents provide a certain climate for their children to develop their ER abilities. The strategies may also be relevant as to how they shape the emotional climate within the family, which may further reflect how different parenting strategies (involving i.e., interparental cooperation) are chosen and applied in everyday situations.

Eisenberg et al. (1998) further describe how parental ERSBs, and the social competence of the child are reciprocally influenced. They describe how successful parental ERSBs facilitate their child's ER and behavioural expression, which may in turn make the child better equipped in processing information adaptively. This may further bring out more helpful reactions from the parents, ultimately aiding the child in their development of basic schemas about the world, their relationships and themselves. This is a complex chain of reactions between several different mechanisms which over time make up the supportive groundwork of the development of social and emotional competence, where ER is an important part of this. An example can be that a child (because of parental influences) develops favourable social skills, which further makes them experience better emotional reactions in socialization contexts. This may motivate the child to actively seek out social interactions, and to be better adept to acquire new information, further developing their regulatory abilities.

The Family Systems Theory and The Spillover Hypothesis

The Family Systems Theory (Kerr & Bowen, 1988) views the family as an integrated and dynamic social system, in which all members are influenced by each other. The theory states that each member of a family is best understood as a part of a larger family unit, rather than as an isolated individual. According to their view, parents and their children are mutually influenced by an interconnected social system. In line with this theory, it can be hypothesized that parents may often subconsciously choose their parenting strategies based on how the child responds to them. For instance, if the parent experiences that the child is

more cooperative if they get to choose their own clothes for school, this might make getting ready in the morning a lot easier for the whole family. Furthermore, if the child gets angry when they don't get to choose themselves, this may in turn affect the parent's mood and capacity to be cooperative with other members of the family, such as their partner.

This tendency is similar to what has been labelled *The Spillover Hypothesis*, which was launched to describe the effect that the interparental relationship may have on parenting style (Krishnakumar & Buehler, 2000). The hypothesis suggests that the emotions and moods that occur in the interparental relation 'spill' over to the parent-child relation. Thus, when parents are successful at cooperating with each other, this produces positive emotions and helps regulate the parent, which in turn enhances their capacity for contingent responding to their child's emotional expressions.

The Family Systems Theory and the Spillover Hypothesis are compatible with Eisenberg's framework. Interparental cooperation may contribute to children's ER either indirectly or directly. The indirect mediation may occur through possible spillover effects, or directly through Eisenberg's concept of modelling emotional expressiveness (Eisenberg et al., 1998). When interparental cooperation takes place in the context of the family, the child can observe which strategies for ER are being used, to successfully cooperate. Similarly, Social Learning Theory (Bandura, 1978) suggests that children model the behaviours of their significant others. For example, a child that witnesses their parents listening to each other's point of view and validating each other, may imitate this behaviour, and in turn experience for themselves the emotion-regulating effect that this strategy may have in other situations.

Furthermore, it is reasonable to assume an effect between the quality of the parental relationship and the child's ER capacities, as both the parents and the child are part of the integrated social system of the family unit, as stated in The Family Systems Theory. In other words, there is a process of mutual influence between personal traits within the child itself, and traits of their care environment, such as their parents (Sameroff, 1975). Traits within the child may over time affect behaviour of the parents, and behaviour of the parents may over time affect traits within the child. The following sections view empirical evidence supporting these theoretical considerations. Our hypothesis remains that the relationship between children's ER and interparental cooperation is a reciprocal relation.

Does Children's ER Influence Interparental Cooperation?

A review performed by Kiel and Kalomiris (2015) showed that several studies have found child-elicited effects, where child ER predicts how parents socialize emotion and other

ER promoting behaviours. This could show that not only does parental socialization behaviours promote child ER, but the child itself may have a say in how these parenting strategies over time are chosen and implemented. This highlights the importance of looking into which situations elicit ER patterns, and how both the parents and the child may reciprocally affect each other in these situations. Kiel and Kalomiris (2015) underline the need for researchers to proceed in testing bidirectional interconnections between children's ER and parenting. Moreover, they state that this can be done in a truly developmental manner by specifying the developmental periods where child ER is most relevant to parental emotion-socialization and vice versa. This is important because research has shown that children can be more susceptible to parental effects at different developmental stages (Goldberg & Carlson, 2014).

Rothbart and Sheese (2007) describe the importance of regarding the *temperament* of the child, also known as the individual differences in self-regulation and emotional reactivity, as important to how individuals interact with their surroundings. These individual differences are biological in the sense that there is a significant heritable component, which affects how the individual responds to changes in the external and internal environment. The child's reactivity (as a dimension of temperament) has been associated with parental behaviours in terms of reduced quality of coparenting (when present simultaneously with other stressors) (Burney & Leerkes, 2010). This supports the idea that factors such as temperament (which may also be a shared genetic component between parent-child), may influence several parts of the family system.

Different parental strategies that suit different temperaments may be used to nurture the child's development of ER skills. Parents make different choices regarding parenting strategies, which in turn influences their own perceptions of their children. This further affects their behaviour towards the children. Therefore, the child's temperament and ER should also affect the parent and their intrafamilial cooperation strategies. Peltz et al. (2018) found support for such spillover and crossover processes by showing how tension (i.e., interparental conflict and lack of cooperation) could transfer from one subsystem (i.e., the marriage) to another subsystem (i.e., parent - to child interaction involving socialization of emotional competence). These transactional processes could therefore be hypothesized to also be reciprocal, where tension involving one subsystem (i.e., child emotional dysregulation directed towards parent) is transferred to another subsystem (i.e., interparental functioning and cooperation). To the best of our knowledge, this relationship has yet to be empirically investigated.

Does Interparental Cooperation Influence Children's ER?

Most of the available research focuses on the effects of parental emotion-socialization directed towards the child (e.g., parents' mental state talk or responding to the child's emotions), and not necessarily towards each other as parents, in front of the child (i.e., modelling; Eisenberg et al., 1998). However, it does not seem unlikely that parents who model cooperative behaviours towards each other during emotional tasks (in front of the child), could create a problem-solving focus in the child's environment which could ultimately contribute to their socio-emotional development. If interparental cooperation is viewed in opposition to interparental conflict, it could be possible that interparental cooperation could have positive socio-emotional effects on child and adolescent ER, and thereby their risk of developing psychopathology. Findings by O'Hara et al. (2019) connected longitudinal exposure to high interparental conflict to children's risky sexual behaviour, mental health issues, and substance use. This could be hypothesized to be further related to children's and adolescents' choice of maladaptive coping strategies as consequences of emotion dysregulation (Compas et al., 2001).

