Maternal resilience and parenting self-efficacy: A multi-method analysis of mediation and moderation effects

Cassé, J.F.H.

2015

document version
Publisher's PDF, also known as Version of record

2

first-time motherhood experiences and having a second child

Julie F. H. Cassé
Mirjam Oosterman
Brenda Volling
Carlo Schuengel

Submitted

ABSTRACT

Mothers' experiences with her first child may be relevant for having subsequent children. A total of 795 Dutch women reported on their first-time motherhood experiences during pregnancy and the first year, including on parenting self-efficacy, mood symptoms, birth expectations, child negative reactivity, and family demographics. Second child status (i.e., have, want, undecided, or not want a second child) was reported two years after women had their first child. Results indicated that mothers with two children at follow-up had higher prenatal parenting self-efficacy and less postnatal trait anxiety compared to mothers who wanted but did not yet have a second child. There was no evidence for indirect effects of mood symptoms via parenting self-efficacy. Also, mothers who did not want a second child had more unmet expectations regarding childbirth and, surprisingly, reported less child negative reactivity than other mothers. Implications of these findings are discussed.

INTRODUCTION

Becoming a mother is often thought of as a joyous occasion (e.g., Kohler, Behrman, & Skytthe, 2005), and increases have been found in perceived competence as a parent and improvements in mental health (Gameiro, Moura-Ramos, & Canavarro, 2009; Kunseler, Willemen, Oosterman, & Schuengel, 2014; Verhage, Oosterman, & Schuengel, 2013). In comparison, having a second child has not been found to increase maternal perceived competence and happiness (Gameiro et al., 2009; Kohler et al., 2005). Parenting two young children may be more demanding than parenting one child. Still, if mothers already have high parenting self-efficacy, the challenges of raising multiple children, may appear less daunting (Coleman & Karraker, 1998; Jones & Prinz, 2005). It is unknown whether first-time mothers' parenting self-efficacy independently or as a consequence of other psychosocial factors is associated with having a second child. In the Netherlands, having a second child is to a large extent planned evidenced by current women's options for and use of contraceptive birth control and low abortion rates (Haandrikman & Van Wissen, 2008). This suggests that having a second child is a conscious decision, in which self-efficacy cognitions may play a role. However, affective state and experiences around the transition to parenthood may play a role as well.

Parenting Self-Efficacy: Independent or Mediating Effects

Self-efficacy beliefs are important for setting goals (Bandura, 1977). People who feel inefficacious in a certain domain will set their goals for that domain lower, whereas people with higher self-efficacy beliefs may be more ambitious (Bandura, 1977). Also, people who are more convinced about their skills and abilities are thought to be more motivated towards their goal and to persevere in difficult circumstances (Bandura, 1982). The beneficial effects of self-efficacy on the initiation and maintenance of adaptive behaviors are supported by meta-analytical findings on work-related performance (Stajkovic & Luthans, 1998) and smoking cessation (Gwaltney, Metrik, Kahler, & Shiffman, 2009). While many other factors may be involved as well, mothers who are more convinced about their skills and abilities as a parent may also be more inclined to take on the challenging task of parenting two young children than mothers with lower parenting self-efficacy. The current study examined the hypothesis that mothers with two children would have the highest parenting self-efficacy followed by lower levels of parenting self-efficacy for mothers who wanted a second child, were undecided, or who did not want a second child, respectively.

Parenting Self-Efficacy and Mood Symptoms

Emotional reactions may impact parenting self-efficacy, which may act as a mediator towards behavioral outcomes (Bandura, 1977; Teti, O'Connell, & Reiner, 1996). Postnatal depressive

symptoms have been associated with parenting outcomes via parenting self-efficacy (e.g., Giallo, Treyvaud, Cooklin, & Wade, 2013; Jackson & Huang, 2000). Prenatal depressive and pre- and postnatal anxiety symptoms were consistently linked to lower prenatal and postnatal parenting self-efficacy (Barnett, Schaafsma, Guzman, & Parker, 1991; Kunseler et al., 2014; Porter & Hsu, 2003; Wernand, Kunseler, Oosterman, Beekman, & Schuengel, 2014). However, mediation effects of mood symptoms on behaviors and choices of parents via parenting self-efficacy have not been tested.

In addition to depression and anxiety, pregnancy-specific anxiety may be a relevant mood symptom to consider. Pregnancy anxiety includes specific fears, such as fear of giving birth, fear of bearing a physically or mentally handicapped child, and concern about one's appearance (Huizink, Mulder, Robles de Medina, Visser, & Buitelaar, 2004). Pregnancy anxiety overlaps only partially with general anxiety (Huizink et al., 2004). Little is known on the link between pregnancy anxiety and parenting self-efficacy. Pregnancy anxiety could be an early and distal correlate of parenting self-efficacy. Therefore, higher prenatal pregnancy anxiety and pre- and postnatal depressive and anxiety symptoms could negatively affect prenatal as well as postnatal parenting self-efficacy, which in turn, as hypothesized, may decrease the likelihood of having a second child.

