Journal of Family Psychology
2017, Vol. 31, No. 4, 420–430

0893-3200/17/$12.00 http://dx.doi.org/10.1037/fam0000282

Longitudinal Associations Between Marital Stress and Externalizing Behavior: Does Parental Sense of Competence Mediate Processes?

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Ecological theories emphasize associations between children and elements within their family system, such as the marital relationship. Within a developmental perspective, we longitudinally examined (a) dynamic associations between marital stress and children's externalizing behavior, (b) mediation of these associations by parental sense of competence, and (c) the extent to which associations are similar for mothers and fathers. The sample consisted of 369 two-parent families (46.1% boys; M_{age} at Time 1 = 7.70 years; 368 mothers, 355 fathers). Marital stress related to having a child, children's externalizing behavior, and perceived parental competence were assessed three times across 8 years. Multigroup analyses were used to examine models for both parents simultaneously and test for similarity in associations across spouses. A bivariate latent growth model indicated positive associated change between marital stress and externalizing behavior, supporting the idea of codevelopment. The cross-lagged panel model revealed a reciprocal relation between marital stress and perceived parental competence across a time interval of 6 years. Additionally, two elicitation effects appeared during adolescence, showing that parents who reported higher externalizing problems in early adolescence reported more marital stress and a lower sense of competence two years later. Similar associations were found for mothers and fathers. Overall, this study indicates that marital stress and externalizing behavior codevelop over time and supports literature on developmental differences regarding interrelations between subsystems and individuals within the family system.

Keywords: marital stress, externalizing behavior, parental sense of competence, fathers and mothers

Ecological theories and family systems theory emphasize that the developing child cannot be understood independently from characteristics of and interactions within the home environment (Belsky & Jaffee, 2006). These theories identify the marital relationship as an essential subsystem in this family system, influencing other subsystems and individuals (Cox & Paley, 2003). Previous research has revealed associations between the marital relationship and child adjustment (Cummings & Davies, 2011). However, most studies have neglected developmental change in the marital relationship and child behavior or reciprocity between those constructs (Cox & Paley, 2003). This study addressed these gaps in previous research, using a large time span including childhood and adolescence. We aimed to improve the understanding of the associations between marital stress related to having a child and children's externalizing behavior by (a) examining interrelations between developmental changes in marital stress and externalizing behavior, (b) investigating whether parental sense of competence mediates the relation between marital stress and externalizing behavior over time, and (c) testing to what extent associations are similar for mothers and fathers.

Bidirectional Influences Between the Marital Relationship and Child Behavior

The marital relationship is often considered at the center of the family system (Cox & Paley, 2003), functioning as a source of stress when parents are dissatisfied with their relationship and lack support from their spouse (Belsky & Jaffee, 2006). This stress can "spill over" and affect individual members of the system, such as the developing child. In general, research has shown that several aspects of the marital relationship (e.g., low quality, more stress or conflicts) are related to children's behavioral problems (Stroud, Meyers, Wilson, & Durbin, 2015; Teubert & Pinquart, 2010) and academic achievement (Ghazarian & Buehler, 2010) across several developmental periods. In this study, we focus on a specific, potentially understudied aspect of the marital relationship, namely marital stress related to having a child, or the parenting context (Abidin, 1995). From a family systems perspective, this concept might especially be important for child and parental functioning, and it is closely related to the concept of coparenting, because it

This article was published Online First January 5, 2017.

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The ideas and data appearing in the manuscript have not been posted elsewhere (e.g., on a Listserv or website).

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taps into the part of the marital relationship where spouses are joined parents (Teubert & Pinquart, 2010).

Conversely, children's behavioral problems can elicit stress within the marital relationship (Broderick, 1993), because children have an active role in shaping their environment and development (Bell, 1968). Unfortunately, however, few studies have investigated these *elicitation effects* for the marital relationship (i.e., mainly for parenting), and even fewer studies have examined these elicitation effects beyond early childhood. For example, mothers of children referred for persistent crying reported higher levels of marital distress than did mothers of nonreferred children (Papoušek & von Hofacker, 1998). Also, poor adaptation and unpredictability in infants were related to decreases in love and increases in marital conflicts (Belsky & Rovine, 1990). Accordingly, it is likely that heightened levels of behavioral problems of older children and adolescents elicit marital stress, because these behavioral problems can generate interparental disagreements and demand more resources from parents. In retrospect, young adults pointed to adolescence as the period in which they had the most negative impact on their parents' relationship (Ambert, 2001).

(Co)development of Marital Stress and Externalizing Behavior

Most studies so far have neglected developmental changes in marital stress and child behavior or their potential reciprocity, by focusing on either spillover or elicitation effects (e.g., Stroud et al., 2015). It is important, however, to acknowledge that marital stress and externalizing behavior are not static. Research has indicated that, on average, externalizing problems tend to decrease from childhood to adolescence and increase during adolescence before decreasing again into adulthood (Bongers, Koot, van der Ende, & Verhulst, 2004; Petersen, Bates, Dodge, Lansford, & Pettit, 2015). It is important to take into account, in addition to normative (group-level) changes, individual differences in these changes, as well as individual and familial aspects influencing this development (Petersen et al., 2015). Further, although examined less often, marital quality tended to decline over time and across parenthood, and this normative decline also depended on various aspects at the parent and family levels (Kamp Dush & Taylor, 2012; Umberson, Williams, Powers, Chen, & Campbell, 2005). Less is known about the development of other aspects of the marital relationship, such as conflict or stress.

