

**Predicting relationship change across the transition  
to parenthood: Resources and risk factors**

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# **Predicting relationship change across the transition to parenthood: Resources and risk factors**

**Veranderingen in de relatie gedurende de transitie  
naar ouderschap:  
Hulpbronnen en risicofactoren  
(met een samenvatting in het Nederlands)**

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# **Chapter 1**

## **General overview**

## Introduction

From the moment I first held my newborn son in my arms my world and my life changed, never to be the same again. The changes were profound, sudden, and touched every aspect of my life. Change is perhaps the most common denominator among the experiences of new parents of all types from all over the world. One thing almost all parents will agree upon is that no matter how much joy and happiness the birth of the first child brings, it always requires a great degree of adaptation of the new parents. The arrival of a baby influences almost every aspect of the lives of new parents, from their basic functioning, such as sleep and sex, to their social life, leisure time, work and finances (e.g. Claxton & Perry-Jenkins, 2008; Grote & Clark, 2001; McQueen & Mander, 2003).

The transition to parenthood has become a widely studied phase in romantic relationships, since LeMasters (1957) reported that the majority of parents characterized the birth of their first child as a ‘crisis’ in the relationship. This would seem to be in direct contradiction to the popular view of childbirth as one of the most anticipated and happy events of a lifetime. Subsequent research seems to confirm LeMasters findings, with most studies showing that relationship quality decreases across the transition to parenthood (for reviews, see Doss & Rhoades, 2017; Kluwer, 2010). New parents report increases in conflict (Kluwer & Johnson, 2007), and decreases in their sexual satisfaction (Grote & Clark, 2001) and intimacy (Belsky et al., 1983). Literature on the transition to parenthood has focused in particular on relationship satisfaction, which was found in most studies to decline after childbirth (for meta-analyses see Mitnick et al., 2009; Twenge et al., 2003). An ever-increasing number of studies, however, has documented significant variability in the changes in the relationship experienced by new parents. While some parents experienced a strong decrease in their relationship quality, others reported little change or even an increase (e.g. Belsky & Rovine, 1983; Doss et al., 2009). There is increasing recognition of the importance of moving beyond average changes, to exploring differences between parents (Doss & Rhoades, 2017). The general question in the transition to parenthood literature has therefore shifted from “Does the birth of the first child lead to a decrease in relationship quality?” to the question “*Which factors predict relationship change and adaptation*

*across the transition to parenthood?”* In that framework, this dissertation aims to identify pre-pregnancy and prenatal factors—strengths and vulnerabilities—that predict adaptation to, and relationship quality change across, the transition to parenthood up to several years post-partum.

### **Societal and Scientific Relevance**

Relationship quality has profound effects on partners' physical and emotional well-being (for a meta-analysis see Proulx et al., 2007) and also affects child development and well-being. Dissatisfied spouses have higher rates of psychopathology and physical illnesses, and are more prone to suicide, violence, and disease mortality (for reviews, see Robles, 2014; Whisman, 2013). Longitudinal studies show that low relationship satisfaction does not only co-occur with psychopathology such as anxiety and depression, but also predicts the onset and increase in psychopathology (Whisman, 2013). Relationship discord is associated with lower quality of life indicators such as social role impairment and greater work role impairment (Whisman & Uebelacker, 2006). The impact of relationship dissatisfaction on physical health and emotional well-being leads to direct and secondary costs, thereby indirectly having a large economic impact on society (Caldwell et al., 2007). Conversely, supporting couples can be economically beneficial. For example, couples who complete marital therapy use more than 20% less health insurance (Law & Crane, 2000). Understanding the determinants of relationship quality can inform interventions, thereby benefiting both individuals as well as society as a whole.

The research reported in this dissertation is also relevant to the well-being of children. Research unambiguously shows that marital conflict is related to a range of negative child outcomes. These include externalizing problems such as aggression and anti-social behavior, internalizing problems such as depression and anxiety, and inferior social and cognitive skills (van Eldik et al., 2020). Prenatal maternal stress, such as stress caused by marital dysfunctioning, has been found to have long-term effects on children's behavioral and physiological development (De Weerth & Buitelaar, 2005). Recognition of the importance of parental relationship



quality is demonstrated by the increasing number of policies adopted by governments around the world to improve marital health (e.g. the Family First Act in the U.S.A<sup>1</sup>; the program Promising Start in the Netherlands<sup>2</sup>; Troubled Families Program in the UK<sup>3</sup>).

## Theoretical background

*How does relationship quality change across the transition to parenthood?*

Couples on average experience a decrease in relationship satisfaction over time (e.g., Karney & Bradbury, 2020; Lavner, & Bradbury, 2010). Most studies however find that this decline is larger among new parents than non-parents (e.g. Crohan, 1996; Doss et al., 2009). A large meta-analysis of 97 articles found the difference between the decrease in relationship satisfaction of parents versus non-parents to be small but significant ( $d = -0.19$ ; Twenge et al., 2003). This difference was larger for parents of infants ( $d = -0.38$ ) and for women ( $d = -0.50$ ). Hence, the relationship satisfaction of new parents seems to suffer the most in the first two years after childbirth, and the decline is strongest in mothers.

There is most likely not one single reason why the birth of the first child has an impact on parent's relationship, but a combination of factors. First, the care of an infant requires time, energy, and attention. This can take a toll on the relationship, as is reflected in the stronger decrease in relationship satisfaction of parents in the years in which children require the most care (e.g. Twenge et al., 2003). Childcare also reduces the time and energy that parents spend on each other (Claxton & Perry-Jenkins, 2008). The new parenting role also needs to be juggled with responsibilities in other areas such as work. This leads to greater risk of role overload for parents (Perry-Jenkins et al., 2007). Reduced and disrupted sleep can further diminish new parents' ability to cope with stressors (McQueen & Mander, 2003).

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<sup>1</sup> [www.familyfirstact.org](http://www.familyfirstact.org)

<sup>2</sup> [www.kansrijkestartnl.nl](http://www.kansrijkestartnl.nl)

<sup>3</sup> <https://commonslibrary.parliament.uk/research-briefings/cbp-7585/>

The majority of studies on the transition to parenthood have used relationship satisfaction as the outcome measure. Relationship satisfaction however is not the only factor that defines relationship quality. Commitment for example is an important indicator of relationship quality and stability (Le et al., 2010; Rusbult 1983; Stanley et al., 2010). It is defined as feeling psychological attachment to the partner, having a long-term orientation regarding the relationship, and having the intention to persist in the relationship (Arriaga & Agnew, 2001). Commitment may be crucial across the transition to parenthood for several reasons. Firstly, a meta-analysis showed that commitment is more strongly associated with relationship stability than relationship satisfaction (Le et al., 2010). Second, while fluctuations in relationship satisfaction are normal within every relationship, commitment is posited to be the glue that holds a couple together in times of stress (Stanley & Markman, 1992). Third, commitment increases when investments are made in the relationship (Rusbult, 1983).

As such, commitment may increase across the transition to parenthood, as children can be viewed as a significant investment in the relationship that raises the barrier to leave the partner. Despite the importance of commitment in romantic relationships, only a few studies have examined changes in commitment across the transition to parenthood. The few studies to date on changes in commitment across the transition to parenthood found a considerable amount of individual variation (Doss et al., 2009; Ferriby et al., 2015; Kamp Dush et al., 2014). Therefore there is still much left to explore on how commitment changes after first childbirth, and what moderates this change.

Although the stressors of new parenthood apply to nearly all parents, studies report a significant amount of individual variation in the relationship changes that new parents experience (e.g. Belsky et al., 1983; Doss et al., 2009; Holmes et al., 2013). This finding has instigated theories to understand why there is variation in the impact of the transition to parenthood on the relationship.

*Why are there differences in how parents' relationship quality changes across the transition to parenthood?*

The stressors that commonly accompany the transition to parenthood as described above require parents to adapt. The better they are able to adapt, the more likely that their relationship outcomes will remain stable or even become more positive. This theory is illustrated in the Vulnerability-Stress-Adaptation (VSA) model, which can be used to predict variability in relationship change across stressful life events (Karney & Bradbury, 1995). According to the VSA model, the impact of stressful events on the relationship depends on each partners' personal vulnerabilities and on the couple's adaptive processes. Personal vulnerabilities are stable characteristics such as a lower level of education or insecure attachment. Adaptive processes refer to how couples communicate and interact with one another. The model posits that greater personal vulnerabilities lead to worse adaptation, which exacerbates the negative impact of the stressful event on relationship quality (Karney & Bradbury, 1995).

Applying the VSA model to the transition to parenthood, parents' personal vulnerabilities and their relationship processes are theorized to predict the effect of the stressors that accompany childbirth on the relationship. In line with the VSA model, studies have identified numerous enduring vulnerabilities and relationship processes that diminish or amplify the impact of the transition to parenthood on parents' relationship quality. Examples are anxiety and depression (Trillingsgaard et al., 2014; Whisman et al., 2011), income (Doss et al., 2009) and conflict frequency (Kluwer & Johnson, 2007). A drawback of the studies that have applied this model to the transition to parenthood is that the focus lies on vulnerabilities and risk factors. In general, in the transition to parenthood literature, resources and strengths have been given far less attention. In addition, adaptation to the stressor (i.e. parenthood), has been almost exclusively inferred indirectly through changes in relationship quality.

The VSA model (Karney & Bradbury, 1995) suggests that it is possible to predict how couples will fare when faced with challenges. The Enduring Dynamics Model goes a step further, arguing that it is possible to predict changes in relationship quality from factors present in the beginning

of the relationship (Huston et al., 2001). According to the Enduring Dynamics Model, relationship processes and interactions present in the early years of a relationship are maintained throughout the course of the relationship and are predictive of relationship satisfaction and stability. In other words, relationship distress does not come suddenly and out of nowhere, and we can predict how a relationship will fare during stressful times by looking at factors present months and even years prior (Huston et al., 2001). Other competing models on the origin of relationship distress are the disillusionment model and the emergent distress model. These two models assume that partners have an idealized view of each other at the beginning of their relationship. Over time, negative feelings and behaviors increase (emergent distress) or positive feelings and behaviors decrease (disillusionment), eventually leading to relationship distress. Research to date has found the most evidence for the Enduring Dynamics Model in predicting relationship distress (e.g. Huston et al., 2001; Markman et al., 2010), including across the transition to parenthood (Kluwer & Johnson, 2007).

Based on the Enduring Dynamics Model (Huston et al., 2001), I hypothesize in this dissertation that it is possible to predict prior to childbirth how parents will fare across the transition to parenthood. Identifying such (pre-)pregnancy predictors would allow for early detection and intervention. Knowledge of predictors present even prior to pregnancy could be used for example to educate couples who are expecting their first child or who are thinking of having a child. Despite the potential importance of such predictors, they are scarce in the transition to parenthood literature due to the difficulty of collecting pre-pregnancy data.

### *Are there subgroups within new parents?*

Most of the previous research on the transition to parenthood are based on the premise that there is one average change trajectory that new parents experience. Parents, however, are a very broad and diverse group. Recently there is increasing interest in the possible existence of subgroups within new parents, with distinct patterns of change across the transition to parenthood (Doss & Rhoades, 2017). The existence of subgroups cannot be found when

an average change trajectory is analyzed (Nagin, 1999). The trajectories of different subgroups can cancel each other out, leading to a limited, if not distorted, view of how relationship quality changes after childbirth (e.g. Holmes et al., 2013). Hence a novel approach is needed to elucidate the topic of subgroups.

Although some pioneering studies divided new parents into groups (e.g. Belsky & Rovine, 1990; Doss et al., 2009), providing preliminary evidence for the existence of subgroups, these groups were classified by the authors. More advanced statistical techniques such as latent class growth analysis (LCGA) allow for a more objective method of exploring subgroups (Nagin, 1999). Such subgroups in changes in a variety of dimensions of relationship quality were found in longitudinal research on marriages (for a review, see Proulx et al., 2017). The first study to apply LCGA to relationship satisfaction across the transition to parenthood found that the majority of parents reported only moderate changes after childbirth, with smaller subgroups experiencing steep declines (Don & Mickelson, 2014). Don and Mickelson theorized that the average decline of relationship quality across the transition to parenthood found in many studies is in fact largely due to small subgroups of parents that show a decline. They termed this the ‘subgroup hypothesis’. The exploration of subgroups can provide much more information than studying average changes. Knowledge about subgroups can increase the identification of which parents will fare well after childbirth and which are at risk. To date however, few studies have explored the existence of subgroups in new parents.

## **The Present Research**

This dissertation contributes to the existing knowledge on the transition to parenthood by exploring predictors of relationship change, and focusing thereby also on resources instead of only on vulnerabilities. Furthermore, alternative indicators of relationship quality and adaptation are studied, by using both pre-pregnancy as well as prenatal measurements, and by exploring the existence of subgroups within new parents. With these factors combined, we are able to take a step forward in understanding and predicting which parents are resilient to relationship change and which

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parents are at risk for a deterioration in relationship quality across the transition to parenthood.

### *Predictors of relationship change across the transition to parenthood*

As the focus of the transition to parenthood literature has been mostly on identifying risk factors that predict a decrease in relationship quality after childbirth, we know more about which parents will have a rocky transition to parenthood than about which parents will have a smooth transition. It is, however, equally important to explore the role of strengths and protective resources of new parents that predict positive relationship changes and relationship stability. Whereas knowledge of risk factors can improve the identification of at-risk parents that need help, knowledge of protective factors is important to improve the content of interventions for first-time parents. In this dissertation, the emphasis will therefore be on resources and positive relationship processes that protect a relationship from the stressors of the transition to parenthood.

I explore the role of positive relational processes as resources in predicting adaptation to parenthood (chapter 2) and in predicting change trajectories in relationship satisfaction (chapter 4). Positive relationship processes refer to constructive ways in which partners view each other and interact with each other, such as gratitude, trust, accommodation, relationship maintenance, and responsiveness. I theorize that these processes can act as resources that increase adaptation and diminish the negative impact of stressful circumstances on the relationship by increasing personal as well as relationship well-being (e.g. Algoe et al., 2010) and generating positive emotions (e.g. Fredrickson et al., 2000). Instead of inferring adaptation from relationship satisfaction as usual up until now, I use parents' perceived adaptation to parenthood as the outcome measure in chapter 2. Parents' perceived adaptation to parenthood is defined in this dissertation as how smooth or hard parents experienced the transition to be, and their level of parental well-being. A better understanding of parents' own experiences is important because well-being is strongly influenced by how someone perceives his or her own emotions and situation (Lyubomirsky, 2001).

In chapters 3 and 5 I explore individual psychological factors as predictors of changes in relationship quality across the transition to parenthood. I study personal happiness as a predictor of changes in commitment across the transition to parenthood in chapter 3. Positive emotions such as happiness are theorized to lead to increased creativity, exploration, and social behavior, thereby increasing physical, social, intellectual, and psychological resources (Frederickson, 2004). These resources increase individuals' ability to adapt to stressful circumstances (Frederickson, 2004). I hypothesize that by increasing adaptation, happiness acts as a buffer for relationship quality from the stressors of becoming parents.

I examine the psychological factors self-control, depressive symptoms, and daily stress as predictors of changes in the relationship satisfaction of new parents in chapter 5. Dispositional self-control has many beneficial effects on the relationship (Vohs et al., 2011). New parents must learn both new behavior as well as inhibit old behavior and habits (Bleidorn et al., 2018). Dispositional self-control may therefore be especially important for relationship satisfaction across the transition to parenthood. Depression is an important risk factor across the transition to parenthood because the prevalence of depression increases during this time (e.g. Paulson et al., 2016) and depressive symptoms are associated with lower relationship satisfaction (e.g. Whisman, 2001). Furthermore, daily stress has been shown to have a stronger negative effect on relationship satisfaction than major stressors (see the review by Randall & Bodenmann, 2009). Self-control therefore can be viewed as a resource that increases adaptation to stressful circumstances, while depressive symptoms and daily stress are vulnerabilities which may decrease adaptation and thereby increase the negative impact of stressors on the relationship.

Finally, in chapter 5, I also examine the demographic predictors income, educational level, age, marital status, and relationship length as resources across the transition to parenthood that protect new parents from a decline in relationship satisfaction. A higher income is theorized to buffer the relationship from the negative impact of stressors through the additional resources that it can provide (Doss et al., 2009). Resources, such as childcare services can be especially beneficial after childbirth due to the

high demands of childcare. A higher income may also provide additional sources of self-esteem (Doss et al. 2009). Although a higher income can also reduce financial stress, previous research has found that financial stress is unrelated to changes in relationship quality across the transition to parenthood (Belsky & Rovine, 1990; Doss et al., 2009). Similarly, a higher educational level may lead to greater job security and more resources. Marital status can play a role in changes in relationship satisfaction, as marriage (versus cohabitation) may offer increased stability and security, thereby increasing the partners' satisfaction and well-being (Nock, 1995). Couples with a longer relationship length have had more time to establish a solid relationship base, and may therefore be less vulnerable to the stressors that accompany the transition to parenthood.

### *Prenatal and pre-pregnancy measurements*

In my research I use both prenatal as well as pre-pregnancy measurements of resources and predictors. Based on the Enduring Dynamics Model (Huston et al., 2001), prenatal and pre-pregnancy factors are expected to impact the relationship after childbirth. Pre-pregnancy data are difficult to acquire but have an important advantage above prenatal data, because pregnancy itself can involve changes in both personal as well as relationship well-being (Lawrence et al., 2008). Some of these changes may be stressful when couples worry about finances, housing or working hours, or pregnancy may temporarily increase relationship satisfaction due to a “honeymoon effect” (Feeney et al., 2003). The relative lack of pre-pregnancy data in previous research makes it difficult to discern whether post-childbirth changes are in fact a return to pre-pregnancy baselines (Lawrence et al., 2008). By including pre-pregnancy measurements in my research I avoid these issues. Moreover, I can determine whether it is possible to distinguish, prior to pregnancy, which couples are most at risk of adverse changes in their relationship across the transition to parenthood.



*Are there subgroups within new parents, and predictors of these subgroups?*

The research in this dissertation furthers the exploration of the existence of subgroups in new parents. Although there is a first study showing the existence of subgroups (Don & Mickelson, 2014) replication among different samples is vital, particularly when using group-based modeling techniques (Jones & Nagin, 2007). In addition, by further exploring predictors of subgroups, we can increase our understanding of the underlying mechanisms of relationship change across the transition to parenthood. In chapters 4 and 5 I therefore study predictors of membership to subgroups that remain stable versus subgroups that decline in relationship quality across the transition to parenthood.

**Data**

I used two large longitudinal datasets to answer the research questions. The *Marriage and Wellbeing Survey* is an existing five-wave longitudinal data set among 199 couples that was collected by researchers from the Free University of Amsterdam as part of a larger study (Finkenauer et al., 2009). The *Dutch Relationship and Parenthood dataset*, a longitudinal survey involving 210 couples who went through the transition to parenthood, was collected for the purpose of this dissertation. In these datasets both the mother and father participated in most cases, contrary to many previous studies. How partners affect each other can be as important as individual-level effects, as illustrated by interdependence theory (see Rusbult & Arriaga, 1997). This may be of particular importance among new parents, as the care of children raises the level of interdependence between partners.

*Data from the Marriage and Wellbeing Survey*

The Marriage and Wellbeing Survey was collected between 2006 and 2010 among 199 newlywed couples. Participants were recruited via eight municipalities in the Netherlands, who provided the names and addresses of couples who married in the previous month. Inclusion criteria were that partners were between 25 and 40 years of age, neither partner had been previously married, and couples did not have children from this marriage or

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from previous relationships. Nineteen percent of the couples consented to participate in the study, a response rate that is comparable to that of studies recruiting from public records in the United States (e.g., Kurdek, 1991). During the course of the study the majority of couples became pregnant and had their first child. For our research I included 109 couples who had their first child during the course of the survey and compared these to a control group of 55 couples who remained childless. A comparison group of childless couples has not often been included in previous research. It is important, however, because it makes it possible to disentangle the effects of time versus the effects of the transition to parenthood. Data were collected at five waves, on average 9 – 12 months apart. At each wave, partners filled out an extensive survey, which included questions about personality, personal well-being, and numerous aspects of the marital relationship.

### *Data from the Dutch Relationship and Parenthood dataset*

The Dutch Relationship and Parenthood dataset consists of 440 Dutch first-time parents (including 210 couples) and was collected in four waves between 2011 and 2013. Participants were recruited through online pregnancy forums (31.7%), during a pregnancy fair (14.7%), through another participant (12.6%), through advertisements (21.8%), or from another source (19.1%). Inclusion criteria were that couples were 20 – 40 years old, pregnant with their first child, and that neither partner had a child from a previous relationship. The questionnaire was administered online by providing participants with a personal link. The first wave took place during pregnancy, and the subsequently when the child was approximately 4 months old, 8 months old, and 1 year old. Roughly half the sample was married, the other half cohabited prior to childbirth. This is representative of the general Dutch population, where approximately half of the parents is not married when their first-born arrives (Statistics Netherlands, 2016). Participants were more highly educated than the general population: 67.5% of mothers and 54.4% of fathers had a college or university degree, compared to 50.8% of women and 43.3% men between the ages of 30-35 of the general population of the Netherlands (Statistics Netherlands, 2015).

## Overview of the empirical chapters

### *Chapter 2: Predicting Adaptation to Parenthood: The Role of Perceived Responsiveness, Gratitude, and Trust.*

Chapter 2 assesses the influence of the positive relationship processes perceived responsiveness, gratitude, and trust on perceived adaptation to parenthood, that is, how difficult or easy parents experienced their transition to parenthood to be as well as their well-being as parents. Parental well-being is comprised of both relational as well as personal well-being. For example, how satisfied or worried parents are about changes in their lives and their new responsibilities as a parent, their level of personal happiness since becoming parents, and how distressed parents are by common issues such as sleep deprivation. Based on the VSA model, I theorized that positive relationship processes would increase the ability of first-time parents to deal with the challenges of the transition to parenthood. Perceived responsiveness, gratitude, and trust have been found to increase personal as well as relationship well-being (Algoe et al., 2010; Wood et al., 2008). Perceived partner responsiveness improves the effectiveness of spousal support (Maisel & Gable, 2009), which has been found to be of particular importance across the transition to parenthood (e.g. Simpson et al., 2003; Stapleton et al., 2012). Gratitude strengthens relationships by encouraging prosocial behavior from the partner (McCullough et al., 2002). Gratitude fosters psychological resilience (Fredrickson & Joiner, 2002) and predicts lower levels of stress and depression (Wood et al., 2008). Finally, trust may be an important resource across the transition to parenthood. Childcare demands cooperation between parents and increases a couple's interdependence, which is theorized to foster trust (Simpson, 2007). Trust is strongly associated with relationship quality (Finkenauer et al., 2009). Based on the above, I hypothesized that parents with higher levels of positive relationship processes in the years before pregnancy would report higher perceived adaptation to parenthood.

I tested this prediction using latent growth curve modeling on 109 couples that participated in the Marriage and Wellbeing Survey and became parents during the study. The results showed that fathers and mothers who

had higher levels of perceived responsiveness, gratitude and trust in the years before pregnancy reported better adaptation to parenthood. Parents whose levels of these positive relationship processes increased over time reported even better adaptation, with the exception of mothers' increase in trust over time which was unrelated to their own adaptation. In addition, their partner's positive relationship processes also predicted parents' perceived adaptation. In other words, mothers and fathers with a partner who reported higher initial perceived responsiveness, gratitude and trust, and whose positive relationship processes increased over time, fared better after childbirth. The exception was once more trust, whereby mothers' initial level of trust did not predict fathers' adaptation.

Summarizing, these results imply that positive relational processes before pregnancy can predict how parents will experience their adaptation to parenthood after up to three years. In line with the VSA model, resources can increase a couple's ability to cope and thereby diminish the impact of stressful life transitions (Karney & Bradbury, 1995).

### *Chapter 3: Changes in Commitment Across the Transition to Parenthood: Pre-pregnancy Happiness as a Protective Resource*

In chapter 3 I explore personal happiness as a pre-pregnancy protective resource, and its effect on changes in commitment across the transition to parenthood. Having a child together is a major investment, and as such could be hypothesized to increase relationship commitment (Rusbult, 1983). However, the few studies that have examined changes in commitment found that, on the whole, new parents report a decrease in commitment after childbirth (Doss et al., 2009; Ferriby et al., 2015; Kamp Dush et al., 2014). These studies also found a substantial amount of individual variation in changes in commitment. Based on the VSA model (Karney & Bradbury, 1995), I hypothesized that parents with higher pre-pregnancy happiness experience less negative or more positive changes in commitment after childbirth compared with parents with lower pre-pregnancy happiness. New parents with greater personal resources would experience less negative and more positive changes in their commitment across the transition to parenthood and personal happiness can be viewed as a psychological

resource that increases individuals' ability to adapt to stressful circumstances (Frederickson, 2004). For example, happy individuals are better able to learn new tasks and show more effective problem solving than less happy individuals (Bryan et al., 1996).

To test this prediction, latent growth curve modeling was conducted on the data from the Marriage and Wellbeing Survey. Prior to pregnancy, there was no difference in commitment between couples who later had a child and couples that remained childless. On average, partners had high levels of commitment, with women reporting higher commitment than men. Over time, commitment declined slightly for mothers and for men and women without children, while fathers' commitment remained stable. The commitment of fathers who had a higher level of happiness before pregnancy showed less negative change and more positive change after childbirth, while the commitment of fathers who were less happy before pregnancy decreased sharply. Likewise, the commitment of fathers and mothers whose partner was happier in the years before pregnancy showed less negative and more positive change, and the commitment of parents whose partner was less happy prior to pregnancy declined strongly. Mother's happiness did not moderate their own changes in commitment. For non-parents, happiness did not affect changes in commitment over time. In conclusion, the results suggest that pre-pregnancy happiness buffers the negative effects of the stressors that accompany the transition to parenthood on the relationship. In line with the idea that happiness acts as a resource when partners have to deal with relationship challenges, individual happiness was a predictor of changes in commitment for parents, but not for childless partners not dealing with the stressors of new parenthood.

#### *Chapter 4: Positive Relationship Processes Predict Relationship Satisfaction Trajectories Across the Transition to Parenthood*

In chapter 4, I investigated the existence of subgroups of parents with distinct patterns of change in relationship satisfaction across the transition to parenthood. In addition, I aimed to predict subgroup membership from levels of positive relationship processes, namely relationship maintenance behavior, perceived responsiveness, and accommodation, during pregnancy.

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As discussed earlier, an average decline in relationship satisfaction can mask subgroups of parents with distinct patterns of change across the transition to parenthood. Furthermore, if there are indeed subgroups it is important to know which factors predict subgroup membership. Positive relationship processes increase the coping capacity of new parents and I therefore hypothesized that parents with higher levels of positive relationship processes during pregnancy, and whose partners reported higher levels of positive relationship processes, would be more likely to belong to a subgroup that fared better across the transition to parenthood in terms of relationship satisfaction.

To test this hypothesis, I used 440 first-time parents (including 210 couples) from the Dutch Relationship and Parenthood dataset. Latent Class Growth Analysis (LCGA) was conducted to identify subgroups. The results identified three subgroups of mothers, and three subgroups of fathers with distinct trajectories of change in relationship satisfaction. The relationship satisfaction of the majority of both mothers and fathers remained stable across the transition to parenthood, with small subgroups experiencing strong declines after childbirth. Higher levels of pre-pregnancy perceived responsiveness, and higher relationship maintenance and accommodation for fathers, predicted membership to subgroups whose relationship satisfaction remained stable after childbirth versus subgroups whose relationship satisfaction declined. In addition, mothers and fathers whose partner reported higher perceived responsiveness, and fathers whose partner reported higher accommodation, were also more likely to be a member of a subgroup that remained stable across the transition to parenthood. These results show that most parents' relationship satisfaction in this sample of low-risk parents remained stable, but also that lower levels of prenatal relational adaptive processes indicate a greater risk of experiencing a decrease in satisfaction.

### *Chapter 5: Psychological and Demographic Predictors of Relationship Satisfaction Trajectories Across the Transition to Parenthood*

In chapter 5 I used the subgroups established in chapter 4 to explore prenatal demographic and psychological predictors of changes in

relationship satisfaction across the transition to parenthood. The psychological factors higher self-control, lower depression and lower daily stress and the demographic factors higher income, level of education, marital status (marriage or partnership contract versus cohabitation), age, and longer relationship length were hypothesized to predict membership to a subgroup whose relationship satisfaction increased or remained stable across the transition to parenthood. Dispositional self-control has been found to have many benefits for the relationship, such as higher relationship satisfaction, more accommodation, smoother daily interactions, and less conflict (Vohs et al., 2011). Depression can lead to greater expressed hostility and negative affect in the interactions between partners (e.g., Johnson & Jacob, 2000) and depressed individuals demand more emotional and practical support from their partner (Benazon & Coyne, 2000). The effect of daily stress on the relationship is even greater than that of major stressors (see the review by Randall & Bodenmann, 2009). Stress is associated with increased withdrawal and negative interaction between partners (Randall & Bodenmann).

The results showed that the psychological factors—high self-control, lower depressive symptoms and lower daily stress—predicted membership of both mothers and fathers to subgroups that remained stable as opposed to subgroups with decreasing relationship satisfaction after childbirth. Of the demographic factors, only higher income and marital status (marriage versus partnership contract or cohabitation) predicted membership for both mothers and fathers to subgroups whose satisfaction remained stable. Age, relationship length, and level of education did not predict subgroup membership. The results demonstrate that prenatal differences between parents, particularly in psychological factors, can predict relationship wellbeing across the transition to parenthood. Predictors such as these make it possible to identify the small subgroups of couples most at risk of relationship deterioration across the transition to parenthood, which would allow for early and more targeted interventions.