Childbirth Expectations

Positive birth experiences have been linked to having subsequent children (Gottvall & Waldenström, 2002). In contrast, Klint Carlander, Andolf, Edman, and Wiklund (2013) did not find an effect of childbirth experiences at 9 months after giving birth. Expectations regarding childbirth that are measured closer to the delivery (e.g., Gottvall & Waldenström, 2002) may be a better predictor of fertility decisions. Childbirth expectations (i.e., expecting high quality support from nursing staff and partner) that are in line with actual experiences have been related to more positive evaluations of the birth process (Heaman, Beaton, Gupton, & Sloan, 1992). Also, women who experienced childbirth as negative due to unmet expectations reported more feelings of disappointment and anger (Hauck, Fenwick, Downie, & Butt, 2007). As unmet childbirth expectations can foster negative feelings regarding childbirth (Hauck et al., 2007; Heaman et al., 1992), they could negatively affect having a second child (Gottvall & Waldenström, 2002).

Unmet childbirth expectations may also be related to having more children via parenting self-efficacy. Bryanton, Gagnon, Hatem, and Johnston (2008) showed an association between positive birth experiences and higher parenting self-efficacy. As unmet childbirth expectations were related to more negative feelings regarding childbirth (Hauck et al., 2007; Heaman et al.,

1992) and these more negative feelings about childbirth were related to parenting self-efficacy (Bryanton et al., 2008), it may be hypothesized that unmet childbirth expectations negatively affected subsequent childbearing via lower parenting self-efficacy.

Child Negative Reactivity

There is a link between negative evaluations of child behavior and having a second child (Jokela, 2010), which seems in line with Bandura's (1977) suggestion that experiences of mastery from performance are the most important contribution to high self-efficacy beliefs. Generally, first-time mothers tend to increase their parenting self-efficacy from pregnancy and over the first year (e.g., Verhage et al., 2013), suggesting that actual parenting experiences usually foster parenting self-efficacy. Mothers with less positive experiences may be at risk for developing low parenting self-efficacy, which may be linked to experiencing their child as difficult. Mothers who reported more difficult child behavior also reported lower parenting self-efficacy (e.g., Giallo et al., 2013; Leerkes & Crockenberg, 2002). Importantly, there is also evidence for the mediation of child temperament on parenting outcomes via parenting self-efficacy (Giallo et al., 2013), which is in line with Teti and colleagues' (1996) suggestion that parenting self-efficacy functions as a ''final common pathway'' (p. 1) of intra- and interpersonal factors to parenting outcomes. It was hypothesized that lower parenting self-efficacy acted as a mediator of mothers' experiences of more child negative reactivity on the lower likelihood of mothers having a second child.

This Study

The current study offered a social-cognitive framework for understanding family expansion beyond having one child by considering prenatal and postnatal maternal psychosocial experiences which may complement current demographic (e.g., Sobotka, Skirbekk, & Philipov, 2011), sociological (e.g., Oppenheimer, 1994), and psychological perspectives (e.g., Jokela, 2010) on family size. Mothers with two children were expected to have the highest parenting self-efficacy beliefs followed by lower parenting self-efficacy for mothers who wanted but did not yet have a second child, did not know whether they wanted a second child, and mothers who did not want a second child, respectively. Parenting self-efficacy was also tested as a possible mediator for the hypothesized effect of prenatal and postnatal mood symptoms, child birth expectations, and child negative reactivity on second child status. Experiences of more negative mood symptoms during pregnancy and the first year and more reported child negative reactivity in the first year would result in lower pre- and/or postnatal parenting self-efficacy, in turn impacting second child status. Factors that may impact wanting a second child, such as maternal age (Bongaarts, 2002), child gender (Hank, 2007), maternal education (McLanahan,

2004), and family income (Sobotka et al., 2011), were included as control variables. The current study was conducted in the Netherlands where 65% of mothers had a second child during the time period of the data collection (2009-2014), on average 2.3 to 3 years after birth of the first child (Statistics Netherlands, 2008).

METHOD

Sample

First-time pregnant women (N = 795) ranged in age from 19 to 42 years (M = 30.36, SD = 3.8) at birth of their first child. Most women were living with their partner (53%) or were married (43%), with few women (4%) being single or lived separately from their partner. The sample was highly educated with mostly higher professional education diplomas (39%) or university degrees (34%). A lower number of women had a middle-level applied education level or lower (27%). Gross income was measured with four categories of which the lowest category was merged with the second lowest, resulting in three groups: less than €42.900 (26%), €42.900 – €69.700 (39%), and more than €69.700 (34%). Women predominantly had two Dutch parents (91%), 6% had at least one parent that was non-Dutch Western and the remaining 3% had at least one parent who was non-Western. Slightly more girls (51%) than boys were born in the sample. More first-time pregnancies were planned (87%) than unplanned (13%). This study was conducted within the larger cohort study Generations[2].