Findings by Fosco and Grych (2012) underscored the importance of regarding and intervening on family and interparental functioning when attempting to promote child ER and family well-being. They tested interparental conflict, family emotional climate, emotional support, and paternal and maternal warmth as predictors of children's ER. Their findings highlighted maternal sensitivity and warmth, and positive family climate as predictors. However, interparental conflict was found to be indirectly linked with child ER through both processes. These findings did not necessarily focus specifically on interparental cooperation as a predictor of child ER; however, they do identify the importance of considering concurring interparental and family systems into the deliberation when attempting to better understand the development of emotion regulation.

Waters et al. (2020) found empirical support for how parental emotion regulation can influence parent-to-child-stress transmission, which also can negatively affect the interaction quality. This was discussed to possibly have both short- and long-term consequences regarding children's social and emotional development. The key findings of the study were that central nervous system (CNS) responses of parents could affect their children's CNS responses and vice versa. These findings may support the idea that parental ER and behaviour during conflict and interaction tasks may impact children's ER and behaviour both through subtle and direct parental behaviour. This could mean that if the parents have well-regulated emotions during interparental conflict-solving tasks, their ability to cooperate and solve the

task at hand could be better. The child may observe this and be affected through modelling or contagion. In turn, this could make them more willing to regulate their own emotions (depending on what meaning they attribute to the situation), to also be prosocial and cooperative.

Coming to a resolution is the strongest predictor both in marital adjustment and subjective satisfaction with problem-solving strategies (Kerig, 1996). Surveys of children also show that resolved anger is less likely to be perceived as a negative event (Cummings et al., 1989a). Parents who manage to resolve conflict without disrupting family functioning are also more likely to cooperate in a manner that is less distressing to the child (Grych & Fincham, 1990). Also, parents who avoid disagreements that are directly related to topics around the children (Jouriles et al., 1991), and avoid exposing the child directly to the parental conflict are less likely to distress the child (Cummings et al., 1989b). This may lead to the notion that it is more constructive to handle conflict outside the presence of children. If this applies to all kinds of conflicts or only conflicts associated with aggressive and maladaptive resolution strategies is unclear. In line with the theoretical framework presented above, there is reason to believe that children may experience potential learning benefits from watching parents resolve their conflicts via cooperation.

Children's ER and Interparental Cooperation: A Bidirectional Relationship?

Lobo and Lunkenheimer (2020) found recent empirical evidence for a *parent-to-child coregulation*, which is thought to shape children's development of regulatory abilities. Their findings supported the idea that children and their parents reciprocally regulate one another via their emotional expressivity and goal-oriented behaviour. They describe two specific coregulation patterns as instrumental in early childhood, namely: *dyadic flexibility* and *dyadic contingency*. Their study found that child-parent processes that were more flexible and contingent did in fact predict increased levels of self-regulation in early childhood. Specifically, some of the relevant goal- and affect-oriented behaviours were coded as the following parent behaviours: teaching, emotional support, and positive reinforcement (which can be related to ERSBs). Some of the relevant child behaviours were behavioural dysregulation, noncompliance, and compliance. In addition, their findings showed that parent-child coregulation patterns have the potential to be adaptive (if the content of the interaction is positive or neutral, such as positive reinforcement or compliance), or negative (if the content is negative, such as negative reinforcement or noncompliance). In relation to our research question, these findings could provide some support for our idea that there are

reciprocal processes within the family context that regards self-regulatory capacities and cooperative behaviours (Family Systems Theory), and that these processes could be bidirectional (the Spillover Hypothesis).

The idea of transactional and bidirectional processes (Sameroff, 1975) is further supported by findings made by Goldberg and Carlson (2014) which found that positive couple interactions in the family setting overall are favourable for children. Moreover, the relationship quality of the parents and children's behavioural issues were found to be partly reciprocally influenced. Specifically, they found empirical support for child externalizing behaviours (between 5 and 9 years of age) predicting interparental supportiveness. They also claim that their findings supported their idea that middle school children have a greater influence on family dynamics compared to earlier developmental years. Additionally, they only found evidence for child externalizing behaviour (as opposed to internalizing behaviour) predicting interparental supportiveness. This may be explained by the more readily observed nature of externalizing behaviour, which may result in greater transactional effects within the family dynamics.

To study the possible reciprocal effects of interparental cooperation and children's emotion regulation during middle childhood, it is necessary to use a process-oriented approach. Previous research has been rather conflict-oriented, when addressing the negative effects of children's exposure to maladaptive parental conflict. Little research has addressed the possible benefits of children's exposure to constructive parental conflict resolution (McCoy et al., 2009). Thus, it is possible that it is not just the mere absence or presence of conflict that is important to children, but also *how* the parents resolve the conflict. The effect of children's ER on the parental relationship has also received less attention than the parental effect on children's ER. More research is therefore needed to disentangle the hypothetical reciprocal effects of these phenomena.

The Current Study

The aim of our thesis was to address the gap in the literature by using a longitudinal study of a large Norwegian sample of children during middle childhood (from age 6 to 12 years). The children were assessed across four measuring times. Based on the theoretical and empirical background presented above, we hypothesize that there is a reciprocal relation between the development of children's emotion regulation and interparental cooperation in middle childhood. The following hypotheses will be tested:

1. Better interparental cooperation predicts better emotion regulation in children from age 6 to age 12.
2. Better emotion regulation predicts better interparental cooperation from age 6 to age 12.

To test these hypotheses, the study will control for plausible confounding factors. Based on the empirical findings presented in the following section, we have chosen to apply gender and socioeconomic status (SES) as control variables in the current study.

Gender differentiated effects on emotion regulation and interparental cooperation

Meta-analytic reviews, like that of Chaplin and Aldao (2013), have found gender-mediated differences regarding emotional expression. Whereas boys expressed more externalizing emotions like anger, girls expressed both more internalizing and positive emotions, like sadness and happiness, in their childhood years. These findings might indicate that the girls had a greater capacity to regulate negative emotions, either to meet social demands or by covering up negative emotions with positive expressions of emotions.

As for gender-differentiated effects in interparental cooperation tactics, men are more likely to engage in avoidance and withdrawing conflict strategies. Whereas women tend to engage in more control-oriented strategies in which they directly partake in the conflict (Gottman & Levenson, 1988). Furthermore, mothers' relationship satisfaction has been found to moderate toddlers' adaptive coping (Kerr et al., 2021). Thus, gender might play a significant role in the interrelation between interparental cooperation and child emotion regulation and will need to be controlled for in the following analysis.