## General Conclusions

The central question of this dissertation was: *Which factors predict relationship change and adaptation across the transition to parenthood?* By exploring variability in how parents experience the transition to parenthood, I identified personal factors (e.g. happiness, self-control, income) and relationship processes (e.g., perceived responsiveness, gratitude) that predicted changes in relationship satisfaction, commitment, and adaptation to parenthood. Knowledge of these predictors can increase our understanding of the underlying mechanisms in the transition to parenthood (Lawrence et al., 2008; Nelson et al., 2014). I explored this question using two longitudinal datasets among first-time parents collected over several years. Below I discuss the main conclusions of this dissertation.

*Parents are not one group: most parents fare well across the transition to parenthood*

By using advanced statistical techniques, I was able to better explore a vital question that has been garnering increasing interest (Doss & Rhoades, 2017): Are there distinct patterns of change across the transition to parenthood? In line with previous research (e.g. Twenge et al., 2003, Mitnick et al., 2009), when all data are lumped together the relationship satisfaction of parents declined on average (chapters 4 and 5, marginally significant for mothers). When parents were classified into subgroups however, a different picture emerged. The majority of first-time parents reported stable relationship satisfaction across the transition to parenthood, while only small subgroups experienced a (strong) decline in satisfaction. Longitudinal studies of marriages have similarly found distinct subgroups in changes in relationship quality (Proulx et al., 2017) as has a previous study on the transition to parenthood (Don & Mickelson, 2014). A review of research on relationship satisfaction and stability found that contrary to the popular view that satisfaction declines over time, the relationship satisfaction of most couples remains stable (Karney & Bradbury, 2020). Similarly, the results in this dissertation show that the satisfaction of most new parents remains stable after childbirth, at least in low-risk samples. The



birth of their first child does not seem to have a large or lasting impact on the relationship quality of the majority of parents. After the first period of intense infant care and adjustment to the many changes of parenthood, most parents regain their previous relationship quality. It is important to note, however, that the size of the subgroups that declined in relationship quality after childbirth may not be representative for the overall population. The couples in our samples, as is the case in the majority of studies, had on average a higher social economic status than the general population. The sample therefore probably had more resources available and can be identified as low-risk. In a more representative sample, the subgroups experiencing a decline may be larger.

*Pre-pregnancy and prenatal factors predict how parents fare across the transition to parenthood*

The possibility to predict relationship changes and adaptation to parenthood early in time allows for the identification of the parents most at risk, and therefore for timely intervention. It also gives important information about the nature of the changes parents experience. Does the birth of the first child create sudden changes in the relationship? Or does childbirth intensify pre-existing strengths and weaknesses in the relationship? The results in this dissertation suggest the latter, which is most in line with the Enduring Dynamics Model (Huston et al., 2001). In chapters 2 and 3, I showed that a personal resource (happiness) and positive relationship processes on average two years prior to pregnancy, predicted post-childbirth commitment and adaptation to parenthood in the years after. In chapters 4 and 5, I showed that positive relationship processes and psychological and demographic factors during pregnancy predicted postnatal relationship satisfaction. These results show that it is possible to predict changes in relationship quality from factors present prior to childbirth, and that the birth of the first child continues and intensifies pre-childbirth differences between parents. Perceived adaptation to parenthood was even higher when parents and their partners reported an increase in positive relationship processes over time (chapter 2). This suggests that resources are dynamic; their levels can change over time and their impact on adaptation changes accordingly.

These results are in contrast with studies that found that changes in relationship satisfaction are difficult to predict. A large-scale project using machine learning (i.e., Random Forests) of 43 dyadic longitudinal datasets showed that none of the many individual and relationship-specific constructs they examined was able to explain more than 5% variance of change in relationship satisfaction over time (Joel et al., 2020). A review on marital satisfaction likewise found that constructs generally assumed to predict satisfaction, such as negative communication, were not in fact associated with changes in relationship satisfaction (Karney & Bradbury, 2020). The discrepancy with the results from this dissertation may be due to how change in relationship quality is measured. Joel and colleagues (2020) used change scores, whereas the research for this dissertation used growth models to model change. A growth model, encompassing several datapoints and able to model not just one change but fluctuations in a variable over time, may be more suited to test predictors of change over time.

### *Parents with more resources fare better across the transition to parenthood*

The results of the studies in this dissertation indicate that resources buffered the relationship from the negative effects of the stressors that accompany the transition to parenthood. As posited by the VSA model (Karney & Bradbury, 1995), resources increased adaptability and resilience. This was the case for both personal (chapters 3 and 5) as well as relational (chapters 2 and 4) resources. Knowledge of such resources can be used to improve the content and effectiveness of interventions for first-time parents. Often used risk factors such as a history of divorce in the family of origin, are not modifiable. This limits their usability in interventions for new parents (Halford, & Bodenmann, 2013). The resources identified in this dissertation on the other hand, such as perceived responsiveness and happiness, are modifiable (Lyubomirsky & Dickerhoof, 2011; Manne et al., 2011).

Parents perceived their adaptation to parenthood as being easier, and their relationship satisfaction was more likely to remain stable, when they and their partners had high levels of positive relational processes before child birth (chapters 2 and 4). This is in line with research showing that relationship variables are better predictors of relationship satisfaction than

personal variables (Joel et al., 2020). The positive relational processes I studied—perceived responsiveness, gratitude, trust, relationship maintenance, and accommodation—have in common that they encompass a positive view of the partner and a positive way of interacting with one another. These positive interactions in times of stress can enhance adaptation and mitigate the negative effects of stress on the quality of the relationship (Karney & Bradbury, 1995). Similar to happiness, they are perhaps not only resources in and of themselves, but also boost psychological resources by increasing personal as well as relationship well-being (Algoe et al., 2010; Wood et al., 2008).

Another conclusion in this dissertation is that perceived responsiveness stands out as the most consistent predictor of a smoother transition to parenthood (cf. Joel et al., 2020). Perceived responsiveness has even been linked to a lower risk of mortality in a 20-year longitudinal study (Stanton et al., 2019). Feeling that your partner is understanding and caring may be especially important during stressful life changes. Perceived responsiveness has also been found to increase the effectiveness of spousal support (Maisel & Gable, 2009). This, in particular, may be the pathway through which perceived responsiveness impacts the parents' adaptation across the transition to parenthood. Partner support has been shown to be associated with lower levels of distress and higher well-being across the transition to parenthood (e.g., Gillis et al., 2019; Simpson et al., 2003). Support diminishes the strain and burden of childcare, leading to lower levels of stress and less depressive symptoms (Laxman et al., 2015). However, support can also have a negative impact by increasing the feelings of helplessness of the receiver and focusing attention on the stressor (e.g., Bolger et al., 2000; Maisel & Gable, 2009). Consequently, for partner support to be effective it is critical that the partner is perceived as being responsive to the needs and wishes of the other partner, and supportive of her or his actions.

Most of the demographic factors I studied were not related to relationship satisfaction after childbirth. This was in contrast to the psychological factors, of which each of them predicted subgroup membership. These findings suggest that psychological resources play a bigger role in explaining changes in relationship satisfaction across the

transition to parenthood than demographic resources (cf. Joel et al., 2020). The effect of demographic factors is perhaps (partially) mediated by psychological factors. In other words, a lower income may or may not lead to stress depending on the context (i.e., whether it's by choice or not, and whether it causes financial problems). Only when it increases stress would it have a negative impact on the relationship. This would suggest that future research should focus on psychological factors as a more direct way of predicting parental distress and changes in the relationship across the transition to parenthood.

An interesting finding was that although parents and childless couples showed the same average rate of decline in commitment over time, happiness only moderated change in commitment for parents (chapter 3). This suggests that protective resources mainly play a role when couples have to deal with challenges such as the transition to parenthood. When couples are not faced with stressors, resources may be less needed, and therefore not strongly associated with relationship quality. This is similar to previous research showing that the expression of fondness and awareness of the relationship buffered a decline in satisfaction but was unrelated to changes in satisfaction in the non-parents control group (Shapiro et al., 2000). The impact of some resources may therefore only surface in the context of disturbances and changes which require partners to adapt. More research is needed to confirm this idea. The few studies on the transition to parenthood which included a non-parent comparison group either did not include predictors of change (e.g. Lawrence et al., 2008) or only tested predictors of satisfaction in the parent group (e.g. Doss et al., 2009). This finding also stresses the importance of including comparison groups of childless couples in research on the transition to parenthood.

It is difficult to overstate the importance of including the partner in relationship research. In each of our studies, the impact of the partner's resources on a parent's adaptation and relationship quality were often equal to or even greater than the effect of their own resources. This is similar to findings in previous research (e.g. Holmes et al., 2013), with some studies even finding that predictors were almost solely partner factors (Don & Mickelson, 2014). However, this is in contrast to research which found partner effects to have no predictive value above actor effects (Joel et al.,

2020). The impact of the partner's resources is consistent with the influential theory of interdependence (Kelley & Thibaut, 1978) and the interdependence assumed in the VSA model (Karney & Bradbury, 1995). The focus in the transition to parenthood literature has traditionally been on the mother (Keizer & Schenk, 2012) and early research suggested that mothers and fathers experience the transition in different ways (i.e. Cowan et al., 1985). Perhaps also because of changes in society reducing differences between mothers' and fathers' role as parents, recent studies found that mothers and fathers function similarly after childbirth and show parallel changes (i.e. Galdiolo & Roskam, 2017; Gillis et al., 2019).

## **Limitations**

The findings in this dissertation have to be viewed in light of several limitations. An important limitation of the datasets is the relative homogeneity of the samples. The couples who participated were predominantly higher educated and the partners reported relatively high relationship satisfaction compared to other studies (e.g. Don & Mickelson, 2014; Doss et al., 2009; Trillingsgaard et al., 2014). This may have limited the size of the effects and of the subgroups. In general, the participants of both datasets can be classified as 'low-risk'. This is a common issue in relationship research (Karney & Bradbury, 2020), as couples from lower social-economic backgrounds and with lower relationship quality are difficult to recruit and retain for research. In some aspects however the datasets were representative of the general population. For example, in the Dutch Relationship and Parenthood dataset 45.2% of the couples were not married. This is in line with the high number of unmarried parents in the Netherlands: in 2016, 52% of the Dutch children were born to unmarried women (Statistics Netherlands, 2016). An important next step therefore would be to explore the strength of the predictors, and the existence of subgroups, in a more heterogeneous and high-risk sample. Research exploring subgroups in other aspects of couple's functioning across the transition to parenthood, such as sexual well-being (Rosen et al., 2020) and coparenting (Cicela, 2013), found that only a minority of couples belonged to subgroups that fare poorly after childbirth, similar to the research in this

dissertation. In a more representative sample therefore parents experiencing a decline in relationship quality would likely still form a minority, in line with the *subgroup hypothesis* (Don & Mickelson, 2014).

Other limitations include the modest sample sizes, selection bias, and bias due to the measurements based on self-reports. Although the sample sizes were not small, larger sample sizes would have allowed for the use of more complex models and increased the power to find small effects. For example, with a larger sample size multiple predictors and covariates could be included within the same model. This would make it possible to control the effect of one predictor for the other predictors and to directly compare the strengths of different predictors. Preliminary evidence from the results of our studies suggest that perceived responsiveness may be an especially robust predictor of relationship quality across the transition to parenthood. One large-scale study that combined datasets from many different studies (including ours) in order to compare the predictive strength of relationship factors found that perceived responsiveness was one of the most successful factors in predicting relationship satisfaction and commitment (Joel et al., 2020).

### **Directions for Future Research**

The results in this dissertation provide some interesting directions for future research. The further exploration of subgroups of new parents with distinct change trajectories of relationship quality is an important next step. Replication is always necessary for group-based modeling techniques (Sampson et al., 2004). In the case of new parents in particular, as in both the research in this dissertation as well as the only previous study to date to explore subgroups in change trajectories in relationship satisfaction (Don & Mickelson, 2014) the samples were low-risk. There are still also many factors identified in previous research as predictors of more negative changes across the transition to parenthood which have yet to be investigated as possible predictors of subgroup membership. Examples are anxiety and less constructive communication (Trillingsgaard et al., 2014), anxious and avoidant attachment (Rholes et al., 2014) and difficulties in the family of origin (Doss et al., 2009). I believe that just as there are numerous

factors that have been identified as predictors of average change in relationship quality, there will be numerous factors that predict subgroup membership. The high-risk subgroup(s) will therefore likely be identifiable by not one or two, but a set of variables.

The transition to parenthood is just one example of a stress generating event. The findings of this dissertation might be applied to other types of stressful events as well. Coping literature has explored how couples cope with a variety of stressful events such as daily hassles (Bodenmann et al, 2007), medical conditions (e.g. Badr et al, 2010), parenting children with special needs (e.g. Weitlauf et al., 2014), and dealing with the death of a child (Bergstraesser et al., 2015). Similar to the transition to parenthood literature, research has only recently begun to explore heterogeneity in how couples deal with stress by looking at subgroups and patterns. Martos and colleagues (2019) found that six subgroups could be identified with distinct patterns of how they coped with personal projects (such as passing an exam). The majority of couples (62%) were able to use positive dyadic coping. Level of stress were less predictive of relationship satisfaction than whether couples used negative or positive coping patterns. Based on my research, distinct subgroups might be identified that differ significantly in how they adapt to stressful events and how it impacts their relationship quality and resources may predict which couples will be negatively affected by the stressful event and which couples will remain relatively unaffected. The outcomes can in addition be compared to the transition to parenthood literature to pinpoint the effect of the absence of a common potential source of joy, the child.

In this dissertation the focus was on the parents and child factors were not included. Previous studies have found that child related factors such as babies sleeping poorly, excessive crying, and a fussy child temperament exacerbate negative changes in relationship quality after childbirth (e.g. Belsky & Rovine, 1990; Holmes et al., 2013). Research also showed, however, that the expected negative effect of infant difficulty was only apparent in combination with other risk factors, such as parents' personality and social-economic factors (Crockenberg & Leerkes, 2003; Schoppe-Sullivan et al., 2007). I believe that these child related factors should be included more often in future research as a measurement of the

level of stress caused by the transition to parenthood. I would expect that in subgroups with sufficient resources these factors have no effect on parents' relationship quality, while in high-risk subgroups they will negatively affect parents' relationship quality.

In addition, I believe that future research should include both support as well as perceived responsiveness in the same model. As discussed above, support plays an important role across the transition to parenthood (Stapleton et al., 2012) but can be ineffective if it is not responsive to the needs of the recipient (Maisel & Gable, 2009). I believe therefore that perceived responsiveness is more important across the transition to parenthood than behavioral or emotional support. Including both factors in the same analysis would make it possible to further disentangle the effects of support, both external as well as partner support, and perceived responsiveness across the transition to parenthood.

### **Practical implications**

The results of the research in this dissertation have several practical implications for interventions to help couples across the transition to parenthood. Although the relationship satisfaction of the majority of couples remained relatively stable, there were subgroups of parents who experience a (strong) decline in satisfaction. In light of the numerous negative effects of low relationship satisfaction on the well-being of both parents (Proulx et al., 2007) and children (Van Eldik et al., 2020), interventions for these parents are sorely needed. Over the years, many types of interventions have been developed for new and expecting parents in different countries (e.g. Bolte et al., 2009, Germany; Daley-McCoy et al., 2015, U.K.; Feinberg et al., 2016, U.S.A; Halford et al., 2010, Australia; Missler et al., 2020, the Netherlands; Petch et al., 2012, U.S.A; Trillingsgaard et al., 2012, Denmark, to name a few). The results of evaluations of these interventions are mixed. Although positive results have been found, such as increased positive communication and smaller decreases in relationship satisfaction relative to control groups (Halford et al., 2010; Petch et al., 2012), meta-analyses show that these effects are often small to modest in size (Pinquart & Teubert, 2010). Some interventions, such as the large scale Building Strong Families intervention



encompassing 6212 couples, found no difference in relationship satisfaction between parents who participated in the intervention and those who did not (Wood et al., 2012). Other studies only found effects for high-risk couples (e.g. Petch et al., 2012). It seems therefore that there is still much to be gained in increasing the efficacy of transition to parenthood interventions.

The timing of transition to parenthood interventions is also important to consider. I found that it is possible to predict which parents will experience difficulties across the transition to parenthood. This means that (future) parents at risk can be identified before the problems begin, making early interventions possible. Pinquart and Teubert (2010) found in their meta-analysis that interventions that included prenatal sessions had stronger positive effects than those that did not, showing that early intervention can improve effectiveness. Furthermore, I found that the majority of parents adjust well to becoming parents. It would therefore likely be the most efficient for policy makers and municipalities to target programs at the subgroups of parents most at risk for maladjustment. However, many programs for (expecting) parents are universal programs, not specifically targeted at parents at risk (Pinquart & Teubert, 2010). These programs seem to reach mostly well-educated parents. For many programs therefore, the efficacy among couples with a lower social-economic status is unknown (Johnson, 2012). An intervention for marrying couples was only effective for couples at risk for relationship distress (Halford et al., 2001). It seems likely that low-risk parents would also benefit less from interventions than high-risk parents. High-risk parents can be more difficult to reach for an intervention, as they often have more pressing daily concerns (Johnson, 2012). In order to reach them, perhaps it is necessary to combine transition to parenthood interventions with more practical interventions that offer for example financial or housing aid.

High-risk parents however also only seemed to benefit when the factors that made them at-risk were modifiable by relationship interventions (Halford & Bodenmann, 2013). Social-economic risk factors, for example, such as poverty are not, or at least not directly, modifiable by relationship education. As argued in the review by Johnson (2012), those struggling with poverty have many more immediate and more urgent concerns than the state of their relationship. Relationship interventions are therefore likely not to be

very relevant for them. Parents targeted for relationship interventions should therefore score high on modifiable risk factors. The positive relational resources explored in this dissertation, accommodation, trust, gratitude, relationship maintenance, and perceived responsiveness, are potentially modifiable in a relationship intervention. Traditionally, the majority of couple interventions emphasized communication and problem-solving skills (Markman & Rhoades, 2012). Increasingly however, both research as well as interventions are expanding their focus to include relational resources and positive relational processes such as caring, affection, and mutual partner support (Couple Care for Parents, Halford et al., 2010) and commitment, fun and intimacy (Prevention and Relationship Education Program adapted for parents, Trillingsgaard et al., 2012). The findings of this dissertation underscore the importance of positive relational processes, and more of these should be included in couple interventions. For example, perceived responsiveness as discussed earlier has been gaining increasing attention as an important relational construct (Reis et al., 2004) but few interventions have included responsiveness in their programs. An intimacy-enhancing psychological intervention for cancer patients increased perceived responsiveness (Manne et al., 2011), showing that it is possible to modify responsiveness. The finding that a personal resource such as happiness also affects how relationship quality changes after childbirth suggests that the effectiveness of interventions may be further increased by adding a component that focuses on the well-being of the individual parents.

### **Conclusion**

Becoming a parent inevitably means change in the couple relationship. As I experienced myself when I became a parent, you have to redefine and at least partially reinvent your relationship. Adaptation therefore, is inevitable. The more resources parents have and the better equipped they are to adapt, the better they are able to deal with the stress factors that inevitably accompany change. Parents with higher levels of pre-pregnancy and prenatal protective factors and positive relational processes, and lower levels of risk factors, fare better across the transition to parenthood in terms of relationship satisfaction, commitment, and adaptation to parenthood.

Because of the large differences in circumstances and levels of adaptive processes, parents are not one group. As such, while on average a decline in relationship quality is found after childbirth, this may be caused largely by small subgroups of parents who experience a rocky transition to parenthood. The efficacy of programs for new parents may thus be improved by targeting high-risk couples, and focusing on improving positive relational processes. Increasing amounts of evidence suggests that, contrary to popular belief, the relationship quality of the majority of parents remains stable across the transition to parenthood.



## Chapter 2

### **Predicting Adaptation to Parenthood: The Role of Perceived Responsiveness, Gratitude, and Trust**

Author contributions: Author ter Kuile designed the study, conducted the statistical analyses, interpreted the results, and wrote the first draft of the manuscript. Author Kluwer aided in designing the study, provided conceptualization and theory used to integrate findings, interpreted results, and edited the manuscript. Author Finkenauer designed the questionnaire, directed data-collection, and provided feedback on the manuscript. Author van der Lippe provided conceptualization and theory used to integrate findings, interpreted results, and edited the manuscript.

*Note.* This chapter is based on 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*(3), 663-682.

### **Abstract**

The influence of positive relationship processes, specifically perceived responsiveness, felt gratitude, and felt trust, on perceived adaptation to parenthood was investigated. It was hypothesized that both higher initial levels prior to pregnancy as well as increases over time in perceived responsiveness, felt gratitude, and felt trust predicted better adaptation to parenthood. Data from a five-wave longitudinal study of 109 newlyweds who became parents during the course of the study were used. Results showed that baseline positive relationship processes before pregnancy positively predicted adaptation to parenthood up to 4 years later. Changes over time were even stronger predictors of adaptation. Positive relationship processes may buffer against stressors during challenging life transitions, improving one's own adaptation as well the adaptation of one's partner.

## Introduction

The impact of the birth of the first child on the marital relationship has been the focus of a large body of research. The vast majority of studies conducted on this topic does not paint a rosy picture: The transition to parenthood has often been found to lead to declines in both marital and personal well-being (Kluwer, 2010; Twenge et al., 2003). Couples report lower relationship satisfaction and sexual intimacy, increases in conflict, and higher levels of stress and depression after childbirth (Belsky & Rovine, 1990; Doss et al., 2009; Goodman, 2004; Kluwer & Johnson, 2007). The number of studies showing declines in relationship satisfaction after childbirth seems alarming, but the focus on relationship satisfaction does not capture the full extent of parents' experiences after childbirth. We know very little about how parents experience their own adaptation to parenthood and what factors facilitate or impede this experienced adaptation. Because a person's well-being has been found to be strongly influenced by how he/she perceives his/her own emotions and situation (Lyubomirsky, 2001), the current research aimed to investigate how new parents experience their own adaptation to parenthood.

We define perceived adaptation to parenthood as the degree to which parents experience the transition as difficult or easy and report high well-being after childbirth. Well-being in this case encompasses both relational and personal well-being, such as how worried parents are about changes in their lives and their new responsibilities as a parent, their satisfaction with changes since childbirth, their level of happiness since becoming parents, and how troubled parents are by common problems such as lack of sleep. How well parents adapt to parenthood not only affects their own well-being but indirectly also affects their relationship quality and the well-being of their children (Amato, 2001). Parental stress and depression are related to lower social competence and greater behavioral and emotional problems in children (Langrock et al., 2002). In addition, marital distress has been found to negatively affect the psychological and physical development of children (Amato, 2001). A better understanding of what factors contribute to parents' adaptation to parenthood could improve the support offered to first-time parents, hopefully preventing the negative consequences of low adaptation.

## Predicting Adaptation to Parenthood

Although the majority of studies on the transition to parenthood have studied risk factors for the negative changes after childbirth, it is important to know more about factors that increase the coping capacity of first-time parents. We aim to provide the first test of how positive relationship processes are related to perceived adaptation to parenthood. Our reasoning is that positive relationship processes provide resources that will help first-time parents to deal with the challenges of the transition to parenthood. In addition, we aim to increase our understanding of *how* these positive relationship processes affect adaptation by applying models of relationship change to the transition to parenthood. That is, we test whether initial levels of positive processes that qualify the relationship prior to pregnancy versus changes in these processes across the transition to parenthood predict better adaptation. To address these goals, we used a longitudinal design with assessments of positive relationship processes before the first pregnancy, during pregnancy, and after childbirth among both fathers and mothers.

### *Adaptation and positive relationship processes*

A useful theory on how couples adapt to potentially stressful events is the vulnerability-stress-adaptation (VSA) model (Karney & Bradbury, 1995). According to the VSA model, personal resources and vulnerabilities can aggravate or diminish the impact of a stressful event on marital quality (Karney & Bradbury, 1995). Indeed, a number of moderators and predictors of well-being after childbirth have been identified. Demographic variables that have been found to negatively impact relational and personal well-being after childbirth are both high and low socioeconomic status, being female, and low occupational status (O'Hara & Swain, 1996; Twenge et al., 2003). Social and personal factors associated with lower well-being are, among others, a lack of social support, lower marital adjustment (O'Hara & Swain, 1996), greater conflict frequency (Kluwer & Johnson, 2007), and poor conflict management before childbirth (Doss et al., 2009).

Instead of focusing on vulnerabilities, this study will look at partners' resources and how they predict adaptation to parenthood. Resources can be either practical, such as financial resources, or psychological, such as happiness or secure attachment. In this study, we focus on psychological



resources present in the relationship. We investigate the role of perceiving responsiveness by the partner, feeling gratitude for the partner, and trusting the partner. These positive relationship processes increase personal as well as relationship well-being (Algoe et al., 2010; Wood et al., 2008).

Moreover, they generate positive emotions and therefore have the potential to increase psychological resources (e.g., Fredrickson et al., 2000; Tice et al., 2007). This is argued to increase adaptation to stressful events like the transition to parenthood.

Perceived *partner responsiveness* is defined as the feeling that the partner is understanding, caring, and validates the self (Reis et al., 2004). By being responsive, the partner communicates that he or she addresses the person's needs and wishes and supports the person's actions; in other words, the partner attends to and reacts supportively to fundamental, core-defining features of the self. Perceived partner responsiveness promotes relationship quality (Canevello & Crocker, 2010) and can help partners in dealing with stressful events by increasing the effectiveness of spousal support (Maisel & Gable, 2009). Although spousal support across the transition to parenthood is related to lower emotional distress in mothers and infants and an increase in marital satisfaction for both men and women (Simpson et al., 2003; Stapleton et al., 2012), it is also often unrelated to positive outcomes or even associated with negative effects (e.g., Bolger et al., 2000). Previous research shows that supportive behavior has a positive impact on the well-being of the recipient when the partner is perceived as being responsive toward the recipient (Algoe & Stanton, 2012; Kubacka et al., 2011; Maisel & Gable, 2009). Perceived partner responsiveness is therefore hypothesized to increase adaptation to first-time parenthood.

Another positive relationship process that can be regarded as a resource is felt *gratitude*. Gratitude is a positive emotion that recipients feel toward their partner when they perceive the efforts of their partner as valuable and deliberate (Kubacka et al., 2011). It strengthens relationships by promoting prosocial behavior from the partner (McCullough et al., 2002). Positive emotions such as felt gratitude have numerous beneficial effects, among them reducing anxiety-induced cardiovascular reactivity (Fredrickson et al., 2000), improving self-regulation (Tice et al., 2007), and increasing psychological resilience (Fredrickson & Joiner, 2002). Gratitude

## Predicting Adaptation to Parenthood

has been found to predict lower levels of stress and depression (Wood et al., 2008) and has consistently been found to increase relationship quality (e.g., Algoe et al., 2008; Algoe et al., 2010). Feeling grateful toward the partner could therefore be seen as a psychological resource that can improve adaptation, protect against stress and depression, and improve relationship quality across the transition to parenthood. We therefore hypothesize that felt gratitude toward the partner prior to pregnancy will predict better perceived adaptation to parenthood.

Finally, we consider felt *trust* a relationship resource that enhances adaptation to the transition to parenthood. Trust has often been identified as one of the most desirable qualities in a relationship and is seen as fundamental for relationship satisfaction (Rempel et al., 1985). According to Rempel and colleagues (1985), partner-specific trust is based on three components: predictability (i.e., a partner's stability and consistency), dependability (i.e., a partner's honesty and dependability), and faith (i.e., the belief that the partner will continue to show empathy and consideration in the future). We believe that the relationship changes and the potential stressors that accompany the transition to parenthood make partner-specific trust especially important. On the one hand, trust has been found to increase due to stress, a reaction that is theorized to function as a coping mechanism by overcoming worries about the future of the relationship (Koranyi & Rothermund, 2012). In addition, across the transition to parenthood, partners become increasingly interdependent as they have to rely on one another not only as partners but also as parents. This increased interdependence is theorized to foster trust (Simpson, 2007). On the other hand, when first-time parents trust their partner and know they can rely on their partner, now and in the future, they are better equipped to deal with the challenges and insecurities of the transition to parenthood, thus increasing adaptation. This study will therefore test the prediction that partner-specific trust increases perceived adaptation to parenthood.

There are theoretical and empirical reasons for expecting perceived responsiveness, felt gratitude, and felt trust to be related to one another and to relationship quality. For example, gratitude and perceived responsiveness have been found to increase each other in a reciprocal relationship (Kubacka et al., 2011; Wood et al., 2008). Over time, the reciprocal pattern

between perceived responsiveness and gratitude is theorized to build trust as individuals learn that their partners are responsive to their needs and exhibit pro-relationship behavior (Bartlett & DeSteno, 2006). Partner-specific trust is positively related to relationship quality (Finkenauer et al., 2009). Trust also increases commitment, leading to greater willingness to exhibit pro-relationship behavior (Wieselquist et al., 1999), which could in turn increase perceived responsiveness and gratitude. Furthermore, it is theoretically possible that perceived responsiveness, gratitude, and trust are in fact proxies of helpful and positive behavior exhibited by the partner and that the effects found on adaptation to parenthood are driven by positive partner behaviors. If this is the case, perceived responsiveness is likely the most direct measure of the partners' positive behavior.

The contribution of our research is that we study concrete positive relationship processes instead of more general measures of relationship quality that have been the focus of most research on the transition to parenthood. As little is known about the effects on adaptation to parenthood, the current research will first examine the effect of these constructs independently to gain more insight into the effects of prepregnancy levels and changes over time, as will be discussed next. We will however test additional models with control variables, such as relationship quality, to examine alternative explanations.

