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Emerging parenthood: Parental sensitivity from infancy to toddlerhood

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CHAPTER 3

3

Narrative Coherence Across the Transition to Parenthood: Primiparous Parents' Representations of Their Child in Relation to Parental Sensitivity

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Abstract

Narrative coherence reflects parents' ability to provide a believable, clear, relevant, and internally consistent story about their child. Parents demonstrating more narrative coherence have been theorized to show higher parental sensitivity, but this has not been examined in a normative sample, nor across the transition to parenthood, and only once in fathers. The aim of this study was to examine stability and change in narrative coherence across the transition to parenthood in mothers and fathers, as well as the relation between pre- and postnatal narrative coherence and postnatal parental sensitivity. The sample consisted of 105 primiparous expecting parents. Narrative coherence was measured at 36-weeks pregnancy and when the child was 4 months old, using the Five Minute Speech Sample procedure. Parental sensitivity was observed in three episodes. Results demonstrated that narrative coherence was moderately stable (correlations) across the transition to parenthood in fathers only. Both mothers' and fathers' narrative coherence improved over time. Furthermore, mothers and fathers were overall equally coherent, and maternal and paternal narrative coherence were positively interrelated during pregnancy only. Lastly, our findings showed weak evidence for the theorized link between narrative coherence and parental sensitivity: only postnatal narrative coherence predicted paternal sensitivity, only during free play. Our findings give new insight in the development of narrative coherence across the transition to parenthood, and how it relates to actual parenting. More research is needed to confirm our findings and further explore this topic.

Keywords: Five minute speech sample, narrative coherence, pregnancy, representation, parental sensitivity.

Introduction

Parents' mental representations of their child consist of the thoughts and feelings they have about (the relationship with) their child, and reflect how they interpret the child's personality and behavior. The construction of these representations are facilitated by complex, higher-order constructs that have been conceptualized in various ways, such as mind-mindedness, reflective functioning, insightfulness, and narrative coherence (see for a meta-analysis on some of these concepts: Zeegers et al., 2017). Because parental representations are related to infant attachment quality as well as parents' own attachment representations, it has been suggested that these representations partially explain the intergenerational transmission of attachment quality (Sharp & Fonagy, 2008; Slade et al., 2005). Actual parenting behaviors may also play a role in this transmission (Oppenheim, 2006). That is, parents' own attachment representations may influence the views they have on (the relationship with) their child, which guides how they interpret and respond to their child's behavior, creating a parenting style which in turn is related to (child) outcomes such as attachment. Indeed, two meta-analyses have demonstrated that parents' representations of their child are related to their actual parenting, with more positive representations being related to higher parental sensitivity (Foley & Hughes, 2018; Zeegers et al., 2017).

Following attachment theory (Bowlby, 1969/1982) and Mary Main's work on the Adult Attachment Interview which revealed coherence to be a crucial dimension for classifying adults' narratives about their own childhoods into secure and insecure groups (Main, 2000), the concept of narrative coherence as a measure of parental representations could be particularly important for the quality of attachment relationships (Oppenheim, 2006). Narrative coherence reflects parents' ability to provide a believable, clear, relevant, and internally consistent story about (the relationship with) their child (Oppenheim, 2006; Sher-Censor, 2015). Parents who create a coherent narrative about their child, demonstrate that they are able to process information about their child in a flexible and open way. Attachment theory suggests that this flexible information processing shapes sensitive parenting – i.e., parents' ability to pick up and accurately interpret their child's signals and respond to these signals in an appropriate and timely manner – as written in Ainsworth's sensitivity scale coding manual: "caregivers who least distort their perceptions of the child have some insight as to their own wishes and moods, and thus can more realistically judge the child's behavior" (Ainsworth et al., 1974, p.4). In turn, sensitive parenting is an important predictor of infant attachment quality (Ainsworth et al., 1974; De Wolff & Van IJzendoorn, 1997). However, even though narrative coherence has been shown to be related to child outcomes such as behavior problems and school adjustment (Sher-Censor et al., 2016; Sher-Censor et al., 2018; Sher-Censor & Yates, 2015), to date only one study examined and found evidence for the theorized link between narrative coherence and parental sensitivity, in a sample of Arab-Israeli mothers of boys with Autism Spectrum Disorder (Sher-Censor et al., 2017). In addition, no studies have examined narrative coherence in fathers. To broaden the limited body of knowledge on narrative coherence and its theorized relation to parental sensitivity, more research is needed in normative samples consisting of both mothers and fathers to further elucidate this possible relation with parental sensitivity.

Importantly, parents already form mental representations about their child during pregnancy (Glover & Capron, 2017), that may shape their views of their child once they are born and possibly change over time as they gain experience with their child. A recent meta-analysis demonstrated that parents' prenatal representations of their child are related to their postnatal sensitivity (Foley & Hughes, 2018). However, parents' narrative coherence as a specific form of parental representations relevant to attachment theory has only been examined once prenatally (Foley et al., 2019) – and even though this study demonstrated that it is possible to capture individual differences in both mothers' and fathers' narrative coherence during pregnancy, it remains unclear how it develops across the transition to parenthood and to what extent prenatal narrative coherence is related to postnatal narrative coherence as well as parental sensitivity. Therefore, the aim of the current study is to examine stability and change of the narrative coherence of parents' mental representations of their child across the transition to parenthood in both mothers and fathers, as well as the relation between both pre- and postnatal narrative coherence and postnatal parental sensitivity.

