ncfr catalyzing research, theory and practice
Family Relations
Interdisciplinary Journal of Applied Family Science

Hagar ter Kuile and Tanja van der Lippe *Utrecht University*
Esther S. Kluwer *Utrecht University and Radboud University*

Relational Processes as Predictors of Relationship Satisfaction Trajectories Across the Transition to Parenthood

Objective: *To identify subgroups of parents with distinct patterns of change in relationship satisfaction across the transition to parenthood and predict subgroup membership from prenatal levels of relational processes.*
Background: *The average decline in relationship satisfaction that is generally found across the transition to parenthood masks the existence of subgroups of parents who show distinct patterns of change across the transition to parenthood.*
Method: *Latent class growth analysis (LCGA) was conducted using four waves of data from a Dutch sample of 440 first-time parents (210 couples; pregnancy to 1 year postpartum). Subgroups subsequently were examined to explore differences in prenatal relational processes.*
Results: *More than half of parents reported no change in relationship satisfaction after childbirth, and only small subgroups of new parents experienced strong declines. Levels of one's own and one's partner's relationship maintenance behavior, perceived responsiveness, and accommodation during pregnancy predicted subgroup membership.*
Conclusion: *The results underscore the importance of examining heterogeneity in relationship change across the transition to parenthood, and prenatal levels of relational processes are associated with differential relationship satisfaction trajectories.*
Implications: *The results imply that targeting the group of parents that are most at risk for relationship satisfaction decline after childbirth and starting relationship interventions during pregnancy may contribute to the effectiveness of interventions.*

Although most parents experience first childbirth as a joyous and highly desired event, the stress of caring for an infant and dealing with new roles and responsibilities can take its toll on the couple's relationship. One of the best documented changes is that, on average, relationship satisfaction declines across the transition to parenthood (Mitnick et al., 2009; Twenge et al., 2003; see for reviews Doss & Rhoades, 2017; Kluwer, 2010). However, an average decline in relationship satisfaction does not mean that every parent experiences the same decline or even any decline at all. Indeed, studies

Department of Social, Health & Organizational Psychology, Utrecht University, P.O. Box 80.140, 3508 TC Utrecht, The Netherlands (e.s.kluwer@uu.nl).
© 2021 The Authors. *Family Relations* published by Wiley Periodicals LLC on behalf of National Council on Family Relations.
This is an open access article under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

Key Words: latent class growth analysis, relational processes, relationship satisfaction, transition to parenthood.

have found significant individual variation around the average change trajectory (Doss et al., 2009; Holmes et al., 2013; Lawrence et al., 2008) and identified a number of predictors of this individual variation in relationship change over time (Doss & Rhoades, 2017; Mitnick et al., 2009; Ter Kuile et al., 2017).

The aim of this research is to distinguish subgroups that are more versus less vulnerable to relationship change across the transition to parenthood and to gain insight into the prenatal predictors of subgroup membership. Studying average change masks the possible existence of subgroups of parents who show distinct patterns of change across the transition to parenthood. Thus, conclusions that are drawn about the whole group of parents may in reality only apply to smaller subgroups. According to the *subgroup hypothesis*, small subgroups of new parents who experience large declines may lead to an overestimation of the average decline in relationship satisfaction across the transition to parenthood (Don & Mickelson, 2014). In addition, gaining insight into subgroups and their prenatal predictors enables practitioners and policy makers to target interventions aimed at helping couples adjust to first-time parenthood, at the right groups and the right relational factors. The current study explores the existence of subgroups in a sample of 440 Dutch first-time parents using latent class growth analysis (LCGA) and tests prenatal relational processes as predictors of subgroup membership across the transition to parenthood.

Changes in Relationship Satisfaction

There are a number of reasons why relationship satisfaction may decrease across the transition to parenthood. Children require a great deal of time, energy, and attention, leaving most parents with less to spend on each other (Claxton & Perry-Jenkins, 2008). Parents are at greater risk of role overload as they juggle work and family responsibilities, which may affect the relationship in negative ways (Perry-Jenkins et al., 2007). Adding in reduced and disrupted sleep (McQueen & Mander, 2003), it is not surprising that parents report a postnatal increase in conflict (Kluwer & Johnson, 2007) and decreases in relationship confidence (Doss et al., 2009), intimacy, and personal well-being (Belsky & Rovine, 1990).

Most studies on the transition to parenthood have focused on the average change that parents experience, treating parents as a single group. However, parents differ (i.e., as individuals, as couples, and in their circumstances), and these differences are bound to affect how they experience their transition to parenthood. The *vulnerability–stress–adaptation model* (VSA; Karney & Bradbury, 1995) posits that the impact of stressful events on relationship quality depends on (a) the nature of the stressor, (b) each partner's enduring vulnerabilities, and (c) the relational processes of the couple. Research on moderators of relationship change after childbirth has found evidence in support of the VSA model. The nature of the stressful event, such as pregnancy difficulties (Don & Mickelson, 2014) and infant temperament (Belsky & Rovine, 1990), predicted declines in postnatal relationship quality. Enduring vulnerabilities such as lower socioeconomic status (Doss et al., 2009), anxiety and depression (Don & Mickelson, 2014), and a history of parental divorce or conflict (Doss et al., 2009) also predict lower relationship satisfaction across the transition to parenthood. Finally, relationship satisfaction across the transition to parenthood is positively affected by low conflict frequency (Kluwer & Johnson, 2007) and constructive communication (Trillingsgaard et al., 2014).

Subgroups in Change Trajectories

Whereas most studies on the transition to parenthood focused on average relationship change, and (predictors of) individual variability around the average change trajectory, we investigate subgroups of parents who experience different patterns of change across the transition to parenthood. First, this is important because the existence of subgroups would require a different theoretical explanation than an average change trajectory that only varies in magnitude. For example, the *enduring dynamics model* proposes that interpersonal patterns are established during the early phases of the relationship and are maintained throughout the course of the relationship (Huston et al., 2001). This model suggests that different trajectories of relationship change across time can be predicted from early-established relational processes. It also predicts that most couples would maintain prenatal levels of satisfaction across the transition to parenthood.

Additionally, identifying subgroups of parents that experience greater declines in relationship quality, as well as identifying the risk factors that predict group membership, could make early detection and intervention possible. The efficient use of resources would increase by targeting couples who are more at risk of relationship decline (e.g., Johnson, 2012). What is more, interventions could become more effective if they are focused on strengthening relevant relational processes early on.

Research has begun to explore the possibility of diverse patterns of relationship change after childbirth. Although prior research has classified parents into subgroups of marital change (i.e., Belsky & Rovine, 1990), these subgroups were formed through subjective decisions by the researchers. A more objective method is to use LCGA to identify subgroups. In a sample of 103 low-risk couples in the United States, Don and Mickelson (2014) found that the majority of the mothers (79.4%) and half of the fathers (51%) experienced only moderate changes in relationship satisfaction across the transition to parenthood, whereas some smaller subgroups of parents experienced steep declines. Other researchers have found similar findings on feelings of love and conflict (Holmes et al., 2013), on autonomy and intimacy (Lindblom et al., 2014) and on relationship quality across the transition from one child to two (Volling et al., 2015).