Moreover, incorporating this developmental change, family processes and children's behavior should be viewed as coevolving, influencing and adjusting to each other (De Haan, Prinzie, & Deković, 2012). Cui, Conger, and Lorenz (2005) integrated this perspective and showed that increases in marital distress were associated with decreases in adolescent adjustment over a 3-year period, but they did not investigate potential reciprocity between these two constructs. Yet, both theory and empirical research have suggested reciprocity between the marital relationship and children's behavior (i.e., both spillover and elicitation effects over time). Goldberg and Carlson (2014) showed that for marital support and externalizing behavior, spillover effects were apparent in families with children between 3 and 5 years old, and elicitation effects appeared between 5 and 9 years old, suggesting reciprocal directions of effects over time. In early adolescence, delinquency and depression were reciprocally linked to marital dissatisfaction over a 2-year period (Cui, Donnellan, & Conger, 2007). Again, over a 2-year period, marital conflict predicted change in children's behavior (i.e., spillover), and children's behavior predicted an increase in marital conflict (i.e., elicitation; Jenkins, Simpson, Dunn, Rasbash, & O'Connor, 2005). However, these studies examined only a restricted time period or developmental period, whereas the present study investigated reciprocity by simultaneously examining spillover and elicitation effects across a large time span covering middle childhood and adolescence. This enabled us to provide insights into the long-lasting consequences for children experiencing marital stress, regarding their adjustment, as well as the enduring effects of increased disruptions in child behaviors on the level of stress in the marital relationship. Moreover, examining the direction of effects showed us whether the interrelations differed for middle childhood and adolescence. Thus, the present study expands previous research by studying the dynamics of the family system by focusing on the codevelopment of and reciprocity between marital stress related to having a child and externalizing behavior across a large time span.

The Mediating Role of Parental Sense of Competence

Additionally, this study goes beyond examining direct associations between changes in marital stress and changes in externalizing behavior over time by aiming to explain *why* these constructs are interrelated. To answer this question, research has mainly focused on the parent–child relationship or parenting behavior as mediating mechanism (Grych & Fincham, 2011; Kaczynski, Lindahl, Malik, & Laurenceau, 2006) or recently on coparenting (Stroud et al., 2015). However, it is important to identify parent-level mediators of spillover, which might serve as targets for interventions (Baden, 2012). In this study, parental sense of competence (i.e., parents' perceptions about their ability to positively influence their child's development) is examined as a potential mediator, because it has been shown to be an important parental cognitive feature that plays a central role in child and family functioning (Coleman & Karraker, 1998; Jones & Prinz, 2005). Existing work has shown that it is a strong predictor of parents' emotional well-being (Jones & Prinz, 2005), satisfaction with family life (Bandura, Caprara, Barbaranelli, Regalia, & Scabini, 2011) and positive parenting behaviors (De Haan, Prinzie, & Deković, 2009; De Haan, Soenens, Deković, & Prinzie, 2013) and that it is (in)directly related to child adjustment (Jones & Prinz, 2005; Junttila, Vauras, & Laakkonen, 2007). In this study, parental sense of competence is proposed a mediator through which marital stress and externalizing behavior exert their influence on each other.

First, we hypothesized that perceived parental competence can explain why marital stress affects later externalizing behavior. According to the self-efficacy theory, competence beliefs are shaped by several aspects of the environment, such as other people whom a person shares close relationships with (Bandura, 1994). Because social support in general has been identified as predictor of parental competence (Coleman & Karraker, 1998; Merrifield & Gamble, 2013), it has been argued that the spousal relationship in particular is an important source of support for parenting (Belsky, 1984). Subsequently, several aspects of the marital relationship have been linked to parental competence. Feeling supported by one's spouse (Suzuki, 2010), self- or partner-reported marital satisfaction (Kwok, Ling, Leung, & Li, 2013), and marital main-

tenance behaviors (Merrifield & Gamble, 2013) have been identified as important predictors of parental sense of competence. Marital stress related to having children has not yet been examined in relation to parental sense of competence but can be expected to show a similar negative association over time, especially given recent research showing that coparenting, another aspect of the marital relationship closely related to the parenting role, has been associated with parental competence (Merrifield & Gamble, 2013; Solmeyer & Feinberg, 2011).

Additionally, less perceived parental competence is expected to be related to more child problem behavior over time (Belsky, 1984; Jones & Prinz, 2005). Children might react on the potential doubts or frustrations expressed by parents with a lower sense of competence. Cross-sectionally, negative associations have been reported by earlier studies (e.g., Slagt, Deković, de Haan, van den Akker, & Prinzie, 2012). One empirical study that examined prospective relations between parental sense of competence and externalizing behavior, found no support for this association (Slagt et al., 2012). In this study, we examine whether parental sense of competence provides a mechanism to explain the link between marital stress and later child externalizing behavior.

Second, we hypothesized that parental sense of competence can explain why children's externalizing behavior is related to subsequent marital stress. Children's challenging behavior can elicit or reinforce low feelings of competence in parents, because parents might interpret their children's problems as a result of their failing at parenting. This negative association has been found for both spouses (De Haan et al., 2013; Slagt et al., 2012), although one study found this relation for mothers but not for fathers (Murdock, 2013). A recent study has shown that this child-driven process, where adolescents' externalizing behavior was related to subsequent changes in parental sense of competence, was present during middle to late adolescence but not during early adolescence (Glatz & Buchanan, 2015). Possibly, effects of adolescent (problem) behaviors become more influential as adolescents get older and the parent–child relationship becomes more egalitarian.

