

Title: (max 12 words)

The Impact of Depressive Symptoms on Parenting: An Actor-Partner Interdependence Model
Approach

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Abstract (max 250 words)

This study examined the impact of depressive symptoms experienced by fathers and mothers on their own (actor effects) and their partner's (partner effects) parenting. We focused on two dimensions of parenting styles – demandingness and responsiveness – as well as on parental monitoring. Based on the Actor-Partner Dependence Model, data from 227 couples with at least one child were analyzed. The results provide evidence for both actor and partner effects, although partner effects were prominent for the dimensions of parenting style, while actor effects prevailed for parental monitoring. The results further reveal gender differences in the actor effects on responsive parenting, while no gender differences were found in the magnitude of the pathways to demandingness and parental monitoring. Our findings demonstrate the need to include both mothers and fathers in parenting studies to enhance our knowledge on the interdependence and mutual influence between parents. They also highlight the importance of investigating various types and styles of parenting.

Keywords (max 5 words):

Depressive symptoms, parenting, actor, partner

Running head:

Depressive symptoms and parenting: An APIM approach

It is generally accepted that parental depressive symptoms affect parenting, which may subsequently affect child outcomes (Cummings, Keller, & Davies, 2005; Cummings, Merrilees, & George, 2010). In particular, depressive symptoms have been linked to parents' emotional withdrawal from their children, hampered communication, decreased sensitivity to children's needs and increased irritability and hostility toward children (Lovejoy, Graczyk, O'Hare, & Neuman, 2000). Much of the research on parental depressive symptoms and parenting, however, focuses solely on mothers. This is partly due to the greater incidence of depressive symptoms among women (Goodman, 2007; Rehman, Gollan, & Mortimer, 2008), to the notorious difficulty of reaching (and thus studying) fathers (Mitchell et al., 2007), or to the common assumption of the central role of mothers in child development (Phares, Duhig, & Watkins, 2002). At the same time, a vast body of literature supports the idea that the father-child relationship can be at least as important as the mother-child relationship. Indeed, fathers are currently more involved in rearing their children than was the case in previous times, and the participation of men and women in childrearing appears gradually to be becoming a common enterprise (Amato, Meyers, & Emery, 2009; Lamb & Lewis, 2010).

Although fathers are often overlooked in parenting studies, there is some evidence that paternal depressive symptoms have significant effects on parenting, with depressed fathers showing lower levels of positive and higher levels of negative parenting behaviors (Wilson & Durbin, 2010). Based on a recent meta-analytic review, Wilson and Durbin (2010) estimate that the effect size of the relationship between depressive symptoms and negative parenting behavior is similar in magnitude for both mothers and fathers, while the effect size for positive behaviors might be larger for fathers than for mothers. The results of this meta-analysis and those of other studies that include fathers should nonetheless be interpreted with caution, due to the low number of participating fathers (Jacob & Johnson, 1997; Middleton, Scott, & Renk, 2009; Onatsu-Arvilommi, Nurmi, & Aunola, 1998) or the under-

representation of fathers compared to mothers (Elgar, Mills, McGrath, Waschbusch, & Brownridge, 2007). Even more importantly, little is known about how the parenting of fathers is affected by the depressive symptoms of the mother – pathways that are also known as partner effects (Kenny, Kashy, & Cook, 2006). Studies on the association between depressive symptoms and parenting that included both parents do not always address partner effects (Schudlich & Cummings, 2007). In other studies, it is impossible to identify partner effects, as reports from mothers and fathers are combined into a single measure of parenting (Cummings, et al., 2005; Papp, Cummings, & Goeke-Morey, 2005).

In the present study, we analyze data from both parents within the same family in order to examine the relationship between depressive symptoms and parenting. The focus of this study is on depressive symptoms, a construct that is distinct from clinical diagnosis of depressive disorder, despite some conceptual overlap (Davies & Windle, 1997; Fergusson, Horwood, & Lynskey, 1995). Our research contributes to the parenting literature in the following ways. First, we investigate how depressive symptoms experienced by mothers and fathers influence their respective parenting, and we consider whether the strengths of these effects are similar for both parents. Although these effects have been examined separately, few studies have examined the relationships between these variables simultaneously using within-couple data. Second, in addition to being affected by their own depressive symptoms, the parenting of mothers and fathers is influenced by the depressive symptoms of their partners. We also tested for gender differences in the impact of the partner's depressive symptoms. Third, most studies of the determinants of parenting focus on parenting styles. Some evidence nonetheless suggests that parenting practices (e.g., monitoring) may be more useful than parenting styles are as predictors of behavioral outcomes in children (Carlo, McGinley, Hayes, Batenhorst, & Wilkinson, 2007; Darling & Steinberg, 1993). The present study therefore focuses on parental monitoring as well as on two dimensions of parenting styles (demandingness and

responsiveness). Finally, we add to the literature by using rigorous methodological techniques. All dependent and independent variables are treated as latent constructs, using confirmatory factor analyses. To model the interdependence of the dyad members and the mutual influence between them, our analyses are based on the Actor-Partner Interdependence Model (APIM) (Kashy & Kenny, 2000; Kenny, et al., 2006), a specific family system approach, which proposes that both the respondent's predictor variables (actor effects) and respondent's partner's predictor variables (partner effects) influence the respondent's outcome variable (Yucel & Gassanov, 2010). APIM allows for tests of both actor and partner effects, thereby enabling the comparison of actor and partner effects for mothers and fathers. To the best of our knowledge, only (Nelson, O'Brien, Blankson, Calkins, & Keane, 2009) have used APIM to examine the effects of depressive symptoms on parenting. Their study, however, focuses on supportive and non-supportive techniques that parents use to teach children about emotions, rather than on various dimensions of parenting styles and parental monitoring.