These findings suggest that the average decline in relationship satisfaction across the transition to parenthood that has been found so often may be pulled down by the existence of small subgroups that experience a strong decrease. To further build the evidence for subgroups, our first aim is to explore the existence of subgroups in relationship satisfaction change trajectories across the transition to parenthood in a large Dutch sample. Conceptual replication (Schmidt, 2009) among different samples is crucial to the scientific understanding of mechanisms of relationship change across the transition to parenthood, especially when using group-based modeling techniques (Jones & Nagin, 2007).

Relational Processes

The second aim of the current study is to examine whether prenatal levels of relational processes predict subgroup membership across the transition to parenthood. Whereas the VSA model presents relational processes as a response to a stressful event and posits that stressful events affect the behavioral exchanges between partners (Karney & Bradbury, 1995), we test whether relational processes present *before* the event (i.e., during pregnancy) predict change versus stability in relationship satisfaction across time, assuming that they make couples less (vs. more) vulnerable to negative relationship change (e.g., Huston et al., 2001).

Knowledge about prenatal strengths and risk factors is useful for identifying low versus high-risk couples as early as possible, which is an important first step to prevent relationship deterioration. Whereas most research has focused on risk factors for negative changes after childbirth, it is important also to study the factors that can buffer against stress and increase the coping capacity of new parents (e.g., Don & Mickelson, 2014; Ter Kuile et al., 2017). In addition, in contrast to vulnerabilities such as insecure attachment or low socioeconomic status, positive relational processes can be changed or learned as a subject of pre- and postnatal relationship courses, training, or therapy. Finally, we included previously unstudied predictors of subgroup membership that are important for adaptation: relationship maintenance behavior (Stafford, 2011), perceived responsiveness (Reis et al., 2004), and accommodation (Rusbult et al., 1991).

Relationship maintenance behavior is defined as actions that sustain the desired aspects of the relationship (e.g., satisfaction, commitment, intimacy; Stafford, 2011), such as showing affection, giving assurances, and behaving in positive ways toward one's partner. In their review, Ogolsky et al. (2017) concluded that relationship maintenance behavior has a moderate to strong association with relationship satisfaction and other aspects of relationship quality. Relationship maintenance behaviors require effort and may suffer from new parents' decreased time and attention available for the partner (Claxton & Perry-Jenkins, 2008). Continuing to make the effort to behave in ways that maintain relationship satisfaction, despite the demands of childcare, may play a vital role in protecting the new parents' relationship satisfaction from declining.

Perceived responsiveness is defined as the feeling that a partner is understanding, caring, and behaviorally supportive (Reis et al., 2004).

Perceived responsiveness refers to attributions about the partner, in contrast to the Relationship Maintenance Behavior Measure on which the respondent rates their own behavior. People who perceive their partner as responsive generally feel closer, more satisfied, and more committed to their relationships (Reis et al., 2004). There is ample evidence that partner support during the transition to parenthood is related to parents' psychological adjustment and well-being (e.g., Elsenbruch et al., 2007). Support, however, can be ineffective or even have a negative impact by increasing the recipient's feelings of helplessness and focusing attention on the stressor (e.g., Maisel & Gable, 2009). Crucial for effectiveness of spousal support is that the support be perceived as responsive. Indeed, parents who reported higher levels of perceived responsiveness reported better personal adaptation to parenthood (Ter Kuile et al., 2017).

Finally, *accommodation* is defined as an individual's willingness to inhibit tendencies to react destructively when a partner has engaged in a potentially destructive behavior, and instead engage in constructive reactions (Rusbult et al., 1991; see also Finkel & Campbell, 2001). As such, accommodation prevents conflict escalation and protects the relationship. During the transition to parenthood, conflict frequency generally increases (Kluwer & Johnson, 2007). Accommodation can prevent daily irritations from becoming conflicts, thereby limiting the negative effects of stress on relationship satisfaction.

Current Research

The present study responds to the call in the transition to parenthood literature to move beyond looking at average changes and focus on identifying distinct trajectories of change (Doss & Rhoades, 2017; Mitnick et al., 2009). We use LCGA to identify subgroups of change in relationship satisfaction across the transition to parenthood among 440 first-time Dutch parents, followed from pregnancy to approximately 1 year postpartum. The four time points allow for the estimation of quadratic changes in relationship satisfaction. The use of a sample with Dutch parents allows for a comparison to the subgroups found in previous research completed with parents in the United States (e.g., Don & Mickelson, 2014). The circumstances of Dutch parents differ in several ways from those of U.S. parents. For example, Dutch mothers receive 16 weeks of paid maternity leave, compared with no federal paid maternity leave in the United States. Roughly 40% of U.S. mothers do not qualify for the Family Medical Leave Act, which grants 12 weeks of unpaid maternity leave (Joshi et al., 2020). Furthermore, in only 11% of Dutch households do both parents work full time (Statistics Netherlands, 2019), which is much lower than in the United States (46%, Bureau of Labor Statistics, 2019).

In addition to the exploration of subgroups, we will test whether subgroup membership can be predicted by prenatal relationship maintenance behavior, perceived responsiveness, and accommodation. These relational processes are central to relationship well-being but have scarcely been included in research on new parents' relationship satisfaction. On the basis of the enduring dynamics model (Huston et al., 2001), we assume that existing relational processes enable new parents to cope with the challenges of the transition, thereby diminishing the potentially negative impact of childbirth on relationship satisfaction. We predict that higher levels of both one's own and the partner's relationship maintenance behaviors, perceived responsiveness, and accommodation during pregnancy will predict membership to subgroups with little or no change in relationship satisfaction, whereas lower levels will predict membership to groups that show a decline in relationship satisfaction after childbirth.

Method

Participants and Procedure

Participants were 440 men and women who were first-time parents (of which 210 were couples) during their transition to parenthood. Data were collected by online questionnaires during pregnancy (T1) and when each couple's child was approximately 4 (T2), 8 (T3), and 12 months old (T4). Participants who completed T1 were invited to participate in each subsequent wave. Their partners also received this invitation, even when they had not completed T1. Inclusion criteria for the analysis were that at least one partner had completed at least 2 waves (not necessarily consecutively). Participants were included even when their partner had not participated. Originally, 290 mothers and 234 fathers participated, but 61 mothers and 23 fathers were

excluded because neither they nor their partner completed more than one wave (T1). The final sample, therefore, consisted of 229 mothers and 211 fathers who had participated in at least two waves (including 210 couples). At the four time points 229, 219, 155, and 137 mothers and 200, 183, 122, and 112 fathers participated.

Little's (1988) missing completely at random test was significant, revealing that there were patterns in the missingness ($\chi^2 = 1649.02$, $df = 1491$, $p = .002$), mostly due to increasing dropout over time. We further found some significant associations between missingness in relationship satisfaction and the relational processes at T3 and T4 and younger age of mothers (difference roughly 2 years), shorter relationship length (difference less than a year), lower income of fathers, and a lower level of education (on average one level lower). Dropout at T4 also was related to marital status, with cohabiting fathers and mothers dropping out more often than fathers and mothers with a cohabitation agreement or married fathers and mothers. Importantly, those who dropped out at T3 or T4 did not differ in relationship maintenance behavior, perceived responsiveness, or accommodation at T1 or in relationship satisfaction at any timepoint. One exception was that fathers who had missing values on satisfaction at T3 had partners with lower satisfaction at T3, $t(49.3) = 2.1$, $p = .039$ (present $M = 4.51$, missing $M = 4.23$), but there was no difference in their partner's satisfaction at T4. In sum, the propensity of missingness was related to several observed demographic variables but not to the value of the central variables, making the data missing at random.