Moreover, the idea of interdependence in the family systems theory suggests an important link between feelings of competence about the role in the parenting subsystem and marital functioning (Cox & Paley, 2003; Moore & Buehler, 2011). It can be expected that negative emotions and cognitions associated with a lower parental sense of competence may spill over to the marital subsystem, resulting in more interparental discussions and less experienced support and satisfaction in the dyadic marital relationship (Bandura, 1994; Cox & Paley, 2003). Parental sense of competence has not yet been linked to marital stress related to having a child. However, research has shown that a lower parental sense of competence was related to less marital satisfaction (Kwan, Kwok, & Ling, 2015) and to more proneness to divorce (Moore & Buehler, 2011). In contrast, parental sense of competence was not related to marital satisfaction in a sample of stay-at-home fathers (Rochlen, McKelley, Suizzo, & Scaringi, 2008). To summarize, more externalizing behavior was expected to relate to more marital stress via a lower sense of parental competence.

Differences Between Mothers and Fathers

Until now, most research on associations between marital stress, parental sense of competence, and child behavior has neglected fathers (Jones & Prinz, 2005). However, there is an increasing acknowledgment that fathers play a vital role in their children's development (Lamb, 2010). So far, evidence has been mixed, either showing no differences in associations across parents (De Haan et al., 2013; Slagt et al., 2012) or showing prospective associations for mothers only (Murdock, 2013; Rochlen et al., 2008). Therefore, we examine to what extent patterns of associations are similar for mothers and fathers.

Aims and Hypotheses

Summarizing, the overarching aim to increase the understanding of the dynamic associations between marital stress related to having a child and children's externalizing behavior was achieved by examining two related research aims. The first aim was to examine interrelations between change in marital stress and externalizing behavior. We expected positive associated change, indicating a process of codevelopment, and, regarding direction of effects, spillover and elicitation effects over time (Belsky & Jaffee, 2006). Second, we aimed to investigate the longitudinal mediating role of parental sense of competence in relations between marital stress and externalizing behavior (Bandura, 1994; Jones & Prinz, 2005). We expected more marital stress to be associated with subsequently less perceived parental competence, which in turn was expected to be related to more future externalizing behavior. Conversely, we expected more externalizing behavior to be related to lower feelings of parental competence and, in addition, less perceived competence to be related to more marital stress. Moreover, we explored potential developmental differences in these processes and similarity in patterns of associations across mothers and fathers.

Method

Participants

This study is part of the Flemish Study on Parenting, Personality and Development (see Prinzie et al., 2003). All procedures in this study were approved by the board of the Katholieke Universiteit Leuven. We used data from the third (2001; Time 1 [T1]), fifth (2007; T2) and sixth (2009; T3) wave, because these waves contained the measures of interest. To investigate our research questions, we selected informants who participated at T1 and at least one additional time point within families who stayed together during the study period. Although family processes continue when divorce or death of a parent takes place, taking intervening stressful circumstances and transitions into consideration was beyond the scope of this study (Amato, 2010). Our final sample consisted of 369 families with a child between 6 and 10 years old at T1 (46.1% boys; M_{age} = 7 years 8 months, SD_{age} = 1.16). Boys and girls did not differ in age, $t(367) = -.98$, $p = .33$. Within these families, 368 mothers and 354 fathers participated at T1, 360 mothers and 346 fathers participated at T2, and 364 mothers and 349 fathers participated at T3. From 329 families, both mothers and fathers provided complete data at all three time points, and in total, 351 mothers and 335 fathers provided complete data at all measurement moments. At T1, mothers' mean age was 36.64 years (SD = 3.50) and fathers' mean age was 38.61 years (SD = 3.85).

Percentages of mothers' and fathers' highest educational level were .7% and 2.7% for elementary school, 33.9% and 40.6% for secondary school, 49.7% and 34.5% for nonuniversity higher education, and 15.8% and 22.2% for university, respectively.

Missing data points across the study amounted to 2.27% for the mother data and 2.35% for the father data. Little's (1988) missing completely at random test indicated that values missing were completely at random for mothers, $\chi^2(46) = 6.64$, $p > .999$, and fathers, $\chi^2(59) = 17.40$, $p > .999$. The low percentage of missing data was treated with the full information maximum likelihood approach to make optimal use of the data (Kaplan, 2000).

Measures

Marital stress. Parents completed the seven-item marital relationship scale of the Parenting Stress Index (PSI; Abidin, 1995; De Brock, Vermulst, Gerris, & Abidin, 1992) at all waves, capturing the extent to which parents experience stress within the marital relationship related to having a child. Answers are given on a 6-point Likert scale ranging from 1 (*totally disagree*) to 6 (*totally agree*). Cronbach alphas for the average scores ranged between .85 and .89 for both spouses (with higher scores representing higher levels of experienced marital stress). The correlation across spouses' reports was .50 at T1, .44 at T2, and .46 at T3.

Children's externalizing problems. Parents completed the externalizing scale of the Child Behavior Checklist (CBCL; Achenbach, 1991; Verhulst, van der Ende, & Koot, 1996) at all waves. This scale consists of 35 items, including aggressive and delinquent behaviors (e.g., fighting, lying, lacking guilt, and using alcohol or drugs). Each item is rated on a 3-point scale ranging from 0 (*not true*) to 2 (*often/very true*). Cronbach alphas for the sum score ranged between .84 and .88 for both spouses (with higher scores representing more externalizing behavior). The correlation between mother and father reports was .67 at T1, .67 at T2, and .61 at T3.