### *Models of relationship change*

A matter of contention in the relationship literature is the question of how relationships change over time and, particularly, whether it is possible to predict marital stability and distress at the beginning of marriage or whether marital distress is predicted by changes over time. Three models have been developed in an attempt to predict general marital distress and can be applied to the transition to parenthood (see also Kluwer & Johnson, 2007): the disillusionment model, the emergent distress model, and the enduring dynamics model (Huston et al., 2001). Both the disillusionment model and the emergent distress model assume that newlyweds have an idealized view of their partner at the beginning of their marriage. Marital distress is caused by increases in negative feelings and behaviors over time (emergent

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distress) or decreases in positive feelings and behaviors over time (disillusionment). By contrast, the enduring dynamics model proposes that relationship problems that eventually lead to marital distress are already present at the beginning of marriage (Karney & Bradbury, 1995).

In support of the enduring dynamics model, a number of studies found that factors measured during pregnancy predicted lower personal and relational adjustment after childbirth. Examples are greater conflict frequency (Kluwer & Johnson, 2007), insecure attachment (Alexander et al., 2001), perceiving partner anger (Simpson et al., 2003), the father's negativity toward the mother (Shapiro et al., 2000), and lower self-esteem (Belsky & Rovine, 1990). In support of the disillusionment model, Howard and Brooks-Gunn (2009) found that the majority of couples started out supportive after childbirth, but it was the change in support across the first year and not the level of support during pregnancy that predicted separation. However, like most studies on the transition to parenthood literature, these studies did not include prepregnancy measurements. We therefore have limited knowledge of the predictive power of couples' strengths and weaknesses present before pregnancy. There may be a so-called *transition to pregnancy* effect, with changes in personal and relationship well-being already taking place during pregnancy (Lawrence et al., 2008). We will therefore compare whether positive relationship processes prior to pregnancy versus changes across the transition to parenthood are related to perceived adaptation. Because we will focus only on positive and not on negative relationship processes, this study does not test the emergent distress model.

### *The present research*

The present research aims to investigate the role of positive relationship processes in how new parents adapt to parenthood. It focuses on the actor perceiving responsiveness from the partner, the actor feeling gratitude for the partner, and the actor trusting the partner. According to the literature, these positive experiences will increase the actor's resources and thus adaptation to a challenging transition. We hypothesize that both higher initial levels prior to pregnancy and stronger increases over time in

perceived responsiveness, felt gratitude, and felt trust will predict better perceived adaptation to parenthood.

This study will add to the existing literature on the transition to parenthood in several ways. First, our research contributes to the existing literature by measuring perceived adaptation to parenthood instead of using other markers of well-being to deduce adaptation. Our Adaptation to Parenthood Scale measures several aspects of adaptation, namely, parental responsibilities and marital changes, parental joys, satisfaction with changes since childbirth, and problems common for new parents. This broad measure of adaptation allows us to gain a more complete and nuanced insight in parental well-being after childbirth. Adaptation in this case reflects the parents' own perceived adaptation, making self-reports an appropriate method to measure well-being after childbirth despite the fact that this method has limitations, such as the possible influence of social desirability.

Second, in contrast to most previous research on the transition to parenthood, we investigate the role of positive relationship experiences in order to identify factors that act as resources and increase coping and adaptation, as argued by the VSA model (Karney & Bradbury, 1995). Such factors can be used in pregnancy courses, for example, to educate couples about what could help them ease their adaptation to parenthood. Third, we will compare the predictive strength of the initial levels of these positive relationship experiences prior to pregnancy versus changes over time. The inclusion of prepregnancy measurements is rare in research on the transition to parenthood and allows for a stronger test of the hypothesis that relationship processes present prior to the transition to parenthood predict adaptation.

Finally, we add to previous research by including both partners in our analyses. Even though nearly all theories on close relationships recognize that partners have reciprocal influence on each other (Campbell & Kashy, 2002), studies on the transition to parenthood generally do not include both partners in the same analyses. The behavior, personality, emotions, and cognitions of one partner can affect the personal as well as relationship well-being of the other partner (Campbell & Kashy, 2002). In this study, we will compare the effects of a person's positive relationship

## Predicting Adaptation to Parenthood

experiences on his or her own perceived adaptation to parenthood as well as on his or her partner's perceived adaptation. In addition, this enables us to test whether gender differences occur in the associations between positive relationship processes and perceived adaptation to parenthood or whether the models are the same for fathers and mothers. Although many studies have found gender differences in changes across the transition to parenthood, with women generally showing stronger declines in relationship quality (Twenge et al., 2003), prior research does not provide reason to expect gender differences in the associations between positive relationship processes and perceived adaptation to parenthood.

### Method

#### *Participants and procedure*

We used data from the Marriage and Wellbeing Survey that were collected between 2006 and 2010 from 199 newlywed Dutch couples as part of a larger study (Finkenauer et al., 2009). Couples were recruited within 2 months after their wedding day and interviewed five times, at approximately 1-year intervals. Of the couples recruited, 132 became parents during the course of the data collection. However, 23 of these couples had their first child before Time 2, so we cannot rule out that they were pregnant at Time 1. Because that means that no pre-pregnancy data were available for these couples, they were excluded from this study. Couples that did not have children during the course of this study were also excluded as perceived adaptation to parenthood was measured among parents only. The final sample thus consisted of 109 couples who became pregnant during the course of the data collection.

The mean age of the fathers was 31.82 years ( $SD = 3.51$ ), and the mean age of the mothers was 28.78 years ( $SD = 4.07$ ) at Time 1. Couples had been romantically involved for 5.85 years ( $SD = 2.85$ ) on average. Nearly all couples were of Dutch nationality (97.2%). Of the fathers, 30.5% had completed high school or secondary vocational education, and 61.1% had completed higher vocational education or university. Of the mothers, 25.9% had completed high school or secondary vocational education, and 67.9% had a higher education. At Time 1, 72.5% of the men worked 33–40

hours a week, 11.1% worked less than 33 hours a week, and 15.7% worked more than 40 hours a week. Of the women, 32.1% worked between 25 and 32 hours a week, 49.5% worked 33–40 hours, 11.2% worked less than 25 hours a week, and 5.5% worked more than 40 hours.

Participants were recruited via the municipalities in which they got married. An average of 1 month after their wedding day, each couple received a letter that described the study as a longitudinal examination of the factors that contribute to marital and individual well-being. When both partners were interested in participating in the study, they provided their names and telephone number on a prepaid return postcard. Inclusion criteria were that this was the couple's first marriage, that couples had no children in this marriage or from previous relationships, and that partners were between 25 and 40 years old. Of all the couples who fulfilled the criteria, 19% agreed to participate in the study. This response rate is similar to studies recruiting participants from public records in the United States (e.g., Kurdek, 1991). At each data collection session, both members of the couple separately filled out a questionnaire at home in the presence of a trained interviewer. The questionnaire took about 90 min to complete. Partners were instructed not to discuss the questions or answers with each other during data collection. Couples received 15 euros and a small gift (e.g., a book, a pen set) after they completed their questionnaires.

There was a relatively low attrition rate in this longitudinal study. All couples participated until at least Time 3; 11 couples dropped out before Time 4 and an additional 10 couples before Time 5, leaving 88 couples who participated in all five waves (80.7% of the initial couples from Time 1). An analysis of variance (ANOVA) showed that there were no differences in any of the main variables between those couples who completed all five waves and those who dropped out. A total of 64 couples became parents between Times 2 and 3 (48.5%), 29 couples (22.0%) between Times 3 and 4, and 16 couples between Times 4 and 5 (12.1%), resulting in three birth cohorts. All the pregnancies were planned. An ANOVA revealed that the birth cohorts did not differ on any of the main measures or demographic variables at Time 1. All three cohorts were therefore included in the same analyses.

### Measures

#### *Perceived responsiveness*

Perceived responsiveness was measured using 18 items adapted from Reis's Perceived Responsiveness Scale (Kubacka et al., 2011). This measure assessed perceptions of the partner as being caring, validating, and understanding. Example items are “My partner responds to my needs” (tapping caring), “My partner appreciates my skills and opinions” (tapping validating), and “My partner understands me” (tapping understanding). Answers were rated on a 5-point scale (1 = *do not agree at all* to 5 = *agree completely*). Cronbach's  $\alpha$ s ranged between .91 and .96 for men and .93 and .97 for women across waves.

#### *Gratitude*

Felt gratitude was measured with four questions adapted from the six-item Gratitude Scale (GQ-6; McCullough et al., 2002) to measure partner-specific gratitude (Kubacka et al., 2011). The GQ-6 showed good convergent and discriminant validity (McCullough et al., 2002). The items were “I have a lot for which I am grateful to my partner,” “If I were to list everything for which I am grateful to my partner, it would be a very long list,” “I appreciate my partner more the longer we are together,” and “A long time can pass before I feel gratitude towards my partner.” This last item was reverse scored. Answers were rated on a 5-point scale (1 = *do not agree at all* to 5 = *agree completely*). Cronbach's  $\alpha$ s ranged between .62 and .68 for men and .61 and .69 for women across waves, except for Time 5, where women's  $\alpha$  was .81.

#### *Trust*

Felt trust was measured with 12 items adapted from the Partner-Specific Trust Scale developed by Rempel and colleagues (1985). The scale assesses three aspects of trust: predictability, or how stable and consistent a partner is (e.g., “My partner is very unpredictable. I never know how he/she is going to react”; reversed); dependability, a dispositional evaluation of a partner's honesty and reliability (e.g., “My partner is very dependable, especially when it comes to things that are important to me”); and faith, the belief that



a partner will be understanding and caring despite the uncertainty of the future (e.g., “I know my partner will always be ready and willing to offer me strength and support”). Answers were rated on a 5-point scale (1 = *do not agree at all* to 5 = *agree completely*). Cronbach's  $\alpha$ s ranged between .79 and .88 for men and .82 and .85 for women across waves.

### *Perceived adaptation to parenthood*

How well parents felt they had adapted to parenthood was measured with 25 items adapted from the Transition Difficulty Scale (Steffensmeier, 1982), measured at Time 5. Our version of the scale consisted of four subscales: Concerns, Parental Gratification, Satisfaction with Changes, and Problems. The Concerns subscale consisted of 7 items measuring concerns about parental responsibilities (e.g., “I worry whether I am a good parent”) and marital changes (e.g., “I worry that my partner and I do not spend enough time together” and “I worry about our sex life”). These items were reverse scored. The Parental Gratification subscale consisted of 5 items measuring personal well-being (e.g., “Since the birth of our child[ren] I feel happy”). The Satisfaction with Changes subscale consisted of 5 items measuring satisfaction with changes since childbirth. For example, participants were asked, “How satisfied are you with the changes since the birth of your child(ren) concerning the following: not being able to go out.” The Problems subscale consisted of 2 items, “Since the birth of our child I suffer from lack of sleep” and “Since the birth of our child I am often interrupted while I am in the middle of something.” These items were reverse scored. All answers were rated on 5-point scales. A factor analysis showed that the best fit was one factor that explained 31.3% of the variance. All items were therefore averaged into one scale with Cronbach's  $\alpha$ s of .89 for men and .88 for women. A higher mean score indicated greater perceived adaptation.

### *Relationship quality*

Relationship quality (control variable) was measured using the Dyadic Adjustment Scale (DAS; Spanier, 1976). The scale consists of 32 items divided over four subscales: Dyadic Satisfaction, Dyadic Cohesion, Dyadic Consensus, and Affectional Expression. Example items are “How often do you think that things are going well between you and your partner?” and

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“How often do you kiss your partner?” The majority of the items were rated on a 6-point or a 5-point scale. A higher score indicated greater relationship quality. Cronbach's  $\alpha$ s were .85 for men and .87 women at Time 1.

### Analyses

To test our hypotheses, we applied latent growth curve modeling based on the principles of the actor–partner interdependence model (APIM; Kashy & Kenny, 2000). APIMs include both partners, which allowed for the simultaneous estimation of the effect of a person's positive relationship processes on his or her own adaptation to parenthood (the actor effect) as well as on his or her partner's adaptation (the partner effect). The APIM is preferable to traditional techniques because of the interdependence between partners' observations and because of our hypothesis regarding partner effects. A latent growth model captures linear developmental change in two latent growth factors: The average baseline level at Time 1 is represented by an intercept, and the average rate of linear change over time is represented by a linear slope. Ideally, we would have liked to differentiate between change over time that occurred before and after childbirth. We therefore extended the model with two additional growth factors: an intercept and slope after childbirth. However, these models did not have a good fit, most likely due to the fact that the three birth cohorts were too small to analyze separately. Models were therefore estimated with one intercept, corresponding to the average level of perceived responsiveness, gratitude, and trust before pregnancy, and one slope, representing the changes of these positive relationship processes across time. To take into account the fact that childbirth occurred at different time points, the amount of time since childbirth was added as a covariate in all models and used to correct the slopes. Adaptation was also corrected for time passed since childbirth as adaptation may also increase in the years after the birth of the first child, and adaptation of the partners was allowed to correlate.

A baseline model was first tested with all possible parameters included. This model is illustrated in Figure 1. The unbroken straight lines represent actor effects; the dotted straight lines represent partner effects. Path coefficients were constrained to be equal for men and women when

this led to better model fit, which indicates that there is no significant gender difference based on the chi-square difference test (Peugh et al., 2013). Elements of the model that were not significant were removed for parsimony in a process of backward elimination if this removal led to an improved model fit. Backward deletion is commonly used to reduce problems associated with multicollinearity (Pedhazur, 1982). The final models, after parameters were constrained or removed, are illustrated in Figures 2-4.

Models were estimated using version 7.4 of the statistical program Mplus (Muthén & Muthén, 1998–2015), which also allowed us to include all available data using a full information maximum likelihood procedure. Model fit was assessed using the comparative fit index (CFI) and root mean square error of approximation (RMSEA). In general, a value higher than .90 for the CFI and lower than .08 for the RMSEA is considered an acceptable model fit (Byrne & Crombie, 2003). Additional models with control variables were also tested in order to examine the likelihood of alternative interpretations for the results. These additional models are not nested, and we therefore also report the Akaike information criterion (AIC) to make model comparison possible. Given a set of models, the preferred model is the one with the lowest AIC value. In other words, a lower AIC value indicates better model fit (Akaike, 1973). The input files of all the models are available from the first author upon request.

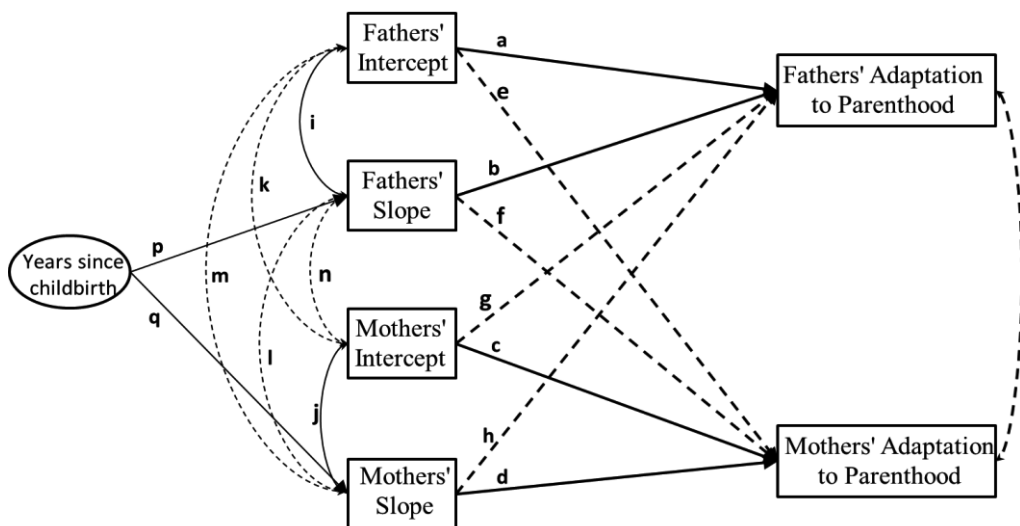


Figure 1. Full-tested path model prior to the constraining and removal of paths.

## Results

Table 1 presents the within-person correlations between the main variables (above the diagonal for women and below the diagonal for men) and the intercorrelations between members of the dyad for each variable (in bold on the diagonal). Table 2 presents the means and standard deviations of the main variables at all time points.

Table 1.

*Intercorrelations Between All Assessed Variables at Time 1.*

| <i>Variables</i>        | <i>1</i>   | <i>2</i>    | <i>3</i>    | <i>4</i>     |
|-------------------------|------------|-------------|-------------|--------------|
| 1. Responsiveness       | <b>.16</b> | .44*        | .45**       | .68**        |
| 2. Gratitude            | .41**      | <b>-.01</b> | .34**       | .47**        |
| 3. Trust                | .70**      | .50**       | <b>.26*</b> | .55**        |
| 4. Relationship quality | .46**      | .41**       | .54**       | <b>.40**</b> |

*Note.* \* $p < .05$ , \*\* $p < .01$ . Within-person intercorrelations for women are presented above the diagonal and within-person intercorrelations for men are presented below the diagonal. Intercorrelations between dyad members (husband and wife) are presented in bold on the diagonal.

Table 2.

*Means (and standard deviations in parentheses) of the Main Variables at Every Timepoint*

| <i>Timepoint</i> | <i>1</i>   | <i>2</i>   | <i>3</i>   | <i>4</i>   | <i>5</i>   |
|------------------|------------|------------|------------|------------|------------|
| <i>Men</i>       |            |            |            |            |            |
| Responsiveness   | 4.25 (.40) | 4.25 (.42) | 4.21 (.42) | 4.20 (.40) | 4.24 (.48) |
| Gratitude        | 4.05 (.50) | 4.15 (.52) | 4.08 (.49) | 4.13 (.46) | 4.13 (.53) |
| Trust            | 4.24 (.42) | 4.24 (.42) | 4.23 (.47) | 4.24 (.46) | 4.26 (.46) |
| <i>Women</i>     |            |            |            |            |            |
| Responsiveness   | 4.23 (.42) | 4.22 (.43) | 4.15 (.43) | 4.15 (.47) | 4.18 (.49) |
| Gratitude        | 4.08 (.50) | 4.13 (.51) | 4.08 (.56) | 4.12 (.53) | 4.10 (.61) |
| Trust            | 4.21 (.43) | 4.24 (.44) | 4.25 (.47) | 4.18 (.49) | 4.23 (.48) |

The analysis of the growth curve models was conducted in two steps. In Step 1, we examined the intercept ( $I$ ; level before pregnancy) and slope ( $S$ ; change over time) of the positive relationship processes across the transition to parenthood, and how partners influenced each other's intercept and slope. Note that the intercept may differ slightly from the mean at Time 1 because the intercept of fathers and mothers is constrained to be equal in the model when there is no significant gender difference. In the second step, we tested our hypotheses by regressing the score of the Perceived Adaptation to Parenthood Scale on the four latent growth parameters (the intercept and slope of fathers and the intercept and slope of mothers). This allowed us to test for actor effects as well as partner effects of positive relationship processes on adaptation to parenthood. We report the unstandardized regression coefficients ( $B$ ) of the final models in the text. The final models with the unstandardized coefficients ( $B$ ) as well as the standardized coefficients ( $\beta$ ; in parentheses) are presented in Figures 2-4. Standardized coefficients may differ for husbands and wives even when a path has been constrained to be equal because the coefficients are standardized using the standard deviations, which may differ for husbands and wives. The intercept and slope associations between and within partners are also presented in the figures. These correlations are not discussed because they are unrelated to the hypotheses of this study.

### *Perceived responsiveness*

Both fathers and mothers, on average, perceived their partners as being very responsive prior to pregnancy ( $I = 4.23, p < .001$ ). Mothers experienced a small but significant decrease in perceived responsiveness over time ( $S = -.02, p = .018$ ). Fathers did not report a significant change in perceived responsiveness over time ( $S = .03, p = .220$ ). The final model produced fit indices of CFI = .964, AIC = 912.168, RMSEA = .058; 90% CI [.025, .085]. There were no significant gender differences; all effects in the final model are therefore the same for mothers and fathers (see Figure 2). There were significant actor effects. As hypothesized, fathers and mothers who reported higher perceived responsiveness before pregnancy reported a better adaptation to parenthood (unstandardized  $B = .31, p = .003$ ). Parents whose

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perceived partner responsiveness increased across the transition to parenthood also reported better adaptation, and this effect was larger than the effect of initial levels of perceived responsiveness before pregnancy ( $B = 4.82, p < .001$ ). Change over time was thus a stronger predictor of perceived adaptation than initial levels of perceived responsiveness prior to pregnancy.

There were also significant partner effects. Contrary to expectations, fathers' and mothers' level of perceived partner responsiveness prior to pregnancy negatively predicted their partner's adaptation to parenthood ( $B = -.27, p = .017$ ). The higher the initial level of perceived partner responsiveness, the lower their partner's adaptation. However, as expected, an *increase* in the father's and the mother's perceived responsiveness over time was positively associated with their partner's adaptation ( $B = 1.79, p = .001$ ). Time since childbirth was unrelated to change in perceived responsiveness over time. To further explore why the average level of perceived responsiveness prior to pregnancy had a negative effect on the partner's perceived adaptation, we ran a median split analysis. The analysis showed that this negative partner effect was only present when partners had above-average initial levels of perceived responsiveness. A possible explanation for this finding will be discussed in the Discussion.

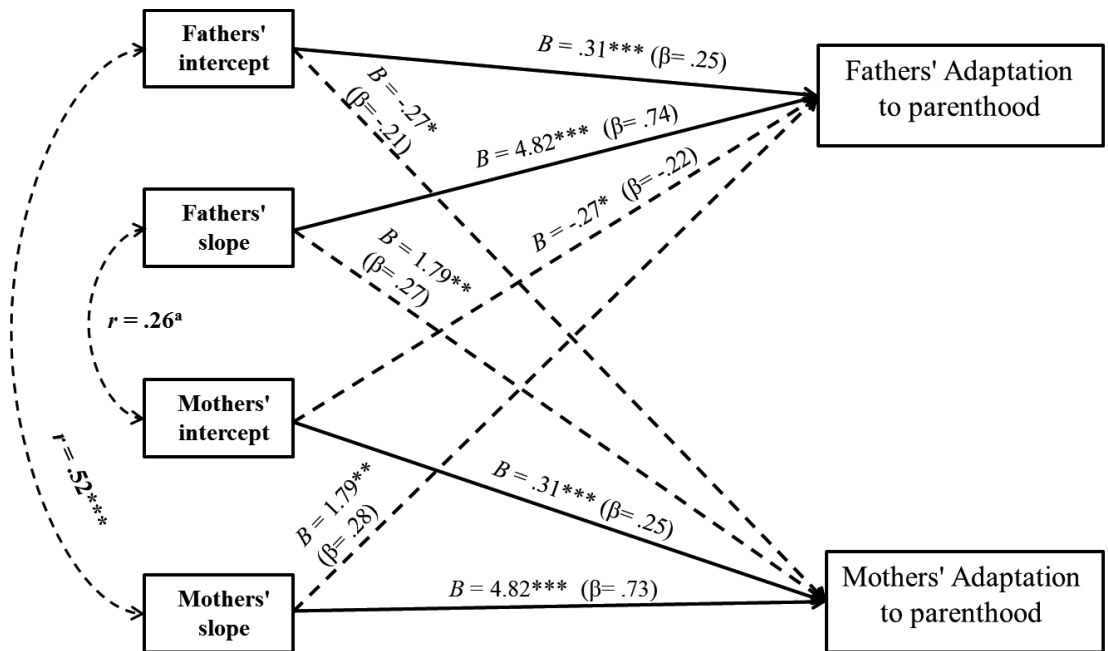


Figure 2. Actor and partner effects of perceived responsiveness on adaptation to parenthood using the intercept (i.e., average level prior to pregnancy) and slope (i.e., change over time). Estimates are unstandardized regression coefficients ( $B$ ) with standardized coefficients ( $\beta$ ) in parentheses. Unbroken straight lines represent actor effects, dotted straight lines represent partner effects, and dotted curved lines represent correlations ( $r$ ) between/within partners' slope and/or intercept. <sup>a</sup> $p < .10$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

### Gratitude

On average, fathers and mothers felt grateful toward their partner prior to pregnancy ( $M = 4.09$ ,  $p < .001$ ), and their level of gratitude did not change over time ( $S = 0.01$ ,  $p = .40$ ). There were no differences between fathers and mothers in the intercept and slope. The final model produced fit indices of  $CFI = .982$ ,  $AIC = 1309.966$ ,  $RMSEA = .035$ ; 90% CI [.000, .069]. There were no significant gender differences in the final model. There were significant actor effects (see Figure 3). As expected, fathers' and mothers' gratitude toward their partner before pregnancy positively predicted their own adaptation ( $B = .17$ ,  $p = .043$ ), and an increase in gratitude across the transition to parenthood positively predicted adaptation ( $B = 1.28$ ,  $p < .001$ ). Both fathers' and mothers' perceived adaptation to parenthood was most

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strongly influenced by their own change in felt gratitude over time. The standardized effects (see the  $\beta$ s in Figure 3) show that this effect was stronger for fathers than for mothers. Fathers' and mothers' adaptation was not predicted by their partner's gratitude before childbirth but was positively associated with their partner's increase in gratitude over time ( $B = 1.28, p < .001$ ). Thus, parents whose partner felt more grateful toward them across the transition to parenthood reported better adaptation. This partner effect did not differ significantly from the actor effect of the slope of gratitude on adaptation. Thus, the change in their own felt gratitude and the change in their partner's felt gratitude were equally associated with their own adaptation. Time since childbirth was unrelated to the slopes of either fathers or mothers, suggesting that the transition to parenthood did not affect the level of gratitude partners felt for one another.

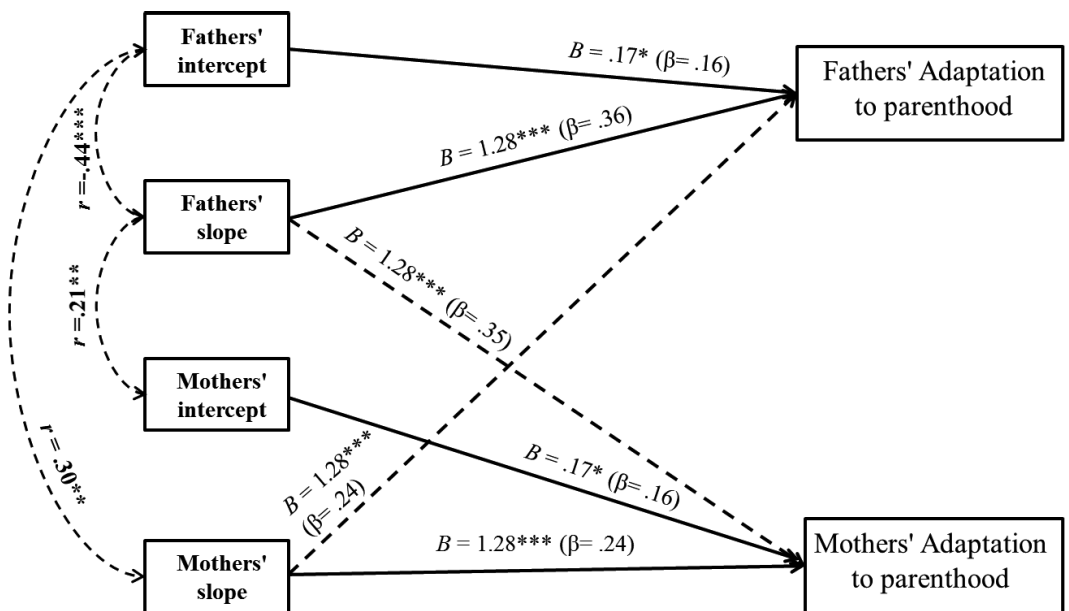


Figure 3. Actor and partner effects of gratitude on adaptation to parenthood using the intercept (i.e., average level prior to pregnancy) and slope (i.e., change over time). Estimates are unstandardized regression coefficients ( $B$ ) with standardized coefficients ( $\beta$ ) in parentheses. Unbroken straight lines represent actor effects, dotted straight lines represent partner effects, and dotted curved lines represent correlations ( $r$ ) between/within partners' slope and/or intercept.  $*p < .05$ .  $**p < .01$ .  $***p < .001$ .



*Trust*

On average, fathers and mothers felt a high level of trust for their partner ( $I = 4.24, p < .001$ ). Fathers experienced an increase in trust across time ( $S = .06, p = .03$ ), whereas mothers reported no change in trust over time ( $S = .03, p = .46$ ). The final model of trust produced fit indices of CFI = .986, AIC = 662.314, and RMSEA = .039; 90% CI [.000, .072]. The final model showed some significant gender differences. There were significant actor effects (see Figure 4). Confirming our expectations, trusting one's partner prior to pregnancy predicted higher perceived adaptation to parenthood for both fathers and mothers ( $B = .44, p < .001$ ). An increase in trust across the transition to parenthood was positively related to perceived adaptation for fathers ( $B = 3.23, p = .011$ ) but not for mothers. The partner effects showed that an increase in their partner's trust across time predicted higher perceived adaptation for mothers ( $B = 3.16, p = .023$ ) but not for fathers. Although the negative effect of the mothers' trust prior to pregnancy on their partner's perceived adaptation increased model fit and was therefore left in the model, it was not significant ( $B = -.19, p = .099$ ). In addition, there was a marginally significant negative correlation between time since childbirth and fathers' and mothers' slope ( $r = -.28, p = .06$ ), suggesting that felt trust decreased after childbirth.

In sum, the results largely support our expectation that pre-pregnancy perceived responsiveness, gratitude, and trust and changes in these constructs across the transition to parenthood predict one's own and partner's perceived adaptation to parenthood up to 4 years later. For perceived responsiveness, all the actor and partner effects were significant, although partner's pre-pregnancy perceived responsiveness was negatively related to adaptation, which was not expected. Both actor and partner pre-pregnancy gratitude and change in gratitude over time positively predicted adaptation, with the exception of the partner's pre-pregnancy gratitude, which was not significant. Fathers' pre-pregnancy trust and change in trust across the transition to parenthood positively predicted their own adaptation; their partner's trust, however, did not. Mothers' pre-pregnancy trust and their partner's increase in trust over time positively predicted their adaptation to parenthood.