Participants were recruited in 2011 and 2012 through online pregnancy forums (31.7%), during a pregnancy fair (14.7%), another participant (12.6%), social media (8.7%), a classified advertisements website (similar to Craigslist; 6.1%), other sources such as flyers in birth clinics and in baby stores (7%). The remaining 19.1% of participants did not answer the question of how they were recruited. Respondents filled in an application form and were sent a link to the online questionnaire if they met the requirements. Informed consent was obtained from each respondent before beginning the online questionnaire. Participants received either 20 Euros upon completion of the longitudinal study (82 couples) or participated in a lottery for one prize of 250 euro and five prizes of 50 euros (148 couples).

The women were on average 25.20 weeks pregnant at T1 ($SD = 8.68$). Mothers' average age was 29.43 years ($SD = 3.92$) and fathers' was 31.99 years ($SD = 4.81$) at T1. Average relationship length at T1 was 6.47 years ($SD = 3.56$; range 0–18 years). Sixteen couples reported that the pregnancy was unplanned (7.0%). Of the participants, 126 were married (54.8%), 49 had a cohabitation agreement (21.3%), and 55 lived together with their partner without a cohabitation agreement (23.9%). This is representative of the marital status in the general Dutch population of new parents (Statistics Netherlands, 2015). Of the mothers, 0.9% was lower educated (high school or less), 30.4% completed community college (technical or vocational education), 36.1% had finished college (bachelor's degree), and 31.7% had finished university (master's degree). Of the fathers, 5.6% was lower educated, 29.1% had a community college education, 29.1% had finished college, and 25.2% had finished university.

Measures

Relationship satisfaction. At all waves, relationship satisfaction was measured with five items from the Satisfaction subscale of the Investment Model Scale (IMS; Rusbult et al., 1998). The IMS subscales have been found to have good convergent and discriminant validity, as well as reliability (Rodrigues & Lopes, 2013; Rusbult et al., 1998). An example item is "Our relationship makes me very happy." Items were rated on a 5-point scale (1 = *completely disagree* to 5 = *completely agree*). A higher average score indicated greater relationship satisfaction. Cronbach's alpha ranged between .80 and .89 across waves for mothers and between .78 and .90 for fathers.

Relationship maintenance behavior. At T1 (during pregnancy), participants completed 14 items from the Relationship Maintenance Behavior Measure (Stafford, 2011). Participants were asked how often they had exhibited maintenance behaviors in the past week (1 = *never* to 5 = *very often)*. Example items are "How often in the past week did you show your partner affection?" and "How often in the past week have you listened to your partner without judging?" Cronbach's alpha was .78 for fathers and .81 mothers in this study.

Perceived responsiveness. At T1, we used 14 items from the perceived responsiveness scale created by Kubacka et al. (2011) to assess perceptions of being valued (e.g. "My partner values my skills and opinions"), feeling understood (e.g. "My partner knows what I think and feel"), and being cared for(e.g. "My partner responds to my needs") by the partner (1 = *do not agree at all*, 5 = *agree completely*). Cronbach's alpha was .89 for fathers and .91 for mothers for this study.

Accommodation. Accommodation was measured at T1 using items from the Accommodation Scale (Rusbult et al., 1991). The original scale consists of 16 items, four items for each of the four subscales (voice, exit, neglect, and loyalty) proposed by Rusbult et al. (1991). To limit the questionnaire length, two items for each subscale were included (eight items total), and the final scale included the six items that demonstrated the highest reliability (four positive items and two reverse scored negative items). Cronbach's alpha was .64 for mothers and .62 for fathers. Example items are "When my partner has done something thoughtless, I am very patient with him/her" and "When my partner says something mean, I threaten to end the relationship" (reversed; 1 = *Not at all like me* to 5 = *Very much like me*).

Analyses

We used LCGA in Mplus version 7.3 (Muthén & Muthén, 1998–2017) to identify subgroups in the growth trajectories of relationship satisfaction. LCGA determines whether there are subpopulations within the data that are characterized by a different developmental process (Nagin, 1999), in contrast to standard growth curve analyses that assume that the average growth trajectory is the same for all subjects. With LCGA, individuals are assigned to a subgroup when they are more similar to each other than to individuals outside the group. In addition to the intercept (initial level during pregnancy) and slope (linear rate of change across the transition to parenthood), we estimated a quadratic growth factor. We determined the number of classes based on a combination of factors. Model fit was assessed using the Akaike information criterion (AIC), the Bayesian information criteria (BIC), the parametric bootstrapped likelihood ratio test (PBLRT), and entropy, which provides an estimate of classification accuracy (Duncan et al., 2006). Models should be parsimonious and interpretable (Nylund et al., 2007).

After we determined the number of classes, we tested whether relational processes during pregnancy (at T1) predicted class membership. Prediction for fathers and mothers was tested in separate models. Including both partners in the same model is often preferred, in line with the actor–partner interdependence model (Kashy & Kenny, 2000). However there is currently no generally accepted way of performing an APIM model using LCGA. We did, however, include both actor (one's own), as well as the partner's, relational processes as predictors of class membership (except for participants whose partner did not participate) to account for the fact that partners of the same couple are interdependent, meaning that one partner's reports of relational processes may affect the other partner's subgroup membership. Due to the relatively small sample size, covariates such as demographic variables were not included in the model estimations because that would make the model too complex for reliable estimation. In addition, there is currently no theoretical or empirical reason why demographic variables would affect the prediction of subgroup membership by relational processes, and we therefore did not include them as controls (Spector & Brannick, 2011). Respondents who had missing values on some variables were included in model estimations, using a full information maximum likelihood procedure to include all available data. Logbooks of missing data and outliers are available upon request.

Results

Table 1 presents the correlations, means, and standard deviations of relationship satisfaction at every timepoint and the predictors at T1 (during pregnancy). Fathers and mothers had similar mean levels of the main variables, but the correlations between partners were not very high. Satisfaction during pregnancy (T1) was moderately correlated with satisfaction at subsequent timepoints (range: *r*s = .48 to .55 for mothers, and *r*s = .59 to .65 for fathers).

Mothers' Relationship Satisfaction

We first estimated a one-class model (i.e., a latent growth curve model with no classes) to establish the average initial level and rate of

Table 1. *Means, Standard Deviations, and Correlations*

								Fathers	Mothers
Variable	1	2	3	4	5	6	7	*M* (*SD*)	*M* (*SD*)
1. Satisfaction T1	**.44****	.55**	.48**	.54**	.20*	.61**	.25**	4.50 (.48)	4.54 (.49)
2. Satisfaction T2	.65**	**.47****	.65**	.59**	.09	.53**	.25**	4.45 (.53)	4.54 (.47)
3. Satisfaction T3	.63**	.73**	**.42****	.56**	.12	.51**	.16*	4.29 (.72)	4.44 (.60)
4. Satisfaction T4	.59**	.75**	.71**	**.57****	.16	.52**	.20*	4.42 (.61)	4.53 (.52)
5. Maintenance T1	.18*	.19*	.05	.17	**.14**	.18**	.19**	3.47 (.47)	3.42 (.50)
6. Responsiveness T1	.66**	.52**	.51**	.53**	.21**	**.45****	.26**	4.47 (.45)	4.53 (.47)
7. Accommodation T1	.29**	.36**	.28**	.30**	.26**	.39**	**.24****	3.72 (.53)	3.54 (.48)

Note. Values below the diagonal are for fathers ($n = 199$), and those above the diagonal for mothers ($n = 225$); values on the diagonal in bold are between-partner correlations ($n = 195$). *N*s differ from the full sample because some parents only participated in subsequent waves. All variables were measured on 5-point scales. $^{*}p < .05$. $^{**}p < .01$.

change on relationship satisfaction for all new mothers. On average new mothers reported high levels of relationship satisfaction during pregnancy (intercept = 4.54, $p < .001$, variance = .16, $p = .004$). The slope was not significant (slope = –.03, $p = .50$; variance = .17, $p = .037$), nor was quadratic growth (quadratic = .00, $p = .86$; variance = .02, $p = .003$), indicating that their satisfaction on average remained stable after childbirth. There was, however, significant variance around every growth factor, indicating individual variation.