Parental sense of competence. Parents reported on the sense of competence scale of the PSI at all waves (Abidin, 1995; De Brock et al., 1992). This scale contains 13 items capturing to what extent parents feel they are competent in positively influencing their child's behavior and development. Answers are given on a 6-point Likert scale ranging from 1 (*totally disagree*) to 6 (*totally agree*). Cronbach alphas for the average scores ranged between .73 and .83 for both spouses (with, higher scores representing a higher sense of parental competence). The correlation across spouses was .36 at T1, .37 at T2, and .24 at T3.

Analyses

We performed structural equation modeling in Mplus Version 7 (Múthen & Múthen, 1998–2012). Maternal and paternal reports on the constructs were used separately. We used multigroup analyses to simultaneously examine the hypothesized model for mothers and fathers (i.e., models in which all variables were reported by either mothers or fathers). Next, we tested whether patterns of associations were similar across spouses, by comparing models in which associations were estimated freely for mothers versus fathers with models wherein the pathways of interest were constrained to be equal across parents.

Developmental changes in marital stress and externalizing behavior were estimated with univariate latent growth models (LGMs). LGM has the advantage of capturing average within-subject change, as well as between-subjects differences in this change (Curran & Bauer, 2011). For both constructs, two models were specified and compared: (a) a linear growth model with factor loadings of .0 (T1), .6 (T2) and .8 (T3), to take into account the time intervals of 6 and 2 years, respectively, and (b) an unspecified model, in which the factor loading of the observed variable on the slope at the second time point was freely estimated (factor loadings: T1 = .0, T3 = 1.0). When similar change patterns appeared for spouses, similarity of the growth parameters across spouses was statistically tested. Then, to address our first aim, regarding the codevelopment of marital stress and externalizing behavior, we modeled a bivariate latent growth model, in which the correlation between the change factor of marital stress and the change factor of externalizing behavior was the parameter of interest. The correlation between change factors was then tested for similarity across spouses (but only if univariate change patterns were similar across spouses).

To further examine directions of effects between marital stress and externalizing behavior and to answer our second aim on the longitudinal mediation effect of parental sense of competence, we supplemented the LGM with another time-based approach: cross-lagged panel modeling (CLPM). CLPM provides the condition of time precedence and controls for stability in constructs and within-wave correlations between the variables, thereby providing a stringent test of explained variance in the constructs. Therefore, it is the most appropriate approach for testing directionality of effects and longitudinal mediation effects (Preacher, 2015). First, a baseline model—including stability paths for the variables, T1 correlations and correlated changes between the variables, and all cross-lagged effects—was fitted (Model 1; i.e., including pathways from marital stress directly to externalizing behavior and vice versa, as well as pathways from marital stress and externalizing behavior to perceived parental competence and vice versa). Next, we examined whether the cross-lagged relations were similar across spouses by comparing a free model with a model wherein these pathways were constrained to be equal across parents.

Additionally, we examined whether results of the CLPM could be replicated on partner ratings of child externalizing behavior by running two additional models: one in which father ratings of child externalizing behaviors were added to the mother model (i.e., a model with three measurement moments of maternal marital stress, maternal sense of competence, mother reports of externalizing behavior, and father reports of externalizing behavior) and one in which mother ratings of child externalizing behaviors were added to the father model (i.e., a model with three measurement moments of paternal marital stress, paternal sense of competence, father reports of externalizing behavior, and mother reports of externalizing behavior). Stability paths and within-wave correlations between all included variables were modeled. Both models were analyzed twice: Once, all associations were estimated freely, and once, associations of mother and father reports of externalizing with the other concepts were constrained to be equal. If the constrained models did not fit the data significantly worse than did the freely estimated models, associations between child externalizing behavior and the other constructs were not due to rater bias (alone).

We evaluated model fit with the relative chi-square, comparative fit index, Tucker–Lewis index, root-mean-square error of approximation, and the standardized root-mean-square residual (Byrne, 2013). To compare models, we used chi-square difference testing with the Satorra-Bentler scaling correction (Satorra & Bentler, 2001). To take into account nonnormality in the data, we used a robust maximum likelihood estimator in all analyses (Satorra & Bentler, 2001).

Results

Descriptive Statistics

Descriptive statistics and bivariate correlations are displayed in Table 1. Paired-samples t tests showed that mothers reported higher levels of marital stress than did fathers at T1, $t(350) = 3.44$, $p = .001$, $d = .19$, and T3, $t(345) = 2.34$, $p = .020$, $d = .13$, but not at T2, $t(343) = 1.08$, $p = .283$. In addition, mothers reported significant higher levels of externalizing behavior than did fathers at T1, $t(352) = 3.42$, $p = .001$, $d = .15$, and T3, $t(342) = 1.99$, $p = .048$, $d = .10$, but not at T2, $t(343) = 1.24$), $p = .217$. Finally, mothers' and fathers' reports of perceived parental competence did not differ significantly: T1, $t(350) = 1.55$, $p = .123$; T2, $t(343) = 1.70$, $p = .090$; T3, $t(345) = 0.35$, $p = .726$.

Developmental Trajectories of Marital Stress and Externalizing Problem Behavior

The first step in our analyses was to estimate univariate latent growth models for marital stress and externalizing behavior to examine the shape of growth in both constructs, for mothers and fathers separately using a multigroup analysis (see Table 2 for model fit statistics and Table 3 for model results).