Procedure

First-time pregnant women were recruited through midwifery practices, websites, and ‘‘what to expect when you’re expecting’’-information meetings in community centers in the area of Amsterdam. Informed consent was obtained from pregnancy to the first year after birth. Questionnaires were sent via postal mail including a self-addressed envelope. Mothers giving permission to be contacted for future research were approached when their child was 1.8 years and contacted to participate in the 2-year assessment until children reached the age of 2.5. After obtaining written consent for the 2-year assessment, women received a personal login code to complete online questionnaires. If questionnaires were not completed within 2 weeks, women were sent a reminder by e-mail and 2 weeks later they were contacted by phone. This process was repeated until birth for the prenatal assessment, until 9 months for the 3-month assessment (M = 3.11, SD = .64), until 1.5 years for the 1-year assessment (M = 1.12, SD = .05), and until 2.5 years for the 2-year assessment (M = 2.25, SD = .39). All participants that had reached the 2-year assessment were included in the study.

Measures

Second child status. At 2 years, mothers were asked the question: ''If you think about the future, do you want a second child?'' The distribution of the response options used in the current study were as follows: 424 mothers were pregnant or had a second child, 259 mothers wanted a second child but were not yet pregnant, 39 mothers had not yet made up their mind about having or not having a second child, and 73 mothers stated not wanting a second child. Eighty-nine percent of the women who had a second child or were pregnant had planned their pregnancy and 11% had an unplanned but wanted pregnancy. Comparing this to the first pregnancy, also 89% had a planned and wanted first pregnancy, 10% had an unplanned but wanted first pregnancy, and only 1% had an unplanned and unwanted first pregnancy.

Pregnancy anxiety. A Dutch translation of the Pregnancy Related Anxieties Questionnaire – Revised (PRAQ-R; Huizink, 2000; Huizink et al., 2004) was used to measure specific fears and concerns regarding the pregnancy at 12 weeks, 22 weeks, and 32 weeks pregnancy. The questionnaire consisted of 34 items (e.g., ''I am afraid of pain during the contractions and the child-bearing'') that were scored on a 5-point Likert scale ranging from 1 = *absolutely not applicable* to 5 = *very well applicable*. High scores reflected high pregnancy anxiety. Internal consistency of this measure was good at 12 (α = .81), 22 (α = .89), and 32 (α = .89) weeks. An average mean of the three assessments was used in the analyses.

First birth expectations. At 3-months postpartum mothers answered the question: ''Was childbirth in general as you expected it would be?'', which was scored on a 4-point Likert scale ranging from 1 = *totally not as I had expected* to 4 = *exactly as I had expected*. Higher scores reflected more confirmation of first birth expectations.

Depressive symptoms. The Dutch Beck Depression Inventory-II (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961; Van der Does, 2002) was used to measure depressive symptoms over the past two weeks including the day of the assessment at 12 weeks, 22 weeks, and 32 weeks pregnancy and 3 months and 12 months postpartum. Perceptions of 21 symptoms (e.g., sadness, pessimism, suicidal thoughts) were scored on a 4-point scale ranging from 0 = *absent* to 3 = *highly intense*. Higher average scores were indicative of more depressive symptoms. Internal consistency of this measure during pregnancy was good at 12 (α = .82), 22 (α = .82), and 32 (α = .83) weeks as well as 3 (α = .86) and 12 (α = .86) months postpartum. A prenatal and postnatal average mean was used in the analyses.

Anxiety symptoms. The Dutch translation of the Spielberger State-Trait Anxiety Inventory (STAI: Spielberger, Gorsuch, & Lushene, 1970; Van der Ploeg, Defares, & Spielberger, 1980)

was used to measure anxiety symptoms at 12 weeks, 22 weeks, and 32 weeks pregnancy and 3 months and 12 months postpartum with 20 items for state (e.g., ‘‘I feel anxious.’’) and 20 items for trait (e.g., ‘‘I feel at ease.’’) anxiety. State anxiety could be answered with 1 = *not at all* to 4 = *very much so* and trait anxiety could be answered with 1 = *almost never* to 4 = *almost always*. Internal consistency of this measure was excellent at 12 (State: α = .96; Trait: α = .96), 22 (State: α = .96; Trait: α = .96), and 32 (State: α = .94; Trait: α = .93) weeks pregnancy, as well as 3 (State: α = .94; Trait: α = .94), and 12 (State: α = .97; Trait: α = .97) months postpartum. A prenatal and postnatal average mean was used in the analyses.

Child negative reactivity. Firstborn children's perceived temperament was measured by combining two scales of the Infant Behavior Questionnaire (Rothbart, 1981): (a) distress to limitations and (b) distress and latency to approach sudden or novel stimuli to assess negative reactivity at 3 and 12 months. Distress to limitations consisted of 20 items (e.g., ‘‘During feeding, how often did the baby: fuss or cry when he had enough to eat?’’) and distress and latency to approach sudden or novel stimuli consisted of 16 items (e.g., ‘‘How often during the last week did the baby: cry or show distress when tickled?’’). All items were rated on a 7-point Likert scale from 1= *never* to 7 = *always* or mothers could mark ‘‘Not applicable’’, with higher scores indicating higher negative reactivity. The sum of the items per subscale was divided by the number of items answered with 1 to 7. Internal consistency of these measures was good at 3 (α = .84) and 12 (α = .82) months. An average mean of the two assessments at 3 and 12 months was used in the analyses.