In the next step, we estimated unconditional latent class models with an increasing number of classes to determine the number of subgroups in mothers' change in relationship satisfaction across the transition to parenthood. Table 2 presents the fit indices for the solutions up to five classes. Solutions with more than five classes were not considered parsimonious or readily interpretable. AIC and BIC continued to decrease from the two-class model until the four-class model, with the greatest decrease between the two-class model and the three-class model, suggesting the greatest improvement in fit for the three-class model. The PBLRT was significant for every solution, whereas entropy was highest for the two-class and the three-class models. Thus, the fit indices did not clearly indicate an optimal solution. There are currently no clear guidelines from the literature on what should be the minimum size of a class. Previous studies have used theory and empirical evidence to strike a balance between overfitting the data and omitting small but meaningful groups (e.g., Proulx et al., 2017). As can be seen in Table 2, in the solutions with four or more classes, the large classes do not diminish much, but the smaller classes split into even smaller subgroups. We felt that the growth trajectories of these smaller groups were too similar to be theoretically meaningful. Therefore, on the basis of the fit indices, parsimony, and interpretability, we chose for the three-class model.

Table 2 also provides estimates of mean intercepts, linear slopes, and quadratic growth of the classes. In the three-class model, a large subgroup of new mothers experienced high relationship satisfaction during pregnancy, and their level of relationship satisfaction remained stable across the transition to parenthood (the High–Stable subgroup: 69.9% of mothers, intercept = 4.76, $p < .001$, slope = 0.001, $p = .99$, quadratic = –0.00, $p = .94$). The second subgroup reported moderate relationship satisfaction during pregnancy and also remained stable across the transition to parenthood (the Moderate–Stable subgroup: 23.1% of mothers, intercept = 4.13, $p < .001$, slope = 0.07, $p = .82$, quadratic = –0.03, $p = .74$). The third subgroup of mothers reported moderate initial relationship satisfaction but significantly decreased directly after childbirth and increased later in the transition to parenthood (the Moderate–Decline subgroup: 7.0% of mothers; intercept = 3.99, $p < .001$, slope = –.79, $p = .01$, quadratic = 0.18, $p = .05$). Figure 1 provides an illustration of the growth trajectories.

In the next step, the Wald tests of parameter constraints was applied to test whether the intercept and slope coefficients were significantly different between the subgroups. The High–Stable subgroup had a significantly higher intercept than the Moderate–Stable subgroup, $\chi^2(1) = 8.54$, $p = .004$, and a marginally significant higher intercept than the Moderate–Decline

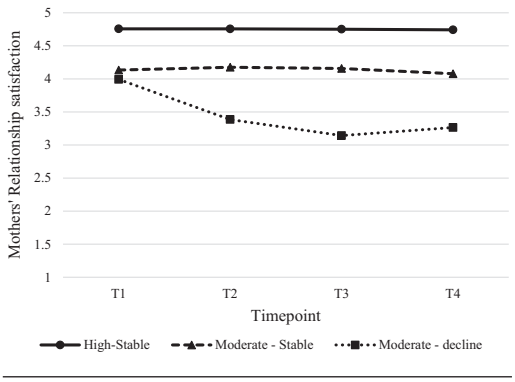
Table 2. *Fit Indices of the Latent Class Growth Analyses and Parameter Estimates of Relationship Satisfaction Trajectory Classes of Mothers (n = 229)*

Statistic	One class	Two classes	Three classes	Four classes	Five classes
AIC	1112.70	870.98	806.63	756.98	730.70
BIC	1136.73	908.75	858.14	822.22	809.67
Entropy		.87	.87	.85	.89
PBLRT (*p* value)		<.001	<.001	<.001	<.001
Class sizes	229	177, 52	160, 53, 16	152, 51, 14, 12	156, 50, 10, 8, 5

	Parameter estimates		
Subgroup	% (*n*)	Intercept	Slope
High–stable	69.9% (160)	4.76	.00
Moderate–stable	23.1% (53)	4.13	.07
Moderate–decline	7.0% (16)	3.99	–.79**

Note. AIC = Akaike information criterion; BIC = Bayesian information criteria; PBLRT = parametric bootstrapped likelihood ratio test. *$p < .05$. **$p < .01$.

Figure 1. Mothers' Estimated Relationship Satisfaction Trajectories.



subgroup, $\chi^2(1) = 3.70$, $p = .05$. In addition, the slope of the Moderate–Decline subgroup differed significantly from the slopes of the High–Stable subgroup, $\chi^2(1) = 68.63$, $p < .001$, and the Moderate–Stable subgroup, $\chi^2(1) = 330.10$, $p < .001$. The intercept of the Moderate–Stable and the Moderate–Decline groups did not differ significantly, $\chi^2(1) = .06$, $p = .81$, indicating the same level of relationship satisfaction during pregnancy.

In sum, the majority of new mothers was highly satisfied with their relationship during pregnancy, and their relationship satisfaction remained stable across the transition to parenthood. Nearly a quarter of the mothers reported moderate relationship satisfaction during pregnancy, which also remained stable across the transition to parenthood. A small subgroup of mothers also reported moderate relationship satisfaction during pregnancy but experienced an initial postnatal decline in relationship satisfaction that stabilized and slowly increased again, nearing prebirth levels a year after childbirth.

Fathers' Relationship Satisfaction

The one-class model showed that on average new fathers reported high levels of relationship satisfaction during pregnancy (intercept = 4.51, $p < .001$; variance = .15, $p < .001$) but experienced a significant decline across the transition to parenthood (slope = –.11, $p = .009$; variance = .01, $p = .06$). The quadratic term was not significant (quadratic = .02, $p = .08$; variance = .00, $p = .99$), indicating that the relationship satisfaction of new fathers showed on average a linear decline in the year after childbirth. There was significant variance around the intercept, indicating individual variation, and marginally significant variance around the slope.