Socioeconomic status effects on interparental cooperation and emotion regulation

Low-income and unmarried couple families are more often exposed to multiple stressors, such as unemployment, poverty, stress of parenting, living in neighbourhoods with a high crime rate, and relationship instability (Lee et al., 2021). As these stressors are associated with increasing relational conflict levels (Brown, 2010; Kopystynska et al., 2017), low-income families are also shown to have higher rates of interparental conflict (Stith et al., 2004). Studies have found that low-income families are at higher risk of a variety of problems associated with emotional dysregulation and maladjustment in children (Conger et al., 2010). Thus, socioeconomic status is included as a control variable in this study, as this is likely to affect both interparental cooperation and child ER outcomes in the current study.

Method

Participants and procedure

The following study is based on data from The Trondheim Early Secure Study (TESS), a longitudinal population study of children's psychosocial development, and factors associated with mental health and health behaviours. TESS started in 2007 and is an ongoing study. The participants in the study are children (born between 2003 and 2004) and their parents, living in the Norwegian municipality Trondheim. An invitation to participate in the study was sent to 3456 families, as part of a referral to the mandatory health check for four-year-olds. The invitation included a copy of the Strengths and Difficulties Questionnaire (SDQ 4-16 version), which the parents were asked to bring to the health check. The families were given further information about the study from the staff at the health clinic. 3358 families attended the health check, whereas the health staff missed asking 166 of the families. 176 families were excluded due to a lack of sufficient Norwegian language skills. Out of the eligible families, written consent was obtained from the parents of 2475 children. Characteristics of the sample are presented in Table 1.

The SDQ was used to screen the sample. The total SDQ scores were divided into four strata representing levels of total difficulties (cut-offs: 0-4, 5-8, 9-11, and 12-40). Participants were then selected randomly from the four strata in definite proportions (respectively 0.37, 0.48, 0.70, and 0.89). Children with a high score on the SDQ were oversampled to increase variability (Wichstrøm et al., 2012). 1250 families were invited to the university for the study, and 1007 attended the first interviews (T1). The drop-out rate during the recruitment did not vary as a function of gender ($\chi^2 = 0.23$, $df = 1$, NS) nor by their associated SDQ strata ($\chi^2 = 5.70$, $df = 3$, NS). Follow-up testing has been conducted every second year.

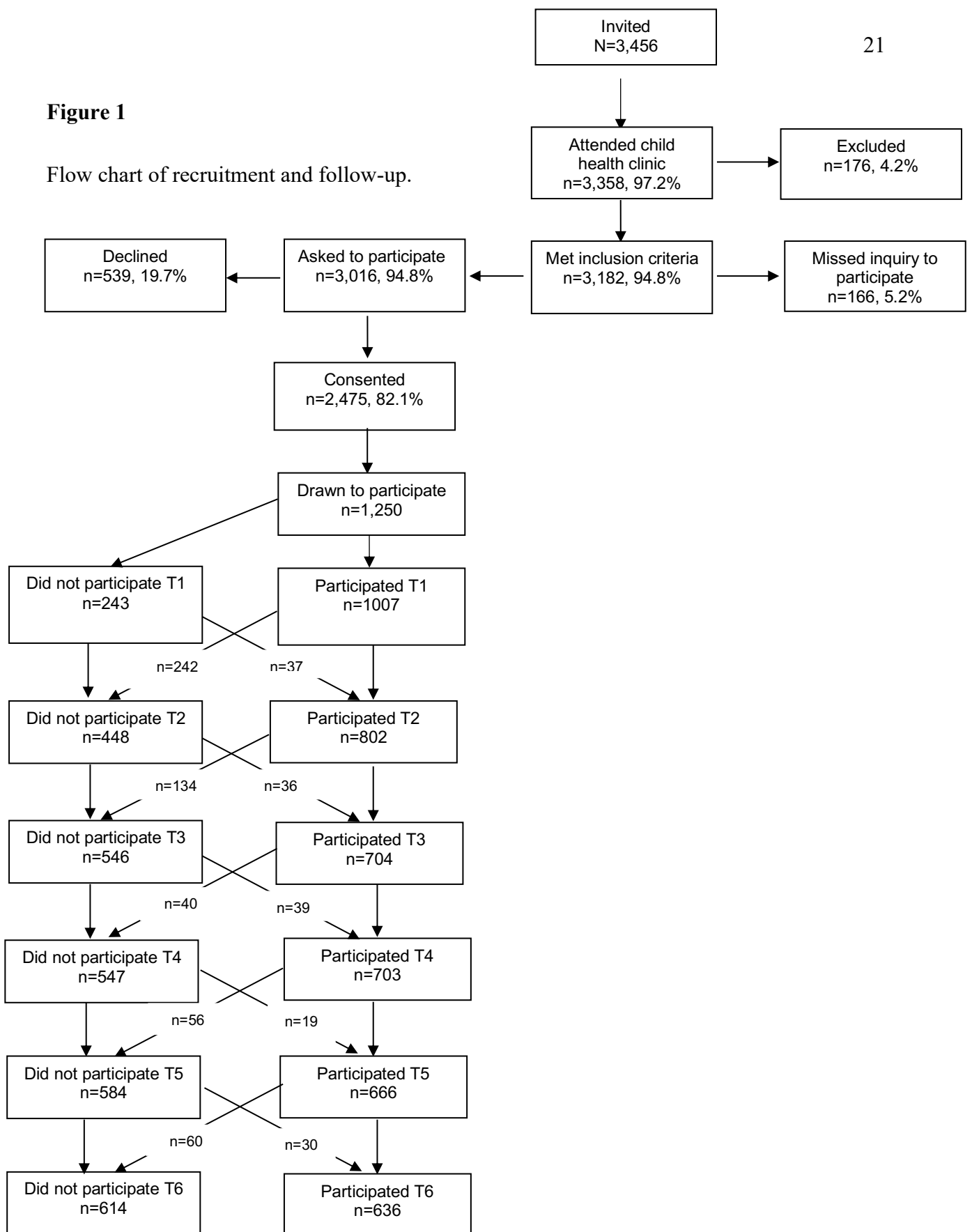
The following study uses data from the four subsequent retests, at age 6 (T2; 802 participants), age 8 (T3; 704 participants), age 10 (T4; 703 participants), and age 12 (T5; 666 participants). The analytical sample constitutes of 841 children. The reason why the N is so high is because gender is included in the analysis and the gender variable is from Time 1. The process of recruitment and follow-up is displayed in Figure 1.