Theoretical framework

The family system approach adheres to the idea that the family is a complex, integrated entity in which individual family members are necessarily interdependent (Cox & Paley, 1997; Minuchin, 1974). Mothers and fathers must assume their respective parental roles within the same family, and the parenting of one partner is influenced not only by his or her own feelings, symptoms, and perceptions, but also by those of the other partner. Several processes have been proposed to explain how family members influence one another (Erel & Burman, 1995; Repetti, 1987). The associations are often explained by arguing that negative affect from one domain (the parental domain) spills over into the other domain (the parent-child domain). The spillover hypothesis is often contrasted with the compensatory hypothesis, in

which individuals seek opposite experiences and feelings in one domain in order to make up or compensate for shortages in another domain (Erel & Burman, 1995).

The Actor-Partner Interdependence Model (APIM) is a specific, multi-source family system approach that uses the parent dyad as the unit of analysis (Fincham & Beach, 2010). The APIM approach to the examination of family functioning was designed in order to estimate the impact of an independent variable on a dependent variable within the same person (actor effect), as well as on the partner's score on the same dependent variable (partner effect). This approach implies that two dyad members influence each other in the form of partner effects, which create interdependence between members (Ledermann & Macho, 2009). Given that most studies on parenting use the individual as the unit of analysis, they focus exclusively on actor effects. In other words, they address relationships among variables within the same parent (e.g., mother's depressive feelings are associated with parenting). These studies thus largely ignore the mutual interdependence of family relations. In contrast, the APIM provides a comprehensive picture of the family as an integrated system (Fincham & Beach, 2010).

Parenting styles and parental monitoring

This study focuses on responsiveness and demandingness as dimensions of parenting styles and on parental monitoring as a parenting practice. Although parenting styles and parenting practices are often treated interchangeably, they are two distinct variables. Parenting practices are directed toward particular goals, while parenting styles can be regarded as the general context or climate within which the more specific parenting practices are expressed (Darling & Steinberg, 1993). In other words, parenting styles prevail across different socialization contents and contexts. Consistent with Baumrind's (1991) perspective, we apply a multidimensional measure that captures two independent dimensions of parenting styles. The

first dimension, responsiveness, refers to the degree of parental warmth, emotional expressiveness, and positive reinforcement perceived by the child. The second dimension, demandingness, refers to parental discipline, control, and level of demands (Baumrind, 1991).

We also focus on parental monitoring. There is no uniform definition of parental monitoring (DiClemente et al., 2001). The term was originally conceptualized as a set of correlated parenting behaviors involving attention to and tracking of the child's activities and whereabouts (Stattin & Kerr, 2000). Recent research, however, has expanded the concept (Cottrell et al., 2007; DiClemente, et al., 2001). The most commonly used monitoring measures focus primarily on parents' awareness regarding the activities and whereabouts of their children, rather than on particular monitoring strategies that parents use (Silverberg & Small, 1991; Steinberg, Fletcher, & Darling, 1994). In the remainder of this article, we therefore use the term 'parental monitoring' to refer to parents' knowledge about whom their offspring are with and where they are spending time when they are not at home or attending school rather than to how parents acquired such knowledge.

Gender differences in the pathways between depressive symptoms and parenting

Some studies suggest that the parenting of fathers is more influenced by general environmental characteristics than is that of mothers (Cabrera, Tamisk-LeMonda, Bradley, Hofferth, & Lamb, 2000; Schofield et al., 2009). Likewise, fathering might be more impacted upon by stressors (e.g., depressive symptoms). Although the parenting literature contains frequent calls for the systematic inclusion of both mothers and fathers, it is still unclear whether fathering is more strongly associated with depressive symptoms than mothering is. On the one hand, the results of some studies suggest that parental gender does not moderate the association between depressive symptoms and parental behavior (Nelson, et al., 2009). On the other hand, Jacob and Johnson (1997) suggest that parent-child negativity is stronger in homes with depressed mothers than it is in homes with depressed fathers. Given the

inconsistent results in this area, this study tests the proposition that depressive symptoms (as both actor and partner effects) bear a greater influence on fathering than they do on mothering.