In the next step, we estimated unconditional latent class models with an increasing number of classes (see Table 3 for fit indices). The PBLRT was significant for every model. The AIC decreased from the two-class model to the three-class model, and from the three-class model to the four-class model, but was higher for the five-class model. The BIC decreased as more classes were modeled, but the decrease was much larger when comparing the three-class model to the two-class model than when comparing the four-class to the three-class

Table 3. *Fit Indices of the Latent Class Growth Analyses and Parameter Estimates of Relationship Satisfaction Trajectory Classes of Fathers* (N = *209)*

	Fit indices				
Statistics	One class	Two classes	Three classes	Four classes	Five classes
AIC	1043.59	855.88	708.23	688.50	676.75
BIC	1066.99	892.64	758.37	752.00	753.62
Entropy		.95	.84	.80	.76
PBLRT (*p* value)		<.001	<.001	<.001	<.001
Class sizes	209	195, 14	130, 71, 8	120, 62, 19, 8	110, 47, 27, 17, 7

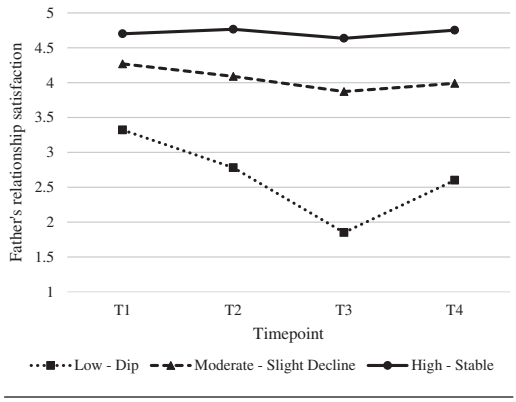
	Parameter estimates			
Subgroup	% (*n*)	Intercept	Slope	Quadratic
High–Stable	61.3% (130)	4.72	.04	–.01
Moderate–Slight Decline	33.5% (71)	4.28	–.26**	.05†
Low–Dip	3.8% (8)	3.38	–.90**	.20*

Note. AIC = Akaike information criterion; BIC = Bayesian information criteria; PBLRT = parametric bootstrapped likelihood ratio test. †$p = .06$. *$p < .05$. **$p < .01$.

model and the five-class to the four-class model, suggesting the greatest improvement in fit for the three-class model. Entropy of the three-class model was also higher than for the four-class and five-class models, indicating higher classification accuracy. The fit indices did not clearly indicate an optimal solution, but based on these fit indices, parsimony, and interpretability, we chose the three-class model.

Table 3 also provides estimates of mean intercepts, linear slopes, and quadratic growth. In the three-class model, a large subgroup of new fathers experienced very high relationship satisfaction during pregnancy that remained stable across the transition to parenthood (the High–Stable subgroup, 62.2% of the fathers; intercept = 4.71, $p < .001$, slope = 0.04, $p = .38$, quadratic = –0.01, $p = .41$). The second subgroup reported moderate relationship satisfaction during pregnancy, which decreased significantly after childbirth (the Moderate–Slight Decline subgroup, 34.0% of the fathers; intercept = 4.28, $p < .001$, slope = −0.26, $p = .003$, quadratic = 0.05, $p = .06$). The third, very small subgroup of fathers reported lower initial relationship satisfaction and experienced a stronger decrease after childbirth than the second subgroup. The quadratic term was significant and showed that they recovered in the months afterward, yet they did not regain their prebirth level of satisfaction a year after birth (the Low–Dip subgroup, 3.8% of the fathers; intercept = 3.38, $p < .001$, slope = –.90, $p = .001$, quadratic = .20, $p = .02$).

Figure 2. Fathers' Estimated Relationship Satisfaction Trajectories.



See Figure 2 for an illustration of the growth trajectories.

In the next step, the Wald tests of parameter constraints was applied to test whether the intercept and slope coefficients were significantly different between the classes. The intercept of the Low–Dip subgroup was significantly lower than that of the High–Stable subgroup, $\chi^2(1) = 29.48$, $p < .001$, and the Moderate–Slight Decline subgroup, $\chi^2(1) = 13.15$, $p < .001$. The High–Stable subgroup also had a significantly higher intercept than the Moderate–Slight Decline subgroup, $\chi^2(1) = 40.33$, $p < .001$. The slope of the Low–Dip subgroup differed significantly from the High–Stable subgroup, $\chi^2(1) = 10.78$,

$p = .001$, and the Moderate–Slight Decline subgroup, $\chi^2(1) = 4.70$, $p = .03$, as did the slope between the High-Stable and Moderate–Slight Decline subgroups, $\chi^2(1) = 7.86$, $p = .005$.

In sum, the majority of new fathers reported high and stable levels of relationship satisfaction across the transition to parenthood. A third of the fathers experienced a small but significant decrease in relationship satisfaction across the transition to parenthood. A small subgroup of fathers reported lower relationship satisfaction during pregnancy and a stronger decrease directly after childbirth, after which relationship satisfaction increased again. A year after childbirth, however, their level of relationship satisfaction was still lower than prenatal levels.

Predicting Mothers' Trajectory Classes

We tested whether mothers' own and their partner's reports of relationship maintenance, perceived responsiveness, and accommodation assessed at T1 predicted class membership. Chi-square was used to test the equality of means. Class means on each of the variables and all significant contrasts between classes are shown in Table 4. Mothers in the High–Stable subgroup of relationship satisfaction reported more prenatal relationship maintenance behaviors than mothers in the Moderate–Stable subgroup. They also reported higher prenatal perceived responsiveness than mothers in the Moderate–Stable subgroup and mothers in the Moderate–Decline subgroup, and their partners reported higher perceived responsiveness compared with the partners of mothers in the Moderate–Stable and the Moderate–Decline subgroups. Mothers in the Moderate–Stable subgroup also reported slightly higher perceived responsiveness than mothers in the Moderate–Decline subgroup, but this difference was only marginally significant ($p = .063$). Finally, mothers in the High–Stable subgroup reported more prenatal accommodation than mothers in the Moderate–Stable subgroup, and their partners reported more accommodation compared with the partners of mothers in the Moderate–Stable subgroup. High–Stable mothers' accommodation was only marginally significantly ($p = .075$) higher than mothers in the Moderate–Decline subgroup. Unexpectedly, mothers in the Moderate–Stable subgroup reported lower prenatal relationship maintenance behavior than mothers in the Moderate–Decline subgroup. The partner's relationship maintenance behavior did not differ significantly between the subgroups.

Predicting Fathers' Trajectory Classes

The results for fathers were very similar (see Table 4). Wald chi-square significance tests showed that fathers in the High–Stable subgroup of relationship satisfaction reported more prenatal relationship maintenance behaviors than fathers in the Moderate–Slight decline subgroup (but not than fathers in the Low–Dip subgroup). Fathers in the High–Stable subgroup reported higher prenatal perceived responsiveness than fathers in the Moderate–Slight decline subgroup and fathers in the Low–Dip subgroup, and their partners also reported higher perceived responsiveness compared with the partners of fathers in the Moderate–Slight decline and Low–Dip subgroups. Fathers in the Moderate–Slight decline subgroup also reported higher prenatal perceived responsiveness than fathers in the Low–Dip subgroup, and their partners reported higher perceived responsiveness compared with the partners of fathers in the Low–Dip subgroup. Finally, fathers in the High–Stable subgroup reported more prenatal accommodation than fathers in the Moderate–Slight decline subgroup and fathers in the Low–Dip subgroup. Their partners reported more accommodation compared with the partners of fathers in the Moderate–Slight decline subgroup. The partner's relationship maintenance behavior did not differ significantly between the subgroups.