For marital stress, a multigroup model specifying linear growth fitted the data acceptably; however, the unspecified model provided a statistically better fit to the data (see Table 2). Model results showed that the freely estimated factor loading of the observed variable on the slope at the second time point represented linear growth for mothers (factor loading was .84) and a different, nonlinear growth pattern for fathers (factor loading was 1.75). Therefore, in the final model, linear growth was specified for mothers and the unspecified growth model was estimated for fathers. This model provided a significantly better fit than did the multigroup linear model and did not differ in model fit from the multigroup unspecified model. Model results showed that, on average, the slope factor was not statistically significant, indicating that reported levels of marital stress by mothers and fathers were stable from T1 to T3. It is important to note, however, that significant slope variance indicated between-subjects variability in their rate of change in reported marital stress (see Table 3).

For externalizing behavior reported by parents, a multigroup model specifying linear growth provided excellent fit to the data, and model fit was not significantly worse than was fit of the unspecified model (see Table 2). Next, constraining the growth parameters across spouses for equality did not lead to a significantly worse fit to the data, indicating that change patterns were similar for externalizing behavior reported by mothers and fathers. Model results showed that, on average, the level of externalizing behavior reported by mothers and fathers declined across the eight years. Moreover, significant between-subjects differences in rates of change were present (see Table 3).

Associated Change Between Marital Stress and Externalizing Problem Behavior

Our first aim was to investigate whether change in marital stress was related to change in externalizing behavior using a bivariate latent growth model. The individual differences in both change factors enabled us to investigate this association. Models were run separately for mothers and fathers, given different shapes of growth in marital stress for mothers (linear) versus fathers (unspecified), using a multigroup analysis.

Model fit statistics are presented in Table 2, and results are displayed in Figure 1. The model fitted the data well and, most important, the results revealed a moderate and positive correlation between the slope factors of marital stress and externalizing behavior for mothers and fathers (see Figure 1). This indicates that a stronger decrease in externalizing behavior is associated with a stronger decrease in marital stress across time and, conversely, that a weaker decrease in externalizing behavior is associated with a weaker decrease in marital stress over time.

Table 1
Descriptive Statistics and Bivariate Correlations for Measures of Marital Stress, Externalizing Behavior and Parental Competence

Measures	1	2	3	4	5	6	7	8	9	$M_{fathers}$	$SD_{fathers}$
1. Marital stress T1	—	.42	.57	.32	.18	.22	−.54	−.34	−.39	1.83	0.73
2. Marital stress T2	.61	—	.64	.23	.31	.25	−.31	−.63	−.46	1.90	0.82
3. Marital stress T3	.57	.74	—	.24	.30	.36	−.36	−.44	−.58	1.87	0.77
4. Externalizing T1	.39	.27	.27	—	.47	.47	−.35	−.26	−.23	5.45	5.02
5. Externalizing T2	.31	.34	.31	.60	—	.65	−.17	−.32	−.27	4.65	4.93
6. Externalizing T3	.25	.25	.30	.46	.62	—	−.22	−.24	−.34	4.76	4.92
7. Sense of competence T1	−.51	−.39	−.33	−.48	−.33	−.27	—	.58	.59	5.29	0.61
8. Sense of competence T2	−.39	−.57	−.51	−.33	−.44	−.39	.58	—	.68	5.17	0.66
9. Sense of competence T3	−.37	−.43	−.55	−.35	−.38	−.52	.51	.69	—	5.10	0.68
$M_{mothers}$	2.00	1.98	2.00	6.34	5.01	5.21	5.22	5.09	5.07		
$SD_{mothers}$	0.84	0.83	0.86	6.07	5.00	5.44	0.64	0.71	0.66		

Note. Descriptives for mother reports are presented below the diagonal; descriptives for father reports are presented above the diagonal. All correlations were significant at $p < .001$. T = time.

Table 2
Model Fit Statistics and Model Comparisons for Latent Growth Models (LGMs) and Cross-Lagged Panel Models (CLPMs)

Model	χ^2	*df*	χ^2/df	CFI	TLI	RMSEA	90% CI	SRMR	Model comparison[a]	$\Delta\chi^2$	Δdf	*p*
Univariate LGM: Marital stress												
Linear	26.28***	6	4.38	0.951	0.951	.097	[.061, .136]	.056				
Unspecified	3.42	4	0.86	1.000	1.002	.000	[.000, .074]	.028	vs. linear	17.00	2	<.001
Final model	3.77	5	0.75	1.000	1.004	.000	[.000, .063]	.030	vs. linear	19.10	1	<.001
Univariate LGM: Externalizing												
Linear	7.66	6	1.28	0.993	0.993	.028	[.000, .078]	.040				
Unspecified	4.73	4	1.18	0.997	0.995	.022	[.000, .085]	.031	vs. linear	2.92	2	.233
Gender equality	17.30	11	1.57	0.974	0.986	.040	[.000, .074]	.075	vs. linear	10.63	5	.056
BLGM												
Model 1	32.26	21	1.54	0.988	0.983	.039	[.000, .064]	.032				
CLPM												
Baseline model	137.04***	18	7.61	0.933	0.756	.135	[.115, .157]	.047				
Model 2	38.82***	15	2.59	0.987	0.941	.066	[.041, .092]	.022				
Gender equality	50.33**	27	1.86	0.987	0.986	.049	[.027, .070]	.037	vs. Model 2	11.52	12	.558

Note. CFI = comparative fit index; TLI = Tucker–Lewis index; RMSEA = root-mean-square error of approximation; CI = confidence interval; SRMR = standardized root-mean-square residual; BLGM = bivariate latent growth model.
[a] χ^2 difference testing with Satorra-Bentler scaling correction.
** $p < .01$. *** $p < .001$.