Research questions and hypotheses

This study examines how depressive symptoms experienced by fathers and mothers influence their own and their partner's parenting. Accordingly, this study has two general aims. Based on the Actor-Partner Interdependence Model, the first aim is to assess actor and partner effects of depressive symptoms on the two dimensions of parenting styles and on parental monitoring. Building on the findings of other studies (Lovejoy, et al., 2000; Wilson & Durbin, 2010), we anticipate actor effects, with higher levels of depressive symptoms associated with more demandingness, less responsiveness, and less parental monitoring. With regard to the partner effects, we expect that increased levels of depressive symptoms experienced by one parent have negative effects on the partner's dimensions of parenting styles and parental monitoring. Given that fathering may be more malleable than mothering, the second aim of this study is to investigate whether the strength of the pathways differs between mothers and fathers. Based on prior studies (Cummings, et al., 2010), we expect the parenting styles of fathers to be more susceptible to deterioration in the face of stress derived from their own depressive symptoms. We further explore for gender differences in partner effects, and we expect these effects to bear a greater influence on fathering than they do on mothering.

Data and methods

Procedure

The sample for this study was selected from subjects participating in the interuniversity Relations in Flanders (RiF) project, sponsored by the agency for Innovation by Science and

Technology (IWT). The RiF project is based on a unique multi-actor design, in which the child and both parents are questioned. The research population was restricted to ever-married people in the Dutch-speaking part of Belgium who were either still in their first marriage or had experienced one divorce. The sample was drawn from the Belgian National Register. If the marriage was intact, both partners were interviewed in person (Computer Assisted Personal Interview) in their current household. If a divorce or separation had taken place, both partners were interviewed in person at their respective residences. In addition to the parents, one resident child of 10 years of age or older was interviewed in person. In case of multiple children older than 10 years, the child with the birthday closest to the date of the interview was selected. Even though the same questions were asked of each child, the questionnaire was adapted to suit the child's age (i.e., 10-13 years, 14-17 years, and 18 years or older).

Participants

For the present study, we used a subsample of the RiF data. The participants were 227 non-divorced families with at least one child between the ages of 10 and 18 years. Depressive symptoms were assessed according to the reports of both mothers ($n = 223$) and fathers ($n = 200$), while the two dimensions of parenting styles were based on child reports ($n = 227$). The average age of the children who were interviewed was 14.12 years ($SD = 2.58$), with 47 % boys ($n = 106$) and 53 % girls ($n = 121$). Univariate analysis of variance (ANOVA) revealed no between-group differences for age: $F(1,226) < 1$. The average age of the fathers who were interviewed was 44.29 ($SD = 3.84$, range = 28), and the average age of the mothers was 42.88 ($SD = 42.88$, range = 21). A paired t-test revealed a significant difference between the mean ages of the fathers and the mean ages of the mothers: $t(195) = -6.98$, $p < .001$. Education was measured as the highest level of education achieved. The educational level of fathers was significantly different from that of mothers: $\chi^2(4) = 38.09$, $p < .001$. Within our sample, 6.7 %

of the mothers and 12 % of the fathers had completed no education or only primary education, 39 % of the mothers and 37.5 % of the fathers had completed secondary education and 54.3 % of the mothers and 50.5 % of the fathers had completed at least three years of higher education.

Analyses

To test our research questions and hypotheses, we used structural equation modeling (SEM), following the procedures outlined by Kenny and colleagues (2006). Raw data were structured as triadic data (i.e., each line represented a triad with variables reflecting scores from the mother, the father, and the child). Statistical analyses were conducted in Mplus 5.2 (Muthén & Muthén, 2008). With SEM, it is possible to model several variables simultaneously and to compare the relative magnitudes of different regression paths.

First, we conducted confirmatory factor analyses on all multi-item scales in order to identify the best-fitting measurement models. Second, we conducted an APIM structural equation model for each dependent variable (i.e., demandingness, responsiveness, and parental monitoring) in which we evaluated actor and partner effects among the latent variables. We further tested whether the effects differed significantly between fathers and mothers by placing equality constraints (i.e., nested models). Because constraining one path to be equal to another leads to a gain of one degree of freedom, a statistically significant change in the chi-square value of the model with no equality constraints indicates that actor effects are statistically different and stronger for one parent. A non-significant change in the chi-square value of the model with no equality constraints indicates that there are no differences between the two parents.

We evaluated the fit of the measurement models and path models according to several fit indices. Given our relatively small sample, the χ^2 test statistic will almost certainly be

significant, even if there are good-fitting models (Kenny, et al., 2006). For this reason, we also report the χ^2/df ratio. The determination of acceptable fit requires a χ^2/df ratio of 2:1 to 5:1, although values of less than 3 are considered favorable (Kline, 2005). In addition, we examined several indices that are less sensitive to sample size: the Comparative Fit Index (CFI) (Bentler, 1990), the Tucker–Lewis index (TLI) (Tucker & Lewis, 1973), Root Mean Square Error of Approximation (RMSEA) (Steiger, 1990), and the Standardized Root Mean Square Residual (SRMR) (Kline, 2005). The CFI and TLI range from 0 to 1.00, with a cutoff of .95 or higher indicating a well-fitting model and .90 indicating an adequate model fit. Good model fit is indicated by RMSEA values below .05, with values between .06 and .08 indicating adequate fit (Kline, 2005). Any SRMR values smaller than .08 indicate a relatively good fit of the model (Hu & Bentler, 1999).

