Partners, parents & childrearing beliefs: couple satisfaction during the transition to parenthood and attitudes towards child maltreatment across countries and caregivers

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Predictors of Change in Maternal and Paternal Couple Satisfaction during the Transition to Parenthood in Three Countries

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Abstract

While there is ample evidence that parents, on average, experience a decline in couple satisfaction during the transition to parenthood, the evidence regarding the mechanism underlying this decrease remains patchy. This study examined predictors of couple satisfaction during the transition to parenthood across several domains including personal (parent gender and mental health problems), family (socioeconomic status), child (sleep quality), and contextual (country of residence of the parent) factors. The sample consisted of 355 couples from three countries (UK $n = 172$, Netherlands $n = 97$, US $n = 86$) expecting their first child. In the third trimester of pregnancy, both expectant parents filled out questionnaires regarding couple satisfaction, mental health problems, and family socioeconomic status. When the child was four months old, the parents completed the same questionnaire measures on couple satisfaction and mental health problems once more, as well as reporting on child's sleep quality. Results confirmed the expected decrease in couple satisfaction. This decrease appeared very robust, in that it did not differ with parent gender, prepartum mental health problems, family socioeconomic status, child sleep, and country of residence of the parents. However, the decrease in couple satisfaction was stronger when parents or their partners had more postpartum mental health problems. These results stress the importance of investing in fostering new parent's mental health and in expectation management of expecting couples regarding the common decrease in couple satisfaction as part of the transition to parenthood.

Keywords: couple satisfaction, transition, parenthood, mothers, fathers, mental health problems

Introduction

Becoming a parent for the first time is a life-changing event. On the one hand the birth of a first child is accompanied by positive feelings and emotions, love, and fulfillment. On the other hand, new parents face multiple challenges, including learning to adjust to the new role of being a parent. This could lead to both personal stress (e.g., depression) and stress in the relationship between parents. Meta-analytic results show that, on average, couple satisfaction decreases significantly across the transition to parenthood (Mitnick, Heyman, & Smith Slep, 2009). However, relatively little is known about the mechanisms underlying this decrease in couple satisfaction. In addition, the existing literature is not always consistent and often focuses on predictors within one specific domain. This is an important gap as relationship problems are related to more negative parenting, which in turn is related to disruptive child behavior (e.g., Krishnakumar & Buehler, 2000; Mann & MacKenzie, 1996). Results from more recent studies also stress the importance of the couple relationship. Relationship quality during pregnancy is for example, for fathers, found to be associated with an index of prenatal attachment, namely narrative coherence (Foley, Branger, Alink, Lindberg, & Hughes, 2019). Furthermore, couple relationship quality seems to mediate the relation between parental well-being and child (internalizing) problem behavior (Hughes, Devine, Mesman, & Blair, 2019). More comprehensive measurement is needed to identify predictors of change in couple satisfaction across the transition to parenthood, in order to reduce negative outcomes on parenting and child behavior. Therefore, this study aimed to examine predictors of the trajectory of couple satisfaction during the transition to parenthood in multiple domains, including personal (parent gender and mental health problems), family (socioeconomic status), child (sleep quality), and contextual (country of residence of the parent) characteristics.

Numerous studies have shown that there is an average decrease in couple satisfaction during the transition to parenthood in both mothers and fathers (e.g., Mitnick et al., 2009). In a meta-analysis (Mitnick et al., 2009), effect sizes of the decrease ranged from -0.99 to 0.27 for men (average g = -0.23) and from -0.93 to 0.17 for women (average g = -0.27). Some argue that a decline in couple satisfaction is a normal part of a relationship trajectory of all couples (both parents and nonparents). Parents and nonparents indeed both experience a decline in couple satisfaction over time (Mitnick et al., 2009). However, parent couples report lower satisfaction than nonparent couples (Twenge, Campell, & Foster, 2003). In addition, parents experience a sudden decrease in couple satisfaction following birth whereas nonparents show a more gradual decline (Doss, Rhoades, Stanley, & Markman, 2009). New parents are faced with changes in their (daily) routine to which they need to learn to adapt. Even

though nowadays gender roles are more equal, when couples have a (first) child, family roles usually become more traditional (Belsky & Pensky, 1988; Cowan et al., 1985; Dew & Wilcox, 2011). In addition, new parents experience less leisure time and spend less quality time together, because they spend more time taking care of the child (Belsky & Pensky, 1988; Dew & Wilcox, 2011).

An average decline does, however, not mean that all couples experience a decrease. Indeed, there is evidence that some couples experience no change or even an increase in couple satisfaction during the transition to parenthood (Belsky & Rovine, 1990; Doss et al., 2009; Shapiro, Gottman, & Carrère, 2000). It is important to study predictors of different trajectories to understand protective and risk factors for decreasing couple satisfaction. Parent gender has been shown to be related to changes in couple satisfaction, but results are inconsistent. Some studies report no differences in the trajectory between mothers and fathers, with both experiencing a similar decrease (e.g., Doss et al., 2009). More studies however found that the decrease in couple satisfaction during the transition to parenthood is more pronounced for mothers than for fathers (e.g., Belsky, Lang, & Rovine, 1985; Bower, Jia, Schoppe-Sullivan, Mangelsdorf, & Brown, 2012). The birth of the first child in general comes with more changes for mothers than for fathers, because mothers take on most of the household and childcare tasks, especially when it comes to infants (Belsky, Spanier, & Rovine, 1983; Cowan et al., 1985). This could lead to perceived unfairness in task division on the part of the mother, which could result in a larger decrease in their couple satisfaction compared to fathers (Dew & Wilcox, 2011).