Discussion

This study showed identifiable subgroups of new parents with distinct patterns of change in relationship satisfaction across the transition to parenthood. Consistent with the subgroup hypothesis (Don & Mickelson, 2014), the majority of parents reported little change in relationship satisfaction after childbirth, and small subgroups of parents experienced large declines. We further showed that new parents who reported higher levels of prenatal relationship maintenance behavior, perceived responsiveness, and accommodation were less likely to belong to subgroups whose relationship

Table 4. *Equality Tests of Means of Relational Processes Between Trajectory Subgroups*

	Mothers (n = 229)				Fathers (n = 209)			
	High–Stable (1) *M* (*SE*)	Moderate – Stable (2) *M* (*SE*)	Moderate–Decline (3) *M* (*SE*)	Signif. contrasts	High–Stable (1) *M* (*SE*)	Moderate–Slight Decline (2) *M* (*SE*)	Low–Dip (3) *M* (*SE*)	Signif. contrasts
Relationship maintenance behavior								
Actor	3.50 (.04)	3.18 (.08)	3.44 (.08)	1 > 2** 2 < 3*	3.58 (.05)	3.27 (.07)	3.45 (.18)	1 > 2**
Partner	3.50 (.04)	3.56 (.09)	3.52 (.13)	—	3.46 (.05)	3.36 (.06)	3.27 (.12)	—
Perceived responsiveness								
Actor	4.74 (.03)	4.18 (.06)	3.80 (.19)	1 > 2***, 3*** 2 > 3†	4.71 (.06)	4.19 (.06)	3.44 (.20)	1 > 2***, 3*** 2 > 3***
Partner	4.60 (.04)	4.31 (.09)	3.97 (.20)	1 > 2**, 3**	4.76 (.03)	4.27 (.06)	3.71 (.26)	1 > 2***, 3*** 2 > 3*
Accommodation								
Actor	3.66 (.04)	3.25 (.08)	3.43 (.12)	1 > 2***, 3†	3.88 (.05)	3.47 (.07)	3.28 (.18)	1 > 2***, 3**
Partner	3.80 (.05)	3.52 (.09)	3.65 (.15)	1 > 2**	3.65 (.04)	3.38 (.07)	3.32 (.20)	1 > 2**

Note. Signif. = significant. $^{\dagger}p < .10$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

satisfaction decreased after childbirth, showing that the impact of the transition to parenthood is partly determined by prenatal relational processes.

Our findings that the relationship satisfaction of more than half of new parents remains stable is in line with the enduring dynamics model (Huston et al., 2001). The results also show that different trajectories of relationship change across time can be predicted from early-established relational processes, as predicted by the model. These positive relational processes can be viewed as *relational resources*, adding to previous research in two respects. First, we focus on resources that increase the coping capacity of first-time parents rather than vulnerabilities as in most previous research that addressed risk factors for negative changes after childbirth (e.g., Holmes et al., 2013).

Second, we focus on relational qualities rather than individual predispositions, as, for example, in the VSA model (Karney & Bradbury, 1995). Mothers and fathers who perceive each other as caring and supportive and accommodate during conflict, and fathers who show relationship maintenance behavior, are more likely to remain stable in their relationship satisfaction across the transition to parenthood. This suggests that they are better able to cope with stressors and changes related to the transition to parenthood and are thus more resilient to negative relationship change.

Perceived responsiveness, a crucial construct for understanding intimacy processes and relationship health (Laurenceau et al., 2005; Reis et al., 2004), was a consistent predictor of subgroup membership for both mothers and fathers. Lower perceived responsiveness, as reported by mothers and fathers as well as by their partners, predicted membership to subgroups whose relationship satisfaction declined after childbirth. Previous research also has found evidence that perceived responsiveness was a strong and positive predictor of parents' own perceptions of their adaptation to parenthood (Ter Kuile et al., 2017). Feeling understood and cared for might be especially important during stressful times in which old roles change and new roles have to be acquired. In addition, perceived partner responsiveness predicts better sleep quality through lower anxiety (Selcuk et al., 2017). Furthermore, perceived responsiveness increases the effectiveness of spousal support (Maisel & Gable, 2009), which is related

to an increase in marital satisfaction across the transition to parenthood for both mothers and fathers (Don & Mickelson, 2014; Simpson et al., 2003).

Higher levels of own and partner's accommodation discriminated between the High–Stable and Moderate–Stable subgroups for mothers and between the High–Stable versus the Moderate–Slight Decline and Low–Dip subgroups for fathers. Unexpectedly, mothers in the Moderate–Decline subgroup reported higher relationship maintenance behavior than mothers in the Moderate–Stable subgroup. A possible explanation is that mothers who put more effort into relationship maintenance prenatally were unable to maintain these high levels after childbirth, leading to a decline in their satisfaction. Overall, relationship maintenance behavior was a less consistent predictor than the other two relational processes.

The parents in our sample had higher than average prenatal relationship satisfaction compared with other samples (i.e., parents in this study scored on the 91st percentile prenatally, compared with the 72nd to 86th percentile in other studies; Don & Mickelson, 2014; Doss et al., 2009; Trillingsgaard et al., 2014). Nevertheless, even within this highly satisfied sample, our results converge with evidence from other low-risk samples showing heterogeneity in relationship change across the transition to parenthood (Don & Mickelson, 2014; Holmes et al., 2013) and with evidence showing both stable and declining marital satisfaction trajectories among samples that were not going through the transition to parenthood (Proulx et al., 2017). Replication is not only essential to empirical science in general (e.g., Schmidt, 2009), but, more specifically, the results of group-based modeling require replication among larger and diverse samples (Don & Mickelson, 2014). In samples that include more high-risk parents, we would expect declining subgroups to be larger and their influence on the average change therefore to be stronger. Because signaling high-risk subgroups as early as possible is important to prevent relationship deterioration over time, we encourage future research to include more first-time parents from high-risk samples to explore how they differentially experience change in their relationship. Replication in a larger sample would also allow for a better understanding of the relative size and influence of small subgroups.

Limitations

The current study has a number of limitations. First, this study is based on self-reports and results would be strengthened if replicated by independent observations of relational processes. Second, there was no clear optimal result for the number of classes and some of the classes were quite small. This limits the strengths of the conclusions that can be drawn based on the differences found between subgroups. We nevertheless believe LCGA to be preferable to studying the average mean of the population. The average change in relationship satisfaction in the literature generally shows a decline in satisfaction, and this was also the case for the fathers in this study. The results of the LCGA, however, showed that the mean was in fact skewed due to small subgroups of fathers who experienced a decline, in contrast to the large subgroups of fathers whose relationship satisfaction remained stable in the year after childbirth. These findings therefore reinforce the need to move beyond looking at average changes in satisfaction.

Although the current sample was representative of the general Dutch population in terms of marital status, the sample was not representative in terms of education level. Similar to other samples (Don & Mickelson, 2014; Holmes et al., 2013), our sample was highly educated: 67.5% of mothers and 54.4% of fathers, for example, had a college or university degree, compared with 50.8% of women and 43.3% men between the ages of 30 and 35 of the general population of the Netherlands (Statistics Netherlands, 2015). Also, the couples in our sample were generally very satisfied with their relationship and remained so across the transition to parenthood. As noted before, this is in contrast to other research on the transition to parenthood that reports larger decreases in relationship satisfaction after childbirth, particularly for mothers (e.g., Twenge et al., 2003).