Measures

With the exception of the socio-demographic control variables (e.g., child’s age, parent’s age), all measures described below were treated as unidimensional latent variables, which we constructed using confirmatory factor analyses. For each latent construct, we assessed the scale composite reliability (ρ), which is an appropriate and desirable estimate of reliability for latent constructs (Raykov, 2009).

Parental depressive feelings

Mothers and fathers completed an eight-item CES-D8 scale (Van de Velde, Bracke, & Levecque, 2010; Van de Velde, Bracke, Levecque, & Meuleman, 2010), an abridged version of the Center for Epidemiological Studies Depression Scale, or CES-D (Radloff, 1977). The CES-D was designed to assess depressive symptoms in a community sample, but it should not be used as a clinical diagnostic tool by itself (Radloff, 1977). Respondents are asked to think about the past week and to indicate how often they felt or behaved in a certain way (e.g., felt

depressed, felt that everything was an effort, slept badly, felt lonely, felt sad, could not get going, enjoyed life, or felt happy). All of the items are scored along a four-point Likert scale ranging from 0 (*rarely or none of the time*) to 3 (*most or all of the time*). Several studies have confirmed the reliability and validity of the inventory across gender and countries (Van de Velde, Bracke, & Levecque, 2010; Van de Velde, Bracke, Levecque, et al., 2010).

Confirmatory factor analysis of the items of the CES-D8 revealed that all indicators loaded significantly on the latent construct, although one indicator ('slept badly') loaded below .38 for both mothers and fathers. After omitting this item, the CES-D8 factor loadings ranged from .58 to .77 for mothers, and from .40 to .63 for fathers. The model showed a poor fit, but it was possible to improve the fit by allowing an error covariance between two father-reported items and two mother-reported items. After this correction, the model fit the data well: $\chi^2(72) = 115.99, p < .001; \chi^2/df = 1.61, CFI=.95, TLI=.94, RMSEA = .052, SRMR = .053$. There was no significant correlation between the depressive feelings of mothers and those of fathers ($r = .03$). Scale composite reliability scores (ρ) for the CES-D8 were .84 for mothers and .73 for fathers.

Parenting style

Children completed the Parenting Style Inventory II (Darling, Cumsille, & Peña-Alampay, 2005; Darling & Toyokawa, 1997) for the maternal and paternal dimensions of parenting style. The Parenting Style Inventory was designed to assess the construct of parenting style independently of parenting practice (Darling & Toyokawa, 1997). *Responsiveness* refers to the extent to which parents show affective warmth, acceptance, and involvement (e.g., "I can count on my mother to help me out if I have a problem"). *Demandingness* refers to the extent to which parents show control and supervision (e.g., "My mother really expects me to follow family rules"). All items are completed along a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Confirmatory factor analysis on the items of the responsiveness subscale revealed that all indicators loaded significantly with the latent construct, although the loading for one father-responsiveness indicator was only .22. Because maternal and paternal responsiveness were rated by the same person, we decided to omit this item in the latent constructs of both mothers and fathers. After omitting this item, factor loadings for responsiveness ranged from .46 to .79 for mothers, and from .44 to .78 for fathers. The model showed an acceptable fit to the data, but it was possible to improve the fit by freely estimating the error covariance between one item of mother's responsiveness and one item of father's responsiveness. After this correction, the model fit the data well: $\chi^2(18) = 30.69, p < .05; \chi^2/df = 1.70, CFI=.97, TLI=.96, RMSEA = .056, SRMR = .043$. Mother's and father's responsiveness were interdependent ($r = .46; p < .001$).

Because the objectives of our research require the inclusion of separate scores for the responsiveness of mothers and fathers, we conducted a test to specify whether such a distinction was warranted. Following a procedure used in a study by Yucel and Gassanov (2010), we compared a model in which maternal and paternal constructs are modeled separately to produce a model in which both child reports of responsiveness are combined into a single latent construct. The χ^2 difference test indicated that combining the two constructs decreased the fit significantly ($\chi^2(1) = 126.99, p < .001$). For this reason, the two latent constructs were modeled separately in our analyses. Scale composite reliability scores (ρ) for responsiveness were .71 for mothers and .76 for fathers.

Confirmatory factor analysis on the items of the demandingness subscale revealed that one indicator did not load significantly on the latent constructs of mothers and fathers. After omitting this item, all indicators loaded significantly on the latent construct, although the loading of one indicator remained low (.18 for mothers and .17 for fathers). This indicator was therefore omitted as well, resulting in a model with three indicators for mother's and

father's demandingness. To improve the model, we freed up the error covariance between the same item in latent constructs of mothers and fathers. After this correction, the model fit the data well: $\chi^2(7) = 10.93$, $p = .14$; $\chi^2/df = 1.56$, CFI=.99, TLI=.97, RMSEA = .050, SRMR = .040. Factor loadings for demandingness ranged from .38 to .92 for mothers and from .52 to .95 for fathers. Both latent constructs were interdependent ($r = .56$; $p < .001$). The χ^2 difference test indicated that combining the two constructs decreased the fit ($\chi^2(1) = 52.14$, $p < .001$). As such, the two latent constructs were modeled separately in our analyses. Scale composite reliability scores (ρ) for demandingness was .63 for mothers and .74 for fathers.