Assessing Parents' Representations of Their Child across the Transition to Parenthood

The transition to parenthood forms a particularly interesting period to study narrative coherence: couples become parents for the first time and have to adapt to their new role. During this period of change, parents often think about questions such as how their child will be, what kind of parent they would like to be for their child, and what their bond with their own parents was like. Research indeed demonstrates that most parents already form mental representations of their child during pregnancy (Glover & Capron, 2017). This raises the question whether these mental representations formed during pregnancy are a static construct, or change over time – perhaps because parents gain experience with their child after it is born, that may shape their representations in several ways. Unfortunately, much is still unclear about narrative coherence specifically across this transition to parenthood. Even though Foley et al. (2019) did demonstrate that narrative coherence can be captured prenatally via a short 5-minute interview called the Five Minute Speech Sample (FMSS), to date no studies have looked at narrative coherence both pre- and postnatally.

As previously mentioned, researchers interested in parents' mental representations of their child have assessed these representations in several ways. This led to the development of constructs that are in some ways similar to narrative coherence, as they all focus on parents' thoughts and feelings regarding (the bond with) their (unborn) child, and require parents to flexibly process information about the child. Importantly, Fonagy et al. (2002; 2012) mentioned that these constructs should not be seen as conflicting but rather as complementary to each other. First, mind-mindedness reflects parents' ability to perceive their child as an individual mental agent with own thoughts and feelings – mind-minded parents are able to 'read' their infant's likely internal states (Arnott & Meins, 2008; Meins et al., 2001). Second, parental reflective functioning (PRF) also refers to parents' ability to realize that their child has his/her own mental states, but differs from mind-mindedness in the sense that parents also need to demonstrate that they understand that these mental states are a reflection of the child's actual behavior (Fonagy et al., 1998; Slade, 2005). Third, similar to mind-mindedness and PRF, insightfulness requires parents to take their

child's perspective into consideration: positively insightful parents demonstrate that they understand the motives behind their child's behavior and emotions, and they do so in a child-focused, complete, positive, and coherent manner (Koren-Karie et al., 2002). Not surprisingly, coding procedures of narrative coherence and insightfulness show striking similarities, as the coding procedures for narrative coherence were adapted from Koren-Karie and Oppenheim's (2004) *Insightfulness Assessment Coding Manual*. Fourth, parents' mental representations of their (unborn) child have been researched in a more general way using the *Working Model of the Child Interview*: parents' representations during this interview are classified as either balanced, disengaged, or distorted (WMCI; Zeanah et al., 1986). Finally, to assess parents' thoughts and feelings regarding the closeness of the bond with their (unborn) child in general, questionnaires focusing on prenatal attachment or bonding have been used, such as the Attachment Scale (i.e., MAAS, PAAS, MPAS, and PPAS; Condon, 1993; Condon & Corkindale, 1998; Condon et al., 2008).

In contrast to narrative coherence (as well as insightfulness), the four constructs outlined above have been examined both pre- and postnatally. For example, in a small sample, Arnott and Meins (2008) found a positive relation between pre- and postnatal mind-mindedness in mothers as well as fathers. Furthermore, a positive relation was found between pre- and postnatal maternal reflective functioning, as well as a significant improvement in maternal reflective functioning over time across the transition to parenthood (Pajulo et al., 2015; Smaling et al., 2016). Additionally, multiple studies demonstrated that both mothers and fathers who have balanced representations prenatally often have these same balanced representations after the birth of their child, and more often have balanced representations of their child after birth than during pregnancy (Benoit et al., 1997; Theran et al., 2005; Vreeswijk et al., 2014; Vreeswijk et al., 2015). Lastly, studies focusing on parents' feelings about the closeness of their bond with their child that was conceived through IVF found a positive relation between parents' pre- and postnatal feelings of bonding, as well as a significant improvement in mean levels of bonding after the birth of their child compared to during pregnancy (Cairo et al., 2012; De Cock et al., 2016; Maas et al., 2016). Thus, several other conceptualizations of parents' mental representations of their child seem to show stability as well as improvement over time.

Mothers' versus Fathers' Representations of Their Child

Besides studying narrative coherence across the transition to parenthood, it is important to examine how mothers' and fathers' narrative coherence might be similar or different in level, and how they are interrelated, both pre- and postnatally. Before birth, the bond that fathers have with their child is of course different from the bond that mothers have, as fathers lack the physical connection with their child during pregnancy (Ives, 2014). It is therefore possible that fathers' coherence develops differently over time compared to mothers' coherence. In the only study on prenatal narrative coherence no relation was found between mothers and fathers, and their mean levels did not differ significantly (Foley et al., 2019). No studies have examined narrative coherence in fathers postnatally. It is thus unclear whether mothers' and fathers' narrative coherence indeed develop differently across the transition to parenthood.

Literature on associations and mean level differences between mothers' and fathers' representations of their child is limited, both pre- and postnatally. Regarding differences in representations specifically in the prenatal period, the literature is mixed. In accordance with the results of the study on prenatal narrative coherence a study on mind-mindedness also found no difference between mothers and fathers (Arnott & Meins, 2008), whereas research on other constructs did find differences between expecting mothers and fathers, with expecting mothers having higher reflective functioning, more balanced representations, and higher levels of feelings of bonding with the child than expecting fathers (e.g., Cairo et al., 2012; Pajulo et al., 2015; Vreeswijk et al., 2015). Regarding associations between fathers' and mothers' representations specifically in the prenatal period, in accordance with the results of the study on prenatal narrative coherence no relation was found between expecting mothers' and fathers' reflective functioning (Pajulo et al., 2015). However, De Cock et al. (2016) did find a significant weak to moderate positive relation between mothers' and fathers' prenatal feelings of bonding with the child. To the best of our knowledge, there have been no studies on relations and/or mean level differences between mothers and fathers on other constructs.