Parenting self-efficacy. Parenting self-efficacy regarding the firstborn was measured with a Dutch translation of the Maternal Self-Efficacy in the Nurturing Role Questionnaire (Pedersen, Bryan, Huffman, & Del Carmen, 1989) at 12, 22, and 32 weeks pregnancy and 3 and 12 months postpartum. The questionnaire consisted of 16 items (e.g., ‘‘I wonder if I really understand my baby's needs.’’) that were scored on a 7-point Likert scale ranging from 1 = *not at all representative of me* to 7 = *strongly representative of me*. Higher average scores reflected higher parenting self-efficacy beliefs. Internal consistency of this measure was good at 12 (α = .85), 22 (α = .88), and 32 (α = .88) weeks pregnancy and at 3 (α = .84) and 12 (α = .85) months postpartum. A prenatal and postnatal average mean was used in the analyses.

Data Analytic Plan

Multiple imputations were used to minimize bias as a result of random missing data and were done predictive mean matching (PMM; Little, 1988). Models were checked for outliers, linearity of the logit (Hosmer & Lemeshow, 1989), and multicollinearity (Field, 2009) and reported on in case of abnormalities.

Hierarchical logistic regression models were run using nested models. The first model compared mothers with two children to mothers with one child. The second model compared mothers with two children and mothers who wanted two children to undecided mothers and mothers who did not want two children. The third model compared mothers with two children, mother who wanted two children, and undecided mothers to mothers who did not want two children. Each model consisted of the same steps with control variables in step 1 (i.e., child age, maternal age, child gender, education, and income), pregnancy anxiety and unmet first-birth expectations in step 2, mood symptoms in step 3 (i.e., depressive and anxiety symptoms), child negative reactivity in step 4, and parenting self-efficacy in step 5. Non-significant steps and variables were omitted from the analyses. Significant variables were tested for indirect effects via parenting self-efficacy by using the Preacher and Hayes bootstrapping resampling method (2004). The statistical significance of each step was determined by examining the increment of Nagelkerke pseudo R^2.

RESULTS

Preliminary Results

Missing data were missing completely at random (MCAR) based on Little's MCAR test; $\chi^2 = 1862.17$, $df = 14532$, $p = 1$. Assumptions of logistic regression analyses were not violated and there were no outliers influencing the models.

Descriptive statistics and associations between continuous study variables are shown in Table 1. Cross tabulations between child gender, education, and income indicated that women with a higher education level received more gross income; $\chi 2(4, N = 795) = 115.37$, $p < .001$. Univariate models (SPSS did not provide pooled data, therefore original sample size was reported) showed that higher educated mothers reported less prenatal depressive symptoms; $F(2, 722) = 10.87$, $p < .001$, less postnatal depressive symptoms; $F(2, 768) = 4.51$, $p < .05$, less prenatal trait anxiety; $F(2, 722) = 10.06$, $p < .001$, less prenatal state anxiety; $F(2, 719) = 5.91$, $p < .01$, and more child negative reactivity; $F(2, 766) = 6.21$, $p < .01$. Mothers with a higher income reported childbirth to be more as expected; $F(2, 650) = 4.630$, $p < .05$, less prenatal; $F(2, 631) = 4.69$, $p < .01$, and postnatal; $F(2, 670) = 4.36$, $p < .05$, depressive symptoms, less prenatal; $F(2, 634) = 11.7$, $p < .001$, and postnatal; $F(2, 667) = 6.47$, $p < .01$, trait anxiety symptoms, and less prenatal; $F(2, 632) = 10.46$, $p < .01$, and postnatal; $F(2, 667) = 3.54$, $p < .05$, state anxiety symptoms. Mothers with two children had somewhat older children at 2-years than mothers with one child; $t(793) = -2.59$, $p = .015$. Mothers who wanted

Table 1. Correlations and Descriptive Statistics of Continuous Predictor Variables