Parental monitoring

Parental monitoring was measured according to the parental monitoring scale developed by Silverberg and Small (1991), which consists of six items assessing whether parents usually know where, with whom and what their child is doing while hanging around (e.g. "My child talks to me about the plans she/he has with her/his friends") (Li, Stanton, & Feigelman, 2000; Silverberg & Small, 1991). Response options followed a five-point Likert scale ranging from 1 (never) to 5 (always).. The initial model showed a poor fit. To improve the model, we allowed two covariances between three mother-reported items and freed up the covariance between two father-reported items. This resulted in a good fit of the model: $\chi^2(50) = 83.24$, $p < .01$; $\chi^2/df = 1.66$, CFI = .94, TLI = .92, RMSEA = .058, SRMR = .065. Factor loadings ranged from .37 to .85 for mother reports, and from .38 to .81 for father reports. Mother's and father's monitoring were interdependent ($r = .51$, $p < .001$). The χ^2 difference test indicated that combining the two constructs decreased the fit ($\chi^2(1) = 100.32$, $p < .001$). The two latent constructs were therefore modeled separately in our analyses. Scale composite reliability scores (ρ) for monitoring were .74 for mothers and .75 for fathers.

Control variables

Several researchers investigating parenting have indicated that socio-demographic characteristics (e.g., parents' level of education) are often associated with parenting styles (Frias-Armenta & McCloskey, 1998). To determine the necessity of including demographic variables as covariates in the analyses, we examined relationships between child's age, child's gender, mother's and father's education, mother's and father's age, length of marriage, and the outcome variables. Among all the demographic variables considered, mother's age was significantly associated with mother's demandingness ($\beta = -.17$, $S.E = .075$, $p = .02$), and father's age was significantly associated with father's demandingness ($\beta = -.15$, $S.E = .08$, $p = .041$). For this reason, mother's age and father's age were included as covariates in the analyses predicting mother's and father's demandingness, respectively. Child's age was significantly associated with mother's monitoring behavior ($\beta = -.34$, $S.E = .08$, $p < .01$), father's monitoring behavior ($\beta = -.43$, $S.E = .08$, $p < .01$), and father's responsiveness ($\beta = -.15$, $S.E = .08$, $p \leq .05$). This variable was therefore included as a covariate in the respective analyses.

Results

Correlation analyses

Table 1 shows the relationships among mothers' and father's depressive symptoms, dimensions of parenting style, and parental monitoring. As mentioned above, interdependencies were found between mothers' and fathers' responsiveness, demandingness, and monitoring. Furthermore, significant correlations were found between mothers' responsive parenting and mothers' monitoring, between mothers' responsive parenting and fathers' monitoring, and between fathers' responsive parenting and fathers' monitoring. In examining the relationships between the dependent and independent variables, the association between fathers' depressive symptoms and mothers' responsiveness was significant.

INSERT TABLE 1 HERE

Responsiveness of mothers and fathers as dependent variables

Figure 1 presents a SEM actor-partner interdependence model of the relationship between the depressive feelings and responsiveness of mothers and fathers. The model had a good fit: $\chi^2(217) = 322.92, p < .001; \chi^2/df = 1.49, CFI = .93, TLI = .92, RMSEA = .046, SRMR = .056$. We found a nearly significant actor effect between depressive feelings and responsiveness on the part of fathers ($\beta = -.17, p = .06$). Constraining the actor effects of mothers and fathers to be equal revealed a gender difference $\chi^2(1) = 4.18, p < .05$, indicating that the depressive feelings of fathers were more strongly related to responsive parenting than were those of mothers. Furthermore, we found a significant partner effect between depressive feelings on the part of fathers and responsiveness on the part of mothers ($\beta = -.23, p < .05$), and a nearly significant partner effect between depressive feelings on the part of mothers and responsiveness on the part of fathers ($\beta = -.15, p = .06$). Constraining both partners effects to be equal revealed no gender differences ($\chi^2(1) = 1.67, ns$), with more depressive feelings of the partner resulting in less responsive parenting ($b = -.18, p \leq .01$).

INSERT FIGURE 1 HERE

Demandingness of mothers and fathers as dependent variables

Figure 2 shows a SEM actor-partner interdependence model of the relationship between the depressive feelings and demandingness of mothers and fathers. The model had a good fit: $\chi^2(193) = 232.31, p < .05; \chi^2/df = 1.20, CFI = .97, TLI = .96, RMSEA = .030, SRMR = .055$. The initial model revealed no significant actor and partner effects. Constraining the actor effects to be equal revealed no gender differences, ($\chi^2(1) = .02, ns$), indicating that the actor effects of depressive feelings on demandingness are similar for mothers and fathers ($b = .01, ns$). Similarly, constraining the partner effects revealed no gender differences ($\chi^2(1) = .13, ns$), indicating that the partner effects of depressive feelings on demandingness are similar for

mothers and fathers ($b = .15, p = .08$), with more depressive feelings of the partner resulting in more demanding parenting, although the partner effects were at trend level.