Regarding mean level differences and associations between mothers and fathers in their representations in the postnatal period, literature is scarce and mixed as well. Looking at differences, some studies found no difference between mothers' and fathers' postnatal mental representations (e.g., Marcu et al., 2016), whereas other studies demonstrated that mothers more often have balanced postnatal representations about their child and higher mean levels of feelings of bonding with the child than fathers (Cairo et al., 2012; Vreeswijk et al., 2015). Two studies reported on similarities between mothers and fathers in representations in the postnatal period, and found significant, positive relations (De Cock et al., 2016; Marcu et al., 2016).

In conclusion, based on the scarce literature present it is unclear whether similarities and differences should be expected between mothers' and fathers' narrative coherence, either pre- or postnatally.

Narrative Coherence and (parenting) behavior

As previously mentioned, no studies have examined narrative coherence specifically in relation to parental sensitivity in normative samples and in mothers as well as fathers, which could be an important missing puzzle piece in the question as to why and how intergenerational transmission of attachment takes place. Coherence of mothers' mental representations has been examined in relation to maternal sensitivity in a high risk-sample consisting of mothers living in areas with extreme poverty and community violence, but no significant relation was found (Sokolowski et al., 2007). Interestingly, two meta-analyses on related concepts did find a relation with parental sensitivity, with more positive representations being related to higher parental sensitivity (Foley & Hughes, 2018; Zeegers et al., 2017).

Even though no studies have examined narrative coherence in relation to parental sensitivity in normative samples, previous research on narrative coherence in mothers has focused on child outcomes. For instance, a large study on parental representations and self-

regulation demonstrated that mothers who show higher postnatal narrative coherence have preschoolers with a more positive view on the relationship with their mother (Sher-Censor et al., 2013). Furthermore, the same study showed that higher postnatal maternal narrative coherence is related to fewer behavioral problems in toddlers and preschoolers, and to better school adjustment in children with self-regulation difficulties (Sher-Censor et al., 2016; Sher-Censor et al., 2018; Sher-Censor & Yates, 2015).

Current Study

In summary, the development of parents' narrative coherence as a measure of their mental representations of their child across the transition to parenthood, and the possible relation between pre- and postnatal narrative coherence and actual sensitive parenting, remain open for further investigation in mothers as well as fathers. Yet, this information may be especially useful in closing the gap of knowledge regarding the intergenerational transmission of attachment. Therefore, the current study adds to the existing literature by examining parents' narrative coherence in both mothers and fathers over time from pregnancy to parenthood, as well as the relation between narrative coherence and parental sensitivity. As previous research demonstrated that context matters and that both more and less naturalistic contexts could be valuable when studying parental sensitivity (Branger et al., 2019), the current study will use video observations of parental sensitivity in three contexts, from more to less naturalistic: routine caregiving, free play, and the Still Face Procedure.

The following hypotheses are tested: (1) narrative coherence is stable over time from pregnancy to parenthood in both mothers and fathers; (2) mean levels of narrative coherence increase from pregnancy to parenthood in both mothers and fathers; (3) both prenatal and postnatal narrative coherence predict parental sensitivity in mothers as well as fathers. Furthermore, as studies to date have found inconsistent results, similarities and differences between mothers' and fathers' narrative coherence both during pregnancy and after birth of their first child are explored.

Method

Sample and Procedure

To examine parents' narrative coherence in both mothers and fathers over time from pregnancy to parenthood, as well as the relation between narrative coherence and parental sensitivity, we executed a longitudinal study. This study was part of the New Fathers and Mothers Study, a larger longitudinal research project on parental wellbeing, parent-child interactions, and child outcomes in families with their firstborn child in the UK, the USA, and the Netherlands. The current paper reports on Dutch data from the first and second wave (see also Branger et al., 2019). Recruitment took place from September 2014 to March 2015 throughout the Netherlands. Primiparous expecting parents were recruited at pregnancy fairs and prenatal exercise classes, and through distribution of study promotion materials at pregnancy stores and midwife clinics. Interested couples were included in the study if they were at least 21 years old, living together in the Netherlands, both expecting their first child, and planning on raising their baby together.

Exclusion criteria for participating in the study were not speaking the Dutch language, having a self-reported history of severe mental illness or substance abuse, and current participation in extensive therapeutic or medical treatment. Furthermore, families were excluded from the postnatal assessment if the mother did not give birth to a healthy baby.