Another important personal characteristic is the mental health of the parent. There is a bidirectional relation between mental health problems and relationship quality. Changes in depressive symptoms, for example, predict changes in couple satisfaction across time and vice versa (e.g., Mamun et al., 2009). According to the marital discord model of depression (Beach, Sandeen, & O'Leary, 1990), problems in a relationship are related to less marital support (e.g., couple cohesion and intimacy) and more marital hostility (including aggression and criticism), which in turn are associated to more depression. On the other hand, mental health problems, such as depression, could lead to social and emotional withdrawal and thereby to a decrease in couple satisfaction (e.g., Girard et al., 2014; Mauthner, 1998). Personal wellbeing likely plays an important role in the transition to parenthood as spouses need support from each other to be able to function successfully as a couple when becoming parents for the first time. More pre- and postpartum mental health problems of parents have indeed been found to predict a stronger decline in the parent's own couple satisfaction trajectory during the transition to parenthood (e.g., Bower et al., 2012; Cox, Paley, Burchinal, & Payne, 1999; Trillingsgaard, Baucom, & Heyman,

2014). Having mental health problems during the transition to parenthood might be an additional stressor which enlarges the average decrease in couple satisfaction.

Personal mental health problems thus are negatively related to couple satisfaction. Mental health problems of the partner also seem be associated with parent's own couple satisfaction, the literature regarding this is however less consistent. Some studies did not find mental health problems of the partner to be related to the decrease in personal marital satisfaction (Bower et al., 2012). More studies, however, did report an association between mental health problems of one parent and couple satisfaction of the other parent. For example, the decline in couple satisfaction of parents was larger when their partners experienced more mental health problems prepartum (Don & Mickelson, 2014). Another study showed that the decline in couple satisfaction was larger for fathers if mothers experienced more postpartum depression (Feeney et al., 2003). Similar to personal mental health problems, mental health problems of the partner could predict less couple satisfaction through the negative impact of mental health problems on behavior which adversely affects the quality of the interaction between partners (e.g., Girard et al., 2014; Mauthner, 1998).

An important family factor is the socioeconomic status (SES) of a parent couple. There are three different theoretical models in which SES plays a role in couple satisfaction: the financial cost model, the role conflict model, and the restriction of freedom model (Twenge et al., 2003). According to the financial cost model, parents with a low SES are expected to experience a larger decrease in marital satisfaction because raising a child is expensive, which is especially stressful for parents with a low SES, who have fewer resources (Twenge et al., 2003). The role conflict model and the restriction of freedom model on the other hand, hypothesize a stronger decline in marital satisfaction across the transition to parenthood in couples with a higher SES. These models propose that when couples have a (first) child, family roles change and usually become more traditional (Belsky & Pensky, 1988; Cowan et al., 1985; Dew & Wilcox, 2011), which could lead to a decrease in couple satisfaction particularly in couples with a high SES that tend to start off with a less traditional role division. After the birth of a child parents with a high SES might experience more role conflict and restriction of freedom than couples with a lower SES, and therefore experience a greater decline in couple satisfaction (Twenge et al., 2003). Meta-analytic evidence has been found for the role conflict model and the restriction of freedom model, with a more negative effect (d = -0.45) of parenthood on couple satisfaction for parents with a high SES (Twenge et al., 2003).

New parents need to adapt to the sleeping pattern of the baby, which can be a challenge. Sleep problems, including difficulties falling asleep and sleeping through

the night or experiencing multiple nighttime awakenings, are quite common in young children (e.g., Scher et al., 1995; Touchette et al., 2005). Infant's sleeping difficulties can have a negative impact on the parent's wellbeing. If the child does not sleep well, the parent's sleeping quality also decreases and the child's sleeping problems itself can be stressful for the parents. Sleep problems of the child are indeed related to negative parent outcomes including fatigue, stress, and depression (Giallo, Rose, & Vittorina, 2011; Wake et al., 2006), which are all factors that contribute to lower couple satisfaction (Elek, Hudson, & Fleck, 2002; Mamun et al., 2009; Rimmerman & Stanger, 2001). Despite the common nature of infant's sleeping problems and the negative impact of sleeping problems on parent wellbeing, few studies directly examined infant sleep in relation to couple satisfaction. Those that have report somewhat mixed results. Some found no relation between infant sleep and couple satisfaction (Meijer & Van den Wittenboer, 2007). Others however reported decreased couple satisfaction for parents of babies with more irregular sleeping rhythms (Belsky & Rovine 1990), and studies on the treatment of sleeping problems in children found small increases in marital satisfaction following improvements in the sleeping pattern of the child (Durand & Mindell, 1990; Mindell & Durand, 1993). In general, sleeping problems of the infant seem to be negatively related to couple satisfaction.

The pattern of an average decline in couple satisfaction during the transition to parenthood is found around the world, including in North America (e.g., Belsky et al., 1985; Don, & Mickelson, 2014), Europe (e.g., Salmela-Aro, Aunola, Saisto, Halmesmäki, & Nurmi, 2006), and Asia (e.g., Lu, 2006). This seems to imply that the average decrease is universal. One meta-analysis (Mitnick et al., 2009) included studies from multiple countries and did not find the region of the sample to be a significant moderator. The number of studies was however quite small and the majority of the studies were conducted in North America. In addition, studies (within and) between countries often use different measurements of couple satisfaction, different predictors of (the trajectory of) couple satisfaction, and different time frames. This makes it difficult to compare results across countries. To our knowledge, no study on couple satisfaction during the transition to parenthood compares multiple countries using the same methods within one study. It is possible that the strength of the decline differs between countries or that some predictors of the decline are more relevant for some countries than for others. This has implications for prevention or intervention programs that target couple satisfaction. Therefore, the current study uses data from three different countries, The Netherlands, The United Kingdom, and The United States of America, across two continents, Europe and North America.