The higher relationship satisfaction of participants in this study might be due to selection bias, caused by the relatively small reward that parents received for participating. Other studies typically reward couples that participate in four waves between $100 and $400 (Don & Mickelson, 2014; Doss et al., 2009; Lawrence et al., 2008). Parents in our sample may have therefore participated more out of intrinsic motivation and may therefore not be

a representative sample of the average parents, limiting the generalizability of the findings to low-risk parents. We would expect the predictive power of relational processes on changes in relationship satisfaction across the transition to parenthood to be stronger in a more representative sample where the differences between subgroups are larger.

Conclusions and Practical Implications

Contrary to popular belief, the transition to parenthood may not be fundamentally detrimental to relationships for all new parents, at least among low-risk populations. A good predictor of marital satisfaction trajectories after having a first child are the relational processes of the couple before the baby arrived. As Cowan and Cowan (2012) noted, babies do not bring couples in low-quality relationships closer, nor do they drive apart couples in high-quality relationships. Strong relationships appear resilient to change, whereas lower quality couples are at risk of decline across the transition to parenthood. This point deserves more attention, in both the scientific literature and the popular media. As a practical implication of our results, the efficiency of interventions for new parents might be raised by targeting the small subgroups of parents who are most at risk for postnatal adverse change. Low levels of prenatal relational processes could be used to identify at-risk couples because these differentiated between subgroups who fared well across the transition to parenthood from those who fared poorly in terms of relationship satisfaction. The fact that prenatal levels of relational processes predicted changes in relationship satisfaction across the transition to parenthood also implies that starting relationship interventions during pregnancy may contribute to their effectiveness. Specifically, our findings suggest that such prenatal interventions should focus on developing a mutual exchange of responsive partner behaviors, which is also a central element of many behaviorally oriented and emotion-focused couple interventions outside the parenthood spectrum (e.g., Laurenceau et al., 2005). However, the majority of transition-to-parenthood interventions target parenting behavior and parental responsiveness (Pinquart & Teubert, 2010). Our findings underscore the importance of addressing prenatal relational processes to increase resilience to negative relationship change.

Author Note

This research was financially supported by a High Potential grant from Utrecht University. All procedures were in compliance with the research and consent protocol of the Faculty of Social Sciences of Utrecht University applicable at the time. In accordance with the data storage protocol at Utrecht University, the data and materials will be stored on the faculty server, which meets the requirements to which data storage may be subject in terms of privacy, security, robustness (integrity and quality) and automatic backing up. Data and computing scripts will be made available by the corresponding author upon request.

References

Belsky, J., & Rovine, M. (1990). Patterns of marital change across the transition to parenthood: Pregnancy to three years post-partum. *Journal of Marriage and Family*, *52*, 5–20. http://doi.org/10.2307/352833

Bureau of Labor Statistics. (2018). *Employment characteristics of families—2018*. https://www.bls.gov/news.release/pdf/famee.pdf

Claxton, A., & Perry-Jenkins, M. (2008). No fun anymore: Leisure and marital quality across the transition to parenthood. *Journal of Marriage and Family*, *70*, 28–43. http://doi.org/10.1111/j.1741-3737.2007.00459.x

Cowan, P. A., & Cowan, C. P. (2012). Normative family transitions, couple relationship quality, and healthy child development. In F. Walsh (Ed.). *Normal family processes: Growing diversity and complexity* (pp. 428–451). Guilford Press.

Don, B. P., & Mickelson, K. D. (2014). Relationship satisfaction trajectories across the transition to parenthood among low-risk parents. *Journal of Marriage and Family*, *76*, 677–692. http://doi.org/10.1111/jomf.12111

Doss, B. D., & Rhoades, G. K. (2017). The transition to parenthood: Impact on couples' romantic relationships. *Current Opinion in Psychology*, *13*, 25–28. http://doi.org/10.1016/j.copsyc.2016.04.003

Doss, B. D., Rhoades, G. K., Stanley, S. M., & Markman, H. J. (2009). The effect of the transition to parenthood on relationship quality: An 8-year prospective study. *Journal of Personality and Social Psychology*, *96*, 601–619. http://doi.org/10.1037/a0013969

Duncan, T. E., Duncan, S. C., & Strycker, L. A. (2006). *An introduction to latent variable growth curve modeling: Concepts, issues, and application* (2nd ed.). Lawrence Erlbaum Associates.

Elsenbruch, S., Benson, S., Rücke, M., Rose, M., Dudenhausen, J., & Pincus-Knackstedt, M. K., Klapp, B. F., & Arck, P. C. (2007). Social support during pregnancy: Effects on maternal depressive symptoms, smoking and pregnancy outcome. *Human Reproduction*, *22*, 869–877. http://doi.org/10.1093/humrep/del432

Finkel, E. J., & Campbell, W. K. (2001). Self-control and accommodation in close relationships: An interdependence analysis. *Journal of Personality and Social Psychology*, *81*, 263–277. http://doi.org/10.1037/0022-3514.81.2.263

Holmes, E. K., Sasaki, T., & Hazen, N. L. (2013). Smooth versus rocky transitions to parenthood: Family systems in developmental context. *Family Relations*, *62*, 824–837. http://doi.org/10.1111/fare.12041

Huston, T. L., Caughlin, J. P., Houts, R. M., Smith, S. E., & George, L. J. (2001). The connubial crucible: Newlywed years as predictors of marital delight, distress, and divorce. *Journal of Personality and Social Psychology*, *80*, 237–252. https://doi.org/10.1037/0022-3514.80.2.237

Johnson, M. D. (2012). Healthy marriage initiatives: On the need for empiricism in policy implementation. *American Psychologist*, *67*, 296–308. http://doi.org/10.1037/a0027743

Jones, B. L., & Nagin, D. S. (2007). Advances in group-based modeling and a SAS procedure for estimating them. *Sociological Methods & Research*, *35*, 542–571. https://doi.org/10.1177/0049124106292364

Joshi, P., Baldiga, M., Huber, R., & Acevedo-Garcia, D. (2020). *Policy Equity Assessment: Family and Medical Leave Act.* https://www.diversitydatakids.org/research-library/policy-equity-assessment/policy-equity-assessment-family-and-medical-leave-act

Karney, B. R., & Bradbury, T. N. (1995). The longitudinal course of marital quality and stability: A review of theory, method, and research. *Psychological Bulletin*, *118*, 3–34. http://doi.org/10.1037/0033-2909.118.1.3

Kashy, D. A., & Kenny, D. A. (2000). The analysis of data from dyads and groups. In H. T. Reis & C. M. Judd (Eds.), *Handbook of research methods in social psychology* (pp. 451–477). Cambridge University Press.