In total, 132 families participated in the prenatal assessment at 36 weeks of pregnancy, which consisted of one home visit for both expecting parents. During the home visit, one parent was interviewed and performed computer tasks while the other parent filled out a questionnaire in a separate room, after which they rotated. The order in which the expecting mothers and fathers were interviewed was counterbalanced. At the postnatal assessment, which took place when the infant was 4-months old, 3 families were excluded due to child health problems while 10 families dropped out of the study because of infant sleeping problems ($n = 1$), parent mental problems ($n = 1$), and lack of time ($n = 8$). Participating families were not different from non-participating families on age, educational level, working hours, personal income, and family income ($ps: .07- .77$). During the postnatal assessment parents also filled out questionnaires and were visited at home. This time they were visited separately, with a period of approximately one week in between visits. The order of mother and father visits was counterbalanced. Initially, the order of the contexts during the home visit was fixed for practical reasons (e.g., babies typically fall asleep after bathing). Eventually, 85 of the 210 home visits followed a different order to suit the infant's needs and still make data collection possible (e.g., the infant was already very tired when the researcher arrived). During the home visit, the parent was interviewed and performed computer tasks, parent-infant interactions were videotaped, and the infant was tested on their cognitive development. To prevent disturbances during the assessment with the target parent, the other parent was not present or in another room. All pre- and postnatal home visits were conducted by trained (under)graduate students. At each home visit informed consent was obtained from both parents, and parents received a gift voucher and a small present for their infant. Ethical approval of the study was provided by the Ethics Review Board of the host institute.

In the current study, families with missing data were excluded ($n = 14$). Families with missing data were not different from families without missing data on age, educational level, working hours, personal income, and family income ($ps: .07- .97$). Thus, the final sample consisted of 105 families (45.1% boys, all but three parents were of Dutch ethnicity), of which both parents completed the prenatal as well as the postnatal assessment. Assuming a power of at least 90% and an alpha of .05, our sample size ($N = 105$) was sufficient to detect a medium effect (i.e., $f^2 = 0.25-0.4$) using correlations (required $N = 92$), t-tests (required $N = 68$), repeated measures ANOVA to test within-, between-, and within-between interaction-effects (required $N = 40-105$) and Multiple Regression Analyses to test two main effects (required $N = 88$). Most mothers (81.0%) and fathers (99.0%) were employed, with employed mothers working an average of 32.52 hours per week before their pregnancy leave ($SD = 9.65$), and employed fathers on average 39.95 hours per week ($SD = 9.27$). Furthermore, at the 4-month assessment 34.1% of the employed mothers were taking parental leave for an average of 10.03 hours per week ($SD = 9.16$), while 9.8% of the employed fathers were taking parental leave for 6.36 hours per week on average

($SD = 1.96$). All other relevant descriptive statistics of the study sample are presented in Table 1.

Table 1. Descriptive Statistics of the Study Sample and Variables of Interest.

		<i>M</i>	<i>SD</i>	<i>Min.</i>	<i>Max.</i>
Mothers	1. Prenatal narrative coherence	4.62	1.23	2	7
	2. Postnatal narrative coherence	5.41	1.00	3	7
	3. Sensitivity: Free play	5.17	1.90	1	9
	4. Sensitivity: Routine caregiving	7.07	1.07	4	9
	5. Sensitivity: SFP	1.90	0.69	0	3
	6. Age	29.46	3.67	21	39
	7. Educational level – high (%)	69.5			
	8. Educational level – low (%)	17.1			
	9. Duration routine caregiving (min.)	15.27	6.37	2.09	29.44
Fathers	10. Prenatal narrative coherence	4.61	1.32	1	7
	11. Postnatal narrative coherence	4.97	1.06	2	7
	12. Sensitivity: Free play	5.50	1.93	1	9
	13. Sensitivity: Routine caregiving	6.59	1.32	3	9
	14. Sensitivity: SFP	1.41	0.73	0	3
	15. Age	31.68	4.33	22	48
	16. Educational level – high (%)	60.4			
	17. Educational level – low (%)	27.1			
	18. Duration routine caregiving (min.)	14.83	6.80	2.32	30.07
Family	19. Household income	63,856.93	20,935.62	16,000	120,000
	20. SES	-0.05	0.77	-1.60	1.39

Note. High educational level refers to having at least a Bachelor's degree, low educational level refers to having obtained upper secondary education or less. For reference, the average household income in the Netherlands was 35,000 Euros (Statista, 2018)).

Measures

Narrative coherence. The FMSS procedure (Magaña et al., 1986) was used to measure narrative coherence in parents during both the pre- and postnatal interview, which were audio-recorded. Parents were asked to speak for five uninterrupted minutes about what they think their (unborn) baby will be or is like and how the two of them (will) get along. Audio files of the interviews were transcribed, after which all transcripts were checked. Transcripts were then coded for narrative coherence using the FMSS Narrative Coherence coding manual (Sher-Censor & Yates, 2010) as adapted from the Insightful Assessment scales (Koren-Karie & Oppenheim, 2004). With approval from the original authors, the manual was adapted for prenatal assessment (see also Foley et al., 2019). First, each transcript was rated on six 7-point subscales, i.e. focus, elaboration, separateness, concern/worry, acceptance/rejection, and complexity (for details see Sher-Censor & Yates, 2015). Second, a global narrative coherence score was given based on the subscale ratings, reflecting the extent to which the transcript conveyed a consistent, elaborated, complex, and believable picture of the baby/relationship, without overwhelming concern

or substantial problems in separateness. Coherence was coded on a 7-point Likert scale ranging from 1 = no coherent picture to 7 = very coherent picture of the baby.

Pre- and postnatal interviews were coded by separate groups of coders. The reliability set for the prenatal interviews as well as the reliability set for the postnatal interviews consisted of 30 transcripts of both (expecting) mothers and fathers. The first and fourth author coded the prenatal interviews; their intraclass correlation coefficient (absolute agreement) for Coherence was .75. Regarding the postnatal interviews, four coders were trained to reliability by the first author; their intraclass correlation coefficients (absolute agreement) for Coherence ranged from .72 to .89 for all separate pairs of coders ($M = .78$). All coders coded mothers' as well as fathers' narratives, but mothers and fathers of the same family were coded by separate coders to guarantee independency among ratings.