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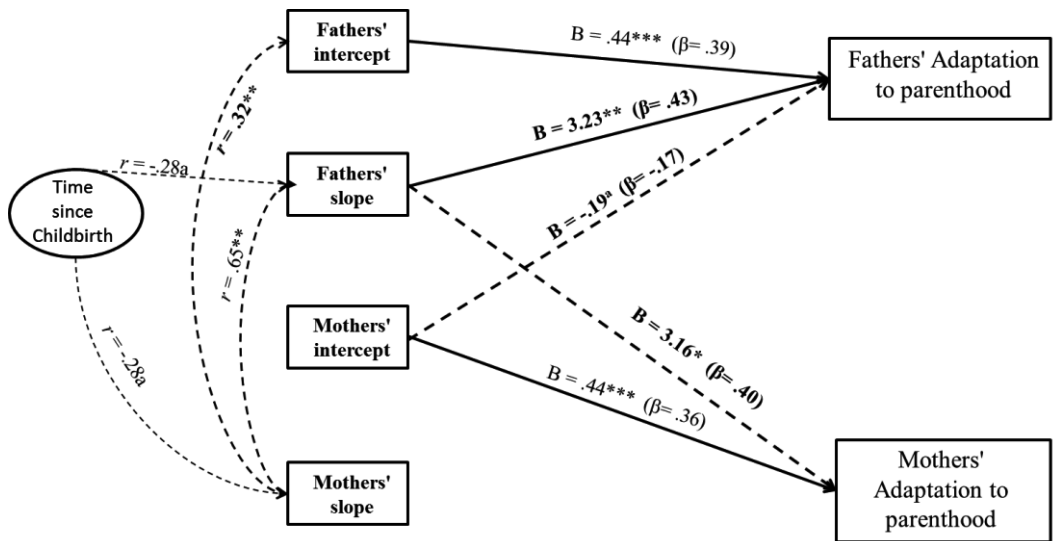


Figure 4. Actor and partner effects of trust on adaptation to parenthood using the intercept (i.e., average level prior to pregnancy) and slope (i.e., change over time). Estimates are unstandardized regression coefficients ( $B$ ) with standardized coefficients ( $\beta$ ) in parentheses and effects that interact with gender in bold. Unbroken straight lines represent actor effects, dotted straight lines represent partner effects, and dotted curved lines represent correlations ( $r$ ) between/within partners' slope and/or intercept and with time since childbirth.  $^a p < .10$ .  $^* p < .05$ .  $^{**} p < .01$ .  $^{***} p < .001$ .

### Additional analyses

As discussed earlier, there are theoretical and empirical reasons for expecting perceived responsiveness, gratitude, and trust to be related to relationship quality. We therefore tested additional models with relationship quality at Time 1 as a control variable in order to test the unique effects of responsiveness, gratitude, and trust on perceived adaptation to parenthood independent of relationship quality. In addition, we tested models of gratitude and trust while controlling for perceived responsiveness at Time 1 to test whether a partner's positive actions, as most closely measured by perceived responsiveness, can explain the effects found in the main analyses. Control variables were added to the model by controlling the intercepts, slopes, and the outcome variable (i.e., perceived adaptation) for the control variable. Any effects that remain significant are most likely not due to the influence of the control variable. The effects that changed

compared to the original model are discussed below. All the effects of the models of the additional analyses can be found in Table 3.

#### *Controlling for relationship quality*

The model of perceived responsiveness controlled for relationship quality at Time 1 produced fit indices of CFI = .954, AIC = 1957.772, and RMSEA = .066; 90% CI [.039, .091]. CFI and RMSEA were lower and AIC was higher than in the original model, indicating a lower fit than the original model. Mothers' perceived responsiveness prior to pregnancy no longer predicted their own adaptation when controlling for relationship quality at Time 1. The negative effect of fathers' perceived responsiveness at Time 1 on mothers' adaptation also disappeared. The positive effect of an increase in perceived responsiveness over time on one's own adaptation became larger for fathers. The model for gratitude controlled for relationship quality at Time 1 produced fit indices of CFI = .983, AIC = 2596.512, and RMSEA = .030; 90% CI [.000, .063]. CFI and RMSEA were slightly higher than for the original model, indicating better fit, but AIC was also higher, indicating lower fit. The actor effect of gratitude prior to pregnancy on one's own adaptation disappeared for both fathers and mothers. The positive effect of an increase in gratitude over time on one's own adaptation was stronger for mothers. The model for trust controlled for relationship quality at Time 1 produced fit indices of CFI = .991, AIC = 2005.444, and RMSEA = .029; 90% CI [.000, .063]. CFI and RMSEA were slightly higher than for the original model, but AIC was also higher, indicating lower fit. The actor effect of mothers' trust prior to pregnancy on one's own adaptation disappeared. The positive effect of an increase in trust over time on one's own adaptation became larger for both parents.

#### *Controlling for perceived responsiveness*

The model for gratitude controlled for perceived responsiveness at Time 1 produced fit indices of CFI = .971, AIC = 1349.775, and RMSEA = .041; 90% CI [.000, .070], a lower fit than the original model. The actor effect of gratitude prior to pregnancy on one's own adaptation disappeared for both parents. The positive effect of an increase in gratitude over time on one's own adaptation was stronger for mothers (see Table 3). The model for trust

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controlled for perceived responsiveness at Time 1 produced fit indices of CFI = .971, AIC = 1349.775, and RMSEA = .041; 90% CI [.000, .063]. CFI and RMSEA were slightly higher than for the original model, but AIC was also higher, indicating lower fit. The actor effect of trust prior to pregnancy on one's own adaptation disappeared for mothers. The positive effect of an increase in trust over time on one's own adaptation became larger for fathers. The negative effect of mothers' trust prior to pregnancy on fathers' adaptation, which was not significant in the original model, became significant.

In sum, the models with relationship quality or perceived responsiveness added as a control variable showed similar results, and none of the models had a better fit as indicated by the AIC. Some actor effects of the main variables prior to pregnancy were no longer significant, suggesting that these effects may have been due to initial relationship quality or perceived responsiveness. However, some effects of an increase in the main variable over time were larger than in the original models.

|                        | Responsiveness controlled for Relationship Quality |                     | Gratitude controlled for Relationship Quality |                     | Trust controlled for Relationship Quality |                     | Gratitude controlled for Responsiveness |                     | Trust controlled for Responsiveness |                     |
|------------------------|--|---------------------|---|---------------------|---|---------------------|---|---------------------|-------------------------------------|---------------------|
|                        | Fathers' Adaptation                                | Mothers' Adaptation | Fathers' Adaptation                           | Mothers' Adaptation | Fathers' Adaptation                       | Mothers' Adaptation | Fathers' Adaptation                     | Mothers' Adaptation | Fathers' Adaptation                 | Mothers' Adaptation |
| <i>Actor Effects</i>   |  |                     |   |                     |   |                     |   |                     |                                     |                     |
| Intercept              | 0.42*** (a)  | -- (c)              | -- (a)  | 2.23 (c)            | 0.63*** (a)                               | -- (c)              | -- (a)                                  | -2.6 (c)            | 0.43* (a)                           | -- (c)              |
| Slope                  | 5.23** (b)   | 3.40*** (d)         | 1.29* (b)                                     | 2.50*** (d)         | 8.46** (b)                                | -- (d)              | 1.30* (b)                               | 3.45** (d)          | 5.57** (b)                          | -- (d)              |
| <i>Partner Effects</i> |  |                     |   |                     |   |                     |   |                     |                                     |                     |
| Intercept              | -0.57** (g)  | -- (e)              | -0.29 (g)                                     | -- (e)              | -0.43* (g)                                | -- (e)              | -0.14 (g)                               | -1.14 (e)           | -0.48** (g)                         | -- (e)              |
| Slope                  | 1.41** (h)   | 1.41** (f)          | 1.07** (h)                                    | 1.07** (f)          | -2.59 (h)                                 | 4.21** (f)          | 1.11* (h)                               | 1.11* (f)           | -2.65 (h)                           | 2.37* (f)           |

Note. Letters in parentheses correspond with paths in Figure 1.

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

### Discussion

The purpose of this study was to explore the role of positive relationship processes—perceived responsiveness, felt gratitude, and felt trust—on the perceived adaptation to first-time parenthood. We hypothesized that both high initial levels of positive relationship processes before pregnancy and increases across the transition to parenthood would predict better adaptation to parenthood. In addition, we expected that partners' reports of positive processes would influence each other's perceived adaptation.

The significant actor effects largely supported our hypotheses. Higher levels of perceived responsiveness, gratitude, and trust before pregnancy predicted higher perceived adaptation to parenthood later on. These results show that it is possible to at least partially predict how well first-time parents will adapt to parenthood based on their level of positive relationship processes before pregnancy. This suggests that positive relationship processes prior to pregnancy act as a resource that can diminish the impact of a stressful event (Karney & Bradbury, 1995). According to the broaden and build model (Fredrickson, 2001), positive emotions such as gratitude and trust have an adaptive purpose by helping to prepare for future challenges. Indeed, we showed that perceived responsiveness, gratitude, and trust increased the perceived adaptation of first-time parents to the changes and challenges of parenthood. In addition to these findings, changes over time were also, or even more, important in predicting perceived adaptation. Increases (vs. decreases) in positive relationship processes across the transition to parenthood predicted higher (vs. lower) adaptation to parenthood. The partner effects of change over time were in line with this as an increase (vs. decline) in the reported positive relationship processes across time was related to an increase (vs. decrease) in the partner's adaptation to parenthood.

Our findings correspond with Huston and colleagues (2001) who found evidence for both the enduring dynamics and the disillusionment model of relationship change. Thus, above and beyond initial levels of positive relationship processes, experiencing a decrease in positive relationship processes was related to lower perceived adaptation. As the

initial levels might serve as a reference point, experiencing a decrease (vs. increase) across time indicates worse (vs. better) adaptation for new parents. Indeed, following Huston and colleagues' argument and based on gain/loss models (Aronson & Lindner, 1965), realizing that the partner has become *less* responsive over time might be even more stressful than the fact that the partner is currently not very responsive.

Contrary to our expectations, fathers and mothers whose partner reported higher average levels of pre-pregnancy perceived responsiveness reported *lower* adaptation to parenthood later on. Perhaps those who perceive above-average partner responsiveness before pregnancy are actually receiving more support from their partner across the transition to parenthood, which might put a strain on the partner providing the support, thereby decreasing their perceived adaptation. That is, the above-average responsive behavior itself might be demanding for the responsive partner him- or herself across the transition to parenthood. Previous studies have found that supporting can lead to emotional distress for those who provide the support (Lewis & Manusov, 2009). The resources of the partner in the supporting role might become drained, thereby having a detrimental effect on his or her adaptation to parenthood.

This explanation is of course speculative but suggests an interesting avenue for future research, namely, to investigate the perspective of the partner. The current manuscript focuses on the actor perceiving responsiveness from the partner, the actor feeling gratitude for the partner, and the actor trusting the partner. According to the literature, these positive experiences will increase the actor's resources and thus adaptation. Future research should investigate the effects of being responsive toward one's partner, and of perceiving that one's partner is grateful and trusting toward the self. Being responsive might come at a cost, as noted previously, but felt gratitude has also been found to be beneficial for the partner receiving the gratitude as it increases their relationship connectedness and satisfaction (Algoe et al., 2010). In addition, trust has been found to be reciprocated between partners (Larzelere & Huston, 1980), so perceiving trust from the partner might also enhance adaptation. Feeling that your partner is grateful to you and trusts you may strengthen your sense of self-efficacy and control

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because you feel that your partner believes in you and feels confident in your judgments and abilities.

We analyzed additional models to test whether a common factor underlying all three positive relationship processes could be driving the effects. Overall, the effects of the main variables did not change to such a degree as to suggest that relationship quality or perceived responsiveness, as a proxy of the partner's positive actions, were in fact driving the results. Some actor effects of the main variables prior to pregnancy were no longer significant, and some effects of an increase in the main variable over time were larger than in the original models. Model fit of these additional models was lower than the original models in all cases as indicated by a higher AIC. We note, however, that this is probably due to the added complexity of the model as the AIC penalizes strongly for complexity of the models. Thus, caution is necessary when drawing conclusions based on these additional analyses. The correlations between perceived responsiveness, gratitude, and trust were on average medium to strong (around .45) but not so strong as to offer strong support for an alternative explanation that these variables in fact measure one underlying construct, such as the partner's positive behaviors. We also note that several studies suggest that one's own enacted responsiveness predicts one's perceptions of the partner's responsiveness better than the partner's own reports of enacted responsiveness, suggesting a projection of one's own responsiveness (e.g., Debrot et al., 2012; Lemay & Clark, 2008).

There were few gender differences in the effects of positive relationship processes on perceived adaptation to parenthood. Only fathers', but not mothers', change in trust over time influenced adaptation for both fathers and mothers. The difference in trust may be due to gender differences in changes in interdependence across the transition to parenthood as interdependence fosters trust (Simpson, 2007). Applying evolutionary insights to the transition to parenthood, women feel perhaps more interdependence, and more stable, in their relationship than men when they have children due to their greater parental investment (Floyd & Haynes, 2005). This is in line with the findings in this article that fathers' trust, on average, changed across the transition to parenthood, whereas mothers' trust remained stable. However, we cannot rule out that the null



effects of mothers' change in trust are due to a lack of power caused by the relatively small sample size. A lack of variance in mothers' trust (the variance in the slope of mothers' trust was significant but very small, .006) could also be a reason for the null findings, because individual variation in change over time is used to estimate the effects. This does not seem a likely explanation for the null findings, however, as several slopes of perceived responsiveness and gratitude also had small variances but nonetheless still predicted adaptation.

### *Strengths and limitations*

A strength of this study is that our data collection started before couples became pregnant, up to several years prior. Pre-pregnancy measurements are quite rare in the transition to parenthood literature. Our data therefore offer a stronger test of predictors of adaptation to parenthood than is usually possible as decreases across time could not be attributed to declines to baseline after a “pregnancy high” in this study. In addition, the APIM allowed us to explore the interdependence between partners and how they influence each other's adaptation to parenthood. Finally, we used a broad measure of how parents experienced their own adaptation to parenthood, covering several dimensions. We believe this provides a more accurate assessment of perceived adaptation as a decrease in only one dimension is not necessarily a sign of low adaptation to parenthood. A reported decline in relationship satisfaction may, for example, indicate that the couple's main focus has switched from the relationship toward the child, but the couple may still experience an easy adaptation to parenthood.

As previously stated, the data set also posed a number of limitations. Due to the difficulty of obtaining prepregnancy data, the sample size was modest. This likely limited the power of some of the effects; resulted in modest model fit; and limited the complexity of the models that we were able to test. A model including all three variables would allow the disentanglement of the underlying relations between responsiveness, gratitude, and trust and how they impact adaptation to parenthood. This would further allow for the conceptual integration of these three relationship variables. Future studies using larger data sets that allow for the integration

of these relationship processes would be an interesting and valuable addition to the literature.

Another limitation is that because couples were followed from before pregnancy, childbirth took place at different time points, making the slopes in the models unbalanced on time. We corrected for this as much as possible by adding time since childbirth to the models as a covariate. We also ran the models correcting for birth cohort in the slopes, and this yielded the same results. When time is completely unbalanced, each time point may only contain one data point, leading to interpretation problems. However, because there were only three birth cohorts, each time point still contained many data points, similar to data that are balanced on time. We believe, therefore, that the influence of this timing problem on the results is limited. However, we cannot rule out that there were nonlinear changes over time that could not be detected through our method of analysis.

Our sample of married couples might not be representative of the Dutch population as many Dutch children are born to unmarried parents (52% in 2016; Statistics Netherlands, 2016). Norwegian data showed that changes in relationship satisfaction across the transition to parenthood were similar for married and cohabiting mothers, but cohabiting mothers had lower initial satisfaction (Mortensen et al., 2012). Initial levels of positive relationship processes prior to childbirth might thus be lower among cohabiting couples than among married couples. However, we would not expect the predictors of adaptation to parenthood to be substantially different for the two groups.

Self-report methods have limitations such as biased responses and socially desirable answering patterns. As such, adaptation to parenthood as measured in this study was a person's judgment and report of their own adaptation, which is not necessarily the same as actual changes in parental well-being measured by quantifiable behavior. A strength of the self-report method is that it reflects how parents perceive their own feelings and circumstances, which can be a stronger predictor of well-being than observed behavior or the factual situation (Lyubomirsky, 2001). However, an important next step in validating these results would be to relate self-reports of adaptation to other indicators of adaptation, such as depressive symptoms across the transition to parenthood, observational data on how

couples deal with relationship and conflict issues, or even more objective data such as diagnosed postnatal depression. Such a comparison could be used to test whether different methods of assessing adaptation to parenthood predict different outcomes in, for example, parental well-being or child development.

## **Conclusion**

This study showed that the level of perceived partner responsiveness, gratitude, and trust that men and women feel even years before pregnancy predicted their experience of how well they have adapted to parenthood. Even more important was how these positive relationship processes changed across the transition to parenthood. Parents with increased perceived responsiveness, gratitude, and trust over time or whose partner reported increases over time experienced a better adaptation to parenthood than parents who reported decreases across the transition. Positive relationship processes are not necessarily stable, and our results imply that interventions that help first-time parents to increase their positive relationship processes across the transition to parenthood could be beneficial. Future research should focus on how these positive relationship processes are interrelated to one another.



## Chapter 3

### **Changes in Relationship Commitment Across the Transition to Parenthood: Pre-pregnancy Happiness as a Protective Resource**

Author contributions: Author ter Kuile designed the study, conducted the statistical analyses, interpreted the results, and wrote the first draft of the manuscript. Author Finkenauer designed the questionnaire, directed data-collection, and provided feedback on the manuscript. Author Kluwer aided in designing the study, provided conceptualization and theory used to integrate findings, interpreted results, and edited the manuscript. Author van der Lippe provided conceptualization and theory used to integrate findings, interpreted results, and edited the manuscript.

*Note.* This chapter is based on Ter Kuile, H., Finkenauer, C., van der Lippe, T., & Kluwer, E. S. (2021). Changes in relationship commitment across the transition to parenthood: Pre-pregnancy happiness as a protective resource. *Frontiers in Psychology, 12*, 132-142.

### **Abstract**

The transition to parenthood is both a joyous and a challenging event in a relationship. Studies to date have found mostly negative effects of the birth of the first child on the parental relationship. We propose that partners' pre-pregnancy individual happiness may serve as a buffer against these negative effects. We predicted that parents who are happy prior to pregnancy fare better in terms of relationship commitment after childbirth than unhappy parents. To test our prediction, we used data of a 5-wave longitudinal study among 109 Dutch newlywed couples who had their first child during the study and a comparison group of 55 couples who remained childless. We found that the relationship commitment of fathers with higher pre-pregnancy happiness and fathers with a partner with higher pre-pregnancy happiness increased slightly in the years after childbirth, whereas the relationship commitment of fathers with lower pre-pregnancy happiness and fathers with a partner with lower pre-pregnancy happiness decreased. In addition, the relationship commitment of mothers with a happier partner prior to pregnancy decreased only slightly across the transition to parenthood but showed a steeper decline for mothers with a partner with average or lower pre-pregnancy happiness. In line with the idea that happiness acts as a resource when partners have to deal with relationship challenges, individual happiness predicted changes in relationship commitment for parents, but not for partners who remained childless.

## Introduction

The transition to parenthood is not only one of the most joyous life events but it can also be a challenging time in the relationship. Having the first child requires adaptation that can be accompanied by parental stress (Perren et al., 2005) and relational turbulence (Theiss et al., 2013). The general view that has dominated the literature is that the transition to parenthood has mostly negative effects on the parental relationship. Indeed, most studies show, on average, a small but reliable decrease in relationship functioning after child-birth (for reviews, see Twenge et al., 2003; Mitnick et al., 2009; Kluwer, 2010; Doss and Rhoades, 2017). Recently, however, it is recognized that there is important variability in how couples respond to the transition to parenthood (Doss and Rhoades, 2017). Some parents experience a decrease, while others experience no change or even an increase in relationship functioning (e.g., Holmes et al., 2013; Ter Kuile et al., in press). Importantly, emerging research has begun to investigate individual, relationship, and infant characteristics that moderate the magnitude of post-birth changes in the relationship.

The Vulnerability-Stress-Adaptation (VSA) model can be used to understand the impact of life events like the transition to parenthood on relationship functioning. According to this model, couples will adapt better to stressful events to the extent that they have fewer vulnerabilities and more personal resources (Karney and Bradbury, 1995). In line with this model, we will argue that personal happiness is a psychological resource that affects how well couples adapt to the changes that occur across the transition to parenthood. Happiness has been found to increase adaptability and effective problem solving (Bryan et al., 1996; Fredrickson, 1998; Lyubomirsky et al., 2005). In particular, we will investigate whether personal happiness as a resource affects changes in relationship commitment. Relationship commitment is a multidimensional construct that entails psychological attachment to the relationship, a long-term orientation regarding the relationship, and the intention to persist in the relationship (Rusbult et al., 1998; Arriaga and Agnew, 2001). It is an important indicator of relationship quality and stability (Rusbult, 1983; Le et al., 2010; Stanley et al., 2010), and emerging research has uncovered individual variation in

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changes in commitment after childbirth (Doss et al., 2009; Kamp Dush et al., 2014; Ferriby et al., 2015).

Despite the importance of commitment in romantic relationships, only a few studies have examined changes in commitment across the transition to parenthood. Understanding whether and when the transition to parenthood changes parental relationship commitment is important because parental relationship quality and stability affects both the psychological and the physical development of children (e.g., Booth and Amato, 2001; Van Eldik et al., 2020). Gaining insight in factors that influence relationship quality and stability across the transition to parenthood informs new parents and the professionals working with them. The main question we aim to answer in the present study is who are the parents that experience changes in relationship commitment across the transition to parenthood? We will test the general hypothesis that parents with more personal happiness prior to pregnancy will experience less change in relationship commitment after childbirth than parents with less prenatal happiness. In addition, we will explore whether happiness also predicts changes in relationship commitment for childless couples.

### *Commitment Across the Transition to Parenthood*

How does the transition to parenthood affect relationship commitment? One prediction would be that commitment decreases after child-birth, in accordance to the often observed declines in relationship satisfaction and relationship functioning. Adapting to the transition and the increases in negative interactions between partners may erode positive aspects of the relationship, including commitment (Doss et al., 2009). A contrasting prediction is that commitment increases after first childbirth, because the presence of children raises the investments in the relationship and increases the costs of ending a relationship (e.g., Rusbult, 1983; Rusbult et al., 1998). This corresponds to the concept of constraint commitment (Stanley et al., 2010): Investments can act as a constraint to ending the relationship, because terminating the relationship becomes more costly economically, socially, personally, or psychologically than staying in the relationship. In line with this idea, commitment has been found to increase with the number



of children (Sorokowski et al., 2017). Studies found that parents are less likely to divorce than childless couples (Waite and Lillard, 1991), and that a higher number of children is related to a lower divorce rate (Cherlin, 2010).

The few studies to date on changes in commitment across the transition to parenthood suggest that commitment on average decreases after childbirth (Doss et al., 2009; Kamp Dush et al., 2014; Ferriby et al., 2015), supporting the idea that the transition and the increase in negative interactions between partners negatively affect commitment (Doss et al., 2009). What these studies have in common is that they found a considerable amount of individual variation. Despite the negative average trend, some partners showed stable or increased commitment after childbirth. The Vulnerability-Stress-Adaptation (VSA; Karney and Bradbury, 1995) model offers a paradigm for predicting such variability in relationship change across the transition to parenthood (Kluwer, 2010) and is increasingly used as a framework to investigate individual differences in changes across the transition to parenthood (e.g., Doss et al., 2009; Trillingsgaard et al., 2014; Ter Kuile et al., 2017). According to the VSA model, personal enduring vulnerabilities can aggravate the impact of a stressful event on relationship functioning. Vulnerabilities can be practical, such as financial scarcity, or psychological, such as insecure attachment. Based on this model, couples can be expected to fare worse across the transition to parenthood to the extent that partners have more enduring vulnerabilities prior to childbirth that decrease their ability to adapt. Although the focus of the VSA model is on vulnerabilities, research has shown that having resources diminishes the impact of the transition to parenthood on the relationship (e.g., Ter Kuile et al., in press) and increases parents' adaptation to parenthood (Ter Kuile et al., 2017). In the current study, we investigate individual happiness as a psychological resource that increases couples' ability to adapt to first-time parenthood.

### *Happiness as an Individual Psychological Resource*

In their review, Lyubomirsky et al. (2005) present evidence that happiness predisposes people to look on the bright side and that it relates to superior coping during difficult times. For example, Lyubomirsky and Tucker (1998)

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showed that happy participants, as compared to unhappy participants, tended to think about life events more favorably and positively, by seeing humor and didactic value in adversity and by emphasizing recent improvement in their lives. Fredrickson (1998, 2001) has argued that positive emotions such as happiness have an adaptive purpose by helping to prepare for future challenges. Positive emotions lead to greater creativity, exploration, and social behavior, and thereby increase physical, social, intellectual, and psychological resources (Fredrickson, 2004). These durable resources can diminish the impact of negative events that occur later on, increasing adaptability and resilience (Fredrickson, 2001). Studies have indeed found that positive emotions such as happiness broaden the scope of attention (Basso et al., 1996), cognition (Isen, 2009), and action (Renninger, 1992). Happy adults as well as happy children have been found to be better able to learn new tasks and to show more effective problem solving (Bryan et al., 1996).

Based on the foregoing, happy individuals likely will be better in coping with changes and difficulties they encounter across the transition to parenthood than unhappy individuals. We expect that those with higher levels of happiness are better able to adapt to the transition to parenthood, and therefore the relationship likely suffers less, than those with lower levels of happiness, which translates into more stable vs. declining commitment levels across the transition to parenthood. We are not aware of previous work showing evidence for the protective effects of personal happiness across the transition to parenthood, although there is evidence for associations between relationship quality (including commitment) and personal happiness (e.g., Demir, 2008). Also, a few studies have examined related constructs as predictors of the effect of childbirth on relationship outcomes, such as life satisfaction and depression. Life satisfaction predicted relationship satisfaction across the transition to parenthood in mothers (Dyrdal et al., 2011). A few studies have found that depressive symptoms across the transition to parenthood are a risk factor for greater decreases in relationship quality (Feeney et al., 2003; Whisman et al., 2011; Trillingsgaard et al., 2014).

Traditionally, research on the transition to parenthood literature largely focuses on risk factors (such as depression) and less on potential

protective factors (such as happiness). The question is of course whether risk factors and protective factors are two sides of the same coin, and whether the focus on risk factors is warranted. There is some evidence to suggest that happiness and depression are not bipolar opposites (Rafaeli and Revelle, 2006). To explore this question, we included a pre-pregnancy measure of depressive symptoms in additional analyses to test whether this would predict changes in commitment across the transition to parenthood.

### *The Present Research*

The present research aims to investigate how relationship commitment changes across the transition to parenthood, and whether changes in commitment vary as a function of individual pre-pregnancy happiness. Based on earlier research, commitment is theorized to decrease on average, but less so for those with sufficient resources to adapt across the transition to parenthood. We hypothesize that pre-pregnancy happiness predicts changes in commitment across the transition to parenthood, such that more prenatal happiness is related to a greater increase or smaller decrease in commitment after childbirth. In this study, we included both partners, in contrast to many previous studies. Because of the interdependence between partners (Kashy and Kenny, 2000), it is important to not only examine how parents' relationship commitment is affected by their own happiness, but also by their partner's happiness. This may be especially important across the transition to parenthood, as the intensive caretaking required by infants can foster interdependence even more.

We will compare changes experienced by first-time parents to changes experienced by couples who did not become parents during the course of this study. By including a comparison group of childless couples, the mere passage of time can be ruled out as an alternative explanation for any differences found in changes in relationship commitment (Doss et al., 2009; Lawrence et al., 2010). It enables us to test for possible pre-existing differences between couples that do and couples that do not have children. It also allows us to explore whether happiness is a stronger predictor of differential trajectories for parents than for childless couples. If happiness is indeed a resource that increases partners' adaptation, the effect of happiness

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on commitment should be stronger among couples who are going through a major life transition than a comparison group of couples who are not.

By including pre-pregnancy measurements, we can rule out that effects are due to changes that may occur during pregnancy (Lawrence et al., 2010). We further include measurements beyond the first year after childbirth to study the longevity of the effects of the transition to parenthood on commitment. Finally, we will explore gender differences as prior research has shown that fathers' commitment was more vulnerable to change across the transition to parenthood than mothers' commitment (e.g., Doss et al., 2009; Kamp Dush et al., 2014; Ferriby et al., 2015).

### **Method**

#### **Participants and Procedure**

We used data from the Marriage and Well-being Survey that were collected at 5 time points among 199 newlywed couples, as part of a larger study (Finkenauer et al., 2009). T1 took place in 2005 within 2 months of marriage, and there was ~1 year between subsequent time points. During the course of the study, the majority of couples had their first child. Because we wanted to include pre-pregnancy data, 12 couples who already had children or stepchildren at T1 were excluded. In addition, 23 couples became parents between T1 and T2. Because we cannot verify whether these couples were already pregnant at T1 or not, these couples were also excluded. The final sample therefore consisted of 109 couples (66.5%) who became parents during the course of this study at different time points, and a comparison group of 55 couples (33.5%) who did not have children during this time.