	1	2	3	4	5	6	7	8	9	10	11	12
1. Maternal age	-	.01	.04	-.1**	.03	-.04	.02	-.03	.07	-.05	-.02**	-.13***
2. Pregnancy anxiety		-	-.14**	.54***	.45***	.65***	.52***	.65***	.48***	.28***	-.56***	-.46***
3. Childbirth expectations			-	-.15***	-.17***	-.17***	-.16***	-.16***	-.13***	-.08*	.1*	.1*
4. Depressive symptoms prenatal				-	.59***	.7***	.49***	.67***	.4***	.17***	-.29***	-.28***
5. Depressive symptoms postnatal					-	.56***	.75***	.51***	.71***	.27***	-.3***	-.47***
6. Anxiety symptoms^{state} prenatal						-	.8***	.86***	.64***	.22***	-.48***	-.45***
7. Anxiety symptoms^{state} postnatal							-	.63***	.87***	.29***	-.42***	-.57***
8. Anxiety symptoms^{trait} prenatal								-	.63***	.22***	-.49***	-.44***
9. Anxiety symptoms^{trait} postnatal									-	.29***	-.41***	-.55***
10. Child negative reactivity										-	-.24***	-.34***
11. PSE prenatal											-	.67***
12. PSE postnatal												-
M	30.36	1.95	2.42	.41	.33	1.59	1.49	1.58	1.51	2.79	5.66	6
SD	3.81	.39	.97	.2	.22	.38	.4	.37	.4	0.5	.56	.53
Minimum	18.74	1.12	1	0	0	1	1	1	1	1.41	3.42	4
Maximum	41.8	3.89	4	1.35	1.45	3.13	3.23	3.23	3.13	4.25	7	7

Note. PSE = Parenting Self-Efficacy.

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

a second child and mothers who were undecided were more likely to have a firstborn girl than a boy; $\chi^2(2, N = 795) = 13.26$, $p < .01$. The current study controlled for the effects of child age, child gender, maternal age, gross income, and maternal education.

First-time motherhood experiences predicting second child status

Hierarchical logistic regression models were run using nested models. The first model compared mothers with two children to mothers with one child. The second model compared mothers with two children and mothers who wanted two children to undecided mothers and mothers who did not want two children. The third model compared mothers with two children, mother who wanted two children, and undecided mothers to mothers who did not want two children. Each model consisted of the same steps including control variables in step 1, pregnancy anxiety and unmet birth expectations in step 2, mood symptoms in step 3, child reactivity in step 4, and parenting self-efficacy in step 5. Non-significant steps and variables were omitted from the analyses and the final model was tested using parenting self-efficacy as a mediator. Model 1, model 2, and model 3 are presented in Table 2, Table 3, and Table 4, respectively.

First-time motherhood experiences predicting mothers with two children (model 1). Variables in model 1 explained 15% of the variance comparing mothers with two children to mothers with one child, of which 4% was explained by psychosocial experiences. An one point decrease in postnatal trait anxiety symptoms (average scores ranged from 1 to 3.13) made it 1.88 times more likely for mothers to have a second child compared to not having a second child. Also, an one point increase in prenatal parenting self-efficacy (average scores ranged from 3.42 to 7.00) made it 1.41 times more likely to have a second child.

Prenatal parenting self-efficacy was associated with having versus wanting a second child, suggesting there may be indirect effects of prenatal mood symptoms on second child status. Prenatal indirect effects were tested using the bootstrapping resampling method of Preacher and Hayes (2004). The 95% confidence interval of the indirect effects included zero for depressive symptoms, 95% CI [-.001, .001], state anxiety symptoms, 95% CI [-.005, .016], trait anxiety symptoms, 95% CI [-.005, .015], and pregnancy anxiety, 95% CI [-.001, .012], while controlling for child age, maternal age, education, and income (pooled results are not available in SPSS, but original data and separate imputations did not yield different results). Thus, there were no indirect effects of prenatal mood symptoms on second child status via prenatal parenting self-efficacy.

Table 2. Model 1: Hierarchical Logistic Regression Predicting Mothers with Two Children (N = 424) Compared to One Child Mothers (N = 371)

	B (SE)	***Exp(B)***	***p***
Step 1 **Control Variables**	Step $\chi^2 = 67.37$ $p < .001$ Pseudo $R^2 = .11$		
Child Age	.59 (.2)	1.81	.004
Maternal Age	-.1 (.02)	.9	< .001
Education (low - high)	-.94 (.22)	.4	< .001
Education (mid - high)	-.71 (.18)	.49	< .001
Education (mid - low)	ns		
Income (low - high)	-.56 (.24)	.57	.02
Income (mid - high)	-.52 (.21)	.59	.015
Income (mid - low)	ns		
Step 2 **Mood**	Step $\chi^2 = 18.8$ $p < .001$ Pseudo $R^2 = .03$		
$STAI^{trait}$ postnatal	-.63 (.21)	.53	.003
Step 3 **PSE**	Step $\chi^2 = 5.62$ $p < .05$ Pseudo $R^2 = .01$		
PSE prenatal	.35 (.15)	1.41	.019
Model χ^2	91.79 $p < .001$		
Pseudo R^2	.15		

Note. STAI = State-Trait Anxiety Inventory; PSE = Parenting Self-Efficacy.

Demographic factors explained most of the variance (11%). Every year a mother was younger, mothers were 1.12 times more likely to have two children. Mothers within the high education group were 2.56 times more likely than within the low education group and 2.00 times more likely than the middle education group to have two children. Mothers in the high income group were 1.75 times more likely than the low income group and 1.67 times more likely than the middle income group to have two children.