Parental sensitivity. Parental sensitivity was measured in three contexts: during a free play session, a routine caregiving episode, and during the Still Face Procedure. As previous research demonstrated that levels of parental sensitivity differ in various context, we did not aggregate the scores to form one sensitivity measure (for more information on differences and similarities in parental sensitivity between these contexts, see Branger et al., 2019). The Ainsworth Sensitivity Scale (Ainsworth et al., 1974) was used to code parental sensitivity during the free play session, in which parents were instructed to play with their infant for five minutes as they would normally do but without the use of toys or a pacifier, as well as the routine caregiving episode, in which parents were asked to bathe their infant ($N = 82$ for mothers, $N = 81$ for fathers) or change the infant's diaper ($N = 23$ for mothers, $N = 24$ for fathers). Because episode duration differed significantly between bathing and changing the infant's diaper in both mothers and fathers, $t(103) = 15.52, p < .001$ and $t(52.35) = 15.57, p < .001$, duration of the routine caregiving episode was taken into account as a possible covariate in the preliminary analyses.

The Ainsworth Sensitivity Scale consisted of 9 points, ranging from 1 = highly insensitive to 9 = highly sensitive. One global rating was given to each parent for the full episode, and even though all coders coded mothers as well as fathers, mothers and fathers of the same family were coded by separate coders. Ten coders, not trained to code narrative coherence, were trained to reliability by the third and last author, using video tapes of families within the study. The reliability set contained 30 videotapes of free play sessions of fathers and mothers. Intercoder reliability was adequate, with intraclass correlation coefficients (absolute agreement) ranging from .73 to .92 for all separate pairs of coders ($M = .83$). Reliable coders received two additional training sessions focused on coding of the routine caregiving episodes.

Parental sensitivity during the Still Face Procedure (SFP; Tronick et al., 1978) was coded using the SFP Sensitivity scale. This is an adapted version of the Mother-Infant Coding System (MICS; Miller, 2000), consisting of a 4-point Likert scale ranging from 0 = no sensitivity to 3 = predominantly high sensitivity. Four coders, not trained to code narrative coherence and parental sensitivity during free play and routine caregiving, were trained to reliability by the last author, using video tapes of families within the study (for a more detailed description of the coding scale and process, see Branger et al., 2019).

The reliability set consisted of 40 videotapes of SFPs (baseline as well as reunion, and mothers as well as fathers). Intraclass correlation coefficients (absolute agreement) for the SFP across baseline and reunion ranged from .69 to .73 between coders. Constraints in coder availability resulted in different coders for mothers' versus fathers' SFP videotapes. Because previous research has demonstrated that there was no significant difference in parental sensitivity between baseline and reunion and that these contexts were highly related (Branger et al., 2019), in the current study the mean score of the SFP baseline and reunion was used for each parent to represent parental sensitivity during the SFP.

Analyses

Data analyses were performed using IBM SPSS Statistics 25. Descriptive statistics are shown in Table 1. Data exploration revealed that all variables approached a normal distribution. Furthermore, no outliers were present (i.e., $z\text{-score} \geq |3.29|$) except for one outlier on maternal sensitivity during routine caregiving and one outlier on father's age, which were winsorized using the method of Tabachnick & Fidell (2012). Preliminary analyses on possible covariates (i.e., parents' age, family SES at the first assessment, which was a composite score based on the standardized scores of mothers' and fathers' educational level and their household income, and duration of the routine caregiving episode) were performed to check whether they were related to the variables of interest. Variables were included as covariates in relevant analyses in case of significant associations with the outcome variable (narrative coherence or parental sensitivity).

First, Pearson correlation coefficients were calculated to examine whether maternal and paternal narrative coherence were significantly related, as well as to examine stability in narrative coherence over time from pregnancy to parenthood. Second, to examine whether mean levels of narrative coherence were different between mothers and fathers and changed over time from pregnancy to parenthood, t -tests were performed, after which a GLM Repeated Measures analysis including relevant covariates was performed with time of assessment (pre- and postnatal) and parent gender (mother and father) as within-subjects factors. Third, hierarchical multiple regression analyses (HMRA) were performed for mothers and fathers separately to step-by-step explore the associations between the covariates and prenatal as well as postnatal narrative coherence on the one hand and parental sensitivity in three different contexts on the other hand.

Results

Preliminary Analyses

Mothers' and fathers' age were both positively related to maternal prenatal narrative coherence, with $r(103) = .20, p = .044$ and $r(103) = .24, p = .013$ respectively, indicating that mothers in families with older parents had more coherent prenatal narratives. Because maternal and paternal age were strongly correlated ($r(103) = .68, p < .001$), only mothers' age was used as a covariate in the GLM Repeated Measures analysis. Furthermore, family SES was positively related to both maternal and paternal prenatal narrative coherence, with $r(103) = .30, p = .002$ and $r(103) = .28, p = .004$ respectively, indicating that in families with a higher SES both mothers and fathers had more coherent prenatal narratives.