Table 1*Sample Characteristics and Descriptives*

Characteristics	%(n=841)
Gender of child	
Boy	49.8
Girl	50.1
Informant parent's gender	
Male	17.2
Female	77.1
Ethnic origin of biological mother	
Norwegian	87.0
Other countries	7.3
Ethnic origin of biological father	
Norwegian	87.0
Other countries	7.3
Biological parent's marital status	
Married	54.9
Cohabiting > 6 months	23.8
Cohabiting < 6 months	.7
Never lived together	1.4
Separated	1.4
Divorced	10.7
Widowed	.2
Highest parental socioeconomic status	
Leader	13.2
Professional, higher level	29.8
Professional, lower level	29.6
Formally skilled worker	14.3
Farmer/fishermen	.1
Unskilled worker	.7

Figure 1

Flow chart of recruitment and follow-up.



Note. The number of participants at different points of assessment is based on the number of participants drawn to participate ($n=1250$), minus missing participants in the subsequent follow ups.

Measures

Emotion regulation

The Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1995) was used to measure emotion regulation. The ERC is an ‘other-report’ measure for parents and teachers used to assess children’s ability to self-regulate. The measure includes a checklist of 24 statements, in which parents must assess whether the statements are characteristic of the child on a Likert scale from 1 (never) to 4 (almost always). The ERC includes two subscales: Emotion Regulation and Liability/Negativity. Only the parental Emotion Regulation subscale was used in the current study. This scale includes eight statements about appropriate emotional expressions in different situations, emotional expressions characteristic of the child in general, emotional self-awareness, and empathy. A higher score indicates better emotion regulation. Internal consistency in our sample was low to moderate, measured by Cronbach’s alpha ($\alpha = .65-.70$, between waves).

Interparental cooperation

Interparental cooperation was measured using The Conflicts and Problem-Solving Scales (CPS; Kierig, 1996). The CPS is a self-report and an ‘other-report’ measure of relational conflict and problem-solving strategies. The measure covers the *frequency of conflict*, *degree of problem*, *mutual satisfaction with problem-solving*, and *strategies when in conflict*. The subscale *strategies when in conflict*, was used to measure interparental cooperation in this study. One informant (parent) rated both themselves and their partner. The informant was provided with a list of eight problem-solving strategies associated with cooperation and had to consider how often they and their partner used each strategy on a four-point scale from (1) Never to (4) Often. The problem-solving strategies included behaviours like “talking things through with their partner” and “listening to each other’s point of view”. The score of the informant and their rating of their partner were added, and the mean of the total added score made up the score for *interparental cooperation* ($\alpha = .85-.87$, between waves).

Socioeconomic Status

The International Classifications of Occupations (ISCO; International Labour Office, 1990) was used to code the occupation of the parent who had the highest status. The occupational status was categorized based on skill specialization (knowledge requirements,

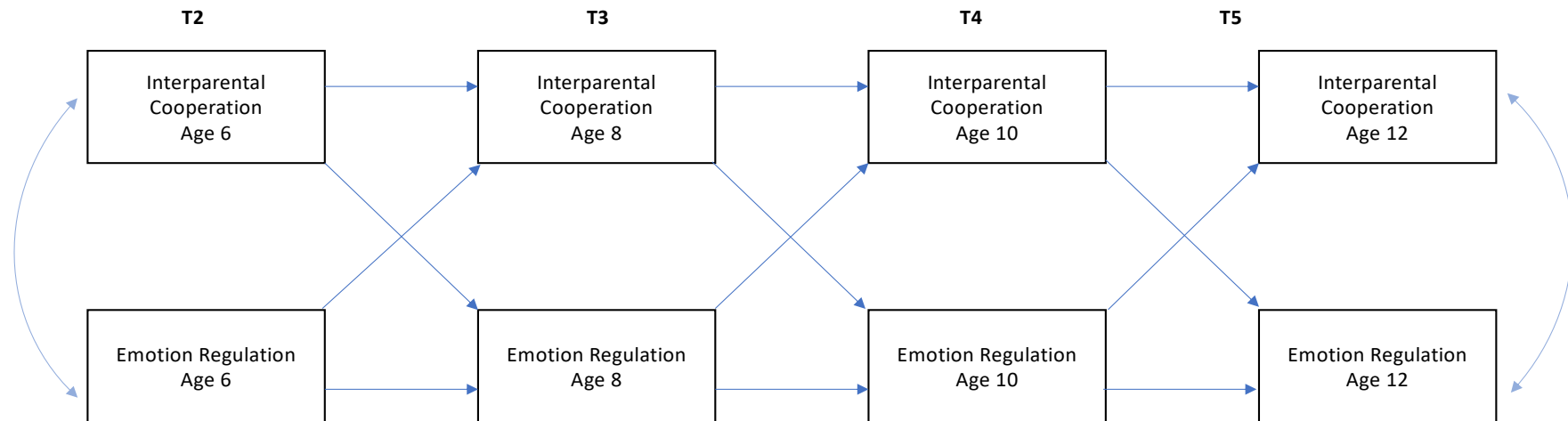
use of tools/machines, materials being worked on, as well as the goods and services produced) and required skill level (i.e., technical and formal skills, such as the years of formal education needed). Occupational status was coded from 1 (unskilled manual workers) to 6 (leaders).

Data Analysis

The primary data analysis was conducted using structural equation modelling, adjusting for covariates, to examine the cross-sectional and longitudinal relations between interparental cooperation and emotion regulation. The theoretical model of the crossed-lagged effects between interparental cooperation and emotion regulation is illustrated in Figure 2.

Figure 2

Theoretical model of cross-lagged effects



Note. Theoretical model of cross-lagged effects between interparental cooperation and emotion regulation, and correlations between the measures.

Regression was applied between all the dependent variables on all variables from the previous measuring point, to uncover potential reciprocal effects. Control variables were also included. For example, interparental cooperation at age 10 (T4) was regressed on interparental cooperation, emotion regulation, gender, and socioeconomic status at age 8 (T3). Residuals were allowed to correlate at all time points.