Even though these three countries are economically developed, advanced industrialized Western countries, there are big differences between them when it comes to social care policies. The United States, for example, does not offer any statutory entitlement to paid maternity leave, whereas mothers in the Netherlands get 16 weeks and in the United Kingdom even 39 weeks (OECD, 2019). In one study that compared happiness between parents and nonparents in 22 OECD countries (Glass, Simon, & Andersson, 2016) it was found that in the United States the difference between parents and nonparents was the largest of all countries, with parents being less happy than nonparents. Compared to the United Kingdom and the United States the gap in the Netherlands was the smallest. In countries that have better social care policies (including paid parenting, sick, and vacation leave as well as work flexibility) the gap was smaller. Again, the United States has the least favorable policies compared to all countries, whereas in the Netherlands the policies are better compared to both the United Kingdom and the United States. Including and comparing the Netherlands, the United Kingdom, and the United States of America in one study can give more insight in possible differences and similarities between the countries and the robustness of the trajectory of couple satisfaction in first-time couples during the transition to parenthood.

In sum, there is ample evidence that couple satisfaction on average decreases during the transition to parenthood in both parents. The literature regarding predictors of differences in these trajectories is however still patchy and inconsistent. It is unclear why the inconsistencies exist because most studies are quite similar in sample characteristics and methodologies (e.g., the focus on first-time parents and mean age of the parents). Most samples were also quite homogeneous and low risk (mostly Caucasian and highly educated). The studies did use variety of measures to assess couple satisfaction. In the meta-analysis by Mitnick et al. (2009) the assessment measure of couple satisfaction was a significant moderator variable in explaining differences in effect sizes between studies, with stronger effect sizes in studies using global satisfaction measures compared to adjustment measures. In the current study a reliable and valid global measure of couple satisfaction (Couples Satisfaction Index) is used with a higher level of measurement precision and a greater power to detect differences in couple satisfaction than adjustment measures (Funk & Rogge, 2007). The current study contributes to the existing literature by examining predictors of the trajectory of couple satisfaction during the transition to parenthood in several relevant domains (including personal characteristics of the parent, and family, child, as well as contextual factors) in a large sample with data from three different countries using the same methods. This comprehensive approach will give more insight in relevant risk and/or protective factors of the trajectory of couple satisfaction during the transition to parenthood and robustness of the results. Because marital dissatisfaction is related

to more negative parenting and child behavior, it is important to study mechanisms that may underlie the decrease. This knowledge can be used to develop interventions to prevent or reduce dissatisfaction in the relationship.

In this study the following hypotheses are tested: (1) Couple satisfaction decreases across the transition to parenthood; This decrease is stronger (2) for mothers, (3) when parents or their partners have more pre- and postpartum mental health problems, and (4) for parents with a higher SES; (5) for parents of infants with more sleeping difficulties. (6) There are no country differences.

Method

Sample

The sample of this study is part of the larger international longitudinal research project '*New Fathers and Mothers'* examining relations between risk factors (e.g., parental stress) and child (cognitive) outcomes from pregnancy to 24 months post-birth in three countries. First-time expecting couples were visited at 36 weeks pregnancy (36W), and when their child was four months (4M), 14 months (14M), and 24 months (24M) old. The research was conducted in the Netherlands (NL), East of England (UK), and New York State (US). Parents were recruited at antenatal clinics and ultrasound scan clinics in the UK and the US, and at pregnancy fairs, prenatal exercise classes, pregnancy stores, and midwife clinics in the NL. To be eligible to participate the expecting couples had to: (1) be 21 years or older at 36W, (2) be first-time parents, (3) live together, (4) plan to raise their child together, (5) speak Dutch (NL) or English (UK and US), and (6) have no history of severe mental illness or substance abuse.

This study used data of the first two waves (36W and 4M). At 36W the sample consisted of 484 families (UK n = 221, NL n = 132, US n = 131). Ten families were not eligible for follow-up due to birth complications (e.g., stillborn), problems with the child's health (e.g., deafness) or because they moved out of the country. Of the 474 eligible families, a total of 445 (93.8%) families (UK n = 199, NL n = 123, US n = 123) agreed to participate at 4M. The main reason for attrition was lack of time. Families who did not participate at 4M did not differ from families who did participate on maternal age (p = .140), paternal age (p = .126), maternal educational level (p = .159), and paternal educational level (p = .232). Only families who participated at both 36W and 4M with no missing data on any of the variables of interest were used for analyses resulting in a final sample of 355 (79.8%) families (UK n = 172, NL n = 97, US n = 86). Missing data were the result of one parent not participating in the home visits, or because a parent did not fill in (part of) the questionnaires. There

was no pattern in the missing data (Little's MCAR test $X^2(95) = 114.84$, $p = .081$), and families with missing data did not differ from families without missing data on maternal age ($p = .999$), paternal age ($p = .145$) or maternal education ($p = .976$) and paternal education ($p = .706$).