INSERT FIGURES 2 AND 3 HERE

Parental monitoring of mothers and fathers as dependent variables

We first evaluated a SEM actor-partner interdependence model in which mothers' and fathers' depressive feelings predicted their own and their partners' parental monitoring (see Figure 3). The model had an adequate fit: $\chi^2(307) = 438.59, p < .001; \chi^2/df = 1.43, CFI = .92, TLI = .91, RMSEA = .043, SRMR = .069$. The initial model showed a significant actor effect of depressive feelings on the parental monitoring of mothers ($\beta = -.16, p < .05$), indicating that more depressive feelings on the part of the mother resulted in less monitoring behavior. In order to test for gender differences, we constrained the actor paths of mothers and fathers to be equal. The χ^2 difference test revealed no significant differences, $\chi^2(1) = .21, ns$, indicating that the strength of the actor effects from depressive feelings to demandingness is similar for mothers and fathers ($b = -.20, p < .05$).

Discussion

Although many studies have investigated the impact of depressive symptoms on parenting, the current study extends these previous analyses by focusing on two dimensions of parenting styles and parental monitoring, thereby taking into account the interdependence and mutual influence of both parents. Based on the Actor-Partner Interdependence Model, we examined how the depressive symptoms experienced by fathers and mothers influence their own parenting, as well as the parenting of their partners. We also examined whether the strengths of these pathways differed between mothers and fathers.

The results provide evidence for both actor and partner effects, although the effects seem to depend on whether dimensions of parenting style or parental monitoring were examined.

Actor effects were prominent when investigating parental monitoring, with actor effects between depressive symptoms and parental monitoring for mothers and fathers. Somewhat contrary to our expectations, our analyses revealed few actor effects on parenting styles. An opposite pattern of results emerged for partner effects. In particular, non-significant partner effects emerged for parental monitoring, while significant or nearly significant effects emerged for both dimensions of parenting style. One possible explanation for the weak actor effects in the dimensions of parenting style and the non-significance of partner effects in parental monitoring resides in the inherently different characteristics of the parenting constructs. Although parenting styles and parental behaviors are related, they are also separate entities (Chan, Bowes, & Wyver, 2009). Parenting styles can be seen as emotional climates within the family system that prevail across various contexts of socialization (Darling & Steinberg, 1993). Assuming that men and women want to maintain the same climate in their roles as parents and in their roles as spouses, it is plausible that an individual's parenting style might be more influenced by the partner's depressive feelings than it is by the individual's own depressive feelings. Monitoring, however, is a parental behavior adopted by parents for achieving child outcomes in specific developmental domains, (e.g., to deter children from engaging in risky behaviors) (Borawski, Ievers-Landis, Lovegreen, & Trapl, 2003; Cottrell, et al., 2007). Given the more goal-oriented nature of parental monitoring, the lack of partner effects is not surprising. Interestingly, we found significant but modest associations between monitoring and responsiveness, while no significant associations between monitoring and demandingness were found. As suggested by Van Leeuwen and Vermulst (2004), one viable explanation for these findings is that, for some sets of parents, monitoring may reflect a desire to control the child's behavior, whereas for other sets of parents, it may reflect interest in children. Similar to the findings in the study of Van Leeuwen and Vermulst (2004), our findings support the latter point of view.

The dyadic data further enabled us to measure gender differences in actor and partner effects. No such gender differences were observed for demandingness or parental monitoring. For responsive parenting, however, we found that the actor effects were gender specific, whereas the partner effects were not. With regard to gender-specific actor effects, the analyses revealed that the depressive feelings of fathers were more strongly related to responsive parenting than were the depressive feelings of mothers. Because only one of the three actor effects and none of the three partner effects was gender specific, our findings provide little evidence to support the hypothesis that fathering is more likely than mothering is to be determined by depressive symptoms.

Some prior studies have suggested that depressive symptoms on the part of one parent are associated with compensatory parenting by one or the other partners (Belsky, Youngblade, Rovine, & Volling, 1991; Lamb & Lewis, 2010). As such, higher levels of depressive symptoms should be associated with less demandingness, more responsiveness, and more parental monitoring. The findings in this study do not corroborate the compensation hypothesis. All effects suggest that parents who have lower levels of depressive feelings engage in more effective parenting. Our findings are thus more consistent with the spillover hypothesis.

The current study is subject to a number of limitations that attenuate the clarity of our findings. First, the cross-sectional nature of the data makes causality difficult to establish. Although the data do allow the examination of associations between depressive symptoms and parenting, the time ordering amongst the variables is not clear. From a theoretic perspective, however, and based on results from the few available longitudinal studies, we can assume that depressive symptoms have an influence on parenting (Lovejoy, et al., 2000). It is nonetheless impossible to resolve this debate through the use of cross-sectional data. Another limitation of the present study is the lack of child reports of parental monitoring.