To increase model fit, emotion regulation at age 6 was regressed on emotion regulation at age 10 (ERP2 on ERP4), and SES at age 6 was regressed on SES at age 10. Model fit was assessed according to criteria defined by Hu and Bentler (1999), including comparative fit index (CFI) and Tucker-Lewis index (TLI) $>.90$, root mean square error of approximation (RMSEA) $<.06$, and standardized root mean square residuals (SRMR) $<.05$.

Because the study used a stratified sample in which children with high scores on the SDQ measure were overrepresented, the sample had to be adjusted to resemble estimates for the general population. All parameters were weighted with the inverse of the drawing probability for each subject. Thus, children with high SDQ scores were “weighted down” and low SDQ scorers were “weighted up.” The range of missing values varied from 10.6% for emotion regulation at T2, to 32.6% for interparental cooperation at T5. Missing data was handled using a Full Information Maximum Likelihood (FIML) procedure, under the assumption that data was missing at random. All analysis were performed using Mplus version 8 (Muthén & Muthén, 1998-2010).

Results

Preliminary Analysis: Descriptives and Correlations

Inspection of the descriptives of study variables (Table 2), shows a distribution of scores for interparental cooperation and emotion regulation around the upper end of the scale. Meaning, most of the parents and their children in the sample had high scores on these measures. Descriptives of the study variables were made using Mplus.

Table 2*Descriptives of Study Variables*

Study Variables	Min-max	M	SD	N
Interparental Cooperation, age 6 (T2)	1.75-4.00	3.49	.41	699
Interparental Cooperation, age 8 (T3)	1.75-4.00	3.50	.40	574
Interparental Cooperation, age 10 (T4)	1.83-4.00	3.51	.39	606
Interparental Cooperation, age 12 (T5)	2.17-4.00	3.48	.40	567
Emotion Regulation, age 6 (T2)	2.00-4.00	3.46	.33	752
Emotion Regulation, age 6 (T3)	1.88-4.00	3.51	.33	656
Emotion Regulation, age 6 (T4)	1.88-4.00	3.51	.36	691
Emotion Regulation, age 6 (T5)	2.00-4.00	3.46	.38	653
Socioeconomic Status, age 6 (T2)	1.00-6.00	4.49	.95	738
Socioeconomic Status, age 8 (T3)	1.00-6.00	4.66	.98	680
Socioeconomic Status, age 10 (T4)	1.00-6.00	4.75	.94	698

In the initial analysis, Interparental Cooperation and Emotion regulation correlated at several time points. Interparental cooperation at ages 6 and 10 showed significant but weak positive correlation to child emotion regulation at ages 8 and 12, respectively. Similarly, child emotion regulation at age 8 showed a low positive correlation to interparental cooperation at age 10. Thus, better interparental cooperation for earlier time points was positively correlated with better emotion regulation when the children were older. Better emotion regulation earlier in time was associated with more interparental cooperation at later time points.

Being a girl was associated with higher emotion regulation at ages 6 and 10. Although higher SES was not significantly associated with better interparental cooperation at any time, it was associated with better emotion regulation at several measuring points. These findings suggest that the chosen control variables could influence the relations between interparental cooperation and emotion regulation and should therefore be included in further analysis. A complete presentation of the correlations between study variables is displayed in Table 3.

Table 3*Correlations between Study Variables*

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Interparental Cooperation, age 6 (T2)	-	.66***	.55***	.56***	.20***	.19***	.14**	.15***	-.02	.02	.03	.04	.02
2. Interparental Cooperation, age 8 (T3)		-	.66***	.60***	.09	.12**	.10*	.15***	.01	.03	.08	.02	.05
3. Interparental Cooperation, age 10 (T4)			-	.66***	.13**	.19**	.18***	.20***	-.04	.01	-.01	-.05	.03
4. Interparental Cooperation, age 12 (T5)				-	.06	.17***	.14**	.20***	-.01	-.03	-.04	-.06	.003
5. Emotion Regulation, age 6 (T2)					-	.56***	.53***	.44***	.01	.06	.07	.07	.09*
6. Emotion Regulation, age 8 (T3)						-	.64***	.50***	.05	.10*	.09*	.04	.10*
7. Emotion Regulation, age 10 (T4)							-	.64***	.09*	.14**	.13**	.08	.11**
8. Emotion Regulation, age 12 (T5)								-	.03	.08	.13**	.11**	.07
9. Socioeconomic Status, age 6 (T2)									-	.60***	.52***	.49***	-.06
10. Socioeconomic Status, age 8 (T3)										-	.60***	.55***	-.05
11. Socioeconomic Status, age 10 (T4)											-	.65***	-.004
12. Socioeconomic Status, age 12 (T5)												-	-.03
13. Gender													-

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Boys = 1, Girls = 2.