Approximately half of the children were boys (50.4%). At 4M the age of the children ranged between 3 and 6 months ($M = 4.23$, $SD = 0.44$). At 36W paternal age ranged from 23 to 50 years old ($M = 33.94$, $SD = 4.57$) and maternal age from 23 to 43 years old ($M = 32.12$, $SD = 3.74$). All couples were living together. Around half of the mothers (47%) and fathers (46%) had an average education level (post-secondary or short-cycle tertiary education), 46% of the mothers and 39% of the fathers were highly educated (Bachelor degree or higher), and 7% of the mothers and 15% of the fathers had a low education level (upper secondary education or less).

Procedure

Each couple was visited at home. There were separate home visits for mothers and fathers and the order in which parents were visited was counterbalanced. At each time point parents received an online questionnaire before each home visit. On request a paper version of the questionnaire could also be send to the parents. During the 36W home visit parents were interviewed about their thoughts and feelings regarding their unborn child and performed three computer tasks to measure cognitive flexibility among others. The length of the visit was approximately half an hour. At 4M parents also completed an online questionnaire (similar to 36W with questions added about child behavior) and were visited at home. The home visit lasted around 2 hours and included parent-child observations, child tasks, and parent tasks. The parent tasks were similar to the 36W parent tasks. After each visit the child received a small present and the families received (a gift card of) 20 Euros (NL), 30 British Pounds (UK), or 50 Dollars (US). The study was approved by the ethics committees of the host institute of each country. National Health Service (NHS) Research Ethics Committee (UK), The Ethics Committee Education and Child Studies Leiden University (NL), and The University Committee on Activities Involving Human Subjects at New York University (US). For this paper, only the 36W and 4M questionnaire data were used.

Instruments

Couple Satisfaction (36W & 4M). To measure couple satisfaction, the Couples Satisfaction Index was used (CSI; Funk & Rogge, 2007). Both mothers and fathers filled in the questionnaire at 36W and 4M. The questionnaire consists of 16 items. The first item (*'Please indicate the degree of happiness, all things considered, of your relationship'*) was scored on a 7-point scale ranging from (0) Extremely unhappy to (6) Perfect. Nine items (e.g., *'In general, how often do you think that things between*

you and your partner are going well? and *'I really feel like part of a team with my partner'*) were scored on a 6-point scale ranging from (0) Never or Not at all (true) to (5) All the time or Completely (true). Six items were scored on a 6-point scale with extreme poles on various characteristics of the relationship (e.g., from interesting to boring or from full to empty). At 36W a small part of the Dutch sample (7 fathers and 8 mothers) answered these six items on a 7-point scale. To make all scores comparable, scores on the items answered on the 7-point scale were divided by 7 and then multiplied by 6 to compute a score on a 6-point scale. Five items were recoded so higher scores on all items represented more couple satisfaction. A total score was calculated by summing all item scores separately for each parent and each wave (possible range = 0-81). The internal consistency of the questionnaire was good (Cronbach's α of .93 for mothers and for fathers at 36W and .96 for mothers as well as for fathers at 4M).

Parental Mental Health Problems (36W & 4M). The Center for Epidemiologic Studies Depression Scale (CES-D: Radloff, 1977), the General Health Questionnaire (GHQ: Goldberg, Oldehinkel, & Ormel, 1998), and the State-Trait Anxiety Inventory (STAI: Marteau & Bekker, 1992) were used to measure parental mental health problems. Both parents filled in all three questionnaires at both waves. The CES-D consists of 20 items regarding feelings and behaviors over the past week. Items were scored on a 4-point scale: (1) Rarely or none of the time (less than 1 day), (2) Some or a little of the time (1-2 days), (3) Occasionally or a moderate amount of time (3-4 days), and (4) All the time (5-7 days). An example item is *'I was bothered by things that usually don't bother me'*. Four items were recoded so a higher score represents more depressive symptoms. A total score was calculated by summing all item scores (possible range = 20-80) separately for each parent and each wave. Internal consistency was good at both 36W (Cronbach's α for mothers .80 and for fathers .84) and 4M (Cronbach's α for mothers .84 and for fathers .87).

The GHQ consists of 12 items regarding behaviors and feelings of the parents in the last two weeks (e.g., '*In the last two weeks, have you lost much sleep over worry*'). Scores were given on a 4-point scale with higher scores representing a less optimal mental health (possible range = 12-48). A total score was calculated by summing all item scores separately for each parent and each wave. The questionnaire had a good internal consistency (36W Cronbach's α of .78 for mothers and .82 for fathers, 4M Cronbach's α of .81 for mothers and .84 for fathers).

The six-item version of the STAI (Marteau & Bekker, 1992) was used at 36W and 4M for mothers and fathers separately. The questions concern feelings of the parent at the moment (e.g., *'I am tense'*) with scoring options ranging from (1) Not at all to

(4) Very much. Three items were recoded so higher scores represented more anxiety for all items. A total score was calculated by summing the six item scores separately for each parent and each wave (possible range = 6-24). Cronbach's alphas at 36W were .77 for mothers and .72 for fathers. At 4M, Cronbach's alphas were .78 for mothers and .81 for fathers.

Depression, mental health, and anxiety were highly correlated within each wave and parent (range = .50-.75). In addition, factor analyses (separately for mothers and fathers at each wave) showed that depression, mental health, and anxiety loaded on a single factor (factor loadings .80-.91). Therefore, a composite score was calculated for mothers and fathers separately at each wave, using the mean of the standardized scores for depression, mental health, and anxiety. Higher scores represent more mental health problems. Cronbach's alphas of the total mental health problems score were .81 for mothers and .82 for fathers at 36W and .82 for mothers and .87 for fathers at 4M.