Direction of Effects Between Marital Stress and Externalizing Behavior

To further examine directions of effects between marital stress and externalizing behavior, as well as the longitudinal role of parental sense of competence, we performed cross-lagged panel analyses using multigroup analyses. Model fit statistics are included in Table 2, and model results are presented in Figure 2 and Table 4. Model fit statistics from the multigroup model showed that the baseline model provided inadequate fit to the data. Based on the modification indices, 8-year stability coefficients were added to the father model, resulting in an acceptable model fit (Model 2). Next, constraining the cross-lagged effects to be equal across spouses did not yield significantly worse fit to the data than did the model in which associations were freely estimated across spouses, showing that the same pattern of overtime associations appeared for mothers and fathers.

Model results showed that, regarding the direction of effects, higher levels of externalizing behavior at T2 were related to a slightly higher level of reported marital stress at T3 but not between T1 and T2. Moreover, no direct spillover effects were found between marital stress and subsequent externalizing behavior. Furthermore, model results showed that initial time point correlations between marital stress and externalizing behavior were small to moderate and that correlated changes at T2 and T3 between the two constructs were small for both spouses.

Mediation by Parental Sense of Competence

The second aim was to examine whether parental sense of competence mediates between marital stress and externalizing problems. Results of the CLPM showed that more marital stress related to having a child at T1 was related to less perceived parental competence at T2 but not between T2 and T3 (see Figure 2). Externalizing behavior at T1 was not significantly related to parental sense of competence at T2, but more externalizing behavior at T2 was associated with less perceived parental competence at T3. Conversely, perceived parental competence was not significantly related to subsequent levels of externalizing behavior across both time intervals. Less parental sense of competence at T1 was related to small increases in marital stress at T2, but parental sense of competence at T2 was not significantly related to marital stress at T3. Additionally, no significant indirect effects were found from marital stress through perceived parental competence to externalizing behavior ($b = .08$, $SE = .06$, $p = .175$, $\beta < .01$) or from externalizing behavior through perceived parental compe-

Table 3
Univariate Growth Model's Fixed Effects, Variances, and Parameter Covariances, Using Multigroup Analyses

Measure	Intercept		Slope		Intercept–slope covariance
	Mean	Variance	Mean	Variance	
Marital stress					
Mothers	1.99***	0.52***	−0.007	0.41***	−0.14*
Fathers	1.83***	0.34***	0.04	0.10*	−0.04*
Externalizing behavior[a]	5.84***	21.57***	−1.26***	19.03***	−9.79***

[a] Growth parameters were equal across spouses.
* $p < .05$. *** $p < .001$.

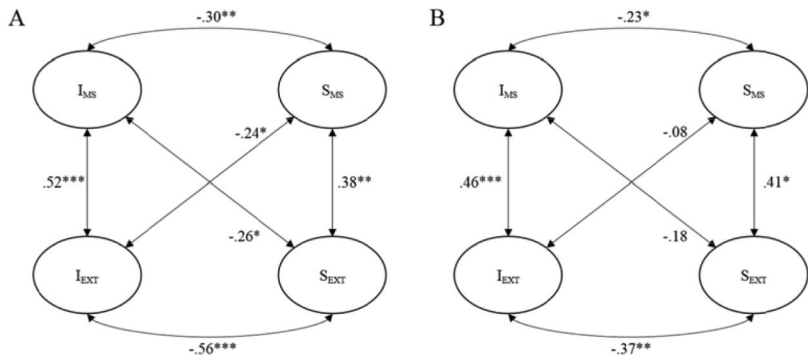

Figure 1. Bivariate latent growth model showing associated change between eight year change in marital stress (related to raising children) and children's externalizing behaviors, for mothers (left) and fathers (right). Standardized covariance estimates are displayed. I = intercept; S = (linear) slope; MS = marital stress; EXT = externalizing behavior. * $p < .05$. ** $p < .01$. *** $p < .001$.

tence to marital stress ($b < .01$, $SE < .01$, $p = .337$, $\beta = .01$). Also, initial time point correlations were significant and moderate to strong. For mothers, correlated changes were moderate for parental sense of competence with the other two constructs, whereas for fathers, the correlated change between marital stress and sense of competence was strong at T2.

Finally, cross-informant replication analyses in both the mother and the father model showed that the model wherein associations between marital stress, sense of competence and mother and father rating of child externalizing were constrained across the informants, $\Delta\chi^2(8) = 5.98$, $p = .649$, did not fit the data significantly worse than did the model wherein these associations were estimated freely across informants, $\Delta\chi^2(8) = 8.63$, $p = .375$, suggesting that the bidirectional effects were not due to rater bias (alone).

Discussion

This study examined dynamic associations between marital stress and children's externalizing behavior, mediation of these associations by parental sense of competence, and similarity in these associations across parents, from middle childhood to adolescence among a large community sample. The main results support the idea of codevelopment between marital stress and externalizing behavior; however, they are unsupportive of the hypothesized mediational role of parental sense of competence. Overall, similar associations were found across parents.