Moreover, family SES was positively related to maternal sensitivity during free play and routine caregiving, with $r(103) = .22, p = .021$ and $r(103) = .22, p = .022$, respectively, and paternal sensitivity during the SFP, $r(103) = .21, p = .030$. Thus, in families with a higher SES, mothers demonstrated more sensitivity during free play and routine caregiving, while fathers demonstrated more sensitivity during the SFP. Because family SES was related to the variables of interest, the GLM Repeated Measures analysis and the HMRA were performed with these variables included as covariate. Additionally, duration of the routine caregiving episode was significantly positively related to sensitivity during routine caregiving in fathers, $r(103) = .26, p = .007$: fathers with a longer routine caregiving episode had a higher score on sensitivity regarding this episode. Duration of the routine caregiving episode was therefore used as a covariate in the HMRA that were performed to predict parental sensitivity during routine caregiving.

Relations Between Pre- and Postnatal Maternal and Paternal Narrative Coherence

Correlations between pre- and postnatal maternal and paternal narrative coherence are presented in Table 2. Maternal and paternal narrative coherence were significantly positively related at the prenatal assessment, but not at the postnatal assessment (although the strength of these pre- and postnatal correlations did not differ significantly, $z = 1.33, p = .184$). Additionally, prenatal and postnatal narrative coherence were significantly positively related in fathers, but not in mothers (although the strength of the correlations for fathers and mothers did not differ significantly, $z = 1.75, p = .080$).

Table 2. Correlations for Pre- and Postnatal Narrative Coherence and Parental Sensitivity.

	1.	2.	3.	4.	5.
1. Prenatal narrative coherence	.26**	.35**	-.01	.16	.12
2. Postnatal narrative coherence	.12	.08	.27**	.13	.18
3. Sensitivity: Free play	.18	-.03	.21*	.25**	.27**
4. Sensitivity: Routine caregiving	-.10	-.02	.37**	.26**	.28**
5. Sensitivity: SFP	-.04	.07	.33**	.36**	.11

Note. Correlations for fathers are presented above the diagonal, correlations for mothers below the diagonal, and correlations between mothers and fathers on the diagonal.

* $p < .05$. ** $p < .01$.

Differences in Mean Levels of Narrative Coherence

Paired t -tests demonstrated that mean levels of prenatal narrative coherence were not significantly different for mothers versus fathers, $t(104) = 0.06, p = .950$. However, at the postnatal assessment narrative coherence was significantly higher in mothers than in fathers, $t(104) = 3.22, p = .002$, Cohen's $d = 0.315$. Furthermore, mean levels of postnatal narrative coherence were significantly higher than mean levels of prenatal narrative coherence in both mothers, $t(104) = -5.45, p < .000$, Cohen's $d = 0.530$, and fathers, $t(104) = -2.70, p = .008$, Cohen's $d = 0.262$.

Additionally, a GLM Repeated Measures analysis was performed including maternal age and family SES as covariates. First, there was a significant main effect of time of assessment

on narrative coherence, $F(1,102) = 5.05$, $p = .027$, $\eta_p^2 = .05$. Narrative coherence was significantly higher postnatally ($M = 5.19$; $SD = 1.03$) than prenatally ($M = 4.62$; $SD = 1.28$). Second, there was no significant main effect of parent gender on narrative coherence, $F(1, 102) = 0.70$, $p = .405$, $\eta_p^2 = .01$. Narrative coherence was not significantly higher in mothers ($M = 5.02$; $SE = 1.12$) than in fathers ($M = 4.79$; $SE = 1.19$). Third, there was no significant interaction effect between time of assessment and parent gender, $F(1, 102) = 0.45$, $p = .503$, $\eta_p^2 = .00$, indicating that the increase in narrative coherence across the transition to parenthood is similar for mothers and fathers. Figure 1 shows the results regarding the GLM Repeated Measures analysis.

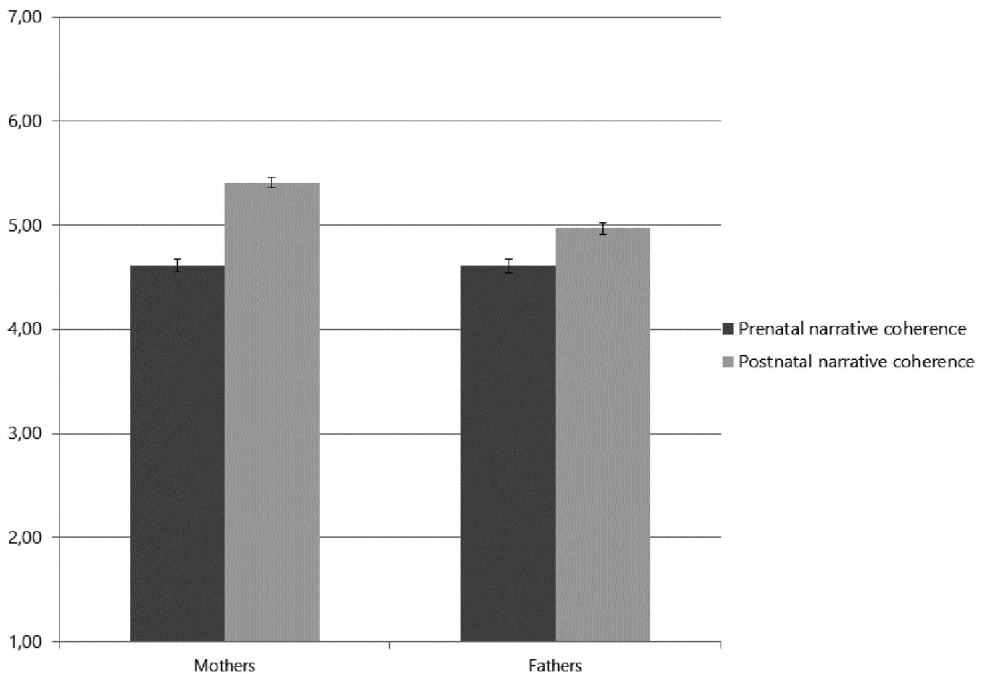


Figure 1. Mean levels of mothers' and fathers' prenatal and postnatal narrative coherence. Standard errors are represented in the figure by the error bars.