Participants were recruited via the municipalities in which they got married. Inclusion criteria were that this was the couple's first marriage, that couples had no children in this marriage or from previous relationships, and that partners were between 25 and 40 years old. Of all couples that fulfilled the criteria, 19% agreed to participate in the study. This response rate is similar to that in other studies recruiting participants from public records in the United States (e.g., Kurdek, 1991). At all data collections, both members of the couple separately filled out an extensive questionnaire at home in the presence of a trained interviewer. The questionnaire took about 90 min to

complete. Partners were instructed not to discuss the questions or answers with each other. At each data collection, couples received 15 euro and a small gift (e.g., a book, a pen set) after they completed their questionnaires. All procedures were in compliance with the research and consent protocol of the Faculty of Social Sciences of the Free University at Amsterdam.

Of the participants, 128 (58.7%) became parents between T2 and T3, 58 (26.6%) between T3 and T4, and 32 between T4 and T5 (14.7%). The comparison group consisted of 110 participants (33.5%) who did not have children during the study. There was a relatively low attrition rate in this longitudinal study. At T2, 320 of the initial 328 couples still participated in the study, T3 consisted of 310 participants, T4 of 268, and T5 of 240 (73.2% of the sample at T1).

The mean age of husbands was 31.88 years ( $SD = 4.81$ ) and the mean age of wives was 29.17 years ( $SD = 4.34$ ) at T1. Couples had been romantically involved for 5.75 years ( $SD = 3.05$ ) on average and had been living together for an average of 3.66 years ( $SD = 2.20$ ) at T1. Nearly all couples had the Dutch nationality (97.6% of the husbands and 94.5% of the wives). Of the husbands, 18.3% was lower educated (high school or less), 18.9% completed community college (technical or vocational education), 29.9% had finished college (bachelor's degree), and 25.0% had finished university (master's degree). Of the wives, 12.7% was lower educated, 17.7% completed community college, 37.8% had finished college, and 24.4% had finished university. At T1, 98.2% of the husbands and 93.0% of the wives had a paid job. The modal number of working hours was 33 to 40 h a week (69.9% of the husbands and 50.6% of the wives). All the pregnancies were planned.

## Measures

### *Commitment*

Commitment to the relationship was measured with 8 items, adapted from the investment model scale (Rusbult et al., 1998). The scale demonstrated good convergent and discriminant validity, and predicted later relationship quality and stability in prior studies (Rusbult et al., 1998). An example item is “I hope that the bond that I have with my partner will stay the way it is

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now for a long time.” Answers were rated on a 5-point scale (1 = never, 5 = always). Cronbach's alpha ranged between 0.87 and 0.90 for men and 0.90 and 0.93 for women across the 5 time points.

### *Happiness*

Global subjective happiness was measured with a 4-item scale developed by Lyubomirsky and Lepper (1999). The scale was found to have a stable and good internal consistency across five different populations in 14 studies (Lyubomirsky and Lepper, 1999). An example item is “In general, I consider myself:” and “Compared to most of my peers, I consider myself:”. Participants rated their answer on a 7-point scale (1 = not a very happy person, 7 = a very happy person). Cronbach's alpha was 0.73 for men and 0.75 for women at T1.

### *Depression*

Depression was measured using the Centre for Epidemiologic Studies Depression scale (CES-D; Radloff, 1977). The scale consists of 20 items that measure how often participants experienced depressed affect, positive affect (reverse coded), and somatic and retarded activity during the past week. Items were rated on a 4-point scale [1 “Never or rarely (less than 1 day)” to 5 “Usually or always (5–7 days)”. The CES-D has been found to have a high internal consistency and validity in numerous studies (Eaton et al., 2004). Cronbach's alpha was 0.83 for men and 0.86 for women at T1.

## **Analyses**

To test our predictions, we applied latent growth curve modeling. The intercept in the models corresponded with the average level of commitment at T1 (prior to pregnancy for the parents), and the linear slope represented the changes of commitment across time. Time since childbirth was included as a control variable in the parents' model. Both partners were included in the same model, in analogy to the principles of the Actor–Partner Interdependence Model (APIM: Kashy and Kenny, 2000).

To test our hypothesis that happiness predicts changes in commitment, we regressed the intercept and slope on the predictor

happiness. The trajectories of parents and the comparison group of childless couples were analyzed in a multiple group dyadic growth model, allowing us to compare parents' and non-parents' trajectories. The models were first tested with all possible parameters included. The goal of an APIM analysis with distinguishable dyads is to test the fit of more parsimonious models that constrain estimates. Model fit that is not significantly worse after paths are constrained indicates that effects do not differ significantly (Peugh et al., 2013). Ideally, Chi-square is used to test whether changes in model fit are significant. Due to the complexity of this model however, Chi-square testing led to unstable results, depending on the order in which effects were constrained. We therefore placed constraints using model fit, assessed using the comparative fit index (CFI), Tucker Lewis index (TLI) and root mean square error of approximation (RMSEA). Acceptable model fit is generally defined as a cutoff value higher than 0.90 is for the CFI and lower than 0.08 for the RMSEA (Byrne and Crombie, 2003).

Models were estimated using version 7.4 of the statistical program Mplus (Muthén and Muthén, 2018). Little (1988) missing-completely-at-random test showed that the pattern of missing data did not fully resemble a completely at random pattern [ $\chi^2(187, N = 164) = 200.86, p = 0.03$ ]. Inspection of this pattern showed it only to be a factor of time, such that attrition increased at each wave. Since this is inherent to longitudinal studies, and missingness was not related to any other main variable or demographics, we included all available data using a Full Information Maximum Likelihood procedure (which already provides good estimates with MAR). The output files of all the models are available upon request from the first author.

## Results

### *Growth Model of Average Commitment and Change in Commitment Over Time*

We first examined correlations between all the main variables at T1 (see Table 1). Happiness and commitment were moderately correlated for parents and childless men, but uncorrelated for childless women. Next, we examined the average intercept (I) at T1 and average slope (S) of

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commitment for both parents and childless men and women (see Table 2). As happiness was not yet included, this model shows the unconditional estimates of mean commitment at T1 and changes in commitment across time. In addition, the variances around these growth factors are estimated. The variance reflects the individual variation in average level or rate of change.

**Table 1**

*Intercorrelations, Means, and Standard Deviations Between All Assessed Variables at T1*

| <i>Variables</i> | <i>1</i>    | <i>2</i>   | <i>3</i>   | <i>M (SD)</i>        | <i>M (SD)</i>          |
|------------------|-------------|------------|------------|----------------------|------------------------|
|                  |             |            |            | <i>Fathers</i>       | <i>Mothers</i>         |
| 1. Happiness     | <b>.21*</b> | .45**      | -.34**     | 5.80 (.63)           | 5.86 (.69)             |
| 2. Commitment    | .24*        | <b>.16</b> | -.26**     | 4.66 (.39)           | 4.73 (.33)             |
| 3. CESD          | -.53**      | -.08       | <b>.12</b> | 1.30 (.27)           | 1.34 (.31)             |
|                  |             |            |            | <i>Childless Men</i> | <i>Childless Women</i> |
| 1. Happiness     | <b>.07</b>  | .02        | -.37**     | 5.66 (.90)           | 5.73 (.87)             |
| 2. Commitment    | .28*        | <b>.14</b> | .06        | 4.64 (.38)           | 4.76 (.31)             |
| 3. CESD          | -.46**      | .01        | <b>.17</b> | 1.33 (.27)           | 1.45 (.37)             |

*Note.* \* $p < .05$ . \*\* $p < .01$ . Values for women are above the diagonal, values for men are below. Correlations between husbands and wives are presented in bold on the diagonal.

**Table 2**

*Means (Intercepts) Before Pregnancy and Changes (Slopes) Across Time*

|                 | <i>Intercept (mean level)</i> |                        | <i>Slope (rate of change)</i> |                        |
|-----------------|-------------------------------|------------------------|-------------------------------|------------------------|
|                 | <i>M (SE)</i>                 | $\sigma$ ( <i>SE</i> ) | <i>M (SE)</i>                 | $\sigma$ ( <i>SE</i> ) |
| Fathers         | 4.64 (.03)                    | .10 (.02)***           | -.01 (.02)                    | .001 (.002)            |
| Mothers         | 4.73 (.03)                    | .08 (.01)***           | -.03 (.01)**                  | .004 (.002)*           |
| Childless Men   | 4.64 (.03)                    | .10 (.02)***           | -.03 (.01)**                  | .004 (.002)*           |
| Childless Women | 4.73 (.03)                    | .08 (.01)***           | -.03 (.01)**                  | .004 (.002)*           |

*Note.* \* $p < .05$ , \*\* $p = .001$ , \*\*\* $p < .001$ .



The final model had an acceptable fit, CFI = 0.956, TLI = 0.956, RMSEA = 0.054 (90% CI = 0.000, 0.083). Constraining the intercept (average level of commitment at T1) of fathers and childless men to be equal resulted in an increase model fit, indicating that their intercept did not differ significantly. Constraining the intercept of mothers and childless women similarly increased model fit. Constraining the intercept for men and women to be equal resulted in a decrease in model fit, suggesting their intercepts were not equal. Women reported higher levels of commitment than men at T1. Fathers and childless men had on average relatively high levels of commitment at the beginning of their marriage ( $I = 4.65$ ,  $p < 0.001$ ; variance = 0.10,  $p < 0.001$ ). Mothers and childless women reported even higher initial levels of commitment ( $I = 4.73$ ,  $p < 0.001$ ; variance = 0.08,  $p < 0.001$ ; see Table 2).

There was an increase in model fit when the slope was constrained to be equal for mothers, childless women and childless men as compared to the unconstrained model where all slopes were allowed to differ. This indicates that the slope of commitment (i.e., change over time) did not differ significantly between mothers, childless women, and childless men. Model fit decreased when fathers' slope was constrained to be equal, indicating that fathers' slope differed from mothers and childless men and women. Over time, both; mothers and childless partners experienced a slight but significant decline in commitment over time ( $S = -0.03$ ,  $p = 0.001$ ; variance = 0.004,  $p = 0.03$ ). Fathers' slope was not significant ( $S = -0.01$ ,  $p = 0.77$ ; variance = 0.001,  $p = 0.47$ ), indicating that their commitment did not change over time. Additional analyses with independent samples t-tests showed that there were no significant differences in average commitment between mothers and childless women, or between fathers and childless men, at any timepoint (analyses available upon request).

In sum, parents reported equally high levels of commitment at T1 as childless men and women, but mothers and childless women reported higher commitment at T1. Mothers and childless men and women experienced the same decline in commitment in the years after their marriage, while fathers' commitment remained stable.

Table 3  
*Actor and Partner Effects of Happiness on the Intercept and Slope of Commitment*

| Commitment      | Actor Effects of Happiness |           |           |          | Partner Effects of Happiness |         |           |           |
|-----------------|----------------------------|-----------|-----------|----------|------------------------------|---------|-----------|-----------|
|                 | Intercept (I)              |           | Slope (S) |          | Intercept (I)                |         | Slope (S) |           |
|                 | <i>b</i>                   | <i>SE</i> | $\beta$   | <i>b</i> | <i>SE</i>                    | $\beta$ | <i>b</i>  | <i>SE</i> |
| Fathers         | .13***                     | .09       | .30       | .02**    | .01                          | .43     | -.01      | .02**     |
| Mothers         | .25***                     | .04       | .58       | -.01     | .01                          | -.06    | -.01      | .02**     |
| Childless Men   | .13***                     | .04       | .32       | -.01     | .01                          | -.17    | -.01      | .01       |
| Childless Women | .02                        | .04       | .06       | -.01     | .01                          | -.11    | -.01      | .01       |

Note. \*\* $p < .01$ , \*\*\* $p < .001$

## Commitment Predicted by Happiness

In the next step, happiness at T1 (prior to pregnancy) was included in the model as a predictor of the intercepts and slopes of commitment (see Table 3). The model includes both the effect of the individual's happiness on their own commitment (actor effect) as well as the effect on their partner's commitment (partner effect) of fathers and mothers and childless men and women. To test our hypothesis, we looked at the predictive effects of actor and partner happiness on changes in commitment across the transition to parenthood for parents and compared them to childless men and women (i.e., the effect of happiness on the slopes).

The original model had a poor fit (CFI = 0.946, TLI = 0.931, RMSEA = 0.065 (90% CI = 0.033, 0.091)). The final model had an acceptable fit, CFI = 0.964, TLI = 0.961, RMSEA = 0.049 (90% CI = 0.000, 0.076). The actor effects of happiness on the intercepts showed that, as predicted, more reported happiness at T1 predicted higher average levels of commitment at T1 for fathers (unstandardized  $b = 0.13$ ,  $p < 0.001$ ; see Table 3 for standard error SE and standardized  $\beta$ ). Model fit improved when this effect was constrained to be equal for childless men ( $b = 0.13$ ,  $p < 0.001$ ), indicating that the effect did not differ between fathers and childless men. The effect of happiness on initial commitment was slightly larger for mothers ( $b = 0.25$ ,  $p < 0.001$ ) and not significant for childless women ( $b = 0.02$ ,  $p = 0.69$ ). The partner effects on the intercepts were not significant, showing that the partner's happiness at T1 did not predict the average level of commitment at T1 for parents and childless men and women ( $b = 0.01$ ,  $SE = 0.02$ ,  $\beta = 0.06$ ,  $p = 0.66$ ).

The effects of happiness on the slopes showed that fathers' own pre-pregnancy happiness predicted their change in commitment over time. There were also partner effects: Mothers' pre-pregnancy happiness predicted fathers' slope and fathers' happiness predicted mothers' slope. Model fit increased when fathers' actor effect was constrained to be equal to these partner effects ( $b = 0.023$ ,  $p = 0.007$ ). There was no actor effect for mothers; in other words, mothers' happiness did not predict their own change in commitment over time. Neither did own or partner happiness predict the

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slope of childless men and women. Model fit improved when mothers' actor effect was constrained to be equal to the partner and actor effects of childless men and women ( $b = -0.01$ ,  $p = 0.32$ ).

As predicted, happiness at T1 positively predicted changes in commitment across the transition to parenthood. Fathers' happiness prior to pregnancy positively predicted changes in their own and their partner's commitment over time, and mothers' happiness also predicted changes in fathers' commitment after childbirth. Happiness did not predict changes in commitment for men and women who did not have children during this time. As shown in Figure 1, the commitment of happier fathers (i.e., +1 SD pre-pregnancy happiness) increased slightly in the years after childbirth. The commitment of fathers with average happiness prior to pregnancy remained stable, and the commitment of unhappier fathers (i.e., -1 SD pre-pregnancy happiness) decreased across the transition to parenthood. Because the effect of mothers' happiness on fathers' commitment was equal to fathers' actor effect, fathers with a happier partner at T1 showed the same increase as happier fathers, and fathers with an unhappier partner showed the same decrease as unhappier fathers (replicating Figure 1). Figure 2 shows that the commitment of mothers with a happier partner prior to pregnancy decreased only slightly across the transition to parenthood and showed a steeper decline for mothers with a partner with average or lower happiness. The commitment of childless men and women decreased at the same rate, regardless of their own or their partner's T1 happiness.

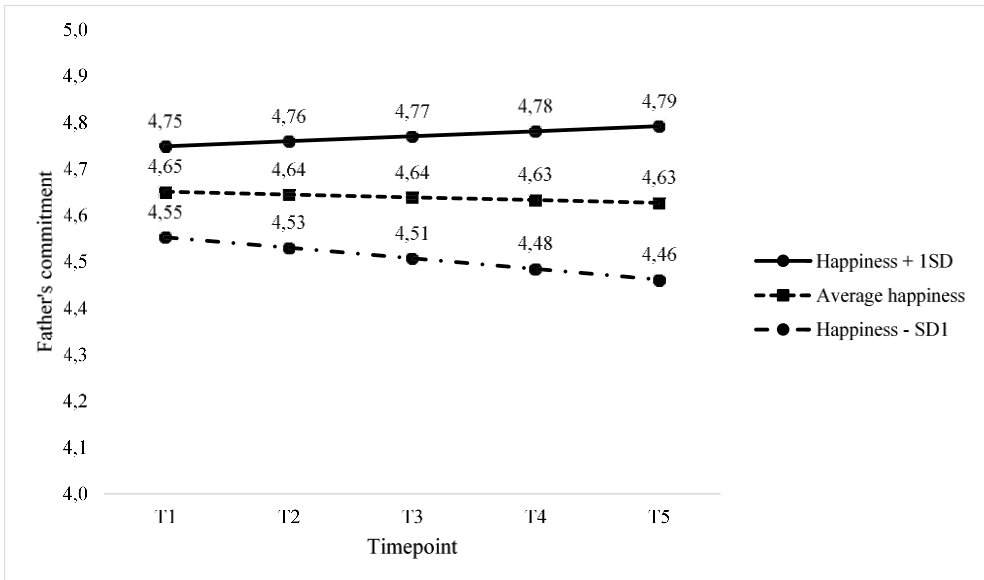


Figure 1. Effect of own happiness on the slope and intercept of fathers' commitment across the transition to parenthood

Note. The y-axis is truncated to improve the visibility of the changes

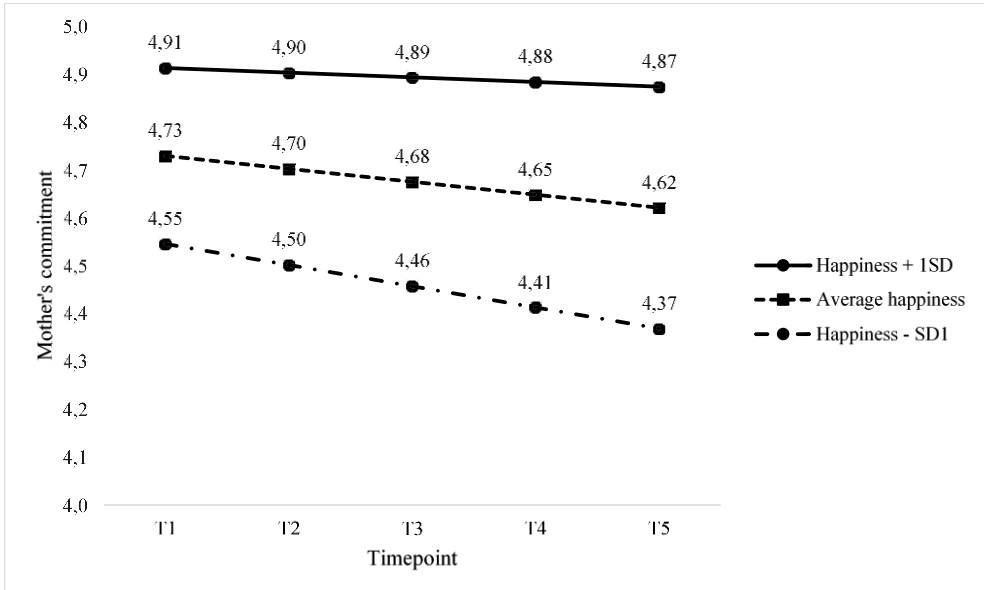


Figure 2. Effect of Partner's Happiness on the Slope and Intercept of Mothers' Commitment Across the Transition to Parenthood

Note. The y-axis is truncated to improve the visibility of the changes

### Commitment Predicted by Depression

An attempt at adding depression as covariate to the happiness model resulted in very poor model fit. Instead, an additional model was estimated with depression as a predictor, in order to indirectly compare its strength as a predictor of change in commitment over time to happiness. Model fit was acceptable [CFI = 0.977, TLI = 0.975, RMSEA = 0.038 (90% CI = 0.000, 0.068)]. The results showed that there were no actor or partner effects of depressive symptoms on changes across time in commitment (see Table 4). Thus, depressive symptoms before pregnancy did not predict changes in commitment across time for either parents or childless men and women, in contrast to pre-pregnancy happiness as a predictor.

**Table 4**

*Effects of Depressive Symptoms on the Slope of Commitment*

| Commitment      | Actor Effects of Depression on the slope |           |         | Partner Effects of Depression on the slope |           |         |
|-----------------|--|-----------|---------|--|-----------|---------|
|                 | <i>b</i>                                 | <i>SE</i> | $\beta$ | <i>b</i>                                   | <i>SE</i> | $\beta$ |
| Fathers         | –  | –         | –       | –  | –         | –       |
| Mothers         | –  | –         | –       | -.05                                       | .03       | -.17    |
| Childless Men   | .03                                      | .04       | .39     | .07  | .05       | 1.05    |
| Childless Women | .03                                      | .04       | .19     | -.05                                       | .03       | -.23    |

*Note.* Where no effect is reported (–), model fit improved when the effect was constrained to 0, indicating effect did not significantly differ from 0.

### Discussion

The current research extends previous work on relationship changes across the transition to parenthood in two important ways. First, we investigated changes in commitment, a largely unexplored factor despite its crucial importance to relationship stability. Second, we studied the role of individual happiness as a psychological resource and argued that happy

partners are better able to cope during difficult times, protecting them against a decrease in commitment across the transition to parenthood.

Mothers and childless men and women experienced a slight but significant decrease in commitment over the first 4 years of their marriage. Interestingly, fathers' commitment remained stable over time. This finding is consistent with findings that women's marital satisfaction declines to a greater extent than men's across the transition to parenthood (Twenge et al., 2003; Kluwer, 2010). Children can be viewed as an investment in the relationship (e.g., Rusbult et al., 1998) and terminating the relationship becomes more costly economically as well psychologically, thereby increasing constraint commitment (Stanley et al., 2010). In line with this, and contrary to findings on relationship satisfaction (Twenge et al., 2003), parents did not experience a stronger decrease in commitment than men and women who did not have a child during the course of this 4 year study. This could also be explained by the fact that relationship quality in general tends to decrease over time, regardless of parenthood. Average declines in relationship evaluations are evident across prior studies modeling trajectories of change (e.g., Lavner and Bradbury, 2010; Overall, 2018).

A main contribution of the current research is that we showed that changes in commitment varied as a function of parents' pre-pregnancy levels of happiness. As predicted, the level of happiness prior to pregnancy predicted changes in commitment over time among those who became parents. The commitment of happier fathers (i.e., +1 SD pre-pregnancy happiness) and fathers with a happier partner increased slightly in the years after childbirth, whereas the commitment of unhappier fathers (i.e., -1 SD pre-pregnancy happiness) and fathers with an unhappier partner decreased across the transition to parenthood. In addition, the commitment of mothers with a happier partner prior to pregnancy decreased only slightly across the transition to parenthood and showed a steeper decline for mothers with a partner with average or lower happiness. Also as hypothesized, personal happiness at the beginning of marriage was a predictor of changes over time in commitment for parents but not for men and women who remained childless. The effects of happiness therefore seem to be stronger in couples who experience a major life change than among those who remained childless.

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Our results are in line with the broaden-and-build theory that positive emotions increase adaptability (Fredrickson, 2001). In addition, our findings extend the VSA model (Karney and Bradbury, 1995) that proposed that partners' vulnerabilities exacerbate the effect of stressful situations on the marital relationship, by showing that psychological resources can protect the relationship during a major relationship transition. We acknowledge that our results might only apply to the transition to parenthood, which although undeniably a time of many changes that are potentially stressful, is also experienced as a very positive event by most parents. However, it is also conceivable that successful adaptation to less positive events can lead to improvements in relationships. Relationships have for example been found to become stronger after successful adaptation to negative life events, such as cancer (Gritz et al., 1990). Further research is needed to see whether our findings generalize to less positive relationship transitions.

Additional analyses indicated that happiness was a better predictor of changes in commitment across the transition to parenthood than depressive symptoms, although this could only be compared indirectly. This is in line with the broaden-and-build theory that argues that the function of positive emotions is not the reverse equivalent of the function of negative emotions (Fredrickson, 1998). Positive emotions broaden an individuals' thought–action repertoires, thereby building their personal resources. The personal resources gained through positive emotions can last much longer than the emotional state that initially lead to the increase in positive emotions (Fredrickson, 1998). Our results are in line with this theory, showing that happiness even several years prior to pregnancy relates to changes in the quality of the relationship of parents going through the transition to parenthood, and that these effects are not reverse of the effects of pre-pregnancy depressive symptoms. A possible limitation is the low level of depressive symptoms in this sample, which might cause low correlations due to a floor effect. This probably does not fully explain the lack of impact on commitment however, as depression correlated moderate to strongly with happiness.

Surprisingly, mothers' change in commitment across the transition to parenthood was only predicted by their partner's happiness, but not by their own happiness prior to pregnancy. It is possible that happier fathers are



more involved in child care. The wives of fathers who report higher paternal involvement in child care tend to be more satisfied with their relationship, leading to greater marital stability (Kalmijn, 1999). The effect of fathers' happiness on changes in mother's commitment may therefore reflect mothers' satisfaction with fathers' contribution to child care. Future research could explore paternal child care involvement as a mediator of changes in mothers' relationship quality across the transition to parenthood. In addition, future research should continue to explore and compare factors that predict how parental relationships fare across the transition to parenthood. The VSA model (Karney and Bradbury, 1995) suggests that many different factors can act as strengths or vulnerabilities for a couple, including both personal and situational characteristics. Which of these many possible factors has the greatest impact on how relationships fare across the transition to parenthood? Are personal characteristics stronger predictors of relationship quality after childbirth than situational factors? This would increase our understanding of how and when becoming parents has a negative or a positive impact on romantic relationships.

### **Strengths and Limitations**

This research makes an important contribution to the existing literature by focusing on explaining individual variability in relationship commitment across the transition to parenthood. The majority of studies on the transition to parenthood has found a negative impact of child-birth on the marital relationship (Twenge et al., 2003). As is being increasingly argued (e.g., Kluwer, 2010; Doss and Rhoades, 2017), studies that move beyond the study of average trajectories of change and focus on identifying important predictors of individual changes, can provide greater understanding of the underlying mechanisms of change across the transition to parenthood.

We used refined methodology to increase the strength of our conclusions. Firstly, we included pre-birth measurements of the predictors and outcome variable, allowing for a more reliable baseline than measures during pregnancy when many changes may have already taken place (Lawrence et al., 2010). Secondly, our inclusion of similar married couples who did not have children allowed for a comparison of relationship changes

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across the transition to parenthood to changes unrelated to childbirth. Lastly, the data included measurements up to 4 years after childbirth, enabling to study the stability of the changes that occurred after childbirth.

A methodological limitation is that due to the complexity of the model (a latent growth model with two groups, with a predictor) it was not possible to use Chi-square to test and compare effects. However, in most cases this limitation had little effect in our analyses because model fit often improved when a constraint was placed, indicating that the constraint is reasonable because the model is both more parsimonious as well as having better fit. When a constraint decreased model fit, we used the CFI, TLI and RMSEA to determine whether to keep a constraint or not. In this case, the decision was more subjective. Because of this limitation, future studies should replicate these findings with larger groups in order to make Chi-square testing possible. A replication with a larger control group is also necessary to confirm the differences we found between couples who became parents and childless couples. The differences found in this study may be due to the size of the control group being smaller than the parent group, limiting the power to find effects.

Another limitation is the relative homogeneity of our sample; all couples were married, all pregnancies were planned, and the majority of participants was highly educated. For example, the number of unmarried parents is quite high in the Netherlands (in 2016 52% of Dutch children were born to unmarried women; Statistics Netherlands, 2016). This sample is therefore not completely representative of the Dutch population of new parents. We expect that a more diverse sample would show greater variation in changes in commitment across the transition to parenthood. This would limit ceiling effects, and could result in finding stronger effects. Perhaps because of this issue, the changes in commitment that parents experienced were relatively small, and the difference between happier and unhappier parents, although significant, were also small. Future research is needed to determine whether these differences are meaningful. For example, how do decreases in commitment develop over time beyond the fourth year of marriage? And do happier parents, whose commitment increases or remain stable, separate or divorce less often than unhappier parents who experience stronger decreases in commitment?

## **Conclusion**

The results suggest that happiness prior to pregnancy may play a protective role across the transition to parenthood, by increasing the adaptability of first-time parents. Unhappier fathers, fathers with unhappier partners, and mothers with unhappier partners appeared to become more vulnerable to decreases in commitment after childbirth, while the commitment of happier fathers, fathers with a happier partner and mothers with a happier partner showed stability or even increases in commitment. Changes in commitment across the transition to parenthood were a function of pre-pregnancy happiness levels. Happiness only predicted changes in commitment for couples who became parents, but not for couples who remained childless. These findings support the idea that happiness is a resource with an adaptive function, playing a role in relationships during major life transitions. In addition, the findings showed that changes in the relationship of parents across the transition to parenthood can be predicted long in advance, even prior to pregnancy. This suggests that prenatal detection of couples in need of support is possible.



## Chapter 4

# Positive Relationship Processes Predict Relationship Satisfaction Trajectories Across the Transition to Parenthood

Author contributions: Author ter Kuile designed the study, collected the data, conducted the statistical analyses, interpreted the results, and wrote the first draft of the manuscript. Author Kluwer aided in designing the study, provided conceptualization and theory used to integrate findings, interpreted results, and edited the manuscript. Author van der Lippe provided conceptualization and theory used to integrate findings, interpreted results, and edited the manuscript.

*Note.* This chapter is based on Ter Kuile, H., van der Lippe, T., & Kluwer, E. S. (in press). Positive relationship processes predict relationship satisfaction trajectories across the transition to parenthood. *Family Relations*.

## Abstract

**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 generally is 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 post-partum). 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.

## Introduction

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 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). While adding 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 (1) the nature of the stressor, (2) each partner's enduring vulnerabilities, and (3) 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 SES (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 latent class growth analysis (LCGA) to identify subgroups. In a sample of 103 low-risk couples in the United States, Don & 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 while 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),

Positive relationship processes predict relationship satisfaction trajectories 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 TTP, 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 (versus 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 to study also 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 like insecure attachment or low SES, 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 to 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 towards the partner. In their review, Ogolsky and colleagues (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 relationship satisfaction of new parents 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 scale where 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 being 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

Positive relationship processes predict relationship satisfaction trajectories (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 latent class growth analysis (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 post-partum. 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 to no federal paid maternity leave in the United States. Roughly 40% of U.S. mothers do not qualify for the Family Medical Leave Act (FMLA), which grants 12 weeks of unpaid maternity leave (Joshi et al., 2015). Furthermore, in only 11% of Dutch households do both parents work full time (Statistics Netherlands, 2019), which is much lower than in the U.S. (46%, Bureau of Labor Statistics, 2018).