Supportive of the first hypothesis, associated change over a period of eight years was found, indicating that developmental change in marital stress and in children's externalizing behavior

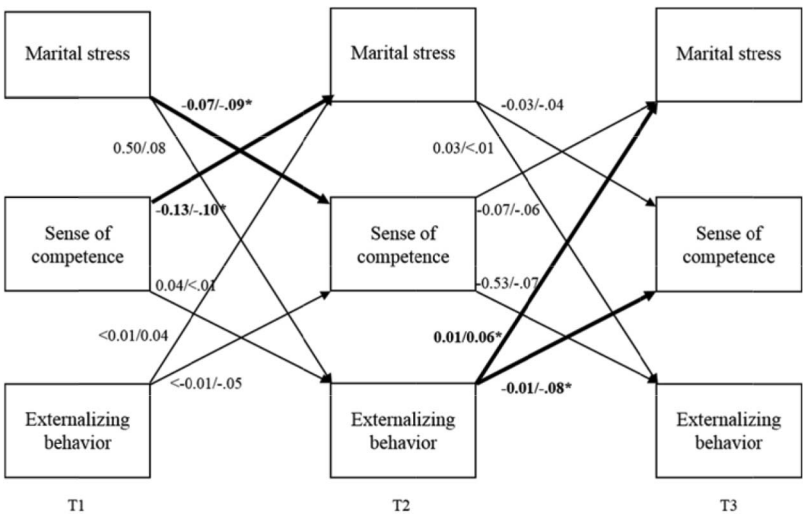

Figure 2. Longitudinal pathways between marital stress (related to raising children), parental sense of competence, and children's externalizing behaviors in the multi-group cross-lagged panel model. Unstandardized beta coefficients appear before the slashes, and standardized coefficients appear after the slashes. Bold font indicates a significant pathway. Stability paths, initial time point correlations and correlated changes are omitted in this figure for reasons of clarity. * $p < .05$.

Table 4
Parameter Estimates of the Final Mediational Cross-Lagged Panel Model, Using Multigroup Analyses

Model parameters	Mothers				Fathers			
	b	*SE*	*p*	β	*b*	*SE*	*p*	β
				Autoregressive paths				
T1 marital stress → T2 marital stress	0.53	.05	<.001	.53	0.43	.06	<.001	.38
T2 marital stress → T3 marital stress	0.70	.04	<.001	.68	0.42	.07	<.001	.45
T1 marital stress → T3 marital stress					0.34	.06	<.001	.32
T1 externalizing → T2 externalizing	0.48	.05	<.001	.57	0.45	.06	<.001	.45
T2 externalizing → T3 externalizing	0.66	.07	<.001	.61	0.53	.07	<.001	.53
T1 externalizing → T3 externalizing					0.20	.07	.003	.21
T1 sense of competence → T2 sense of competence	0.58	.06	<.001	.52	0.56	.05	<.001	.52
T2 sense of competence → T3 sense of competence	0.56	.04	<.001	.62	0.51	.07	<.001	.49
T1 sense of competence → T3 sense of competence					0.32	.06	<.001	.28
				Initial time point correlations and correlated changes				
T1 marital stress ↔ T1 externalizing	1.98	.41	<.001	.39	1.14	.24	<.001	.31
T1 marital stress ↔ T1 sense of competence	−0.27	.03	<.001	−.51	−.24	.03	<.001	−.54
T1 externalizing ↔ T1 sense of competence	−1.87	.24	<.001	−.48	−1.05	.19	<.001	−.53
T2 marital stress ↔ T2 externalizing	0.49	.18	.006	.19	.79	.29	.008	.25
T2 marital stress ↔ T2 sense of competence	−0.17	.03	<.001	−.46	−.23	.05	<.001	−.59
T2 externalizing ↔ T2 sense of competence	−0.77	.17	<.001	−.39	−.65	.23	.004	−.28
T3 marital stress ↔ T3 externalizing	0.30	.14	.027	.13	.43	.12	<.001	.22
T3 marital stress ↔ T3 sense of competence	−0.10	.02	<.001	−.36	−.11	.11	<.001	−.43
T3 externalizing ↔ T3 sense of competence	−0.70	.17	<.001	−.36	−.42	.02	<.001	−.25

Note. T = time.

are interrelated for both mothers and fathers. This result supports the idea that family processes and children's behavior codevelop over time (Belsky & Jaffee, 2006; De Haan et al., 2012). Furthermore, this result adds to the literature on family dynamics by suggesting that aspects within the family system that are not directly focused at each other, that is the marital relationship and child behavior, can be important for each other's development. In addition to research indicating that parenting behavior that is explicitly directed at the child (i.e., in interaction) is reciprocally linked to child behavior, this study shows that processes within the marital relationship and child behavior are interrelated in an important way. However, regarding specific spillover and elicitation effects, results showed one elicitation effect during adolescence. Consistent with existing empirical work (Cui et al., 2007), results showed that parents who reported higher externalizing problems in early adolescence reported more marital stress two years later. This is in line with (a) theory and research stating that the influence of children (i.e., child-driven effects) increases during adolescence and (b) family systems theory, which postulates that the developmental changes experienced during adolescence precipitate adjustment in other family subsystems. Moreover, the marital relationship, as the center of family functioning, may be particularly susceptible to these developmental changes (Cox & Paley, 2003).