Although we used child reports of the dimensions of parenting styles, we asked parents to report on their parental monitoring. Relying on child reports of parental monitoring as well would have allowed us to avoid the problem of common method variance. Furthermore, parents tend to rate their own style and skills sometimes more favorably than their children do (Purdie, Carroll, & Roche, 2004), suggesting that parents' reports regarding their own parenting are subject to self-serving biases. From this point of view, the lack of partner effects between depressive symptoms and parental monitoring could be due to the use of different informants. A recent study by Nelson and colleagues (2009), however, identified only partner effects between depressive symptoms and parental behavior, according to parent reports. The present use of child reports of parental styles thus does not seem to preclude the emergence of eventual partner effects. In future studies, it might be interesting to use both child and parent reports of parenting styles and parental behaviors, thereby allowing a more thorough examination of whether the strength of the actor and partner pathways differs according to the informant. A final limitation of this study is that the relatively small sample size and the use of latent constructs made it impossible to investigate the influence of several background variables in more sophisticated ways. In future studies, it might therefore be interesting to delve more deeply into the moderating influence of various family variables (e.g., presence of other children, child's gender) using multiple-groups SEM with larger sample sizes.

Despite its limitations, this study is characterized by several strengths, including the use of rigorous methods to examine associations between depressive feelings and parenting, various measures of parenting, and the inclusion of both mothers and fathers. Consistent with a family systems approach to family relationships (Cox & Paley, 1997), our findings demonstrate that functioning in one part of the family has implications for the functioning of other family subsystems and other family members. The Actor-Partner Interdependence Model proved a useful methodology for differentiating between the effects of parental characteristics on an

individual's own parenting (actor effects) and on that of the partner (partner effects). More specifically, the results demonstrate that the dimensions of parenting styles of mothers and fathers are more influenced by the depressive symptoms of their partners than by their own depressive symptoms. On the contrary, with regard to parental monitoring, actor effects were more salient. While the strengths of the actor pathways were similar for both demandingness and parental monitoring by both mothers and fathers, this was not the case for the actor effects on responsive parenting. No gender differences in partner effects were found for demandingness, responsiveness, or parental monitoring. In summary, our findings demonstrate the need to include both mothers and fathers in parenting studies in order to enhance our knowledge on the interdependence and mutual influence between them. The results also highlight the importance of investigating various types and styles of parenting.

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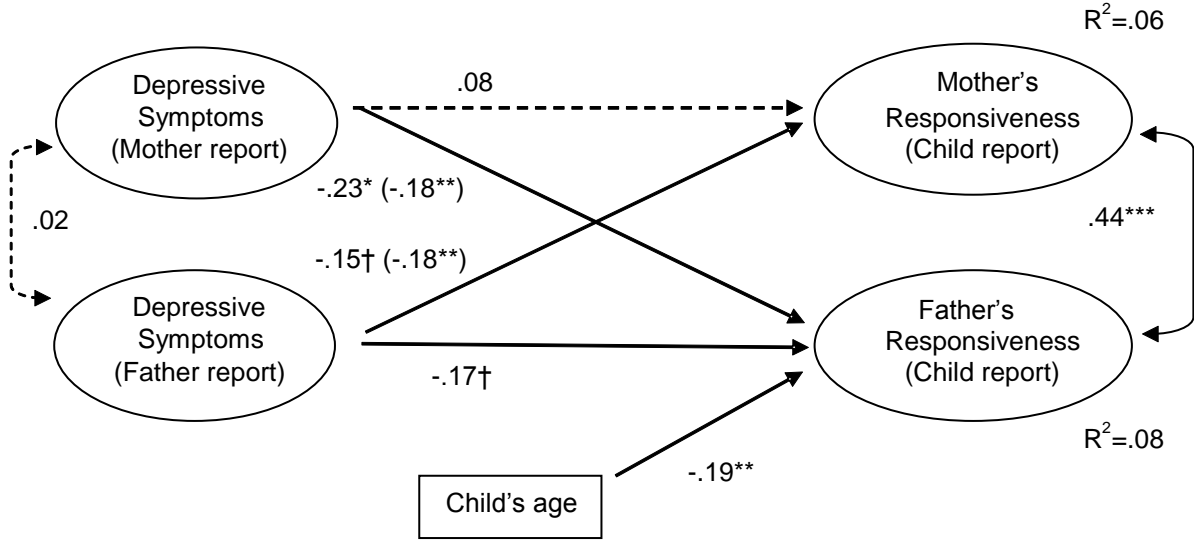
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Table 1. Correlations among depressive symptoms and parenting

	1	2	3	4	5	6	7
1 CESD8 mother							
2 CESD8 father	.01						
3 Responsiveness mother	-.07	-.24**					
4 Responsiveness father	-.14	-.14	.45***				
5 Demandingness mother	.01	.11	-.01	.11			
6 Demandingness father	.11	.02	.06	-.09	.57***		
7 Monitoring mother	-.14	-.04	.27**	.13	-.07	.09	
8 Monitoring father	.05	-.08	.22*	.21*	-.06	.14	.54***