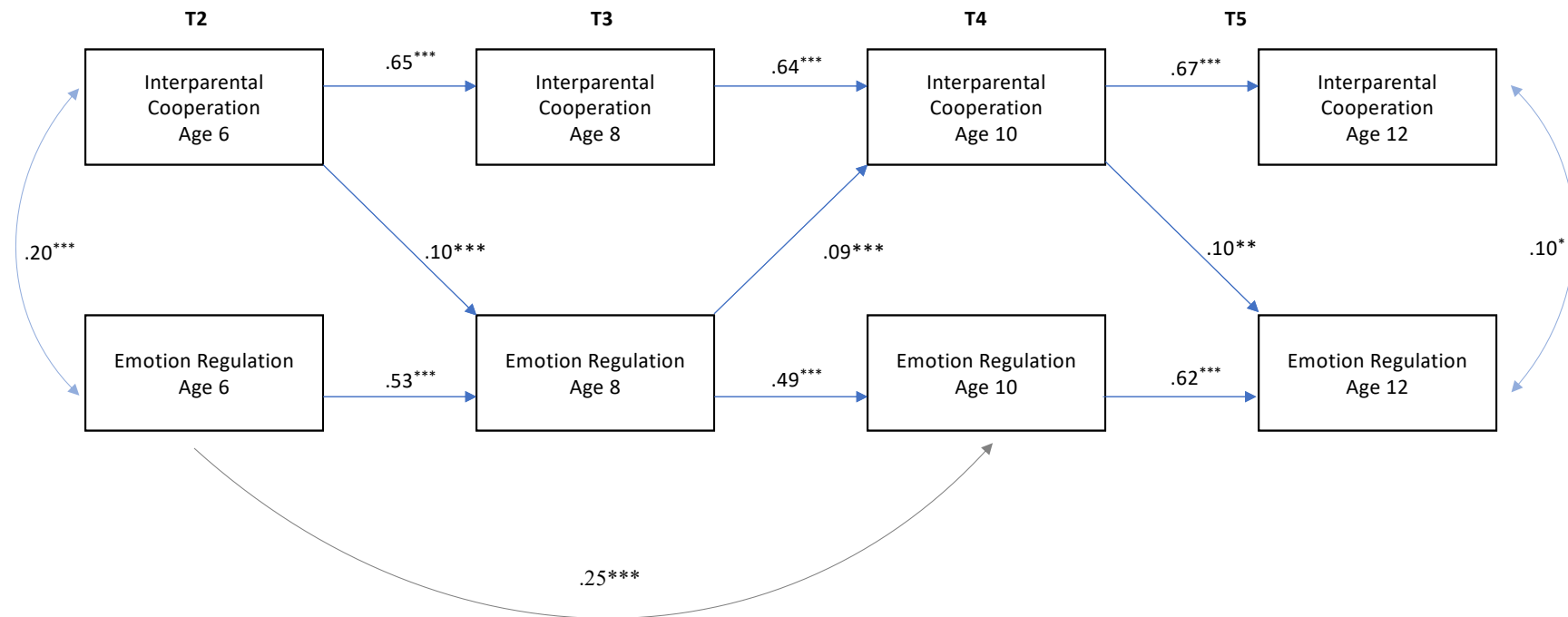
Reciprocal-Effects Analysis

First, the autoregressive structural model with cross-lagged paths across the longitudinal measures of interparental cooperation and emotion regulation was fitted. Cross-sectional covariance was also included in the model. Based on modification indices, a second-order regression path for emotion regulation at age 6 to age 10 was added as a means of improving model fit. The final model is displayed in Figure 3. After adjusting for gender and SES from prior time points, results revealed adequate model fit at $\chi^2 (df = 25, n = 841) = 90.81, p < .001, CFI = .96, TLI = .91, RMSEA = .06, SRMR = .03$.

The results from the analysis showed a high stability in interparental cooperation across all time points ($\beta = .64-.67, p < 0.001$). Similarly, emotion regulation showed moderate stability from ages 8 to 10 ($\beta = .49, p < 0.001$), and a high stability at ages 6 to 8, and 10 to 12 ($\beta = .53-.62, p < 0.001$). Interparental cooperation and emotion regulation were cross-sectionally correlated at age 6 and age 12. Better interparental cooperation when the children were ages 6 and 10 predicted slightly higher levels of emotion regulation measured two years later, at the ages of 8 and 12 ($\beta = .10, p < 0.001$ and $p < .05$). Inspecting the other path of the reciprocal analysis, higher emotion regulation at 8 years of age predicted slightly higher levels of interparental cooperation two years later, at the age of 10 ($\beta = .09, p < 0.001$), when also controlling for gender and SES.

Figure 3

Reciprocal relations between Interparental Cooperation and Emotion Regulation



Note. Reciprocal relations between the variables from the age of 6, with three subsequent measuring points at age 8, 10 and 12. Adjusted for covariates. Only significant paths are displayed in the model, $p < .05$, * $p < .01$, ** $p < .001$ ***

Discussion

This study explored possible bidirectional effects between interparental cooperation and children's emotion regulation (ER) during middle childhood, as reported by the parents. The design of the study was longitudinal, and the sample was a large Norwegian community sample. Firstly, we hypothesized that higher levels of interparental cooperation predicted better ER in their children (age 6 to 12). Secondly, we hypothesized that better child ER predicted higher levels of interparental cooperation (age 6 to 12).

The results show some support for both hypotheses, after controlling for the effects of socioeconomic status and gender. In terms of the first hypothesis, we found that higher levels of interparental cooperation when the child was 6 years old predicted better child ER two years later (when the child was 8). We also found that higher levels of interparental cooperation when the child was 10 years old predicted better child ER at age 12. Regarding the second hypothesis, we found some support that better child ER at age 8 predicted higher levels of interparental cooperation two years later (when the child was 10). In other terms, our model represents certain reciprocal effects between the quality of the parental relationship and the child's ER capacities, which is much in line with the previously described Family Systems Theory (Kerr & Bowen, 1988).

What's more, our findings are in accordance with literature previously mentioned, by Lobo and Lunkenheimer (2020): there are processes within the family context regarding self-regulatory abilities and cooperative capacities that can be reciprocal. As mentioned, their findings did underline how patterns of parent-to-child coregulation can be adaptive (using positive reinforcement or compliance), or negative (using negative reinforcement or noncompliance). The reciprocal nature of the two constructs of interparental cooperation and child ER is further supported by the findings by Goldberg and Carlson (2014), who found that the children's behavioural issues and the relationship quality of the parents were found to be partly reciprocal. They also found empirical evidence suggesting that children are more susceptible to parental effects at different developmental stages. This may be one way of explaining why our findings did not uncover associations between parent – to child (ages 8 – 10) and between child – to parent (ages 6 – 8 and 10 – 12) for certain developmental stages.

The current study expands on previous empirical findings, which have mainly had a rather conflict-oriented approach when addressing the negative effect of children's exposure to maladaptive interparental conflict. The effect of child ER on the parental relationship has

also received less attention than the parental effect on children's ER. Our study therefore contributes towards a better understanding of how children may have possible benefits from being exposed to constructive interparental conflict resolution (cooperation). However, it is essential to emphasize the fact that the effect sizes found in this study are small, and that child ER only predicted later interparental cooperation at one point in time out of the different points that we did look at. This is an important indication that there are several other factors that likely mediate the relation between parental emotion activation and behaviour, and the children's emotion activation and behaviour. For instance, the characteristics of the parents, the child's age and developmental level, the culture or subcontext that the interaction takes place in, and shared genetics are other plausible mediators of great importance. Therefore, findings will likely differ in terms of several different factors as well, and the question at hand is indeed complex.

Interparental Cooperation at age 6 and 10 Predicts Child ER at age 8 and 12

Previous research on related subjects about interparental conflict and child ER align with our finding that interparental cooperation can affect child ER abilities (Goeke-Morey, et al., 2013; Grych & Fincham, 1990; Waters, et al. 2020). This relationship could be explained by several different conditions within the family system. Although the effect sizes we found are small, they are a part of the important puzzle that makes up the child's development, and there may be several different ways to explain these findings.