Family Socioeconomic Status (36W). To measure parental socioeconomic status (SES), both parents were asked about their household income and educational level. Income was measured by asking parents what their current yearly household income was. This was asked separately for mothers and fathers. An average was calculated of household income reported by mother and father which were highly correlated, $r(304) = .96, p < .001$. If the household income of one parent was missing, the household income reported by the other parent was used. In the NL income was reported in Euros, in the UK in British Pounds, and in the US in Dollars. To make these different currencies and differences in mean household income between countries comparable, household income was divided by the country-specific mean or median household income (depending on available statistics per county). In the UK the median household income was 26,129 British Pounds (Office for National Statistics, 2017), in the NL the mean household income was 35,000 Euros (Statista, 2018), and in the US (New York) the median household income was 60,850 Dollars (Department of Numbers, 2017). To measure educational level, both parents reported their highest level of education on an 8-point scale ranging from (0) Early Childhood to (8) Doctoral. An average was calculated of maternal and paternal education ($r(353) = .45$, $p < .001$). For one father educational level was missing, in this case the educational level of the mother was used. Results of a factor analysis revealed that average household income and parental educational level loaded on one factor (loadings of .79 for both income and educational level). Educational level and average household income were also significantly positively correlated, $r(344) = .26$, $p < .001$. Family SES therefore consists of the mean of

the standardized scores of household income and parental education level. Higher scores represent a higher SES.

Infant Sleep (4M). To measure infant sleep two questions based on the Brief Infant Sleep Questionnaire (Sadeh, 2004) were used. Parents were asked how many hours on average the infant has slept and how many times on average the infant has woken up during the night (between 19:00 and 7:00) in the past month. In the UK and the US one parent (typically the mother) was asked to answer the questions during the home visit. In the NL both parents answered the questions in the (online) questionnaire. For the NL a mean was calculated of the answers of mothers and fathers for infant sleep hours, $r(95)= .24$, $p = .017$, as well as number of awakenings, $r(96)= .70$, $p < .001$. For one father infant sleep hours data were missing. In that case only sleep hours reported by the mother was used. The number of times the infant woke up during the night was recoded (multiplied by -1) so higher scores represent better sleep of the infant. Infant hours of sleep and number of awakenings during the night (recoded) were standardized and averaged because they were significantly related, $r(353)= .20$, $p < .001$, and loaded on one single factor (factor loading of .77 for both variables).

Analyses

For analyses IBM SPSS Statistics 25 was used. First some preliminary analyses were performed. To examine parent gender and country differences in couple satisfaction and mental health problems separate GLM repeated measures ANOVAs were conducted per variable and wave (36W and 4M). Parent gender was the within-subjects factor and country the between-subjects factor. Differences between countries on family SES and infant sleep were analyzed using two one-way ANOVAs. Correlations were computed to examine relations between study variables.

To test whether couple satisfaction declined from 36W to 4M, and whether parent gender and 36W and 4M parental mental health problems, family SES, infant sleep, and country of residence of the parent moderated this decline a GLM repeated measures ANCOVA was conducted. Time (36W to 4M) and parent gender (father and mother) were the within-subjects factors, country (UK, NL, and US) was the between-subjects factor, and parental mental health problems (at 36W and 4M), family SES (36W), and infant sleep (4M) the covariates.

The variables pre- and postpartum maternal couple satisfaction, prepartum paternal couple satisfaction, and infant sleep had some low-scoring outliers, and maternal and paternal pre- and postpartum mental health problems and family SES had some high-scoring outliers. All outliers (values larger than a standard deviation of 3.29 above or below the mean) were winsorized by changing them so that they were still

most deviant, but did fall within the (-)3.29 standard deviation range (Tabachnick & Fidell, 2012). After winsorizing, family SES was normally distributed. All other variables were still (slightly) skewed, but the sample size was large enough ($n > 40$ participants per country) to assume normality of the sampling distributions of means.

Results

Preliminary analyses

Table 1 shows the descriptive statistics of the study variables. For 36W couple satisfaction, there was a significant main effect of parent gender, $F(1, 352) = 12.12$, $p = .001$, $\eta_p^2 = .03$. At 36W, mothers ($M = 72.62$, $SD = 0.40$) where more satisfied with their relationship than fathers ($M = 71.10$, $SD = 0.47$). There was no significant interaction effect between parent gender and country, $F(2, 352) = 0.45$, $p = .639$, $\eta_p^2 = .003$. At 4M, there was no significant main effect of parent gender, $F(1, 352) = 0.87$, $p = .351$, $\eta_p^2 = .002$, nor a significant interaction effect between parent gender and country for couple satisfaction, $F(2, 352) = 0.17$, $p = .841$, $\eta_p^2 = .001$. Results of the GLM repeated measures ANOVAs with 36W and 4M maternal and paternal mental health problems showed that there were no significant main effects of parent gender at either of the time points, 36W $F(1, 352) = 0.02$, $p = .890$, $\eta_p^2 < .001$; 4M $F(1, 352) = 0.05$, $p = .820$, $\eta_p^2 < .001$, nor interaction effects between parent gender and country (36W $F(2, 352) = 2.92$, $p = .055$, $\eta_p^2 = .02$; 4M $F(2, 352) = 2.46$, $p = .087$, $\eta_p^2 = .01$). In sum, the only parent gender difference that was found was that at 36W mothers were more satisfied with their relationship than fathers. No country differences were found for 36W or 4M partner relationship satisfaction and mental health problems.