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. Based on 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 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 while lower levels will predict membership to groups that show a decline in relationships 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, respectively.

Little's (1988) missing completely at random (MCAR) test was significant, revealing that there were patterns in the missingness ( $\chi^2 = 1649.02$ ,  $DF = 1491$ ,  $p = .002$ ), mostly due to increasing drop-out 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). Drop-out at T4 also was related to marital status, with cohabiting fathers and mothers more often dropping out 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

## Positive relationship processes predict relationship satisfaction trajectories

responsiveness, nor 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 (MAR).

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. 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, 2016). 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

Positive relationship processes predict relationship satisfaction trajectories 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 latent class growth analysis (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 as well as 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 as 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.

Table 1. Means, standard deviations and correlations

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

Note. \*  $p < .05$ ; \*\*  $p < .01$ . Values below the diagonal are for fathers ( $n = 199$ ), above the diagonal for mothers ( $n = 225$ ), and 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.

## 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 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 =  $.17$ ,  $p = .037$ ) neither 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 5 classes. Solutions with more than 5 classes were not considered parsimonious or readily interpretable. AIC and BIC continued to decrease from the 2-class model until the 4-class model with the greatest decrease between the 2-class model and the 3-class model, suggesting the greatest improvement in fit for the 3-class model. The PBLRT was significant for every solution, while entropy was highest for the 2-class and the 3-class model. 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 4 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. Based therefore on the fit indices, parsimony, and interpretability we chose for the 3-class model.

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

| <b>Statistic</b> | 1 class | 2 classes | <b>3 classes</b>       | 4 classes          | 5 classes            |
|------------------|---------|-----------|------------------------|--------------------|----------------------|
| AIC              | 1112.70 | 870.98    | <b>806.63</b>          | 756.98             | 730.70               |
| BIC              | 1136.73 | 908.75    | <b>858.14</b>          | 822.22             | 809.67               |
| Entropy          |         | .87       | <b>.87</b>             | .85                | .89                  |
| PBLRT (p-value)  |         | <.001     | <b>&lt;.001</b>        | <.001              | <.001                |
| Class sizes      | 229     | 177, 52   | <b>160, 53,<br/>16</b> | 152, 51,<br>14, 12 | 156, 50,<br>10, 8, 5 |

| <b>Parameter Estimates</b> |             |           |        |           |
|----------------------------|-------------|-----------|--------|-----------|
| <b>Subgroup</b>            | % (n)       | Intercept | Slope  | Quadratic |
| High-Stable                | 69.9% (160) | 4.76      | .00    | .00       |
| Moderate-Stable            | 23.1% (53)  | 4.13      | .07    | -.03      |
| Moderate-Divide            | 7.0% (16)   | 3.99      | -.79** | .18*      |

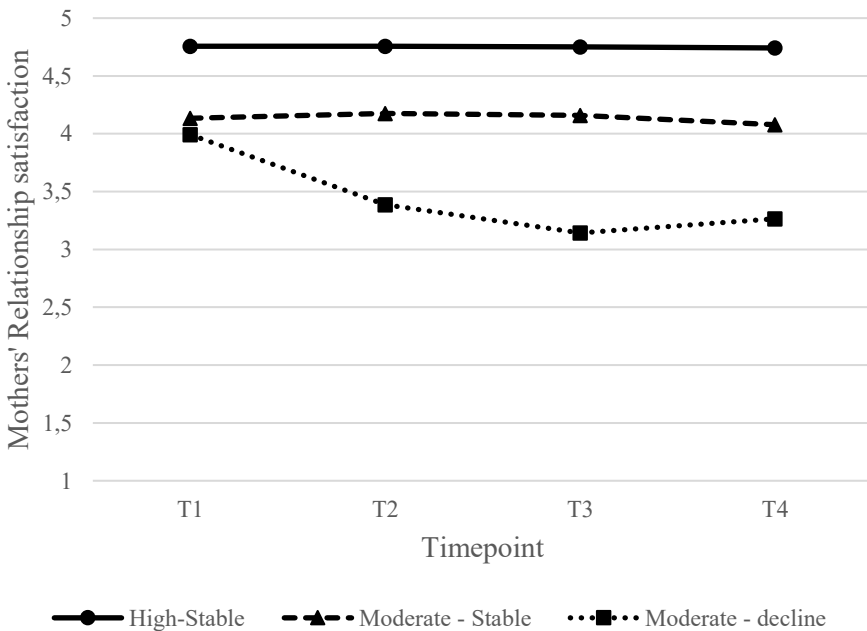
Note. \* $p < .05$ ; \*\* $p < .01$ .

Table 2 also provides estimates of mean intercepts, linear slopes, and quadratic growth of the classes. In the 3-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,  $p < .001$ ,

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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 = -0.79,  $p = .01$ , quadratic = 0.18,  $p = .05$ ). Analysis of outliers showed these to be distributed between subgroups; most importantly, the smallest subgroup (the Moderate–Decline subgroup) was not a subgroup of outliers. Figure 1 provides an illustration of the growth trajectories.

Figure 1. *Mothers' Estimated Relationship Satisfaction 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 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 and 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 which stabilized and slowly increased again, nearing pre-birth 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 2-class model to the 3-class model, and from the 3-class model to the 4-class model, but was higher for the 5-class model. The BIC decreased as the more classes were modelled, but the decrease was much larger when comparing the 3-class model to the 2-class model than when comparing the 4-class to the 3-class model and the 5-class to the 4-class model, suggesting the greatest improvement in fit for the 3-class model. Entropy of the 3-class model was also higher than for the 4-class and 5-class model, indicating higher classification accuracy. The fit indices did not clearly indicate an optimal solution, but based on these fit indices, parsimony and interpretability, we

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chose the 3-class model. Table 3 also provides estimates of mean intercepts, linear slopes, and quadratic growth.

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

| Statistics               | Fit indices |           |                   |                   |                       |
|--------------------------|-------------|-----------|-------------------|-------------------|-----------------------|
|                          | 1 class     | 2 classes | 3 classes         | 4 classes         | 5 classes             |
| AIC                      | 1043.59     | 855.88    | <b>708.23</b>     | 688.50            | 676.75                |
| BIC                      | 1066.99     | 892.64    | <b>758.37</b>     | 752.00            | 753.62                |
| Entropy                  |             | .95       | <b>.84</b>        | .80               | .76                   |
| PBLRT ( <i>p</i> -value) |             | <.001     | <b>&lt;.001</b>   | <.001             | <.001                 |
| Class sizes              | 209         | 195, 14   | <b>130, 71, 8</b> | 120, 62,<br>19, 8 | 110, 47,<br>27, 17, 7 |

| Subgroup                   | Parameter estimates |           |        |                  |
|----------------------------|---------------------|-----------|--------|------------------|
|                            | % (n)               | Intercept | Slope  | Quadratic        |
| High–Stable                | 61.3% (130)         | 4.72      | .04    | -.01             |
| Moderate–Slight<br>Decline | 33.5% (71)          | 4.28      | -.26** | .05 <sup>a</sup> |
| Low–Dip                    | 3.8% (8)            | 3.38      | -.90** | .20*             |

Note. <sup>a</sup>*p* = .06; \**p* < .05; \*\**p* < .01.

In the 3-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 afterwards, yet they did not regain their pre-birth 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 =  $.20$ ,  $p = .02$ ). Analysis of outliers showed these to be distributed between subgroups; most importantly, the smallest subgroup (the Low-Dip subgroup) was not a subgroup of outliers. See Figure 2 for an illustration of the growth trajectories.

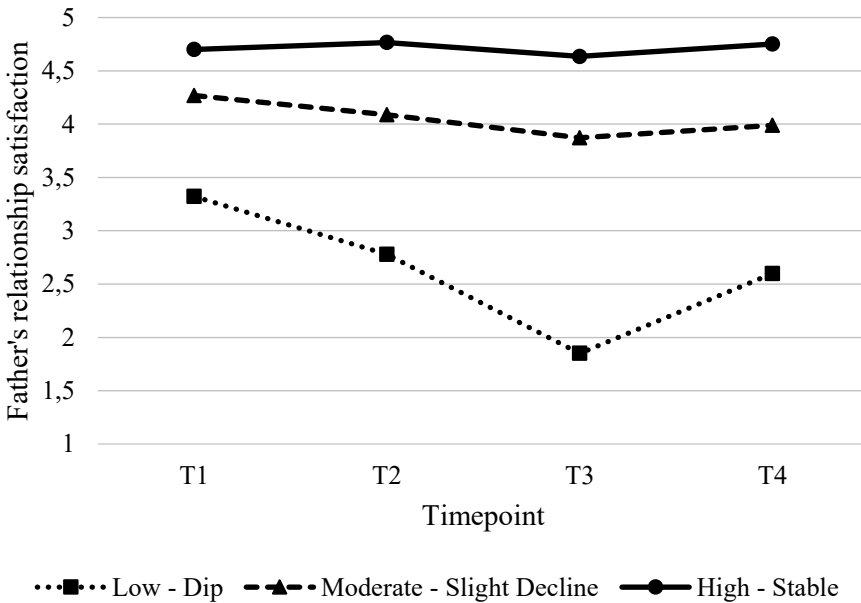


Figure 2. *Fathers' Estimated Relationship Satisfaction Trajectories*

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,  $\chi^2(1) =$



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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, afterwards 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 to 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 to 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.

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

|  | Mothers (n = 229)      |                            |                            | Fathers (n = 209)      |                            |                    | Significant contrasts      |
|--|------------------------|----------------------------|----------------------------|------------------------|----------------------------|--------------------|----------------------------|
|  | High-Stable (1) M (SE) | Moderate-Stable (2) M (SE) | Moderate-Divide (3) M (SE) | High-Stable (1) M (SE) | Moderate-Divide (2) M (SE) | Low-Dip (3) M (SE) |                            |
| <b>Relationship Maintenance Behavior</b> |                        |                            |                            |                        |                            |                    |                            |
| Actor                                    | 3.50 (.04)             | 3.18 (.08)                 | 3.44 (.08)                 | 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)         | -                          |
| <b>Perceived Responsiveness</b>          |                        |                            |                            |                        |                            |                    |                            |
| Actor                                    | 4.74 (.03)             | 4.18 (.06)                 | 3.80 (.19)                 | 4.71 (.06)             | 4.19 (.06)                 | 3.44 (.20)         | 1 > 2***, 3***<br>2 > 3*** |
| Partner                                  | 4.60 (.04)             | 4.31 (.09)                 | 3.97 (.20)                 | 4.76 (.03)             | 4.27 (.06)                 | 3.71 (.26)         | 1 > 2***, 3***<br>2 > 3*   |
| <b>Accommodation</b>                     |                        |                            |                            |                        |                            |                    |                            |
| Actor                                    | 3.66 (.04)             | 3.25 (.08)                 | 3.43 (.12)                 | 3.88 (.05)             | 3.47 (.07)                 | 3.28 (.18)         | 1 > 2***, 3**              |
| Partner                                  | 3.80 (.05)             | 3.52 (.09)                 | 3.65 (.15)                 | 3.65 (.04)             | 3.38 (.07)                 | 3.32 (.20)         | 1 > 2**                    |

Note. <sup>a</sup>  $p < .10$ . <sup>\*</sup>  $p < .05$ . <sup>\*\*</sup>  $p < .01$ . <sup>\*\*\*</sup>  $p < .001$

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### *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 to 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 to 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 to 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 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 also 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, who 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).

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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 to other samples (i.e., parents in this study scored on the 91<sup>st</sup> percentile prenatally, compared to the 72 - 86<sup>th</sup> 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. As 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 to 50.8% of women and 43.3% men between the ages of 30-35 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

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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. 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, both in 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, since 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.





## **Chapter 5**

# **Psychological and Demographic Predictors of Relationship Satisfaction Trajectories Across the Transition to Parenthood**

Author contributions: Author ter Kuile designed the study, collected the data, conducted the statistical analyses, interpreted the results, and wrote the first draft of the manuscript. Author Kluwer aided in designing the study, provided conceptualization and theory used to integrate findings, interpreted results, and edited the manuscript. Author van der Lippe provided conceptualization and theory used to integrate findings, interpreted results, and edited the manuscript.

### Abstract

**Objective:** To predict changes in relationship satisfaction across the transition to parenthood from pre-natal demographic and psychological factors.

**Background:** Parents form a very diverse group of individuals whose personal characteristics and situation during the transition to parenthood vary. These individual differences can be expected to influence how couples adapt to parenthood. Parents with more positive and less negative demographic and psychological factors prior to childbirth are therefore hypothesized to fare better across the transition to parenthood in terms of relationship satisfaction.

**Method:** Latent Class Growth Analysis (LCGA) was conducted in a previous study (Ter Kuile et al., in press) on four waves of data from a Dutch sample of 440 first-time parents. In the current research prenatal psychological and demographic factors were used to predict subgroup membership.

**Results:** Higher negative psychological factors (depressive symptoms and daily stress) and lower positive psychological factor (self-control) predicted membership to subgroups who experienced a decrease in relationship satisfaction after childbirth. Of the demographic factors, only a lower income and lower marital status predicted a decrease in relationship satisfaction.

**Conclusion:** The results demonstrate the heterogeneity of new parents, and how prenatal differences between parents can predict relationship wellbeing across the transition to parenthood.

**Implications:** The identification of predictors of relationship quality decline across the transition to parenthood can help target interventions to those most at risk, thereby increasing the effectiveness.

## Introduction

The birth of a first child is something many couples eagerly look forward to. However, first child birth is accompanied by many changes in the lives of new parents, which also impacts their relationship. The literature on the transition to parenthood has painted a rather bleak picture of negative changes in the relationship after the birth of the first child, such as an increase in conflict (Kluwer & Johnson, 2007), a decrease in sexual satisfaction (Van Brummen et al., 2006) and intimacy (Belsky & Rovine, 1990), and most notably a decrease in relationship satisfaction (for a meta-analysis see Mitnick et al., 2009; Twenge et al., 2003; see for reviews Doss & Rhoades, 2017; Kluwer, 2010). As is increasingly being pointed out however, ‘parents’ form a very diverse group of individuals whose personal characteristics and situation during the transition to parenthood vary (Doss & Rhoades, 2017). These individual differences can be expected to influence how couples adapt to parenthood (Karney & Bradbury, 1995).

The growing awareness of differences in how parents experience the transition to parenthood has resulted in studies that have included moderators of average change. Many relevant moderators have been uncovered, such as poor conflict management and levels of prenatal anxiety (e.g. Doss et al., 2009; Trillingsgaard et al., 2014). These studies however assume that there is *one* general pattern of change for all parents, with individual variation around this average change. More recently, however, there has been emerging evidence for the existence of subgroups of parents, that show distinct patterns of change in relationship quality across the transition to parenthood (e.g. Don & Mickelson, 2014; Holmes et al., 2013; Ter Kuile et al., in press). These studies have shown that the majority of parents experience little to no change in their relationship satisfaction, while small subgroups of parents experiencing large declines. In addition, these initial studies found that subgroup membership could be predicted by prenatal factors.

Identifying parents at risk for declines in their relationship satisfaction is of great importance not only for the sake of the parents themselves, but also for their children. Numerous studies have shown that the quality of the parental relationship impacts early child development,

such as attachment (e.g., De Wolff & Van IJzendoorn, 1997), as well as later child development, such as psychological, social, and school functioning (Amato, 2001). Governments are increasingly recognizing the importance of preventative measures to decrease the divorce rate of parents and improve their relational health. This can be seen in the passing laws of policies providing support to (new) parents in for example the U.S.A. (Family First Prevention Services Act, 2018), the U.K. (Gov.uk, 2014) and the Netherlands (Dekker & De Jonge, 2018). Despite the finding that programs achieve better results when targeted at parents at risk (Petch & Halford, 2008), most programs seem to reach mostly low-risk well-educated parents (Pinquart & Teubert, 2010). The efficiency of such programs could be greatly increased with the identification and targeting of risk groups of new parents who are most in need of support. This study therefore aims to further the exploration of subgroups by examining predictors of membership to subgroups that experience more negative change in relationship satisfaction across the transition to parenthood.

The Vulnerability-Stress-Adaptation model (Karney & Bradbury, 1995) can be used to explain why parents vary in their relationship change across the transition to parenthood. According to the VSA model, the impact of stressors on the relationship depends on the partners' personal vulnerabilities and the couple's adaptive processes. Vulnerabilities, or a lack of resources, augment the impact of the stressor on relationship quality. On the other hand the effect of a stressor is diminished in couples with fewer vulnerabilities and/or greater resources. Based on the VSA model, we argue that parents with more less positive and more negative factors present before childbirth should be expected to experience greater negative changes in their relationship across the transition to parenthood than parents with more positive and less negative factors. The VSA model also assumes that a person's enduring vulnerabilities influence their partner's relationship satisfaction. It is therefore important to take both partners into account.

In the current study we use a Dutch sample of 440 first-time parents (of which 210 were couples) to study the effects of demographic factors (income, educational level, age, marital status, and relationship length) and psychological factors (depressive symptoms, stress, and self-control) on subgroup membership.

*Psychological predictors*

We explored depressive symptoms, daily stress, and dispositional self-control as potential predictors of in changes in relationship satisfaction after childbirth. Low mental well-being during pregnancy can be an important vulnerability across the transition to parenthood (Paulson et al., 2016). For example, studies have quite consistently found that in the general population, depression and depressive symptoms are associated with lower relationship satisfaction (e.g. Fincham et al., 1997; Whisman, 2001). Depressed individuals and their partners express greater hostility and negative affect in their interactions (e.g. Johnson & Jacob, 2000) and depressed individuals place greater emotional and practical burdens on their partner (Benazon & Coyne, 2000). The risk of overstraining the partner may be greater when the partner also has to deal with the demands of childcare, fatigue due to disturbed sleep, and time pressure (Saxbe et al., 2018). This is of additional importance across the transition to parenthood, because the incidence of depression increases after the transition to parenthood (Paulson et al., 2016; Whisman et al., 2011).

Many studies have examined predictors of depression across the transition to parenthood, but fewer have studied prenatal depressive symptoms as a predictor of changes in postnatal relationship satisfaction. The few studies to date found that depressive symptoms across the transition to parenthood are a risk factor for greater decreases in one's own relationship satisfaction (Cox et al., 1999; Feeney et al., 2003; Trillingsgaard et al., 2014; Whisman et al., 2011). However, two studies that included the partner found that neither one's own nor one's partner's depressive symptoms predicted greater decreases in relationship satisfaction (Don & Mickelson, 2014) or love (Holmes et al., 2013). Because of these inconsistent findings, we seek to study the impact of depressive symptoms on relationship satisfaction in a larger sample from a different country.

Daily stress has consistently been found to have a negative effect on mental well-being (Zautra, 2006), and has even been shown to have a stronger effect on relationship satisfaction than major stressors (see the review by Randall & Bodenmann, 2009). Stress is thought to decrease relationship quality when couples cope ineffectively, leading to increased

withdrawal, negative interaction, and greater risk of psychological and physical problems (Randall & Bodenmann, 2009). Stress also increases negative perceptions of the relationship and one's partner (Neff & Karney, 2004). Pregnancy itself can be a time of increased stress for soon-to-be parents, as they need to make important decisions about work-life balance and childcare, and begin adjusting their home and lifestyle to fit the baby (Saxbe et al., 2018). During pregnancy, daily stress can decrease parents' mental well-being, and thereby increase their difficulties in adjusting to their new role as a parent (Don & Mickelson, 2014). Subsequently, these effects can impact the postnatal relationship satisfaction of both partners. Don and Mickelson (2014) found an effect of maternal daily stress on fathers' relationship satisfaction, but not vice versa. As no other studies have investigated the role of daily (minor) stress on relationship change across the transition to parenthood, we study the potential impact of daily stress during pregnancy on subsequent changes in the parental relationship.

Dispositional self-control can be defined as the ability to regulate one's emotional feelings and inhibit undesirable behavior (Tangney et al., 2004). Studies on the associations between dispositional self-control and relationship quality have found that there are many benefits for the relationship when partners have high self-control, such as more forgiveness, secure attachment, more accommodation, smooth daily interactions, and less conflict (Vohs et al., 2011). Self-control has also been found to predict higher relationship satisfaction (Zuo et al., 2020). This effect seems to be partially mediated by commitment. Many of these benefits of self-control are especially critical across the transition to parenthood. For example, parents must be able to inhibit prior habits and routines, in order to adapt to the new routines related to childcare (Bleidorn et al., 2018). New parents often deal with an increase in conflict frequency (Kluwer & Johnson, 2007) and accommodation increases adaptation to parenthood (Ter Kuile et al., in press). Finally, emotion regulation is essential to parenting. Parents must regulate their emotions when taking care of their distressed child, in order to respond sensitively to their needs (Rutherford et al., 2015). New parents with higher self-control can therefore be expected to have an easier adjustment to parenthood, diminishing the impact of childbirth on relationship satisfaction. Self-control has been found to decrease postnatally

among mothers (Van Scheppingen et al., 2018), but to date we could find no studies on whether self-control during pregnancy can predict changes in relationship satisfaction after childbirth.

In the present study we hypothesized that parents with greater psychological vulnerabilities (depressive symptoms and daily stress) prior to childbirth, and lower psychological resources (self-control), and whose partners have greater psychological vulnerabilities and lower resources, will be more likely to belong to subgroups that experience a decline in relationship satisfaction across the transition to parenthood versus subgroups whose relationship satisfaction remains stable.

### *Demographic predictors*

Demographic predictors form the circumstances in which the transition to parenthood takes place, and can thereby have a strong impact on how stressful the event is (Trillingsgaard et al., 2014). In addition, demographic factors are easily identifiable in prospective parents (as opposed to for example insecure attachment), making them potentially useful for targeting programs to parents at risk of relationship satisfaction decline. Demographic factors are often given as examples of risk factors for new parents. Studies generally only include them as control variables however, and do not report their effect on changes in relationship satisfaction (e.g., Holmes et al., 2013). In the current study, we included demographic variables that are theoretically a potential predictor of changes in relationship satisfaction across the transition to parenthood: income, educational level, age, marital status, and relationship length.

A higher income is posited to buffer the relationship from the adverse effect of stressful events through the resources that it can provide (Doss et al., 2009). For example, the burden of childcare can be lightened for parents who are able to afford childcare or cleaning services. A higher income can also reduce financial stress, but previous research has found that financial stress is unrelated to changes in relationship quality across the transition to parenthood (Belsky & Rovine, 1990; Doss et al., 2009). The results of the few studies on the transition to parenthood that report the effects of income on relationship satisfaction provide ambiguous results.

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Two studies found that higher income predicted smaller declines in fathers' relationship satisfaction, but not mothers' (Don & Mickelson, 2014; Doss et al., 2009). Another study however found no association between income and postnatal relationship satisfaction (Trillingsgaard et al., 2014).

Similarly, the two studies to date that examined parents' level of education and parents' age found no effects on changes in relationship satisfaction across the transition to parenthood (Don & Mickelson, 2014; Trillingsgaard et al., 2014). A meta-analysis however found that a higher level of education was related to a greater decrease in relationship satisfaction for men but a lower decrease for women, while a higher average age of parents was related to a smaller decrease in postnatal relationship satisfaction (Mitnick et al., 2009).

Studies have found that married couples in general tend to report more satisfaction than cohabiting couples, even after controlling for selection effects (i.e. Waite, 1995; Williams, 2003). Marriage or a registered partnership may offer increased stability and security, thereby increasing the partners' satisfaction and well-being. Marriage is thought to increase commitment by placing legal constraints to dissolving the relationship (Nock, 1995). The legal constraints and higher commitment of legally formalized relationships may help couples to stay together and survive stressful transitions such as first-time parenthood. Cohabitation (versus marriage) may be a vulnerability across the transition to parenthood. The effect of marital status on changes in relationship satisfaction after childbirth are not consistent. Some studies found no effect of the marital status of new parents on relationship satisfaction after childbirth (Petch et al., 2012; Trillingsgaard et al., 2014). Other studies found that cohabiting before marriage was related to greater declines in relationship satisfaction after childbirth (Doss et al., 2009). A meta-analysis by Mitnick and colleagues (2009) found that studies with a higher percentage of married couples reported smaller decreases in relationship satisfaction.

Longer relationship length has been found to be related to smaller decreases in relationship satisfaction across the transition to parenthood in two studies (Doss et al., 2009; Trillingsgaard et al., 2014). A meta-analysis also found that a longer marriage duration was related to smaller decreases in relationship satisfaction after childbirth (Mitnick et al., 2009). Couples



with a shorter relationship duration prior to becoming parents have had less time to establish a solid relationship base, and may therefore be more vulnerable to the stressors that accompany the transition to parenthood.

Because prior research showed inconsistent findings on the impact of income, age, educational level, relationship length and relationship status, the current research will explore these demographic factors as potential predictors of changes in relationship satisfaction across the transition to parenthood.

### *The present research*

In line with the VSA model (Karney & Bradbury, 1995), numerous individual vulnerabilities and adaptive processes have been identified as predictors of changes in relationship satisfaction across the transition to parenthood (i.e. Doss et al., 2009; Holmes et al., 2013; Ter Kuile et al., 2017; Trillingsgaard et al., 2014). An important limitation of these studies, and indeed the majority of studies on the transition to parenthood, is that they studied predictors of individual variability around an average change trajectory. Examining average change trajectories may mask distinct patterns of increasing, stable, or decreasing relationship satisfaction. Holmes et al. (2013) for example found no average changes in love in their sample, but when they examined variability within the sample they found that 23% of mothers and 37% of fathers reporting equal or increased love across the transition to parenthood. These increases in were however “canceled out” by parents whose love decreased, leading to a net result of no average change. Other studies similarly found that groups of parents showed different trajectories of changes in relationship quality across the transition to parenthood (e.g. Belsky & Rovine, 1990; Doss et al., 2009). The average decline in satisfaction found in most research on the transition to parenthood may in fact be caused by a minority of parents that experiences a sharp decline in satisfaction that lowers the overall average. This has been proposed as the *subgroup hypothesis* (Don & Mickelson, 2014).

Latent class growth analysis (LCGA) has been used to identify subgroups of change in relationship satisfaction among new parents (Don & Mickelson, 2014; Ter Kuile et al., in press). Among a sample of low-risk

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parents, Don and Mickelson found that fathers' positive support and anxiety predicted maternal subgroup membership and fathers' positive support, mothers' self-esteem, and mothers' daily stress predicted fathers' subgroup membership. Ter Kuile et al. (in press) found that higher prenatal levels of adaptive processes, namely perceived responsiveness, trust, and gratitude, predicted membership to subgroups whose relationship satisfaction remained stable across the transition to parenthood, versus subgroups who had a declining trajectory of relationship satisfaction after childbirth. These results highlight the importance of examining heterogeneity in relationship change across the transition to parenthood, and show that it is possible to predict subgroup membership from variables already present during pregnancy.

In the present study we aim to further our understanding of predictors of groups of parents who show distinct patterns of change in relationship satisfaction across the transition to parenthood. It builds on our previous work using the same sample of 440 Dutch first-time parents (of which 210 are couples), followed from pregnancy to approximately one year post-partum (Ter Kuile et al., in press). The subgroups found in our previous work will be used here to explore prenatal demographic and psychological predictors of subgroup membership of change trajectories of relationship satisfaction across the transition to parenthood. Based on the VSA model we predict that new parents with higher demographic and psychological vulnerabilities and lower resources present during pregnancy will be more likely to belong to a subgroup that experiences a decrease in relationship satisfaction. In addition, due to the interdependence between partners, we predict that the partner's demographic and psychological factors will also predict subgroup membership. By including both partners and examining both maternal as well as paternal changes in relationship satisfaction, we hope to elucidate prenatal predictors of new parents across the transition to parenthood.

### **Method**

#### **Participants and Procedure**

We used data from the Dutch Relationship and Parenthood dataset (Ter Kuile et al., in press). The original sample consisted of 290 mothers and 234

fathers, followed from pregnancy until approximately a year after childbirth. Respondents were only included in the analyses if they, or their partner, completed more than one wave. The final sample therefore included 229 first-time mothers and 211 fathers, of which 210 were couples. In the 4 waves, 229, 219, 155, and 137 mothers participated, respectively. Of the fathers, 200, 183, 122, and 112 participated. One hundred and thirty two of mothers (57.6%) and 97 of fathers (46.4%) completed all 4 waves. There were no significant differences on any of the main variables or demographics between parents who did not complete all 4 waves and those who did, as shown by Little's missing completely at random (MCAR) test,  $\chi^2 = (624, N = 231) = 624.3, p = .49$ .

Participants were recruited through various channels, mainly online pregnancy forums, pregnancy fairs, and by referral from other participants (for more information on the recruitment process, see Ter Kuile et al., in press). A reward was given to couples of which at least one partner completed all 4 waves. Roughly a third (35.7%) of the couples received a reward of 20 euros. Due to a limited budget, more participants were recruited and offered lottery tickets for prizes (64.3% of the final sample). The main prize was 250 euro and there were 5 prizes of 50 euros. The prizes were awarded by producing a random number for each prize through Excel that corresponded with a participant's ID number.

Participants were on average 24.67 weeks pregnant at the first wave ( $SD = 8.76$ ). Subsequent waves were timed to take place approximately 4, 8, and 12 months after childbirth. At Wave 1, the average age was 28.98 years ( $SD = 4.07$ ) for mothers and 31.79 years ( $SD = 4.67$ ) for fathers and the average relationship length was 6.42 years ( $SD = 3.62$ ). Half of the participants was married (52.7%), 53 participants had a cohabitation agreement (18.2%) and 80 participants lived together with their partner without a cohabitation agreement (27.4%). The large majority of couples (90.4%) had planned the pregnancy.