The child's ER might be affected by the parents through modelling in different ways, through different ERSBs. For example, the child may be taught emotional competence through observing how their parents talk to the child themselves, for instance how they name their internal emotions. Secondly, the child may observe their parents modelling interparental cooperation through prosocial conflict management and productive coping strategies. This is similar to the explanation of Social Learning Theory (Bandura, 1978), as children model the behaviours of their significant others, such as their parents. For instance, a child may witness their parents being patient and listening to each other during cooperation tasks, which may lead to the child learning from this behaviour and generalizing this ability to other contexts.

Grych and Fincham (1990) found that the more the conflict between the parents is disruptive for the functioning of the family, the higher the probability is that the child will interpret these interparental conflicts as distressing. Over time, this distress is likely to affect the child's development of adjustment problems (Grych & Fincham, 1990), which oftentimes is closely related to their emotion regulation abilities. According to the spillover hypothesis,

if the child is exposed to frequent interparental conflict, this may induce feelings within the child that makes them worried, uncomfortable, or nervous. On the other hand, as suggested by our findings, if the child throughout development is exposed to constructive conflict resolution and cooperation, these feelings may not be induced in the child as often, prospectively affecting their development of ER abilities. The spillover hypothesis may also provide an explanation of our results regarding how parents may experience cooperation within their interparental relation, which they may unknowingly bring into situations involving the child, affecting their child's development of socio - emotional abilities over time.

The fact that disruptive conflict between parents over time can distress the child is in line with the previously mentioned findings of Goeke-Morey et al. (2013), who found that children do not habituate to chronic conflict, they are sensitized to it. This makes the child's negative reactions to the interparental conflict progressively intensified. Perhaps this line of thought could be applied to our understanding of child exposure to interparental cooperation, and that cooperation represents a healthy counterbalance to conflict in the child's development of ER abilities. Our findings accordingly identify the importance of considering concurring interparental and family systems when attempting to understand children's development of ER.

A third way of explaining how interparental cooperation predicts child ER is to look at the heritability component. As previously mentioned, Peltz et al (2018) found empirical support for how tension from one relation within the family can be transferred to other relations within the family. Similarly, positive emotions between the parents (i.e. because of problem solving) could be transferred to the parent-child interaction, which over time will foster the socialization of social and emotional competence. Therefore, our findings could be explained by how the temperament of the parent is displayed through their interparental cooperation skills, and how this also may transfer to their interaction with their child. Additionally, the child may have inherited the same temperamental tendencies, which biologically may also over time influence their development of ER skills, depending on their environmental conditions.

Child ER at Age 8 Predicts Interparental Cooperation at Age 10

The heritability component can also be relevant when trying to explain our findings that child ER at age 8 predicted interparental cooperation two years later. It can be argued that child emotional dysregulation (affected by their temperament) can create tension in

everyday situations, by creating different responses in different caregivers (Thomas et al., 1963). This in turn can be argued to influence the parent in a way that makes them bring this tension into situations involving interparental cooperation. Or in line with the current study, it can be imagined that if a child is socio-emotionally competent and well-adapted, their parents may observe this and attribute it to their own parental skills. This may further increase their confidence, which is an aspect they may bring into their parenting styles and interparental cooperation.

The findings by Peltz et al. (2018) are not only relevant when discussing heritability, but they also can be related to the spillover hypothesis. On the one hand, the temperament of the parent and of the child can affect how they interact with each other. This over time creates different transactional patterns of interaction which further influence the socio-emotional development of the child. Therefore, it also makes sense that if a child frequently is frustrated and struggles to regulate their own emotions, this could be directed towards the parent, which brings this frustration into their marriage, affecting their parenting and cooperative capacities.

Also, there is a significant transition for the child during middle school. The demands of school include new challenges related to development and adjustment. Additionally, there is a gradually larger sense of independence from caregivers, especially the parents (Whalen et al., 2017). This may provide some explanatory force as to why we during the age of 8-10 are able to see a predictive effect from child ER to interparental cooperation.

Li et al. (2019) found support for intergenerational transmissions of ER abilities. Maternal and paternal emotion dysregulation was associated with the ER and the liability of their children. Moreover, parental reactions to their children's negative emotions were found to mediate the relationship between child ER and parental emotion dysregulation. In other words, how the parents respond to their child's emotional expressiveness is important. When viewing our findings in this context, it could be imagined that parents of "demanding" children have less cognitive and emotional capacity, which influences how they are able to respond to their children. On the other hand, if the child is well-regulated and well-adapted in their everyday lives, this in turn could induce less stress in the parents, who end up having more capacity to provide their children with quality emotion-related socialization behaviours.

Implications

It is essential to underline that our paper focuses on how certain forms of interparental conflict may expose children to learning opportunities regarding prosocial conflict resolution

strategies. However, we do not know whether a direct modelling between parents and child occur, as this has not been specifically measured in the current study. We assume that parents who cooperate constructively also do this in the family setting, in front of their children, based on the theoretical aspects presented above.

We did find some support for child ER effects on interparental cooperation; however, we did find more empirical support for the effects of interparental cooperation on child ER. In today's research field, there is consensus that these effects are transactional in the sense that the dynamics are affected by each other. However, there is more research on parental effects on children versus the child's effect of the parental relationship. Maybe our findings represent the fact that it may be easier to empirically uncover parental effects. Although children contribute to shaping their own developmental environments, the parents often are essential in determining their environmental and developmental outcomes. This may be due to different power dynamics in which the parents seem to have a greater agency in forming the family dynamic than the children do.

Regarding the practical implications of our findings, one preliminary study showed that mothers mainly experience guilt depending on two central findings (Rotkirch & Janhunen, 2010). The first is that maternal guilt varies according to cultural and social expectations and demands. The second is that mothers typically experience guilt in relation to parent-offspring conflict (i.e., when they had diverging interests from their child and had to negotiate with them). In other words, if a child experiences ER difficulties, we believe that this can induce guilt in parents if they attribute these difficulties as results of their own shortcomings. Our findings provide support for the theoretical idea that it is not only up to the parent to shape their children, but the children also shape their parents. Our hope is that the findings could contribute to trying to reduce shame in parents who experience difficulties with their children's ER abilities. If more focus is directed towards how children's ER abilities can be improved, this may eventually aid in increasing parental esteem, which transactionally could provide positive benefits for all involved.