Narrative Coherence in Relation to Parental Sensitivity

Associations between mothers' and fathers' pre- and postnatal narrative coherence and their sensitivity levels in three contexts were investigated in six HMRA. Both with and without controlling for covariates, mothers' sensitivity levels during free play and mothers' as well as fathers' sensitivity levels during routine caregiving and the SFP were not significantly predicted by prenatal and/or postnatal narrative coherence. However, narrative coherence was a significant predictor of parental sensitivity during free play in fathers. Specifically, paternal postnatal narrative coherence, but not paternal prenatal narrative coherence, was significantly related to paternal sensitivity during free play without controlling for family SES: fathers with a more coherent narrative postnatally were

more sensitive to their infant in a free play situation. This model, consisting of paternal prenatal ($\beta = -.11$, $SE = .15$, $p = .268$) and postnatal narrative coherence ($\beta = .31$, $SE = .19$, $p = .003$), predicted 8.1% of the variance in paternal sensitivity during free play, $F(2, 102) = 4.52$, $p = .013$. Furthermore, this effect did not disappear when controlling for family SES: paternal postnatal narrative coherence was still positively related to paternal sensitivity during free play. This model, consisting of family SES ($\beta = .12$, $SE = .25$, $p = .226$) and paternal prenatal ($\beta = -.14$, $SE = .15$, $p = .171$) and postnatal narrative coherence ($\beta = .30$, $SE = .18$, $p = .004$), predicted 9.5% of the variance in paternal sensitivity during free play, $F(3, 101) = 3.53$, $p = .018$.

Discussion

To our knowledge, this study is the first to examine narrative coherence as a measure of parents' mental representations of their child in both mothers and fathers over time from pregnancy to parenthood, as well as the relation between pre- and postnatal narrative coherence and parental sensitivity. Results demonstrated that narrative coherence was moderately stable (correlated) across the transition to parenthood in fathers, but not in mothers, although the strength of the association was not significantly lower for mothers compared to fathers. Both mothers' and fathers' mean level of narrative coherence improved over time across this transition. Furthermore, mothers and fathers did not differ in their overall levels of narrative coherence, and maternal and paternal narrative coherence were significantly, positively interrelated prenatally but not postnatally. Lastly, postnatal narrative coherence was a significant predictor of parental sensitivity during free play in fathers, but not in mothers. Neither mothers' nor fathers' narrative coherence (prenatal or postnatal) related to their sensitivity in other contexts.

Partly in line with our hypothesis, narrative coherence was moderately stable across the transition to parenthood in fathers but not in mothers. Thus, fathers who created a more coherent narrative during pregnancy were also more coherent after the birth of their first child, whereas mothers showed more instability. An explanation for the relative instability in narrative coherence in mothers compared to fathers could be found in hormonal fluctuations related to pregnancy and postpartum. Even though fathers experience hormonal changes across the transition to parenthood as well, mothers experience drastic hormonal changes and fluctuations specifically driven by pregnancy, childbirth, and lactation, that fathers do not have (Leuner et al., 2010), and that are known to be related to variability in cognitive processes (Workman et al., 2012). This may be why only fathers', but not mothers' prenatal narrative coherence is predictive of their postnatal narrative coherence. Alternatively, as mothers are more often the primary caregiver than fathers and more often have extensive daily interactions with their infant, mothers' instability may also indicate that their representations change more rapidly from prenatal fantasies towards more realistic and complex representations compared to fathers. Additionally, in some mothers their subjective birth experiences could have impacted their narrative coherence at the postnatal assessment. Previous research indeed demonstrated that mothers with more negative birth experiences more often experience negative violation of expectations – i.e., their representations of the parent-child relationship are more

negative postnatally than prenatally – whereas this relation was not found in fathers (Flykt et al., 2014). Thus, hormonal fluctuations, the number of daily interactions with the infant, and/or negative birth experiences may temporarily impact some mothers more than others in their ability to create a (relatively) coherent narrative about their child postnatally, which could explain the instability in mothers' narrative coherence across the transition to parenthood.

It is however important to note that, even though the correlation between prenatal and postnatal narrative coherence was significant in fathers but not in mothers (i.e. their correlations differed), this difference between these correlations was not significant. Therefore, more longitudinal research with mothers as well as fathers is needed to determine whether narrative coherence is indeed stable across the transition to parenthood in fathers only. Furthermore, it would be interesting to examine hormonal fluctuations and subjective birth experiences as possible moderators of the relation between pre- and postnatal narrative coherence in both mothers and fathers, to examine whether this impacts the stability in narrative coherence across the transition to parenthood.

Next, as expected based on the literature on related parental representation concepts (e.g., Cairo et al., 2012; Vreeswijk et al., 2015), mean levels of narrative coherence improved over time across the transition to parenthood in both mothers and fathers. Even though parents already form ideas about the relationship with their child during pregnancy (e.g., Foley et al., 2019), the observed increase in the present study demonstrates that creating a coherent narrative becomes easier when parents have actually met their child and built up concrete experiences – which makes sense, as an important aspect of coherence is the ability to create a believable story with vivid examples that give an impression of who the child is (Sher-Censor, 2015). Because this is the first study to examine narrative coherence longitudinally, future research examining narrative coherence over a longer time period is needed to confirm the increase found in the current study, and to determine whether the increase is only present across the transition to parenthood or continues over time.