First-time motherhood experiences predicting mothers with two children and who wanted two children (model 2). Variables in model 2 explained 27% of the variance comparing mothers with two children and mothers who wanted two children to undecided mothers and mothers who did not want two children of which 6% was explained by childbirth expectations and child temperament. Mothers whose first childbirth expectations were one

Table 3. Model 2: Hierarchical Logistic Regression Predicting Mothers Who Had or Wanted a Second Child (N = 683) Compared to Mothers Who Did Not Want a Second Child or Did Not Know Yet (N = 112)

	B (SE)	***Exp(B)***	***p***
Step 1 **Control Variables**	Step $\chi^2 = 100.16$ $p < .001$ Pseudo $R^2 = .21$		
Child Gender	.92 (.24)	2.52	< .001
Maternal Age	-.21 (.03)	.81	< .001
Education (low - high)	-1.58 (.36)	.21	< .001
Education (mid - high)	-1.25 (.32)	.29	< .001
Education (mid - low)	ns		
Income (low - high)	-.85 (.36)	.43	.02
Income (mid - high)	ns		
Income (mid - low)	ns		
Step 2 **Pregnancy & Birth**	Step $\chi^2 = 18.35$ $p < .001$ Pseudo $R^2 = .04$		
Birth Expectations	.53 (.14)	1.69	< .001
Step 3 **Child**	Step $\chi^2 = 8.13$ $p < .01$ Pseudo $R^2 = .02$		
Negative Reactivity	.66 (.25)	1.94	.01
Model χ^2	126.64 $p < .001$		
Pseudo R^2	.27		

point (ranging from 1 to 4) higher were 1.69 times more likely to have or want a second child. Surprisingly, mothers reporting one point higher on child negative reactivity (average scores ranged from 1.41 to 4.25) during the first year were 1.94 times more likely to have or want a second child.

Demographic factors explained most of the variance (21%). Mothers with a firstborn boy were 2.52 times more likely to have or want a second child. Every year mothers were younger, mothers were 1.24 times more likely to have or want a second child. Mothers within the high education group were 4.76 times more likely than the low education group and 3.45 times more likely than the middle education group to have or want a second child. Mothers in the high income group were 2.23 times more likely than the low income group to have or want a second child.

First-time motherhood experiences predicting mothers with two children, who wanted two children, and undecided mothers (model 3). Variables in model 3 explained 26% of the variance comparing mothers with two children, who wanted two children, and undecided mothers to mothers who did not want two children of which 7% was explained by psychosocial experiences. Mothers whose first childbirth expectations were one point (ranging from 1 to 4) higher were 2.04 times more likely to have, want, or not know about a second child compared to mothers who did not want a second child. Surprisingly, mothers reporting one point higher on child negative reactivity (average scores ranged from 1.41 to 4.25) during the first year were 1.96 times more likely to have, want, or not know about a second child.

Demographic factors explained most of the variance (19%). Mothers with a firstborn boy were 2.49 times more likely to have, want, or not know about a second child compared to mothers who did not want a second child. Every year mothers were younger, mothers were 1.27 times more likely to have, want, or not know about a second child. Mothers with in the

Table 4. Model 3: Hierarchical logistic regression predicting mothers with a second child, wanted a second child, or did not know yet (N = 722) compared to mothers who did not want a second child (N = 73)

	B (SE)	***Exp(B)***	***p***
Step 1 **Control Variables**	Step $\chi^2 = 71.92$ $p < .001$ Pseudo $R^2 = .19$		
Child Gender	.91 (.29)	2.49	< .001
Maternal Age	-.24 (.04)	.79	< .001
Education (low - high)	-1.56 (.39)	.21	< .001
Education (mid - high)	-1.15 (.38)	.32	< .001
Education (mid - low)	ns		
Step 2 **Pregnancy & Birth**	Step $\chi^2 = 23.6$ $p < .001$ Pseudo $R^2 = .06$		
Birth Expectations	.71 (.19)	2.04	.001
Step 3 **Child**	Step $\chi^2 = 5.99$ $p < .05$ Pseudo $R^2 = .01$		
Negative Reactivity	.67 (.29)	1.96	.02
Model χ^2	101.51 $p < .05$		
Pseudo R^2	.26		

high education group were 4.76 times more likely than the low education group and 3.13 times more likely than the middle education group to have, want, or not know about a second child compared to not want a second child.

Comparing Model 1, Model 2, and Model 3

Variables in model 1 explained the least amount of the variance (15%) comparing mothers with two children to mothers with one child. Variables in model 2 explained most of the variance (27%), which was comparable with model 2 (26%). Also in terms of significant variables, model 2 and 3 were very similar. In model 2, mothers with two children and mother who wanted two children were distinguishable from undecided mothers and mothers who did not want a second child with regard to their expectations regarding first childbirth and child negative reactivity. Group membership of undecided mothers did not yield different results (model 3), showing that these mothers were comparable to mothers who wanted two children as well as mothers who did not want a second child based on the study variables.