## Measures

*Relationship satisfaction* was measured at every timepoint with the Satisfaction subscale of the Investment Model Scale (IMS; Rusbult et al.,

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1998), translated to Dutch for this study. The IMS has been found to have good reliability, to converge with other measures of relationship functioning, and to predict subsequent dyadic adjustment and relationship dissolution (Rodrigues & Lopes, 2013; Rusbult et al., 1998). Examples of items are “I’m generally very satisfied with my relationship” and “My relationship is close to the ideal relationship”. Items were rated on a 5-point scale (1 “*completely disagree*” to 5 “*completely agree*”). A higher score indicated more relationship satisfaction. Cronbach’s alpha ranged between .80 and .89 across the four time points for mothers and between .78 and .90 for fathers.

*Depressive symptoms* were assessed during pregnancy using 18 items from the Center for Epidemiologic Studies Depression (CESD) scale (Radloff, 1977). The questions assessed depressive symptoms over the past week. Examples of items are “How often in the past week did you feel that your life was a failure?” and “How often in the past week were you happy?” (reverse-scored). Items were rated on a 4-point scale (1 “*Rarely or never [less than 1 day]*” to 5 “*Mostly or always [5-7 days]*”). Cronbach’s alpha was .85 for both mother and fathers.

*Dispositional self-control* was measured with 11 items from the 13-items Brief Self Control Scale (BSCS; Tangney et al., 2004). The BSCS correlates highly (>.90) with the original scale of 36 items. Item examples are “I wish I had more self-discipline” and “I can work efficiently towards long-term goals” (reverse-scored). Items were rated on a 5-point scale (1 “*completely disagree*” to 5 “*completely agree*”). Cronbach’s alpha was .74 for mothers and .73 fathers.

*Daily stress* was assessed with seven items from the Perceived Stress Scale (PSS; Cohen et al., 1983). The PSS has been used extensively to measure the respondent’s general level of stress in the past month. The items assessed how unpredictable, uncontrollable, and overloaded respondents experienced their lives. Examples are “How often in the past month did you feel tense or nervous?” and “How often in the past month did you feel upset because something unexpected happened?” Items were rated on a 5-point scale (1 “*never*” to 5 “*very often*”). Cronbach’s alpha was .80 for mothers and .75 fathers.

*Demographic variables.* Participants were asked about their age, relationship length (in years), personal monthly income, education level, and marital status (see Table 1 and 2). Income was measured on a 7-point scale; no income, <1000, 1000-2000, 2000-3000, 3000-4000, 4000-5000, and > 5000 euro after taxes a month. Highest completed level of education was measured on a 4-point scale; High school or less, Community college (technical or vocational education), College (bachelor's degree), and University (master's degree).

Marital status was measured in three categories: living together, cohabitation contract, married. Differences due to marital status are perhaps attributable to differences in legal constraints, increasing constraint commitment (Nock, 1995). We thought it therefore important to include cohabitation contract as a category, instead of only comparing married versus cohabiting. Mothers' report on marital status and relationship length was used, since no meaningful differences should be expected between partners.

## **Analyses**

In the current research, we used the same subgroups as in our previous study to test whether psychological and demographic factors measured during pregnancy predicted group membership. Because there is currently no accepted way of performing an Actor-Partner Interdependence Model (APIM: Kashy & Kenny, 2000) using LCGA, mothers and fathers were tested in separate models using Mplus (Muthén & Muthén, 2018). Interdependence was partially accounted for by including the partner's variables as predictors of class membership. Mothers' report of relationship length and marital status was used, as these variables should not differ from partner reports (and indeed rarely differed). All predictors were included in the same model, but the model analyzed their effect separately. The predictors therefore did not influence each other, comparable to a series of ANOVA's. For a further explanation of how the subgroups were analyzed see Ter Kuile et al. (in press).

### Results

Table 1 presents the means, standard deviations, and frequencies of the main variables at Wave 1 (during pregnancy). Table 2 presents the correlations of the main variables at Wave 1. Partners had very similar mean levels of relationship satisfaction. Women reported higher mean levels of depressive symptoms and stress, similar to what is found in the general population (Nolen-Hoeksema, 2001). There were larger differences in the demographic predictors. More mothers than fathers had a lower income, while more fathers than mothers had a lower education level. Just over half (55%) of the couples was married, the rest was roughly evenly divided between cohabiting with a contract (21.2%) and cohabiting without a contract (23.8%). The large number of unmarried parents is representative of the current generation of parents in The Netherlands (Statistics Netherlands, 2016). The average relationship length was 6.5 years. Relationship satisfaction showed a medium strength correlation between partners ( $r = .44$ ). The psychological predictors were uncorrelated between partners, contrary to what one would expect. Educational level ( $r = .54$ ) and age ( $r = .63$ ) were correlated between partners. Mother's report on relationship length and status was used.

Table 1.  
*Means and Frequencies of the Predictors, and Statistical Tests for Gender Differences.*

|   | <u>Mothers</u>       | <u>Fathers</u>  | <u>Gender difference</u>                                     |
|---|----------------------|-----------------|--|
|   | <b>M (SD)</b>        |                 | <b>t-test</b>  |
| Relationship satisfaction                                   | 4.53 (.49)           | 4.50 (.47)      | $t(425) = -.64, p = .52$                                     |
| Depressive symptoms   | 1.72 (.35)           | 1.55 (.31)      | <b><math>t(429) = -5.23, p &lt; .001</math></b>              |
| Daily stress  | 2.29 (.52)           | 2.16 (.50)      | <b><math>t(430) = -2.64, p = .009</math></b>                 |
| Self-control  | 3.19 (.51)           | 3.22 (.53)      | $t(424) = .56, p = .55$                                      |
| Age   | 29.42<br>(3.91)      | 31.98<br>(4.80) |  |
| Relationship length   | 6.48 (3.56)          |                 |  |
|   | <b>Frequency (%)</b> |                 | <b>Chi-Square test</b>                                       |
| <i>Income</i>   |                      |                 | <b><math>\chi^2(24, N = 200) = 54.94, p &lt; .001</math></b> |
| No income   | 27 (11.7%)           | 9 (3.9%)        |  |
| < 1000  | 10 (4.3%)            | 3 (1.3%)        |  |
| 1000-2000   | 126<br>(54.5%)       | 87 (37.7%)      |  |
| 2000-3000   | 58 (25.1%)           | 86 (37.2%)      |  |
| 3000-4000   | 5 (2.2%)             | 14 (6.1%)       |  |
| 4000-5000   | 0 (0.0%)             | 3 (1.3%)        |  |
| > 5000  | 0 (0.0%)             | 2 (0.9%)        |  |
| <i>Educational level</i>                                    |                      |                 | <b><math>\chi^2(12, N = 203) = 85.79, p &lt; .001</math></b> |
| High school or less   | 2 (0.9%)             | 13 (5.6%)       |  |
| Community college<br>(technical or<br>vocational education) | 70 (30.3%)           | 68 (29.4%)      |  |
| College (bachelor's<br>degree)                              | 83 (35.9%)           | 67 (29.0%)      |  |
| University (master's<br>degree)                             | 73 (31.6%)           | 58 (25.1%)      |  |
| <i>Marital status</i>                                       |                      |                 |  |
| Cohabiting  | 55 (23.8%)           |                 |  |
| Cohabitation contract                                       | 49 (21.2%)           |                 |  |
| Married   | 127 (55%)            |                 |  |

Table 2.  
*Intercorrelations Between All Assessed Variables at Wave 1*

|                                 | 1             | 2              | 3              | 4           | 5             | 6              | 7             | 8             | 9             |
|---------------------------------|---------------|----------------|----------------|-------------|---------------|----------------|---------------|---------------|---------------|
| 1. Relationship satisfaction    | <b>.44***</b> | <b>-.41***</b> | <b>-.32***</b> | <b>.04</b>  | <b>.16*</b>   | <b>.05</b>     | <b>-.03</b>   | <b>.13*</b>   | <b>.00</b>    |
| <b>Psychological Predictors</b> |               |                |                |             |               |                |               |               |               |
| 2. Depressive symptoms          | <b>.38***</b> | <b>.08</b>     | <b>.68***</b>  | <b>-.05</b> | -             | <b>-.15*</b>   | <b>-.08</b>   | <b>-.02</b>   | <b>-.11</b>   |
| 3. Daily stress                 | <b>-.18*</b>  | <b>.61***</b>  | <b>.04</b>     | <b>-.06</b> | <b>.24***</b> | <b>-.25***</b> | <b>-.13</b>   | <b>-.08</b>   | <b>-.14*</b>  |
| 4. Self-control                 | <b>.02</b>    | <b>.01</b>     | <b>.05</b>     | <b>.12</b>  | <b>.00</b>    | <b>-.06</b>    | <b>-.10</b>   | <b>-.09</b>   | <b>.09</b>    |
| <b>Demographic Predictors</b>   |               |                |                |             |               |                |               |               |               |
| 5. Income                       | <b>.08</b>    | <b>-.07</b>    | <b>-.02</b>    | <b>-.10</b> | <b>.12</b>    | <b>.34***</b>  | <b>.23**</b>  | <b>.10</b>    | <b>.21**</b>  |
| 6. Educational level            | <b>.07</b>    | <b>.01</b>     | <b>-.02</b>    | <b>-.12</b> | <b>.21**</b>  | <b>.54***</b>  | <b>.23***</b> | <b>.13</b>    | <b>.07</b>    |
| 7. Age                          | <b>-.14</b>   | <b>-.01</b>    | <b>.03</b>     | <b>.00</b>  | <b>.32**</b>  | <b>.03</b>     | <b>.00</b>    | <b>.00</b>    | <b>.14*</b>   |
| 8. Marital status               | <b>.29***</b> | <b>-.06</b>    | <b>.11</b>     | <b>.12</b>  | <b>.00</b>    | <b>.03</b>     | <b>.63***</b> | -             | <b>.30***</b> |
| 9. Relationship length          | <b>.11</b>    | <b>-.04</b>    | <b>.03</b>     | <b>-.02</b> | <b>.20**</b>  | <b>-.01</b>    | <b>.17*</b>   | <b>.30***</b> | -             |

*Note.* \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ . Values for women are above the diagonal, values for men are below. Correlations between husbands and wives are presented in bold on the diagonal.



*Distinguishing between mothers' trajectory classes*

We briefly summarize the results on the average change trajectory and the classification into subgroups (see ter Kuile et al., in press for a full description of the analysis of the average change trajectory and the estimation of the subgroups). On average new mothers reported high levels of relationship satisfaction during pregnancy (intercept = 4.54) which remained stable after childbirth (slope =  $-.03$ ,  $p = .05$ ; quadratic =  $.00$ ,  $p = .86$ ). The majority (69.9%) of new mothers were highly satisfied with their relationship prior to childbirth, and their relationship satisfaction remained stable across the transition to parenthood (the High–Stable group). Nearly a quarter (23.1%) of the mothers reported moderate relationship satisfaction during pregnancy and also remained stable across the transition to parenthood (the Moderate–Stable group). A small number (7.0%) of mothers also reported moderate relationship satisfaction during pregnancy but experienced an initial postnatal decline in relationship satisfaction which stabilized and slowly increased again, nearing pre-birth levels a year after childbirth (the Moderate–Decline group).

To examine whether parents in the change trajectories of relationship satisfaction differed from each other on prenatal predictors, Chi-square was used to test the equality of means. Group means on each of the variables and all significant contrasts between groups are shown in Table 3. The method applied (DU3STEP, Muthén & Muthén, 2018) can be compared to a series of ANOVA's. The effects of the predictors are therefore not allowed to overlap.

*Psychological predictors.* The results showed significant effects for mothers' psychological predictors (see Table 3). Mothers in the High–Stable group reported significantly lower levels of depressive symptoms and daily stress, and higher levels of self-control, during pregnancy compared to mothers in the Moderate–Stable and the Moderate–Decline groups. We also found significant partner effects, i.e. effects of fathers' predictors on mothers' subgroup membership. Mothers in the High–Stable and the Moderate–Stable groups had partners who reported fewer depressive symptoms and less daily stress compared to partners of mothers in the Moderate–Decline group. Mothers in the High–Stable group also

Table 3  
Group Means on Each of the Variables and the Significant Contrasts Between Groups

|                            | Mothers                    |                                |                                 | Fathers                    |  |                        | Significant contrasts |
|----------------------------|----------------------------|--------------------------------|---------------------------------|----------------------------|--|------------------------|-----------------------|
|                            | 1. High - Stable<br>M (SE) | 2. Moderate - Stable<br>M (SE) | 3. Moderate - Decline<br>M (SE) | 1. High - Stable<br>M (SE) | 2. Moderate - Slight Decline<br>M (SE) | 3. Low - Dip<br>M (SE) |                       |
| <b>Depressive symptoms</b> |                            |                                |                                 |                            |  |                        |                       |
| Actor                      | 1.59 (.02)                 | 1.98 (.06)                     | 1.95 (.11)                      | 1.45 (.02)                 | 1.71 (.05)                             | 1.99 (.26)             | 1 < 2***, 3*          |
| Partner                    | 1.50 (.04)                 | 1.52 (.03)                     | 2.00 (.15)                      | 1.59 (.03)                 | 1.93 (.05)                             | 1.88 (.10)             | 3 > 1**, 2**          |
| <b>Stress</b>              |                            |                                |                                 |                            |  |                        |                       |
| Actor                      | 2.15 (.04)                 | 2.57 (.08)                     | 2.68 (.14)                      | 2.06 (.05)                 | 2.32 (.08)                             | 2.49 (.32)             | 1 < 2***, 3***        |
| Partner                    | 2.14 (.04)                 | 2.09 (.08)                     | 2.50 (.17)                      | 2.19 (.05)                 | 2.43 (.08)                             | 2.60 (.15)             | 3 > 1*, 2*            |
| <b>Self-control</b>        |                            |                                |                                 |                            |  |                        |                       |
| Actor                      | 3.32 (.04)                 | 2.93 (.06)                     | 2.98 (.12)                      | 3.30 (.05)                 | 3.15 (.07)                             | 2.69 (.22)             | 1 > 2***, 3**         |
| Partner                    | 3.28 (.05)                 | 3.19 (.08)                     | 2.90 (.15)                      | 3.27 (.05)                 | 3.01 (.07)                             | 3.02 (.18)             | 1 > 3*                |
| <b>Income</b>              |                            |                                |                                 |                            |  |                        |                       |
| Actor                      | 3.09 (.08)                 | 3.20 (.09)                     | 1.97 (.27)                      | 3.65 (.09)                 | 3.39 (.12)                             | 3.11 (.45)             | 1***, 2*** > 3        |
| Partner                    | 3.60 (.09)                 | 3.59 (.10)                     | 2.82 (.31)                      | 3.32 (.05)                 | 2.70 (.14)                             | 2.26 (.36)             | 1*, 2* > 3            |
| <b>Education level</b>     |                            |                                |                                 |                            |  |                        |                       |
| Actor                      | 4.08 (.07)                 | 3.81 (.12)                     | 3.87 (.19)                      | 3.80 (.09)                 | 3.88 (.13)                             | 3.71 (.28)             |                       |
| Partner                    | 3.93 (.08)                 | 3.59 (.16)                     | 3.49 (.21)                      | 4.04 (.08)                 | 3.91 (.11)                             | 4.27 (.25)             |                       |
| <b>Age</b>                 |                            |                                |                                 |                            |  |                        |                       |
| Actor                      | 29.66 (.33)                | 28.64 (.64)                    | 29.85 (1.35)                    | 31.51 (1.91)               | 33.03 (.73)                            | 30.08 (1.91)           |                       |
| Partner                    | 32.22 (.46)                | 31.35 (1.72)                   | 31.66 (3.54)                    | 29.07 (.40)                | 30.09 (.56)                            | 29.91 (2.00)           |                       |
| <b>Marital status</b>      |                            |                                |                                 |                            |  |                        |                       |
|                            | 2.38 (.07)                 | 2.34 (.14)                     | 1.65 (.25)                      | 2.46 (.09)                 | 2.25 (.12)                             | 1.59 (.28)             | 1**, 2* > 3           |
| <b>Relationship length</b> |                            |                                |                                 |                            |  |                        |                       |
|                            | 6.41 (.31)                 | 6.98 (.53)                     | 5.38 (.81)                      | 6.39 (.35)                 | 7.15 (.49)                             | 3.81 (1.33)            | 2 > 3*                |

Note. p < .05. \*\*p < .01. \*\*\*p < .001

had partners who reported more prenatal self-control than the partners of mothers in Moderate–Decline group. In sum, higher levels of own and partner’s depressive symptoms and daily stress during pregnancy and lower levels of own and partner’s self-control predicted membership of mothers to a subgroup whose relationship satisfaction declined after childbirth.

*Demographic predictors.* The results showed significant effects for mothers’ own income and their marital status. Mothers in the Moderate–Decline group had a lower personal income than the mothers in the High–Stable and Moderate–Stable groups. Mothers in the Moderate–Decline group scored lower on marital status, indicating that they were more likely to be cohabiting and less likely to be married or have a cohabitation contract than mothers in the High–Stable and the Moderate–Stable groups. The only significant effect of the partner’s demographic predictors on mothers’ subgroup membership was for income. Mothers in the Moderate–Decline group had a partner with a lower personal income than the mothers in the High–Stable and Moderate–Stable groups. There were no differences between the groups in level of education, age or relationship length. Neither did the partner’s level of education or income differ significantly between the groups. In sum, only a few prenatal demographic predictors distinguished between the group of mothers whose relationship satisfaction remained stable and the groups of mothers whose relationship satisfaction declined after childbirth. A less contractually formalized relationship status and a lower personal income were predictive of membership to a subgroup with greater decreases in relationship satisfaction across the transition to parenthood.

#### *Distinguishing between fathers’ trajectory classes*

The following results on fathers’ average change trajectory and the classification of fathers into subgroups is a short version of the results as reported in Ter Kuile et al. (in press). On average new fathers reported high levels of relationship satisfaction during pregnancy (intercept = 4.53) but experienced a significant decline across the transition to parenthood (slope =  $-.11$ ,  $p = .009$ ). The majority (62.2%) of new fathers reported a high and stable relationship satisfaction across the transition to parenthood (the High–

## Predictors of Relationship Satisfaction Trajectories

Stable group). One-third (34.0%) experienced a small but significant decrease in relationship satisfaction across the transition to parenthood (the Moderate–Slight Decline group). A small (3.8%) group of fathers reported lower relationship satisfaction already during pregnancy, and experienced a stronger decrease directly after childbirth, afterwards which relationship satisfaction increased again (the Low–Dip group). A year after childbirth however their level of relationship satisfaction was still lower than prenatal levels.

*Psychological predictors.* Fathers in the High–Stable group experienced less depressive symptoms during pregnancy than fathers in the Low–Dip and the Moderate–Slight Decline groups, less daily stress than fathers in the Moderate–Slight Decline group, and more self-control than fathers in the Low–Dip group (see Table 3). In addition, fathers whose partner reported more prenatal depressive symptoms, daily stress, and lower levels of self-control were also more likely to belong to a subgroup which experienced a decrease in relationship satisfaction after childbirth.

*Demographic predictors.* Marital status differed between fathers in the Low–Dip group compared to fathers in the Moderate–Slight Decline and High–Stable groups. Fathers in the Low–Dip group scored lower on marital status, indicating that they were more likely to be cohabiting and less likely to have a cohabitation contract or be married than fathers in the other two groups. Fathers in the Low–Dip group also had a shorter relationship length than fathers in the Moderate–Slight Decline group. The personal income of fathers during pregnancy did not predict group membership, and neither did level of education or age. Fathers in the Moderate–Slight Decline and the Low–Dip groups did however have partners with a lower personal income than the partners of fathers in the High–Stable group. Overall, only relationship length, marital status, and the partner’s income predicted membership to subgroups whose relationship satisfaction fared better across the transition to parenthood.

## Discussion

This research sought to identify prenatal psychological and demographic predictors of changes in relationship satisfaction across the transition to

parenthood, in a sample of 440 Dutch parents. Parents with higher levels of depressive symptoms and daily stress, and lower levels of self-control and income, and who were in a less contractually formalized relationship, were more likely to belong to subgroups that experienced postnatal decreases in relationship satisfaction. The prenatal demographic predictors were overall less predictive of subgroup membership than the psychological predictors, with the exception of personal income and marital status. The results support the VSA model (Karney & Bradbury, 1995), showing that the relationship satisfaction of new parents who had more vulnerabilities and lower resources during pregnancy suffered more from the transition to parenthood. Parents' changes in relationship satisfaction were also related to their partner's prenatal predictors, underscoring the importance of including both partners in research.

### *Psychological predictors*

Higher levels of depressive symptoms, daily stress, and lower levels of self-control consistently differentiated between the subgroup of mothers whose relationship satisfaction was high during pregnancy and remained stable after childbirth, versus the subgroups of mothers whose prenatal relationship satisfaction was moderate and remained stable, and subgroups of mothers whose prenatal relationship satisfaction was moderate but declined across the transition to parenthood. In addition, mothers whose partners reported more depressive symptoms, daily stress, and less self-control were also more likely to belong to the subgroup characterized by a decline in relationship satisfaction.

Less depressive symptoms also predicted fathers' membership to the subgroup whose relationship satisfaction was high during pregnancy and remained stable across the transition to parenthood, as opposed to the subgroups whose prenatal satisfaction was moderate and declined slightly, or was low and dipped after childbirth. Less daily stress differentiated between the High–Stable subgroup of fathers and the Moderate–Slight Decline group, while higher self-control differentiated between the High–Stable group of fathers and the Low–Dip group. Fathers in the High–Stable group had partners who had less depressive symptoms and daily stress than

the partners of fathers in the Moderate–Slight Decline and the Low–Dip groups. They also had more self-control than the partners of fathers in the Moderate–Slight Decline group.

The finding that depressive symptoms differentiated between subgroups who fared well across the transition to parenthood in terms of relationship satisfaction and those whose relationship satisfaction was lower and declined after childbirth are in line with studies that found that depressive symptoms across the transition to parenthood are a risk factor for greater decreases in one's own relationship satisfaction (Cox et al., 1999; Feeney et al., 2003; Trillingsgaard et al., 2014; Whisman et al., 2011), but in contrast to studies that did not find that depressive symptoms predicted changes in relationship satisfaction across the transition to parenthood (Don & Mickelson, 2014; Holmes et al., 2013). This discrepancy in findings may be due to the larger power of the current study; we included roughly twice as many couples compared to the previous studies. The effect of prenatal depressive symptoms on subsequent relationship satisfaction is important as depression tends to increase during pregnancy and shortly after childbirth (Whisman et al., 2011).

Similarly, both mothers' and fathers' own and their partner's daily stress during pregnancy predicted subgroup membership, in contrast to the only previous study on daily stress that only found an effect of maternal daily stress on fathers' subgroup membership (Don & Mickelson, 2014). This is in line with theories that argue that minor external stress are especially harmful, because of the constant but often unnoticed negative impact on the relationship (Randall & Bodenmann, 2009). Daily stress can for example decrease the time couples spend together, their quality of communication, and their positive interaction (Bodenmann et al., 2007), while increasing their negative perceptions of their partner and the relationship (Neff & Karney, 2004).

The predictive effect of self-control on satisfaction supports the idea that childcare requires parents to learn new behavior and inhibit their old habits and routines across the transition to parenthood (Bleidorn et al., 2018), and are thus in need of high self-control. It is interesting that self-control was predictive of changes in relationship satisfaction after childbirth, despite being uncorrelated to any of the other predictors during pregnancy, and

being uncorrelated between partners. The effect of self-control therefore seems to independent of the association between self-control and psychopathology (such as depression) found in previous research (Tangney et al., 2004). Self-control was also uncorrelated to relationship satisfaction during pregnancy. It is possible that self-control is a resource which only plays a role in times of stress and adaptation. Similarly, happiness predicted changes in commitment for new parents, but not for childless couples (Ter Kuile et al., 2021) and the expression of fondness and awareness of the relationship buffered parents against a decline in satisfaction, but was unrelated to changes in satisfaction in a non-parents control group (Shapiro et al., 2000).

### *Demographic predictors*

Higher personal income was a predictor for membership to subgroups whose relationship satisfaction remained stable after childbirth. Mothers with a lower income were more likely to experience a decrease in satisfaction after childbirth. Although fathers' income predicted maternal subgroup membership, it did not predict fathers' own subgroup membership. Fathers' income did show the expected trend, with the Low-Dip group reporting the lowest income. These results are in contrast to previous research, where fathers' income predicted relationship satisfaction, but mothers' income did not (Doss et al., 2009), and a study in Denmark where household income did not predict relationship satisfaction across the transition to parenthood (Trillingsgaard et al., 2014). Although not statistically significant, additional analyses showed a trend of mothers with a lower prenatal income being more likely to decrease their working hours after childbirth. Previous research has found that stay-at-home mothers were less happy (Berger, 2013) and have lower mental health (e.g. Des Rivieres-Pigeon et al., 2001). Also in this study, lower income was correlated with less working hours and more depressive symptoms and daily stress. Mothers in this study who had a lower income may therefore have lower mental health due to stopping work or limiting their working hours, impacting their relationship satisfaction. These mixed findings show that income is a more complex construct than it may seem. Income can be an indicator of financial

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resources and stressors, and employment stressors, among others (Doss et al., 2009). Also, we used personal income and did not include household income. A lower personal income does therefore not necessarily indicate financial stress in this study. Future studies should include several aspects of income and finances, in order to delineate the effects.

Educational level and age were unrelated to trajectories of change in relationship satisfaction, in line with previous studies (Don & Mickelson, 2014; Trillingsgaard et al., 2014). Neither was relationship length, in contrast to previous research that found that a longer relationship length protected against negative changes in satisfaction (Doss et al., 2009; Trillingsgaard et al., 2014). This may be because the range of relationship duration was larger than in the previous studies. Doss et al. (2009) measured marriage duration and because all participants married in the beginning of the study, which spanned 8 years, the maximum duration was 8 years. In Trillingsgaard et al. (2014) the average relationship duration was 4.82 and the SD was 2.91, which is lower than in the current study ( $M = 6.48$ ,  $SD = 3.56$ ).

Cohabitation predicted membership for both mothers and fathers to subgroups that fared worse across the transition to parenthood in terms of relationship satisfaction. This is surprising, since it is very common in the Netherlands for parents to be unmarried (52% in 2016, Statistics Netherlands). This is also in contrast to previous studies that found no effect of marital status (Petch et al., 2012; Trillingsgaard et al., 2014). The pathway through which marital status affects relationship satisfaction is not clear, but may be related to increased stability and security (Nock, 1995). A large portion of Dutch parents may therefore be at higher risk to negative changes in their relationship satisfaction across the transition to parenthood.

Interestingly, the demographic predictors were not strongly correlated to one another (see Table 2). An explanation given for earlier inconsistent findings of the effect of demographic variables was that there may be a large amount of overlap between them (Trillingsgaard et al., 2014). Some effects may therefore be overshadowed if analyzed in the same model. We did not find support for this idea in our results due to the low correlations.



*Strengths, limitations, and implications*

Strengths of the current research are that we examined subgroups of parents, instead of treating parents as one homogenous group. The subgroups were formed using a semi-parametric group-based modeling technique, as opposed to more arbitrary and subjective forms of classification. By including both partners it was also possible to explore the effect of the partner's predictors on changes in relationship satisfaction. In addition, the use of a Dutch sample allowed for cross-cultural comparisons with samples from other countries. Such comparisons can demonstrate the level of generalizability of findings on subgroups and predictors across the transition to parenthood.

The current research should also be considered in light of its limitations. The number of latent classes was not clear-cut, and some of the classes were quite small. This needs to be taken into account when considering the results of the differences found between subgroups. Analysis of outliers did show these to be distributed between subgroups, indicating that the smallest subgroups were not simply groups of outliers. Despite this limitation, we believe that exploring subgroups within new parents is more suitable than treating new parents as one homogenous group. The average mean can be misleading, as was the case in the current study where fathers' declining average relationship satisfaction actually masked a large stable subgroup and only smaller declining subgroups.

Another limitation is that higher-educated participants were overrepresented in the sample compared to the general Dutch population (Maslowski, 2018). This may account for the lack of significant findings of education on changes in relationship satisfaction after childbirth. Most of the parents in this study also reported high levels of prenatal satisfaction, and their satisfaction remained stable across the transition to parenthood. Previous research reported larger average decreases in relationship satisfaction after childbirth (e.g. Twenge et al., 2003). The high average relationship satisfaction in this study may be due selection bias of intrinsically motivated participants due to the limited reward offered to participants. It is therefore likely that the average relationship satisfaction of the participants is higher than in the general population.

## Predictors of Relationship Satisfaction Trajectories

The findings in this study regarding subgroups, together with those of previous studies who examined subgroups, show that it is likely that the relationship satisfaction of the majority of parents is not strongly affected by becoming parents, whereas there are subgroups of parents whose relationship does deteriorate sharply after childbirth. Interventions geared at these subgroups could be more effective than the universal programs generally offered (Pinquart & Teubert, 2010). This study also showed that psychological predictors seem to have a stronger impact on relationship satisfaction than demographic predictors. Future research could apply these results to practice in two ways. First, by examining whether interventions given to parents selected on the basis of these predictors are more effective than interventions offered to all parents. In particular, parents should be targeted who score high on the psychological predictors depressive symptoms, daily stress, and low self-control. For example, questionnaires could be used to screen parents-to-be. Second, by studying whether interventions for parents (to-be) that focus on diminishing individual psychological risk factors, are effective at increasing relationship stability across the transition to parenthood. For instance, couple's therapy was found to be as effective as individual therapy for treating depression, while also improving relationship distress (Barbato & D'Avanzo, 2008). Couple's therapy focused on depression, coping with daily stressors, and/or strengthening self-control across the transition to parenthood could potentially decrease individual psychopathology as well as improve couple outcomes after childbirth.