Additionally, there were no differences in mean levels of narrative coherence within couples, which is consistent with a study on parental insightfulness – a construct on which the narrative coherence coding manual was based (Marcu et al., 2016). Thus, even though fathers lack the physical bonding with their child during pregnancy that mothers do experience (Ives, 2014), they are equally able as mothers to produce a coherent story about their (unborn) child. We also found that maternal and paternal narrative coherence were significantly, positively related at the prenatal but not at the postnatal assessment. As previously mentioned, specific and personal birth and parenting experiences can shape parents in different ways. Furthermore, research has consistently demonstrated that partner relationship satisfaction decreases across the transition to parenthood (Mitnick et al., 2009). Perhaps the combination of having actual and personal (parenting) experiences and a less close partner connection makes that mothers' and fathers' narrative coherence are not related after the birth of their child. Prenatally however, parents have no such experiences yet, and perhaps their stories are more based on ideas created when they fantasize together about their child and their new roles as parents. However, it should be noted that these prenatal and postnatal correlations were not significantly different.

More research is needed, examining narrative coherence at later time points as well, to determine whether mothers' and fathers' narrative coherence are indeed related during pregnancy but not after the birth of their child, and to explore whether they will become better attuned to each other again at a later stage.

Lastly, we unexpectedly found only weak evidence for narrative coherence as an explanation of the intergenerational transmission of attachment quality by its theorized link with parental sensitivity. Postnatal, but not prenatal narrative coherence was positively related to parental sensitivity during free play in fathers only. In all other contexts, both prenatal and postnatal narrative coherence did not significantly predict parental sensitivity. This shows that context seems to play a role when observing sensitivity, which is in line with previous research (Branger et al., 2019). However, this is in contrast to theory that suggests that narrative coherence may be important for sensitive parenting, by reflecting the flexibility in parents' information processing that is needed in order to respond in a sensitive way to the child's signals (Sher-Censor, 2015). A possible explanation for our unexpected finding may lie in the fact that previous research that measured prenatal and/or postnatal representations focused on older infants. Given that a previous study pointed towards evidence that the stability of maternal sensitivity across the infants' first year of life may be low (Lohaus et al., 2004), it is plausible that a time point closer to infants' age of 12 months will show a different pattern of results. Alternatively, the relative instability of narrative coherence across the transition to parenthood may have played a role.

Narrative coherence was unstable in mothers and only moderately stable in fathers, while there were only five months in between the two time points and the same construct was measured twice using the same instrument. This shows that parents' narrative coherence in such an early stage of emerging parenthood is not necessarily highly representative of later narrative coherence. Experiencing hormonal fluctuations, changes in partner relationship satisfaction, and the reality of new family dynamics likely play a role in this relative instability, and could explain why we did not find a significant relation with parental sensitivity both prenatally and just four months after birth. Perhaps narrative coherence during emerging parenthood is not representative of parents' flexibility in information processing during actual parenting, and more time is needed for narrative coherence to become more crystallized before it is related to parental sensitivity. Therefore, more and longer longitudinal research is needed to confirm our results, to test whether parents' narrative coherence becomes more crystallized over time, and to test whether and when a (stronger) relation with parental sensitivity emerges.

This study provides more insight in the development of narrative coherence across the transition to parenthood in relation to parental sensitivity, but also has some limitations. First, our non-diverse sample limits the generalizability of our results, because more than half of the participants were highly educated, which is not fully representative of the Dutch population. It has been theorized that narrative coherence is robust and not influenced by cultural differences, because coherence of discourse seems to be a universal feature of communication in human language (Bakermans-Kranenburg & Van IJzendoorn, 2009; Sher-Censor, 2015). Furthermore, we did control for family SES (which was partly based on parents' educational level) in our analyses. However, in future research it would

be interesting to explore ways in which educational level and cultural differences play a role in the development of narrative coherence in a more diverse sample. Second, even though the longitudinal measurement using the same instrument is a strong point of this study, this may partly explain the improvement in narrative coherence over time. Parents likely have gotten a clearer, more coherent view on their child postnatally because they have had some time to actually get to know their child, but they may have also been expecting and recognizing the interview question at the second home visit, which could have made it slightly easier for them to respond. Third, it was not possible to guarantee coder blindness regarding parent gender, because parents understandably mentioned their own or their partner's pregnancy during the FMSS interview, as well as regularly mentioned the other parent in their role as father or mother. Coder bias could arise as a consequence of this lack of coder blindness. To diminish this coder bias as much as possible, we gave coders an extensive training – as previous research on race-related bias demonstrated that coder bias decreased with more training (Melby et al., 2003) – and we blinded the subject IDs in such way that coders did not know the parent's gender unless the parent mentioned something in the interview that revealed their gender.

In conclusion, the current study was the first to give important insight in the development of narrative coherence across the transition to parenthood in expecting mothers as well as fathers, and in the theorized relation between narrative coherence and parental sensitivity. Before practical implications can be inferred, more research is needed to confirm our findings, examine this topic across a longer time span, and explore possible moderating factors. With the current study, an important step has been made towards closing the attachment transmission gap (Van IJzendoorn, 1995), by examining how narrative coherence develops over time in both mothers and fathers and relates to their actual sensitive parenting.

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