Significant country differences were found for family SES, $F(2, 352) = 44.37$, $p < .001$, and infant sleep, $F(2, 352) = 10.32$, $p < .001$. Regarding family SES; couples in the US had a higher family SES than couples in the UK ($p < .001$) and the NL ($p < .001$) and couples in the UK had a higher family SES than couples in the NL ($p < .001$). Concerning infant sleep, infants in the NL slept better (more hours of sleep and fewer awakenings during the night) than infants in the UK ($p < .001$). There were no differences between infant sleep between the NL and US ($p = .209$) or between the UK and US ($p = .072$).

Table 1: Descriptive Statistics.

		36W				4M			
		UK (*n* = 172)	**NL (*n* = 97)**	**US (*n* = 86)**	**Total (*N* = 355)**	**UK (*n* = 172)**	**NL (*n* = 97)**	**US (*n* = 86)**	**Total (*N* = 355)**
		M(SD)	***M(SD)***	***M(SD)***	***M(SD)***	***M(SD)***	***M(SD)***	***M(SD)***	***M(SD)***
1. Couple	Mother	73.50 (7.07)	72.71 (6.45)	71.64 (8.00)	72.62 (7.17)[a]	69.55 (9.63)	69.19 (10.26)	66.19 (12.69)	68.63 (10.67)
Satisfaction	Father	71.86 (8.85)	71.78 (7.33)	69.65 (8.73)	71.10 (8.46)[b]	68.56 (11.37)	68.85 (10.52)	65.87 (11.33)	67.99 (11.17)
2. Family SES		0.02 (0.59)[d]	-0.52 (0.84)[d]	0.46 (0.76)[c]	-0.02 (0.79)				
3. Mental Health	Mother	0.06 (0.81)	-0.14 (0.85)	0.11 (0.83)	0.02 (0.83)	-0.08 (0.83)	-0.12 (0.81)	0.19 (0.80)	-0.02 (0.82)
Problems	Father	0.11 (0.87)	-0.35 (0.57)	0.26 (0.96)	0.02 (0.86)	0.03 (0.81)	-0.30 (0.73)	0.21 (0.97)	-0.01 (0.84)
4. Infant Sleep						-0.31 (1.10)[f]	0.21 (0.63)[e]	-0.04 (0.77)	-0.10 (0.94)

Note. Family SES consists of a composite score of parent's household income and educational level, Mental Health Problems consists of a composite score based on general health (GHQ), anxiety (STAI), and depressive symptoms (CES-D) of the parent, and Infant Sleep consists of a composite score of parent's reports on the average number of sleep hours and awakenings of the infant during the night. [a] and [b] differ significantly, $p = .001$, [c] and [d] differ significantly, $p < .001$, e and f differ significantly, $p < .001$.

Table 2: Correlations Between Couple Satisfaction and all Predictors for Fathers and Mothers (N =355).

	1.	**2.**	**3.**	**4.**	**5.**	**6.**
1. Couple Satisfaction 36W	.51***	.75***	-.09	-.25***	-.22***	.03
2. Couple Satisfaction 4M	.66***	.54***	-.11*	-.29***	-.40***	.05
3. Family SES 36W	-.10	-.14*	-	.10	.06	-.09
4. Parent Mental Health Problems 36W	-.26***	-.22***	-.04	.15**	.56***	-.14**
5. Parent Mental Health Problems 4M	-.26***	-.36***	-.01	.40***	.26***	-.12*
6. Infant Sleep 4M	.04	.03	-.09	-.04	-.10	-

Note. Below diagonal correlations for mothers, above the diagonal for fathers, and on the diagonal (bold) between mothers and fathers. Family SES and infant sleep are composite scores based on the average scores of mothers and fathers; therefore no correlations between mothers and fathers are presented. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 2 presents the correlations between the variables separately for fathers (above the diagonal) and mothers (below the diagonal), and between fathers and mothers (on the diagonal) for all countries together. For both mothers and fathers higher 36W couple satisfaction was significantly related to higher 4M couple satisfaction. For both parents 36W as well as 4M couple satisfaction was significantly negatively related to 36W and 4M mental health problems. For both parents mental health problems at 36W was significantly related to more mental health problems at 4M. For both mothers and fathers, family SES was significantly negatively related to 4M couple satisfaction. Only for fathers more 36W and 4M mental health problems were significantly related to less 4M infant sleep. Significant positive relations between mothers and fathers were found for couple satisfaction (at 36W and 4M) and mental health problems (at 36W and 4M).

Correlations were also calculated separately per county. Using Fisher r-to-z transformations we tested if there were significant differences in correlations between countries. For mothers, the positive correlation between 36W and 4M couple satisfaction was stronger (z = -2.27, p = .023) in the US (r(85) = .76, p < .001) than in the UK (r(171) = .60, p < .001). There were no significant country differences in the correlations for fathers. There was one country difference in the correlations between mothers and fathers; the positive correlation between 4M maternal and paternal mental health problems was stronger (z = -2.70, p = .007) in the US (r(85) = .43, p < .001) than in the UK (r(171) = .10, p = .191). All other correlations were similar across countries.