In sum, mothers with two children and mothers who wanted a second child were different from undecided mothers and mothers who did not want a second child with regard to less unmet childbirth expectations and more self-reported child negative reactivity. Model 1 suggested that mothers with two children could be distinguished from mothers with one child based on lower postnatal trait anxiety symptoms and higher prenatal parenting self-efficacy. This was not the case for models 2 and 3. The difference between models 1 and 2 was the prediction of the mothers with two children (model 1) in comparison to mothers with two children and mothers who wanted a second child (model 2). Thus, mothers who wanted a second child differed in mood and parenting self-efficacy from mothers with two children. In all the models, demographic variables explained the largest amount of variance, with younger mothers, more income, higher education, and a firstborn boy being factors that increased the likelihood of having and wanting a second child compared to not having or wanting a second child.

DISCUSSION

The current study showed that parenting self-efficacy was associated with having a second child. Mothers with two children had higher prenatal parenting self-efficacy than women who wanted but did not yet have a second child. This effect was found after correcting for a difference in time between childbirth and the 2-year assessment, suggesting it was not a timing effect. Also, parenting self-efficacy was hypothesized to act as a proximal mediator

for distal mood symptoms and child negative reactivity. There was no evidence for indirect effects. Nevertheless, there was a direct effect of postnatal trait anxiety symptoms on having a second child. Also, mothers who did not want a second child reported more unmet childbirth expectations, however, surprisingly reported less child negative reactivity.

Parenting Self-Efficacy and Having a Second Child

Higher prenatal parenting self-efficacy, being convinced of the skills and abilities to parent successfully before the first child is born, predicted an increased likelihood of mothers having a second child compared to mothers wanting but not yet having a second child. Although the relevance of the concept prenatal parenting self-efficacy is apparent from studies showing that parenting self-efficacy is already measurable during pregnancy and has been found important for postnatal maternal mood and parenting self-efficacy (e.g., Porter & Hsu, 2003), there is little insight into the development of prenatal parenting self-efficacy, which was central to the hypotheses of the current study.

Coleman and Karraker (1998) suggested several possible ways in which prenatal parenting self-efficacy may develop. First, parenting self-efficacy beliefs may be formed by cognitive representations or working models from relationships with parents or caregivers. Second, parents-to-be are part of a larger network with other parents in which they exchange information and experiences. Third, actual experiences with other children could give mothers a start in experiences with children which she then could relate to visualizations of parenting her own child. Fourth, women differently adjust to upcoming parenthood on a cognitive and emotional level, suggesting that some mothers may feel more confident in becoming a parent than others (Kunseler et al., 2014). Based on prenatally formed parenting self-efficacy some mothers may feel more prepared than other mothers, for becoming a mother of multiple children.

This complements the notion that, because of a ‘need to nurture’, most women may have at least one child, but having two or more children might rely on different motivations for childbearing (Foster, 2000). There is evidence that relatively stable personality traits can impact family size after the first child. Jokela, Kivimäki, Elovainio, and Keltikangas-Järvinen (2009) have shown that more sociable individuals and parents who show less negative emotionality were more likely to have a second child. This suggests that prenatal parenting self-efficacy could be a trait-like factor developed before becoming a parent, which may impact having versus wanting a second child.

Study results showed that experiences with mothers’ first child (i.e., postnatal parenting self-efficacy) did not impact second child status. First-time mothers’ parenting self-efficacy has been found to increase from the prenatal period to the first year (e.g., Kunseler et al., 2014),

suggesting the possibility that mothers with lower parenting self-efficacy may have caught up with the prenatally more efficacious mothers. Also, in previous studies, parenting self-efficacy has been related to parenting outcomes, which often encompasses particular parenting behaviors, such as limit setting or sensitivity (Miller-Heyl, MacPhee, & Fritz, 1998). Having a second child may be a more distal parenting outcome, influenced by many other factors found in demographic and sociological studies on childbearing. We controlled for factors that may impact having a second child (i.e., maternal age, child gender, maternal education, and family income), which may have been more powerful predictors than postnatal parenting self-efficacy.

Parenting Self-Efficacy as a Mediator

There was a direct effect of prenatal parenting self-efficacy on second child status, however, there was no indication of indirect effects of prenatal mood symptoms on second child status via prenatal parenting self-efficacy. There was no direct effect of postnatal parenting self-efficacy on second child status which excludes the possibility of indirect effects. Nevertheless, there were direct effects of postnatal trait anxiety symptoms, unmet childbirth expectations, and child negative reactivity on second child status.

Postnatal trait anxiety symptoms. Postnatal trait anxiety symptoms measured over the first year were higher among mothers who wanted a second child compared to mothers who already had two children. Trait anxiety can be considered a stable personality trait related to the tendency of a person to react with apprehension and nervousness compared to state anxiety which refers to current feelings of tension and worry (Spielberger, 2010). Nevertheless, trait anxiety can change and has been found to increase from the prenatal to the postnatal period (Kunseler et al., 2014), possibly explaining the lack of a significant finding with prenatal trait anxiety symptoms. Higher postnatal trait anxiety symptoms of mothers who wanted a second child may have made them more reluctant and hesitant to become pregnant of a second child as a result of increased feelings of worries and apprehension during the first year compared to mothers with two children.