The second aim was to examine the mediational role of perceived parental competence for associations between marital stress and externalizing behavior. The total indirect effects from marital stress, via parental sense of competence, to externalizing behavior and vice versa were insignificant, thereby not supporting our mediational hypothesis. However, regarding the transactional family processes and direction of effects examined in the model, a few interesting associations emerged. First, we found a reciprocal relation between experienced marital stress related to having a child and perceived parental competence across a time interval of six years. Specifically, parents who reported higher levels of marital stress during their child's middle childhood reported that they felt less competent as a parent six years later at early adolescence. This implicates that the marital relationship provides an important context for parents' perceptions of their own ability to influence their child positively and that feelings within the marital system can spill over on the individual parent. To our knowledge, this study is the first to provide knowledge about the family processes that are related to parents' sense of competence over time, and it thereby provides support for family systems theory and sheds insight on the relations of parental sense of competence with broader family functioning (Coleman & Karraker, 1998; Jones & Prinz, 2005). Future research should investigate specific mechanisms that can explain this association (Bandura, 1994). Expressed another way, less perceived parental competence was associated with higher levels of marital stress related to having a child six years later. This suits earlier findings (Kwan et al., 2015; Rochlen et al., 2008) showing that feelings of parental competence are related to subsequent satisfaction in the marital relationship. One possible mechanism behind this association could be that parents who are insecure about their ability to parent view many aspects in the parenting environment as threatening and worry more. The distress related to this insecurity is brought into the marital relationship, because parents may interpret feedback or discussions with their partner as more distressing and may react more emotionally. This finding fits family systems theory and the idea of spillover of emotions between subsystems (Cox & Paley, 2003). Future research should confirm this association, potentially for other aspects of coparenting as well. It is remarkable that these associations were present only from middle childhood to early adolescence in this study, because one could expect that adolescence is the most vulnerable period for the family system (Cox & Paley, 2003; Steinberg & Silk, 2002). However, although less

known as a distinctive developmental period, middle childhood is marked by intensifying transitions. Maturational changes in children and transitions in social contexts take place, and these require parents to extend their activities on behalf of their child (Collins, Madsen, & Susman-Stillman, 2002).

Second, another elicitation effect was found for middle adolescence only. In line with findings in previous research, results showed that parents who reported a higher level of externalizing behavior experienced a slight decrease in their perceived parental competence two years later (De Haan et al., 2013; Jones & Prinz, 2005; Slagt et al., 2012). This result suggests that individual parental sense of competence, similar to the marital subsystem, might be particularly vulnerable during adolescence. This developmental period is marked with intraindividual and contextual changes and therefore might be specifically demanding and stressful for parents (Steinberg, 2001). The normative developmental changes that adolescents experience, including growing autonomy, spending less time at home, and parent–child relationship characterized by less harmony, may make parents feel less in control and more vulnerable to doubts and uncertainty regarding their parenting role (Kerr, Stattin, & Burk, 2010; Steinberg & Silk, 2002). However, the results should be interpreted carefully, taking into account that the unequal and relatively long time intervals could also have affected the findings.

This study has several strengths. First, it improved the understanding of the association between marital stress and externalizing behavior, by focusing on the codevelopment of marital stress and externalizing behavior and thereby doing more justice to the dynamic nature of the family system. Second, it followed families over eight years and thereby provides important insight into developmental processes. Third, the participation of both parents is considered an important strength of this study (Lamb, 2010). Last, this study provides insight into an understudied yet important aspect of the marital relationship, that is, stress related to having a child. In contrast to more general aspects such as marital quality and conflict, this concept taps into the part of the marital relationship where spouses are joined parents and comanagers of the family (i.e., like the concept of coparenting). From a family systems perspective, this aspect might conceptually be particularly important for family processes, including children's development and parental competence. This suits a new line of research aiming to reach a greater integration of the domains of parenting and the marital relationship (Feinberg, 2003) and adds to the literature about what aspects of the marital relationship play a role in family functioning.

Although we believe that our study provides a useful extension to the existing literature, several limitations should be acknowledged. First, the results can be generalized to two-parent families only. However, these families form a large proportion of today's society (González-Val & Marcén, 2012), and it is important to investigate the development and consequences of ongoing marital stress within families staying together. Also, our measure of marital stress is limited to marital stress experienced in the parental context and could not be generalized to couples without children in the household. Further, due to large sample size this study used questionnaires only. Future research should use a combination of methods of assessment (e.g., observations and diaries) to provide a more robust test of the interrelatedness between marital stress and children's externalizing behavior. Additionally, we relied on parent reports solely, because children were too young to report on their own behavior at the first wave and because we believe that parents are likely the best informants on their own feelings of stress and competence. Although it is plausible that the relatively large time intervals reduce rater bias somewhat, results should be interpreted carefully in light of shared method variance. For example, it is possible that parents report more behavioral problems, deriving from the attribution that they are not able to influence their child adequately. Even more, attributions of parents might specifically mediate family interactions (Bugental & Happeney, 2002), and future research should, for instance, consider how much parents blame themselves, their partner, or their child for increasing problem behavior. Finally, although our design is fully longitudinal and the temporal order in variables is preserved, no concrete statements about causality can be made, because the results can still be biased by unobserved variables, for example, by parental mental health (Umberson et al., 2005), the parent–child relationship (Erel & Burman, 1995), or other indicators of child functioning. Future research should examine the interplay between these constructs or the specificity of the hypothesized processes.

Overall, the present study provides additional insights into the longitudinal associations between marital stress related to having a child and externalizing behavior and shows that similar family processes occur for mothers and fathers. Our results suggest that marital stress and externalizing behavior codevelop over time and support literature on developmental differences regarding interrelations between subsystems and individuals within the family system.

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Received June 2, 2016
Revision received November 24, 2016
Accepted November 27, 2016 ■