Kluwer, E. S. (2010). From partnership to parenthood: A review of marital change across the transition to parenthood. *Journal of Family Theory and Review*, *2*, 105–125. http://doi.org/10.1111/j.1756-2589.2010.00045.x

Kluwer, E. S., & Johnson, M. D. (2007). Conflict frequency and relationship quality across the transition to parenthood. *Journal of Marriage and Family*, *69*, 1089–1106. http://doi.org/10.1111/j.1741-3737.2007.00434.x

Kubacka, K. E., Finkenauer, C., Rusbult, C. E., & Keijsers, L. (2011). Maintaining close relationships: Gratitude as a motivator and a detector of maintenance behavior. *Personality and Social Psychology Bulletin*, *37*, 1362–1375. http://doi.org/10.1177/0146167211412196

Laurenceau, J. P., Barrett, L. F., & Rovine, M. J. (2005). The interpersonal process model of intimacy in marriage: A daily-diary and multilevel modeling approach. *Journal of Family Psychology*, *19*, 314–323. http://doi.org/10.1037/0893-3200.19.2.314

Lawrence, E., Cobb, R. J., Rothman, A. D., Rothman, M. T., & Bradbury, T. N. (2008). Marital satisfaction across the transition to parenthood. *Journal of Family Psychology*, *22*, 41–50. http://doi.org/10.1037/0893-3200.22.1.41

Lindblom, J., Flykt, M., Tolvanen, A., Vänskä, M., Tiitinen, A., Tulppala, M., & Punamäki, R. L. (2014). Dynamic family system trajectories from pregnancy to child's first year. *Journal of Marriage and Family*, *76*, 796–807. https://doi.org/10.1111/jomf.12128

Little, R. J. A. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association*, *83*, 1198–1202. http://doi.org/10.1080/01621459.1988.10478722

Maisel, N. C., & Gable, S. L. (2009). The paradox of received social support: The importance of responsiveness. *Psychological Science*, *20*, 928–932. https://doi.org/10.1111/j.1467-9280.2009.02388.x

McQueen, A., & Mander, R. (2003). Tiredness and fatigue in the postnatal period. *Journal of Advanced Nursing*, *42*, 463–469. http://doi.org/10.1046/j.1365-2648.2003.02645.x

Mitnick, D. M., Heyman, R. E., & Smith Slep, A. M. (2009). Changes in relationship satisfaction across the transition to parenthood: A meta-analysis. *Journal of Family Psychology*, *23*, 848–852. http://doi.org/10.1037/a0017004

Muthén, L. K.., & Muthén, B. O. (1998–2017). *Mplus user's guide* (8th ed.). Muthén & Muthén.

Nagin, D. S. (1999). Analyzing developmental trajectories: A semiparametric, group-based approach. *Psychological Methods*, *4*, 139–157. https://doi.org/10.1037/1082-989X.4.2.139

Nylund, K. L., Asparouhov, T., & Muthén, B. O. (2007). Deciding on the number of classes in latent class analysis and growth mixture modeling: A Monte Carlo simulation study. *Structural Equation Modeling*, *14*, 535–569. http://doi.org/10.1080/10705510701575396

Ogolsky, B. G., Monk, J. K., Rice, T. M., Theisen, J. C., & Maniotes, C. R. (2017). Relationship maintenance: A review of research on romantic relationships. *Journal of Family Theory & Review*, *9*, 275–306. http://doi.org/10.1111/jftr.12205

Perry-Jenkins, M., Goldberg, A. E., Pierce, C. P., & Sayer, A. G. (2007). Shift work, role overload, and the transition to parenthood. *Journal of Marriage and Family*, *69*, 123–138. http://doi.org/10.1111/j.1741-3737.2006.00349.x

Pinquart, M., & Teubert, D. (2010). Effects of parenting education with expectant and new parents: A

meta-analysis. *Journal of Family Psychology*, *24*, 316–327. http://doi.org/10.1037/a0019691

Proulx, C. M., Ermer, A. E., & Kanter, J. B. (2017). Group-based trajectory modeling of marital quality: A critical review. *Journal of Family Theory & Review*, *9*, 307–327. http://doi.org/10.1111/jftr.12201

Reis, H. T., Clark, M. S., & Holmes, J. G. (2004). Perceived partner responsiveness as an organizing construct in the study of closeness and intimacy. In D. J. Mashek & A. Aron (Eds.), *Handbook of closeness and intimacy* (pp. 201–225). Erlbaum.

Rodrigues, D., & Lopes, D. (2013). The Investment Model Scale (IMS): Further studies on construct validation and development of a shorter version (IMS-S). *The Journal of General Psychology*, *140*, 16–28. http://doi.org/10.1080/00221309.2012.710276

Rusbult, C. E., Martz, J. M., & Agnew, C. R. (1998). The investment model scale: Measuring commitment level, satisfaction level, quality of alternatives, and investment size. *Personal Relationships*, *5*, 357–387. http://doi.org/10.1111/j.1475-6811.1998.tb00177.x

Rusbult, C. E., Verette, J., Whitney, G. A., Slovik, L. F., & Lipkus, I. (1991). Accommodation processes in close relationships: Theory and preliminary empirical evidence. *Journal of Personality and Social Psychology*, *60*, 53–78. http://doi.org/10.1037/0022-3514.60.1.53

Schmidt, S. (2009). Shall we really do it again? The powerful concept of replication is neglected in the social sciences. *Review of General Psychology*, *13*, 90–100. http://doi.org/10.1037/a0015108

Selcuk, E., Stanton, S. C., Slatcher, R. B., & Ong, A. D. (2017). Perceived partner responsiveness predicts better sleep quality through lower anxiety. *Social Psychological and Personality Science*, *8*, 83–92. http://doi.org/10.1177/1948550616662128

Simpson, J. A., Rholes, W. S., Campbell, L., Tran, S., & Wilson, C. L. (2003). Adult attachment, the transition to parenthood, and depressive symptoms. *Journal of Personality and Social Psychology*, *84*, 1172–1187. http://doi.org/10.1037/0022-3514.84.6.1172

Spector, P. E., & Brannick, M. T. (2011). Methodological urban legends: The misuse of statistical control variables. *Organizational Research Methods*, *14*, 287–305. http://doi.org/10.1177/1094428110369842

Stafford, L. (2011). Measuring relationship maintenance behaviors: Critique and development of the revised relationship maintenance behavior scale. *Journal of Social and Personal Relationships*, *28*, 278–303. http://doi.org/10.1177/0265407510378125

Statistics Netherlands. (2015). *Ouders van ruim vier op de tien baby's niet getrouwd*. https://www.cbs.nl/nl-nl/nieuws/2016/21/ouders-van-ruim-vier-op-de-tien-baby-s-niet-getrouwd

Statistics Netherlands. (2019). *Arbeidsdeelname paren met kinderen*. https://opendata.cbs.nl/statline/#/CBS/nl/dataset/82919NED/table?ts=1575367645849.

Ter Kuile, H., Kluwer, E. S., Finkenauer, C., & Van Der Lippe, T. (2017). Predicting adaptation to parenthood: The role of responsiveness, gratitude, and trust. *Personal Relationships*, *24*, 663–682. http://doi.org/10.1111/pere.12202

Trillingsgaard, T., Baucom, K. J., & Heyman, R. E. (2014). Predictors of change in relationship satisfaction during the transition to parenthood. *Family Relations*, *63*, 667–679. http://doi.org/10.1111/fare.12089

Twenge, J. M., Campbell, W. K., & Foster, C. A. (2003). Parenthood and marital satisfaction: A meta-analytic review. *Journal of Marriage and Family*, *65*, 574–583. http://doi.org/10.1111/j.1741-3737.2003.00574.x

Volling, B. L., Oh, W., Gonzalez, R., Kuo, P. X., & Yu, T. (2015). Patterns of marital relationship change across the transition from one child to two. *Couple and Family Psychology: Research and Practice*, *4*, 177–197. http://doi.org/10.1037/cfp0000046