Predictors of couple satisfaction during the transition to parenthood

Results of the GLM Repeated Measures analysis showed that there was a significant main effect of time, $F(1, 346) = 150.86$, $p < .001$, $\eta_p^2 = .30$. Parents were less satisfied with their relationship at 4M (M = 68.07, SD = 0.47) than at 36W (M = 71.85, SD = 0.35). There was also a significant main effect of parent gender, $F(1, 346) = 5.60$, $p = .019$, $\eta_p^2 = .02$, with mothers (M = 70.51, SD = 0.41) being more satisfied with their relationship than fathers (M = 69.41, SD = 0.47). Two significant interaction effects were found for time: One between time and 4M maternal mental health problems, $F(1, 346) = 17.52$, $p < .001$, $\eta_p^2 = .05$, and one between time and 4M paternal mental health problems, $F(1, 346) = 23.05$, $p < .001$, $\eta_p^2 = .06$. To get insight into the direction of the interaction effects, the predictors 4M maternal and paternal mental health problems were categorized in high-scoring (scores above the median) and low-scoring (scores below the median) parents. The interaction effects between time and 4M maternal mental health problems and between time and 4M paternal mental health problems are presented in Figure 1a and b. As can be seen from the Figure the decrease in couple satisfaction was stronger for both parents when fathers

and mothers scored high on 4M mental health problems than when they scored low on 4M mental health problems. Finally, two interaction effects, between time and gender, $F(1, 346) = 3.45$, $p = .064$, $\eta_p^2 = .01$, and between time and family SES, $F(1, 346) = 3.77$, $p = .053$, $\eta_p^2 = .01$, were close to significant. Though not significant, the decrease of couple satisfaction from 36W to 4M seemed stronger for mothers and for families with a higher SES. There were no significant interaction effects between time and 36W maternal or paternal mental health problems, infant sleep, or country (range *p*-values = .360-.739).

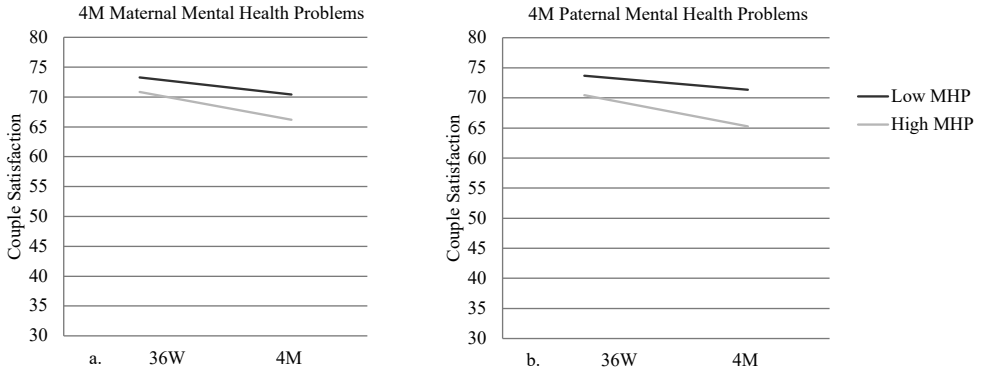

Figure 1: Interaction between time and 4M maternal mental health problems (a) and 4M paternal mental health problems (b). Note. MHP = Mental Health Problems.

Discussion

The goal of this study was to examine the trajectory of couple satisfaction during the transition to parenthood in relation to parent gender and mental health problems, family socioeconomic status, child sleep, and country of residence of the parent. Results showed that there was an average decrease in couple satisfaction during the transition to parenthood. This decrease was stronger when parents themselves or their partners had more postpartum mental health problems. Gender of the parent, prepartum mental health problems of the parent or partner, child sleep, family SES, and country of residence did not significantly predict variations in the trajectory of partner relationship quality.

As expected, an average decrease in couple satisfaction was found from the third trimester of pregnancy to four months postpartum. This is in line with previous research (e.g., Mitnick et al., 2009). Changing family roles (Belsky & Pensky, 1988; Cowan et al., 1985; Dew & Wilcox, 2011) as well as a decrease in leisure time and quality time with the partner (Belsky & Pensky, 1988; Dew & Wilcox, 2011) possibly play a role in the decrease in couple satisfaction after the birth of a child.

A stronger decrease for mothers was expected because the birth of a (first) child generally comes with more changes for mothers than fathers, especially in the first months after the baby is born (e.g., Belsky et al., 1983; Cowan et al., 1985). Contrary to this hypothesis we did not find a difference between mothers and fathers in the strength of the decrease in couple satisfaction. Some previous studies also found a similar decline in couple satisfaction for mothers and fathers (e.g., Doss et al., 2009), which may be due to less traditional gender roles in the current-day society, with fathers being more involved in raising children and mothers being more active at the labor market (e.g., Cabrera, Tammis-LeMonda, Bradley, Hofferth, & Lamb, 2000; Craig, Powell, & Smyth, 2014). In addition, in the current sample most families were highly educated, which in turn is known to be linked to less traditional gender role attitudes (e.g., Thornton, Alwin, & Camburn, 1983). This might lead to fewer differences between mothers and fathers in beliefs, behavior, and experiences with regard to (the transition to) parenthood, and thus more similar than different effects of becoming a parent on couple satisfaction.