As our results demonstrated, the effect sizes were rather modest. We do acknowledge that the concept of ER mainly can be explained by other central factors such as genetics and parenting styles, and that the role of interparental cooperation is only a part of a complex process. However, our results are important, as we are seeing effects only within time lapses of two years, and at all measurement times. In addition, the findings showed that there is a high stability regarding parents that cooperate well at age 6 of the child, and that they continue to cooperate well when the child is 8. This stability can also be seen for the child's

ER, where children that have better ER at age 6 also show this tendency at age 8. We observe this effect even though one may hypothesize that ER abilities should improve over time. In any case, there is a stable transaction within the family system. Children observing interparental cooperation at this age may be better at understanding (and incorporating into their own development) other people's perspectives, emotions, and behavioural responses (Piaget, 1981; Pons et al., 2004; Sabatier et al., 2017). Perhaps this stability we see represents why the transactional effects between child ER and interparental cooperation maintains its predictive value throughout our model.

Strengths and Limitations

Our study showed a variety of strengths, mainly the fact that it has a longitudinal design based on a large representative sample. The design has multiple waves, and the CPS parent-report measure is well validated (Helland et al. 2021). Also, the developmental period which we have chosen to focus on is not adequately represented in previous research. Despite these strengths, there are undoubtedly several limitations that need to be addressed.

Although our sample is large and representative, it does consist of a community sample where children with a high score on the SDQ were oversampled in order to increase variability (Wichstrøm et al., 2012). However, this has been equalized in the analysis, to preserve the representativeness of the sample. The representativeness of the sample is also dependent on the assumption that data was missing at random. Here, we could have performed a non-response analysis of the missing data, but this was beyond the scope of our thesis. Additionally, a large part of the sample was Norwegian individuals (87%), which calls for caution when generalizing to other Western or non-Western contexts.

Already since the very start of life, the child's development is highly influenced by the child-parent relationship (Maccoby, 2000; Frosch et al. 2019). The measurements of our study were made by two years at a time, and there are many developmental milestones from the age of 6 to 8, from 8 to 10, and from 10 to 12. Considering that the follow-ups may have missed time periods in which the children were more sensitive to parental influence, more frequent measurements, such as every 6 months, could have given other findings.

The previously mentioned Goldberg and Carlson (2014) claimed that middle school children have a greater potential to influence family dynamics, compared to children in their earlier developmental ages. This may provide a possible explanation as to why we see that the transaction between interparental cooperation and child emotion regulation starts at age 6 in our model. However, it is important to note that we selected the ages of 6 - 12 years for our

research question and that we do not know if we would see similar transactions in younger and older age groups as well. Another interesting point of future research could be to investigate how our documented effects are manifested throughout puberty, past the age of 12. Regardless, our main point is that we see a transaction, not that we are able to identify exactly how this transaction starts and potentially continues beyond our findings.

The ERC includes items that are closely related to temperament (i.e., the child reacts stronger to a stranger). It could be discussed whether this scale therefore taps into effects that are more closely related to temperament, and not only ER like it aims to do. When tested in a Norwegian context, the validity was put into question (Oseland, 2019), although the validity has been supported in other European languages (Molina et al., 2014; Nader-Grosbois & Mazzone, 2015). It is also important to note that both variables were measured using parent reports, with the mother often being the informant reporting on behalf of both parents and the child. The reliability-measure of the ERC (parent report) was considered low to moderate. However, Stensen and Lydersen (2022) describe that when measuring reliability with Cronbachs alfa – more statistical assumptions are included in this type of analysis (i. e. the reply to every statement or question in the instrument should follow a normal distribution). As this is often not the case, they argue that using McDonalds omega therefore may be a better way of measuring reliability as it uses less assumptions and therefore is more robust. This may have provided a more satisfactory reliability for the ERC-instrument in the current study.

One can speculate whether other-report regarding an individual's overt and covert emotion regulation really is accurate. There could be a few other explanations as to why the reliability was low. For instance, a child may be good at hiding and internalizing the fact that they are feeling sad or frustrated, which for a parent may be observed and interpreted as being well-regulated. They might also behave differently in school compared to how they behave at home, which may not provide a complete picture of their ER abilities that the parents can report based on. Our study could therefore have benefited from complimentary reports, such as teacher reports and interviews with the child themselves. Also, the mother was also often the one reporting on interparental cooperation involving both parents. This could make the reports less reliable, as it is based on the opinion and assessment of only one of the parents. One factor could be that the parent experiences guilt (i.e., because of high conflict level or individual vulnerabilities within the child). This may induce a social desirability bias, which leads to a "faking good"-tendency (i.e., my child is well regulated), which may result in inaccurate reports of interparental cooperation and/or child ER.

By using cross-lagged structural equation models we were not able to differentiate between individual-level and group-level processes, and neither did we control for genes (as they are unobserved and stable confounders). Therefore, we were not able to clarify whether our findings could be the results of mutual genetics or other factors. We controlled for SES and gender in our analysis but did not control for other factors, as the TESS lacks some measurements at certain ages. Confounding effects by factors such as other characteristics of the child (psychopathology or traits such as neuroticism, anxiety, aggression), the relationship between parent-child (i.e., attachment security), or parenting style may therefore not be excluded from the equation. Regarding parenting, the parents may relate to each other in a way that directly affects how they parent, and therefore also the child's development. This potentially makes the effect we see between interparental cooperation and child emotion regulation an indirect effect, with parenting being an explanatory mechanism within and of itself. Finally, we did not control for brain maturation and cognitive capacities, or the potential influence of negative life experiences. Such factors are therefore of great interest and importance in future research.

Conclusion

In summary, this thesis supports the idea that there are positive reinforcing transactions between parents' prosocial conflict resolution and children's emotion regulation for certain time points in middle childhood. Although much research supports a transactional view of interactions between children and their parents, understanding the mediators of these transmissions are important to unravel how one may further prime such positive transactional cycles. As this inquiry only focused on interparental cooperation and children's emotion regulation, further research should address whether other mediators can explain these findings (e.g., parenting style). Controlling for temperament and genetics, will be important to understand the true effect of parental behaviour on children, and effects of child ER on parents.

Researching dual pathways may elaborate the findings from our study in the following sense: does something negative affect one's wellbeing and does something positive affect one's wellbeing? Thus, designing studies that incorporate interparental conflict and children's lability, in addition to the constructs from the current study, may provide further knowledge about possible dual pathways. Furthermore, studying these concepts before the

age of 6 and after the age of 12, could give insights to whether these transactions are present across childhood and continues later as the children reach adolescence. Finally, bringing more attention to the interparental relationship as a part of children's environmental system, and not only to the parent-child relationship, is needed to better understand the mechanisms affecting the family system.

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