Unmet childbirth expectations. Mothers who did not want a second child compared to mothers who had or wanted a second child had more unmet childbirth expectations. This is in line with findings linking violations of expectations, whether positive or negative, to negative childbirth experiences (Hauck et al., 2007) which have been related to lower chances of subsequent children (Gottvall & Waldenström, 2002). Then, expectations regarding childbirth should have been more in line with actual experiences to increase the likelihood of going through childbirth a second time for mothers who did not want a second child.

Child negative reactivity. Surprisingly, women who had or wanted two children experienced their first child's behavior during the first year as more negative than women who did not want a second child. This finding is contrary to Jokela's (2010) finding that overall more positive perceptions of early child behavior were related to an increased chance of having a second child. However, Jokela (2010) also unexpectedly found that mothers who reported more emotional symptoms at age 3 (not at age 5) also were more likely to have a second child. However, he argued that heightened child emotionality may have been the temporary result of the birth of a sibling, given their finding only applied to sibling birth before age 3 and not after. Alternatively, also mentioned by Jokela (2010), more fearful child behavior can elicit positive parenting (Van Bakel & Riksen-Walraven, 2002). Possibly, a mother of a negatively reactive child during the first year experiences a broader range of child behaviors. In response to exposure to a larger variety of infant behaviors, mothers who had or wanted two children compared to mothers who did not want a second child may have developed a wider range of parenting behaviors suitable for dealing with many different kinds of infant temperament. In this way, mothers may have more knowledge of difficult infant behavior and feel more equipped to deal with a second child as a result. This may especially be true for mothers with infants that are rated as difficult, but easy to soothe (Leerkes & Crockenberg, 2002).

Crisis theory (Caplan, 1964) offers an additional perspective on why children' s negative reactivity predicted mothers having versus wanting a second child which proposes that growth can occur in response to stressful life events. Stress-related growth has been linked to acute stressors, such as immediate family illness, but also to lower level long-term stressors like marital or work problems, financial problems, or pregnancy-related problems (Armeli, Gunthert, & Cohen, 2001). As a result of stressors, people can experience growth dependent on personal and social resources and adaptive coping. Experiencing more child negative reactivity during the first year may be experienced as a stressor which can foster stress-related growth in some mothers. More research should shed light on the possible positive effects of child temperament on the likelihood of having a second child.

Limitations and Directions for Future Research

The current study has several limitations. First, psychological research indicates that intentions to become a parent are determined by the personality traits of both parents (Hutteman, Bleidorn, Penke, & Denissen, 2013). Thus, future research could benefit by including fathers' parenting behavior and cognitions, and the dyadic processes between mothers and fathers. Second, changes in second child status were not taken into account. Fifty-three percent of the mothers had a second child compared to 65% in the Dutch population (Statistics Netherlands,

2011). This somewhat smaller amount of mothers with two children is consistent with the demographic composition of the sample. According to Statistics Netherlands (2008), mothers between ages 29 and 35 have a second child, on average, 2.8 years after the first. Mothers in the current study had an average maternal age of 30.36 and as the 2-year assessment took place at 2.3 years after birth of the first child, mothers who wanted a second child may have had a second child with a longer follow-up period after the first child's birth. Also, the undecided mothers may form a decision at some later point or mothers who stated they did not want a second child may change their minds and decide to have a second child. Clearly, the decision to have a second child or not is a much more complex and changing dynamic than the findings here may suggest. Further measurements would give more information about changes in second child status. Third, Macklon, Geraedts, and Fauser (2002) showed that under optimal circumstances, the chance of a pregnancy per menstrual cycle is 30-40%. This suggests that differences between women who want a second child and women who have a second child may be partly related to physical and health factors, rather than psychosocial ones. Fourth, the small group of women (n = 39) who did not know yet whether they wanted a second child may not have had the statistical power to yield significant results. More participants in this condition would shed more light on possible effects of this second child status.

Conclusion

The results of the current study suggested that higher prenatal parenting self-efficacy played a role for mothers with two children compared to mothers who wanted two children. There was no mediation of mood symptoms or child negative reactivity via parenting self-efficacy. However, there was a main effect of lower postnatal trait anxiety for mothers with two children compared to mothers who wanted two children, and a main effect of more unmet childbirth expectations and more positive perceptions of child negative reactivity for mothers who had or wanted two children compared to mothers who did not want a second child. The results indicated that psychosocial factors, after controlling for well-known demographic factors, differed between mothers with and without a second child. The current study may stimulate researchers from various fields to consider first-time maternal psychosocial experiences as relevant predictors of subsequent childbearing. In addition, the study demonstrated that more insight in prenatal differences setting women apart in terms of childbearing beyond the first child may be of importance and should be further explored.