## Conclusion

The results of this study showed that parents who report more prenatal psychological vulnerabilities in the form of depressive symptoms and daily stress, and lower psychological resources in the form of self-control, and whose partners report more psychological vulnerabilities and lower resources, are more likely to experience decreases in relationship satisfaction after childbirth. These results are in line with the VSA model (Karney & Bradbury, 1995). Overall, trajectories of changes in relationship satisfaction were more consistently predicted by psychological compared to demographic predictors, with the exception of income and marital status. A

new parent's own predictors and their partner's predictors were generally equally consistent in distinguishing between trajectories of changes in relationship satisfaction. The results demonstrate the heterogeneity of new parents, and how prenatal differences between parents can predict relationship wellbeing across the transition to parenthood. Future research should further the studies on subgroups within parents as opposed to treating parents as a homogenous group (Don & Mickelson, 2014; Doss & Rhoades, 2017). More knowledge about subgroups of parents can provide a clearer picture on how many parents are at the most risk to experience negative changes across the transition to parenthood. Gaining insight into risk factors for negative relationship change can help to target intervention programs geared towards the subgroups most at risk.



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# Nederlandse samenvatting

## Introductie

Vanaf het moment dat ik mijn pasgeboren zoon in mijn armen hield veranderde mijn leven voorgoed. De veranderingen waren diepgaand, abrupt, en raakten elk aspect van mijn leven. Verandering is waarschijnlijk de meest gemeenschappelijke noemer in de ervaringen van kersverse ouders over de hele wereld. De meeste ouders zullen beamen dat ongeacht hoeveel vreugde en blijdschap de geboorte van een eerste kind met zich meebrengt, het altijd een grote mate van aanpassing vereist van de ouders. De komst van een baby beïnvloedt bijna elk aspect van het leven van nieuwe ouders, van hun basisfunctioneren, zoals slaap en seks, tot hun sociale leven, vrije tijd, werk en financiën (e.g. Claxton & Perry-Jenkins, 2008; Grote & Clark, 2001; McQueen & Mander, 2003).

De transitie naar ouderschap is een veel bestudeerde fase in romantische relaties, waarbij de meeste onderzoeken aantonen dat de kwaliteit van de relatie afneemt na de transitie naar ouderschap (voor reviews, zie Doss & Rhoades, 2017; Kluwer, 2010). Dit lijkt in directe tegenspraak met de populaire opvatting dat de komst van je eerste kind een van de meest gelukkige gebeurtenissen van je leven is. Een toenemend aantal onderzoeken heeft echter een significante variabiliteit aangetoond in de veranderingen in de relatie die nieuwe ouders ervaren. Terwijl sommige ouders een sterke afname van de kwaliteit van hun relatie ervoeren, rapporteerden anderen weinig verandering of zelfs een toename (bijv. Belsky & Rovine, 1983; Doss et al., 2009). Er wordt steeds meer erkend dat het belangrijk is om verschillen tussen ouders te onderzoeken in plaats van te focussen op gemiddelden (Doss & Rhoades, 2017). Hieruit volgend is de onderzoeksvraag van dit proefschrift: "Welke factoren voorspellen aanpassing in de relatie gedurende de transitie naar ouderschap?" Dit proefschrift beoogt pre-zwangerschap- en prenatale factoren - sterke punten en kwetsbaarheden - te identificeren die aanpassing aan en verandering van relatiekwaliteit gedurende de transitie naar ouderschap tot enkele jaren postpartum voorspellen.

## **Maatschappelijke en wetenschappelijke relevantie**

De kwaliteit van de partnerrelatie heeft grote gevolgen voor het fysieke en emotionele welzijn van partners (zie voor een meta-analyse Proulx et al., 2007). Ontevreden partners hebben vaker last van lichamelijke ziekten, en zelfmoord, geweld en sterfte door ziekten komt vaker voor (zie voor overzichten Robles, 2014; Whisman, 2013). De impact van relatieontevredenheid op de gezondheid leidt tot directe en secundaire kosten, en heeft daardoor indirect een grote economische impact op de samenleving (Caldwell et al., 2007). Inzicht in de determinanten van de kwaliteit van partnerrelaties kan interventies effectiever maken, wat zowel individuen als de samenleving als geheel ten goede komt.

Het onderzoek dat in dit proefschrift wordt gerapporteerd is ook relevant voor het welzijn van kinderen. Onderzoek toont ondubbelzinnig aan dat conflicten tussen ouders verband houden met een reeks negatieve uitkomsten voor kinderen (van Eldik et al., 2020). Deze omvatten externaliserende problemen zoals agressie en asociaal gedrag, internaliserende problemen zoals depressie en angst, en lagere sociale en cognitieve vaardigheden (van Eldik et al., 2020). Erkenning van het belang van de kwaliteit van de ouderlijke relatie wordt aangetoond door het toenemende aantal beleidsmaatregelen van regeringen over de hele wereld om de gezondheid van het huwelijk te verbeteren (bijv. De Family First Act in de VS; het programma Kansrijke Start in Nederland; Troubled Families Program in het VK).

## **Theoretische achtergrond**

*Hoe verandert de kwaliteit van relaties gedurende de transitie naar ouderschap?*

Stellen ervaren gemiddeld een afname in relatietevredenheid in de loop van de tijd (bijv. Karney & Bradbury, 2020; Lavner, & Bradbury, 2010). De meeste onderzoeken vinden echter dat deze afname groter is bij nieuwe ouders dan bij niet-ouders (bijv. Crohan, 1996; Doss et al., 2009). Dit is hoogstwaarschijnlijk te wijten aan een combinatie van factoren. Ten



eerste hebben ouders minder tijd en energie voor elkaar (Claxton & Perry-Jenkins, 2008). De nieuwe opvoedingsrol moet worden gecombineerd met verantwoordelijkheden op andere gebieden, zoals werk. Dit leidt tot een groter risico op rolverbelasting voor ouders (Perry-Jenkins et al., 2007). Verminderde en verstoorde slaap kan het vermogen van nieuwe ouders om met stressfactoren om te gaan verder verminderen (McQueen & Mander, 2003).

De meeste onderzoeken naar de transitie naar ouderschap hebben relatietevredenheid als uitkomstmaat gebruikt. Relatietevredenheid is echter niet de enige factor die de kwaliteit van een relatie bepaalt. Relatietoe wijding (*commitment*) is bijvoorbeeld een belangrijke indicator voor de kwaliteit en stabiliteit van relaties (Le et al., 2010; Stanley et al., 2010). Commitment wordt gedefinieerd als het voelen van psychologische gehechtheid aan de partner, een langdurige oriëntatie hebben op de relatie en de intentie hebben om in de relatie te volharden (Arriaga & Agnew, 2001). Commitment kan om verschillende redenen cruciaal zijn gedurende de transitie naar ouderschap. Het wordt gezien als de lijm die een paar bij elkaar houdt in tijden van stress (Stanley & Markman, 1992) en is sterker geassocieerd met relatiestabiliteit dan relatietevredenheid (Le et al., 2010). Commitment neemt ook toe wanneer er in de relatie wordt geïnvesteerd (Rusbult, 1983). Als zodanig kan de commitment gedurende de transitie naar ouderschap toenemen, aangezien kinderen kunnen worden gezien als een aanzienlijke investering in de relatie die de drempel verhoogt om de partner te verlaten. Er valt nog veel te onderzoeken over hoe de commitment verandert na de eerste bevalling en wat deze verandering modereert.

*Waarom zijn er verschillen in de manier waarop de kwaliteit van de relaties van ouders verandert gedurende de transitie naar ouderschap?*

De stressoren die vaak gepaard gaan met de transitie naar ouderschap, zoals hierboven beschreven, vereisen dat ouders zich aanpassen. Hoe beter ze zich kunnen aanpassen, hoe groter de kans dat hun relatiekwaliteit stabiel blijft of zelfs toeneemt. Deze theorie wordt geïllustreerd in het Vulnerability-Stress-Adaptation (VSA) model (Karney & Bradbury). Volgens het VSA-model hangt de impact van stressvolle

gebeurtenissen en veranderingen op de relatie af van de persoonlijke kwetsbaarheden van elke partner en van de adaptieve processen van het paar. Persoonlijke kwetsbaarheden zijn stabiele kenmerken zoals een lager opleidingsniveau of onveilige hechting. Adaptieve processen verwijzen naar hoe paren communiceren en met elkaar omgaan. Het model stelt dat grotere persoonlijke kwetsbaarheden leiden tot slechtere aanpassing, wat de negatieve impact van de stressvolle gebeurtenis op de kwaliteit van de relatie vergroot (Karney & Bradbury, 1995).

De focus van de onderzoeken die dit model hebben toegepast op de transitie naar ouderschap lag op kwetsbaarheden en risicofactoren. Er is veel minder aandacht besteed aan hulpbronnen en beschermende factoren. In dit proefschrift stel ik dat het mogelijk is om voorafgaand aan de bevalling te voorspellen hoe het ouders zal vergaan gedurende de transitie naar ouderschap. Het identificeren van dergelijke voorspellers zou vroege detectie en interventie mogelijk kunnen maken.

### *Zijn er subgroepen binnen nieuwe ouders?*

Het meeste eerdere onderzoek naar de transitie naar ouderschap is gebaseerd op de aanname dat er één gemiddeld veranderingstraject is dat kersverse ouders meemaken. Ouders vormen echter een zeer brede en diverse groep. Don en Mickelson (2014) theoretiseerden dat de gemiddelde achteruitgang van de relatiekwaliteit gedurende de transitie naar ouderschap in veel onderzoeken in feite grotendeels te wijten is aan kleine subgroepen van ouders die een achteruitgang laten zien. Ze noemden dit de ‘subgroep-hypothese’. Het verkennen van subgroepen kan veel meer informatie opleveren dan het bestuderen van gemiddelde veranderingen. Kennis over subgroepen kan de identificatie verbeteren van ouders die het goed zullen doen na de bevalling en ouders die risico lopen.

## **Het huidige onderzoek**

### *Voorspellers van relatieverandering gedurende de transitie naar ouderschap*

Kennis van hulpbronnen is belangrijk om de inhoud van interventies voor ouders te verbeteren. Ik onderzoek daarom de rol van positieve relationele processen als hulpbronnen bij het voorspellen van aanpassing aan ouderschap (hoofdstuk 2) en bij het voorspellen van veranderingstrajecten in relatietevredenheid (hoofdstuk 4). Positieve relatieprocessen verwijzen naar constructieve manieren waarop partners elkaar bekijken en met elkaar omgaan. In hoofdstuk 2 onderzoek ik hoe deze hulpbronnen de ervaren aanpassing van ouders aan ouderschap voorspellen, gedefinieerd als hoe soepel of moeilijk ouders de transitie naar ouderschap hebben ervaren en hun niveau van ouderlijk welzijn.

In de hoofdstukken 3 en 5 onderzoek ik individuele psychologische factoren als voorspellers. Ik bestudeer persoonlijk geluk als een voorspeller van veranderingen in commitment gedurende de transitie naar ouderschap in hoofdstuk 3. Van positieve emoties zoals geluk wordt verondersteld dat ze de aanpassing aan stressvolle omstandigheden vergemakkelijken (Frederickson, 2004). Ik onderzoek de psychologische factoren zelfbeheersing, depressieve symptomen en dagelijkse stress als voorspellers van veranderingen in de relatietevredenheid van nieuwe ouders in hoofdstuk 5. Dispositionele zelfbeheersing heeft veel gunstige effecten op de relatie (Vohs et al., 2011). Depressieve symptomen zijn geassocieerd met een lagere relatietevredenheid (bijv. Whisman, 2001). Dagelijkse stress heeft een sterker negatief effect op relatietevredenheid dan grote stressfactoren (zie de recensie van Randall & Bodenmann, 2009). Zelfbeheersing kan daarom worden gezien als een hulpbron dat de aanpassing aan stressvolle omstandigheden vergroot, terwijl depressieve symptomen en dagelijkse stress kwetsbaarheden zijn die de aanpassing kunnen verminderen en daardoor de negatieve impact van stressoren op de relatie kunnen vergroten.

Ten slotte onderzoek ik in hoofdstuk 5 ook de demografische voorspellers inkomen, opleidingsniveau, leeftijd, burgerlijke staat en relatieduur als hulpbronnen die gedurende de transitie naar ouderschap die nieuwe ouders beschermen tegen een afname van relatietevredenheid. Een hoger inkomen wordt verondersteld om de relatie te bufferen tegen de negatieve impact van stressoren door de extra middelen die het kan bieden (Doss et al., 2009). Evenzo kan een hoger opleidingsniveau leiden tot meer werkzekerheid en meer middelen. Burgerlijke staat kan een rol spelen bij

veranderingen in relatietevredenheid, aangezien het huwelijk (versus samenwonen) meer stabiliteit en veiligheid kan bieden (Nock, 1995). Koppels met een langere relatieduur hebben meer tijd gehad om een solide relatiebasis op te bouwen en zijn daarom mogelijk minder kwetsbaar voor stressfactoren.

### *Prenatale en pre-zwangerschapsmetingen*

In mijn onderzoek gebruik ik zowel prenatale als pre-zwangerschapsmetingen van hulpbronnen en voorspellers. Pre-zwangerschapsgegevens hebben een belangrijk voordeel ten opzichte van prenatale gegevens, omdat de zwangerschap zelf veranderingen in zowel persoonlijk als relatiewelzijn kan met zich meebrengen (Lawrence et al., 2008). Pre-zwangerschapsdata maakt het mogelijk om te toetsen of veranderingen na de bevalling in feite een terugkeer zijn naar het niveau van vóór de zwangerschap (Lawrence et al., 2008). Bovendien kan bepaald worden of het mogelijk is om voorafgaand aan de zwangerschap stellen te onderscheiden die het meeste risico lopen op ongunstige veranderingen in hun relatie gedurende de transitie naar ouderschap.

### *Zijn er subgroepen binnen nieuwe ouders en voorspellers van deze subgroepen?*

Het onderzoek in dit proefschrift verkent het bestaan van subgroepen bij nieuwe ouders. Door voorspellers van subgroepen verder te onderzoeken, kunnen we ons begrip van de onderliggende mechanismen van relatieverandering gedurende de transitie naar ouderschap vergroten. In de hoofdstukken 4 en 5 bestudeer ik daarom voorspellers van subgroepen die stabiel blijven versus subgroepen die afnemen in relatiekwaliteit gedurende de transitie naar ouderschap.

## **Data**

Ik heb twee grote longitudinale datasets gebruikt om de onderzoeksvragen te beantwoorden. De eerste dataset is de *Marriage and*

*Wellbeing Survey*, een bestaande longitudinale dataset met vijf meetmomenten onder 199 pasgetrouwde Nederlandse stellen (Finkenauer et al., 2009). Voor mijn onderzoek heb ik 109 stellen uit deze dataset geïnccludeerd die in de loop van de enquête hun eerste kind hadden gekregen, en deze vergeleken met een controlegroep van 55 stellen die kinderloos bleven. Daarnaast is voor dit proefschrift de *Dutch Relationship and Parenthood* dataset verzameld, een longitudinaal onderzoek onder 440 Nederlandse nieuwe ouders (inclusief 210 koppels). De eerste meting vond plaats gedurende de zwangerschap en de daaropvolgende toen het kind ongeveer 4 maanden, 8 maanden en 1 jaar oud was.

## **Overzicht van de empirische hoofdstukken**

*Hoofdstuk 2: Aanpassing aan het ouderschap voorspellen: de rol van waargenomen responsiviteit, dankbaarheid en vertrouwen.*

Hoofdstuk 2 bestudeert de invloed van de positieve relatieprocessen dankbaarheid, ervaren responsiviteit en vertrouwen op de ervaren aanpassing aan het ouderschap, dat wil zeggen hoe moeilijk of makkelijk ouders hun transitie naar ouderschap hebben ervaren en hun welzijn als ouders. Ik voorspelde dat ouders met hogere niveaus van positieve relatieprocessen in de jaren vóór de zwangerschap een betere ervaren aanpassing aan het ouderschap zouden rapporteren. Waargenomen responsiviteit, dankbaarheid en vertrouwen blijken zowel het persoonlijk welzijn als het welzijn van relaties te vergroten (Algoe et al., 2010; Wood et al., 2008).

De hypothese is getoetst onder 109 stellen die deelnamen aan de Marriage and Wellbeing Survey en gedurende het onderzoek ouders werden. De resultaten toonden aan dat vaders en moeders met een hogere mate van positieve relatieprocessen in de jaren vóór de zwangerschap, een betere aanpassing aan het ouderschap rapporteerden. Ouders van wie het niveau van deze positieve relatieprocessen in de loop van de tijd toenam, rapporteerden een nog betere aanpassing. Bovendien voorspelden de positieve relatieprocessen van hun partner ook de ervaren aanpassing.

*Hoofdstuk 3: Veranderingen in commitment gedurende de transitie naar ouderschap: Geluk vóór de zwangerschap als een beschermende hulpbron*

In hoofdstuk 3 onderzoek ik het effect van persoonlijk geluk op veranderingen in commitment gedurende de transitie naar ouderschap. Nieuwe ouders ervaren over het algemeen een afname van commitment (Doss et al., 2009; Ferriby et al., 2015), maar er is een aanzienlijke hoeveelheid individuele variatie. Persoonlijk geluk kan worden gezien als een psychologische hulpbron die het vermogen van individuen om zich aan stressvolle omstandigheden aan te passen, vergroot (Frederickson, 2004). Op basis van het VSA-model (Karney & Bradbury, 1995), toets ik de hypothese dat ouders die gelukkiger zijn vóór de zwangerschap minder negatieve of meer positieve veranderingen in hun commitment ervaren na de bevalling in vergelijking met ouders die minder gelukkig zijn vóór de zwangerschap.

Om deze voorspelling te toetsen, werd de data van ouders en niet-ouders uit de Marriage and Wellbeing Survey gebruikt. De commitment van vaders met een hoger geluksniveau voor de zwangerschap, vertoonde minder negatieve verandering en meer positieve verandering na de bevalling, terwijl de commitment van vaders die voor de zwangerschap minder gelukkig waren sterk afnam. Dit gold ook voor de commitment van vaders en moeders van wie de partner gelukkiger was. Voor niet-ouders had geluk geen invloed op veranderingen in commitment. Concluderend suggereren de resultaten dat geluk vóór de zwangerschap de negatieve effecten van de stressoren die gepaard gaan met de transitie naar ouderschap op de relatie buffert.

*Hoofdstuk 4: Positieve relatieprocessen voorspellen relatietevredenheidstrajecten gedurende de transitie naar ouderschap*

In hoofdstuk 4 is het bestaan van subgroepen van ouders met verschillende patronen van verandering in relatietevredenheid gedurende de transitie naar ouderschap onderzocht. Daarnaast zijn deze subgroepen voorspeld op basis van positieve relatieprocessen in de vorm van relatie-onderhoudsgedrag, ervaren responsiviteit en accommodatie gedurende de

zwangerschap. Positieve relatieprocessen vergroten het coping vermogen van nieuwe ouders. Daarom werd verwacht dat ouders met hogere prenatale niveaus en waarvan de partners hogere niveaus van positieve relatieprocessen rapporteerden, vaker zouden behoren tot een subgroep die het beter deed gedurende de transitie naar ouderschap in termen van relatietevredenheid.

Om deze hypothese te toetsen, heb ik 440 nieuwe ouders (inclusief 210 koppels) uit de *Dutch Relationship and Parenthood* dataset gebruikt. LCGA identificeerde drie subgroepen van moeders en drie subgroepen van vaders met verschillende trajecten van verandering in relatietevredenheid. De relatietevredenheid van de meerderheid van zowel moeders als vaders bleef stabiel gedurende de transitie naar ouderschap, waarbij kleine subgroepen na de bevalling een sterke afname vertoonden. Vaders met hogere niveaus van positieve relatieprocessen behoorden vaker tot subgroepen waarvan de relatietevredenheid stabiel bleef na de bevalling dan subgroepen waarvan de relatietevredenheid afnam. Bovendien behoorden moeders en vaders van wie de partner een hogere waargenomen responsiviteit rapporteerde, en vaders van wie de partner een hogere accommodatie rapporteerde, ook vaker tot een subgroep die stabiel bleef gedurende de transitie naar het ouderschap. Deze resultaten laten zien dat de relatietevredenheid van de meeste ouders stabiel blijft, maar ook dat lagere niveaus van prenatale positieve relatieprocessen een grotere afname van tevredenheid voorspellen.

#### *Hoofdstuk 5: Psychologische en demografische voorspellers van relatietevredenheidstrajecten gedurende de transitie naar ouderschap*

In hoofdstuk 5 heb ik de subgroepen uit hoofdstuk 4 gebruikt om prenatale voorspellers van veranderingen in relatietevredenheid gedurende de transitie naar ouderschap te onderzoeken.

De resultaten toonden aan dat de psychologische factoren hogere zelfbeheersing, lagere depressie en lagere dagelijkse stress voor zowel moeders als vaders een veranderingstraject voorspelden waarin de relatietevredenheid stabiel bleef. Van de demografische factoren voorspelden alleen een hoger inkomen en burgerlijke staat (huwelijk versus

partnerschapscontract of samenwonen) stabiele relatietevredenheid. Leeftijd, duur van de relatie en opleidingsniveau voorspelden subgroepen niet. De resultaten tonen aan dat prenatale verschillen tussen ouders, met name op het gebied van psychologische factoren, het welzijn van relaties gedurende de transitie naar ouderschap kunnen voorspellen.

## **Conclusie**

De centrale vraag van dit proefschrift was: welke factoren voorspellen verandering en aanpassing van relaties gedurende de transitie naar ouderschap? Door de variabiliteit te onderzoeken in hoe ouders de transitie naar ouderschap ervaren, identificeerde ik persoonlijke factoren (bijv. geluk, zelfbeheersing, inkomen) en relatieprocessen (bijv. ervaren responsiviteit, dankbaarheid) die veranderingen voorspelden in relatietevredenheid, commitment en aanpassing aan ouderschap. Hieronder bespreek ik de belangrijkste conclusies van dit proefschrift.

De eerste conclusie is dat ouders niet één groep vormen. De meeste nieuwe ouders melden stabiele relatietevredenheid gedurende de transitie naar ouderschap, terwijl alleen kleine subgroepen een (sterke) afname in tevredenheid ervoeren. De tweede conclusie is dat pre-zwangerschap en prenatale factoren kunnen voorspellen hoe het ouders vergaat gedurende de transitie naar ouderschap. De resultaten in dit proefschrift suggereren dat de bevalling reeds bestaande sterke en zwakke punten in de relatie versterkt. Dit betekent dat (toekomstige) ouders die risico lopen kunnen worden geïdentificeerd voordat de problemen beginnen, waardoor vroege interventies mogelijk zijn. De derde conclusie is dat ouders met meer hulpbronnen het beter doen gedurende de transitie naar ouderschap dan ouders met minder hulpbronnen. De resultaten van de onderzoeken in dit proefschrift geven aan dat hulpbronnen de negatieve effecten van de stressoren die gepaard gaan met de transitie naar ouderschap op de relatie kunnen bufferen. Dit was het geval voor zowel persoonlijke (hoofdstukken 3 en 5) als relationele (hoofdstukken 2 en 4) hulpbronnen. Kennis van dergelijke hulpbronnen kan worden gebruikt om de inhoud en effectiviteit van interventies voor beginnende ouders te verbeteren, door interventies meer te richten op het verbeteren van deze hulpbronnen.



De meeste demografische factoren hielden geen verband met relatietevredenheid na de bevalling. Dit was in tegenstelling tot de psychologische factoren, die allen voorspelden tot welke subgroep ouders behoorden. Deze bevindingen suggereren dat psychologische hulpbronnen een grotere rol spelen bij het verklaren van veranderingen in relatietevredenheid gedurende de transitie naar ouderschap dan demografische hulpbronnen (cf. Joel et al., 2020). Een andere interessante bevinding was dat hoewel ouders en kinderloze stellen dezelfde gemiddelde afname in commitment in de loop van de tijd lieten zien, geluk de alleen de verandering in commitment voor ouders voorspelde (hoofdstuk 3). Dit suggereert dat hulpbronnen vooral een rol spelen wanneer stellen te maken hebben met uitdagingen, zoals de transitie naar ouderschap. Wanneer koppels niet met stressfactoren worden geconfronteerd, zijn hulpbronnen mogelijk minder nodig en daarom niet sterk geassocieerd met de kwaliteit van de relatie.

De bevindingen in dit proefschrift moeten worden gezien in het licht van een aantal beperkingen. Een belangrijke beperking van de datasets is de relatieve homogeniteit van de steekproeven. De deelnemers waren overwegend hoger opgeleid en rapporteerden een relatief hoge relatietevredenheid in vergelijking met andere steekproeven (bijv. Don & Mickelson, 2014; Doss et al., 2009; Trillingsgaard et al., 2014). Dit heeft mogelijk de omvang van de effecten en van de subgroepen beperkt.

De resultaten in dit proefschrift bieden een aantal interessante richtingen voor toekomstig onderzoek. De verdere verkenning van subgroepen van nieuwe ouders met verschillende veranderingstrajecten van relatiekwaliteit is een belangrijke volgende stap. Daarnaast is de transitie naar ouderschap slechts één voorbeeld van een gebeurtenis die stress veroorzaakt. De bevindingen van dit proefschrift kunnen worden toegepast op andere soorten stressvolle gebeurtenissen, zoals dagelijkse problemen, medische aandoeningen, en opvoeding van kinderen met speciale behoeften. In dit proefschrift lag de focus op de ouders en werden kind-factoren niet meegenomen. Ik ben van mening dat kind-factoren zoals slecht slapen, overmatig huilen en een moeilijk temperament vaker in toekomstig onderzoek moet worden meegenomen als maat voor het stressniveau dat wordt veroorzaakt door de transitie naar ouderschap.

De resultaten van het onderzoek in dit proefschrift hebben verschillende praktische implicaties voor interventies om stellen te helpen bij de transitie naar ouderschap. De timing van de transitie naar ouderschapsinterventies is belangrijk om te overwegen. Omdat het mogelijk is om te voorspellen welke ouders moeilijkheden zullen ondervinden, is vroege interventie mogelijk. Pinquart en Teubert (2010) lieten zien dat vroege interventies vaak effectiever zijn. Veel programma's voor (aanstaande) ouders zijn universele programma's, niet specifiek gericht op ouders met een hoog risicoprofiel (Pinquart & Teubert). Deze programma's lijken vooral goed opgeleide ouders te bereiken. Mijn onderzoek laat zien dat de meerderheid van de ouders zich goed aanpast aan het ouderschap. Het zou daarom waarschijnlijk het meest efficiënt zijn om programma's te richten op de subgroepen van ouders die het meeste risico lopen op negatieve relatie veranderingen en een moeizame aanpassing aan ouderschap.

Ouders met een hoog risico lijken vooral te profiteren als hun risicofactoren beïnvloedbaar zijn door relatie-interventies (Halford & Bodenmann, 2013). Sociaaleconomische risicofactoren zoals armoede zijn bijvoorbeeld niet, of althans niet direct, te beïnvloeden door relatie-interventies. Ouders op wie relatie-interventies gericht zijn, zouden daarom hoog moeten scoren op beïnvloedbare risicofactoren. De positieve relatieprocessen die in dit proefschrift werden onderzocht, kunnen worden aangeleerd of gestimuleerd in een relatiecursus of relatietherapie (Lyubomirsky & Dickerhoof, 2011; Manne et al., 2011).

De transitie naar ouderschap betekent onvermijdelijk een verandering in de partnerrelatie. Zoals ik zelf heb ervaren toen ik ouder werd, moet je je relatie opnieuw definiëren en op zijn minst gedeeltelijk opnieuw uitvinden. Aanpassing is daarom onvermijdelijk. Hoe meer hulpbronnen ouders hebben en hoe beter ze zijn toegerust om zich aan te passen, hoe beter ze kunnen omgaan met de stressfactoren die gepaard gaan met de transitie naar ouderschap. Ouders met hogere niveaus van pre-zwangerschap en prenatale beschermende factoren en positieve relationele processen, en lagere niveaus van risicofactoren, doen het gedurende de transitie naar ouderschap beter in termen van relatietevredenheid, commitment en aanpassing aan ouderschap. Door de grote verschillen in

omstandigheden en niveaus van adaptieve processen vormen ouders niet één groep. Hoewel er na de bevalling gemiddeld een afname van de relatiekwaliteit wordt vastgesteld, kan dit grotendeels worden veroorzaakt door kleine subgroepen van ouders die een moeizame transitie naar ouderschap ervaren. De doeltreffendheid van programma's voor nieuwe ouders kan dus worden verbeterd door zich te richten op stellen met een hoog risico en door te focussen op het verbeteren van positieve relationele processen. Steeds meer bewijs suggereert dat, in tegenstelling tot wat vaak wordt gedacht, de relatiekwaliteit van de meerderheid van de ouders stabiel blijft gedurende de transitie naar ouderschap.

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## **Curriculum Vitae**

Hagar ter Kuile was born on September 18<sup>th</sup> 1985 in Eilat, Israël. She went to high school in New York and Leiden. From 2005 to 2008, she did a bachelor's in Psychology at the University of Amsterdam. During her bachelor's program, Hagar participated in the honours program. As part of this program she conducted a study on bilingual children, which she subsequently published as first author. In 2009, she conducted research for her master's thesis, which was published as well. In 2010, she completed her research master's in Clinical Psychology and Social and Organizational Psychology at the University of Amsterdam. That same year, Hagar started her PhD-project on predicting relationship change across the transition to parenthood. During her PhD-project, she supervised students' bachelor and master theses and taught workshops in the bachelor's and master's Psychology program. From 2014 to 2018 Hagar supervised students' bachelor and master theses at different universities and coached students with ADHD and autism. In 2018 Hagar made the switch to clinical practice. Since then, she has been working as a clinical psychologist at I-psy/PsyQ Almere, primarily with refugees and immigrants.