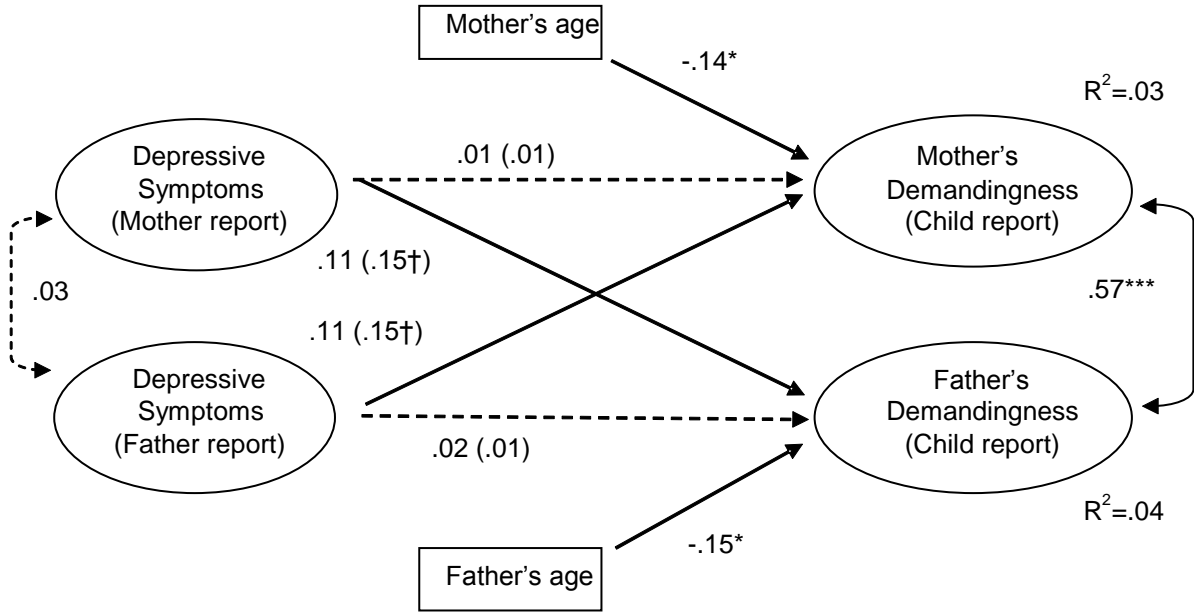
* $p < .05$; ** $p < .01$; *** $p < .001$

Figure 1: Depressive symptoms and responsiveness



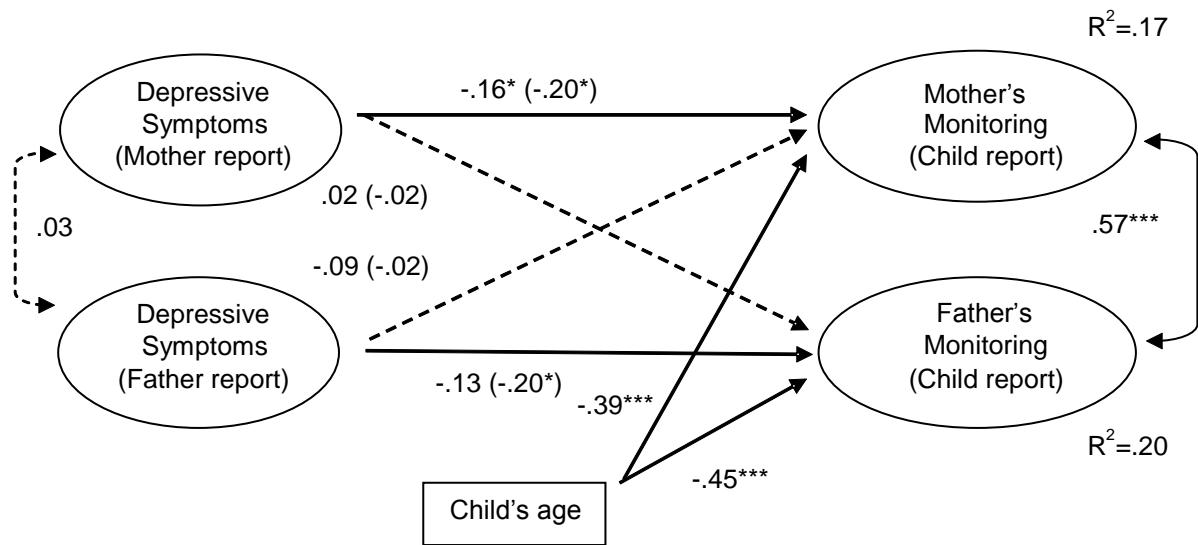
Note: Coefficients in parentheses are unstandardized estimates (after constraints). Dotted lines represent non-significant paths. † $p < .10$ * $p < .05$; ** $p < .01$; *** $p < .001$

Figure 2: Depressive symptoms and demandingness



Note: Coefficients in parentheses are unstandardized estimates (after constraints). Dotted lines represent non-significant paths. $^\dagger p < .10$ $*p < .05$; $**p < .01$; $***p < .001$

Figure 3: Depressive symptoms and parental monitoring



Note: Coefficients in parentheses are unstandardized estimates (after constraints). Dotted lines represent non-significant paths. † $p < .10$ * $p < .05$; ** $p < .01$; *** $p < .001$