Our hypothesis that a stronger decline in couple satisfaction would be found when parents or their partners had more pre- or postpartum mental health problems themselves (e.g., Bower et al., 2012; Don & Mickelson, 2014; Feenley et al., 2003; Trillingsgaard et al., 2014) was partly confirmed. More postpartum mental health problems of the parent as well as the partner were related to a stronger decrease in couple satisfaction, whereas prepartum mental health problems were not. Some studies also found that prepartum mental health problems of the parent (e.g., Trillingsgaard et al., 2014) or partner (e.g., Don & Mickelson, 2014) predicted a stronger decline in couple satisfaction. Most of them however only used prepartum measures of mental health problems and did not include postpartum measures as well. Our study suggests that, corrected for prepartum mental health problems, postpartum mental health problems are more important in predicting couple satisfaction. When spouses are adjusting to their new role as a parent it may be more difficult to deal with additional stressors such as their own mental health problems or mental health problems of their partner. Thus, having mental health problems when also taking care of a newborn baby is indeed likely to be more detrimental for the couple satisfaction than having mental health problems without having a baby. Because of the bidirectional nature of the relation between couple satisfaction and parent's mental health (e.g., Mamun et al., 2009), and the fact that only postpartum and not prepartum mental health problems accounted for the stronger decline in couple satisfaction it is also possible that a steeper decrease in couple satisfaction increases parent's mental health problems. This is in line with the marital discord model of depression (Beach et al., 1990) where relationship problems are thought to lead to mental health problems because of a decrease in support and increase in stress between the partners. More recent

studies also found within-couple concordance in (the trajectory of) parental mental health problems in first-time parent couples, and especially for fathers, the trajectory of mental health problems being similar to the trajectory of couple satisfaction, with increasing mental health problems across the transition to parenthood (Hughes et al., in press). This suggests that the trajectories of mental health problems and couple satisfaction during the transition to parenthood coincide. Even though we did find postpartum mental health problems to be a significant predictor, the effect sizes are small. Results therefore should be interpreted with caution and more studies are needed to confirm our results.

In contrast to the hypothesis that a higher SES was related to a stronger decline in couple satisfaction, SES was not a significant predictor of the trajectory of couple satisfaction during the transition to parenthood in the current study. This might be due to the lack of variability in SES in the sample. Only a small percentage of the parents (15% of the fathers and 7% of the mothers) had a low education level and a yearly household income below the country average (3.2%). Because we did find a trend towards a stronger decrease for couples with a high SES, there may have been not enough variation to discriminate between patterns in couple satisfaction between low and high SES couples. Future studies should try to include a representative group of couples with varying SES levels.

In contrast to the hypothesis that the decrease in couple satisfaction was stronger when infants had more sleeping difficulties, in this study child sleep quality did not predict the decline in satisfaction during the transition to parenthood. Possibly it is not the amount of sleep itself, but the behavior accompanied by the child's sleeping quality that plays a role. This is in line with one study where child sleep was also not related to the decrease in marital satisfaction, but crying of the child did predict a stronger decline (Meijer & Van den Wittenboer, 2007). Future studies would ideally also include sleep-related behavior of the baby, such as crying, as a predictor of couple satisfaction trajectories.

Lastly, as expected, the average decrease in couple satisfaction was found in all three countries and no country differences were found in the strength of the decrease. Previous research found the pattern of the decrease in multiple countries around the world (e.g., Belsky et al., 1985; Lu, 2006; Salmela-Aro et al., 2006), and in a meta-analysis the region of the sample also was no moderator in explaining heterogeneity of the overall effect sizes in the decrease (Mitnick et al., 2009). To our knowledge, this study is the first to compare the decrease across multiple countries using the same methods within one study. The current results thus add to the body of evidence that the average decrease in couple satisfaction during the transition to parenthood

is robust and might be universal. The samples within the three countries of the current study were, however, quite homogenous culturally and economically (mostly Caucasian with a relatively high SES). In addition, we only examined between-country differences and did not examine differences between cultural groups within the counties. To provide more evidence of the universality of the decrease future studies should also include and compare samples in more diverse cultural and economic contexts between, but also within countries.

This study has some limitations. First, only self-report measures are used. This increases the risk of social desirability influences on the data. Data across the different time point and variables were also reported by the same informant. We did however, where possible, use multiple informants (mother and father) and multiple question(naire)s per variable to decrease subjectivity. In the light of the subjective nature of couple satisfaction, and mental health problems as well, self-report is however an appropriate way to measure these constructs, and the questionnaires that were used are valid and reliable (Funk, & Rogge, 2007; Goldberg et al., 1998; Marteau & Bekker, 1992; Radloff, 1977). Second, our sample was quite homogeneous with respect to the cultural and economic background of the participants. To increase generalizability of results, future studies should include more heterogeneous samples with participants with more diverse backgrounds. Finally, even though we included predictors of couple satisfaction in multiple domains, within each domain we only included one variable. Future studies could include multiple predictors per domain to get even more insight in relevant predictors of the trajectory of couple satisfaction during the transition to parenthood. The current study is however a valuable addition to the current literature, due to its longitudinal design with a large sample of both mothers and fathers in three countries, and predictors of the pattern of couple satisfaction during the transition to parenthood in several relevant domains.

Overall, this study shows that the decrease in couple satisfaction during the transition to parenthood is common and quite robust. It is found in both fathers and mothers across three countries with no gender or country differences. Even though postpartum mental health problems of both parents was found to be associated with a larger decrease in couple satisfaction, all other factors that were examined did not predict the extent of the decrease. This suggests that the pattern of the average decrease is relatively impervious to a variety of family factors. Therefore, investing in fostering new parents' mental health, as well as in expectation management of expecting couples regarding the common decrease in couple satisfaction as part of the transition to parenthood, might be most helpful in perinatal family care.