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Spillover between Marital Quality and Parent-child Relationship Quality: Parental Depressive Symptoms as Moderators

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Abstract

Using a daily diary method, this study examined concurrent and time-lagged relations between marital and parent-child relationship qualities, providing a test of the spillover and compensatory hypotheses. Additionally, this study tested both mothers' and fathers' depressive symptoms as moderators of these daily linkages. Participants were 203 families, in which mothers and fathers completed daily diaries for 15 days. At the end of each reporting day, parents independently rated the emotional quality of their relationship with their spouse and with their child that day. Controlling for global levels of marital satisfaction, marital conflict, and parenting, a positive association was found between mothers' and fathers' daily ratings of marital quality and their ratings of parent-child relationship quality, supporting the spillover hypothesis. When considering time-lagged relations, support was found for the compensatory hypothesis for mothers: lower levels of marital quality were related to increases in mother-child relationship quality from one day to the next. Further, both maternal and paternal depressive symptoms moderated the link between marital quality and the other parent's relationship quality with their child. Whereas maternal depressive symptoms strengthened spillover relations for fathers on the next day, paternal depression was related to less spillover for mothers on the same day. Alternative models did not find evidence for parent-child relationship quality as a predictor of changes in marital quality on the next day. The findings underscore the importance of the quality of the marital relationship for predicting the quality of other family relationships.

Keywords

marital quality; parent-child relationship quality; spillover hypothesis; compensatory hypothesis; parental depressive symptoms

Over three decades of research has shown a consistent, robust relation between marital quality and children's adjustment (Buehler et al., 1997; Cummings & Davies, 2010; Emery, 1982). Marital discord is related to almost every domain of children's functioning, from social and emotional problems to impairments in cognitive functioning, to even disruptions in physical health and biological functions, such as sleep (e.g., Buckhalt, El-Sheikh, Keller, & Kelly, 2009; El-Sheikh, Buckhalt, Mize, & Acebo, 2006; Cummings, Schermerhorn, Davies, Goeke-Morey, & Cummings, 2006). Various mechanisms have been proposed to explain the link between marital discord and child adjustment problems (e.g., Davies & Cummings, 1994; Grych & Fincham, 1990). One proposed pathway is through disruptions to the parent-child relationship; that is, negative feelings and behaviors between spouses *spillover* to predict negative interactions with their children, known as the spillover hypothesis (Cox, Paley, & Harter, 2001; Repetti, 1987). Demonstrations of spillover should be most evident in the short-term; showing links between daily fluctuations in marital and parent-child relationship quality and showing these links in the everyday context of the home is important for the ecological validity and cogency of this hypothesis. The present study tested the spillover hypothesis by examining links between marital quality and parent-child relationship quality using daily diary data.

Broadly, the spillover hypothesis refers to "the transfer of mood, affect, or behavior from one setting to the next" (Almeida, Wethington, & Chandler, 1999, p. 49). In the context of family interactions, and consistent with family systems theory, spillover occurs when tension, negative affect, or conflict in the marital dyad is transferred to tension, negative affect, or conflict in the parent-child dyad, reflected in a positive association between marital and parent-child relationship quality (Cox et al., 2001; Erel & Burman, 1995). It is hypothesized that this occurs because the irritation or hostility felt in the marriage causes parents to be irritable and less patient with their child, or too emotionally drained from their marital problems to engage in sensitive and responsive parenting. A competing model is offered by the compensatory hypothesis, which posits that parents compensate for their unsatisfying marriage by devoting more time and energy to high quality parenting (Belsky, Youngblade, Rovine, & Volling, 1991; Engfer, 1988; Erel & Burman, 1995). Although the compensatory hypothesis has received less theoretical attention, the motivation for investing more time in the parent-child relationship has been explained as a means to achieve unmet needs of love and support within the family (Erel & Burman, 1995). This would be evidenced by a negative relation between marital quality and parent-child relationship quality. Although presented as competing hypotheses, spillover and compensatory processes are not necessarily mutually exclusive when considering development, time, and context; that is, the relation between marital quality and parent-child relationship quality may vary across or within individuals based on the time elapsing between these variables and other environmental factors.

Overall, research has supported the spillover hypothesis over the compensatory hypothesis (e.g., Almeida et al., 1999; Buehler, Benson, & Gerard, 2006; see also Erel & Burman, 1995). Based on a meta-analysis, Erel and Burman (1995) reported that the relation between marital quality and parent-child relationship quality was positive and moderate in magnitude. Spillover relations have been reported in both cross-sectional (Nelson et al.,

2009; Ponnet et al., 2013) and short-term longitudinal (e.g., Davies, Sturge-Apple, Woitach, & Cummings, 2009; Gerard, Krishnakumar, & Buehler, 2006; Lindahl, Clements, & Markman, 1997; Shek, 1998) studies. For example, in a cross-sectional study of parents with a 7-year-old child, Nelson et al. (2009) found that marital dissatisfaction predicted less supportive parental responses to children's negative emotions for mothers and fathers. Longitudinal studies have found that global marital quality or interparental conflict predicted global parent-child relationship quality or specific parenting behaviors one to two years later (e.g., Davies et al., 2009; Shek, 1998; Sturge-Apple, Davies, & Cummings, 2006). Further, fathers may be more vulnerable to transferring their mood and behavior from the marital relationship over to the parent-child relationship (Coiro & Emery, 1998; Cummings, Goeke-Morey, & Raymond, 2004) as evidenced by stronger spillover relations for fathers as compared to mothers (Davies et al., 2009; Nelson et al., 2009; Stroud, Durbin, Wilson, & Mendelson, 2011; see also Krishnakumar & Buehler, 2000).

Whereas cross-sectional and longitudinal studies have been important in providing support for the spillover hypothesis, there are methodological limitations of previous research. Theoretically, the spillover hypothesis posits a specific temporal order between the quality of the marital relationship and the quality of the parent-child relationship. Cross-sectional designs with questionnaire assessments of global marital quality and parenting, however, cannot address questions of temporal order. An exception is cross-sectional studies that have examined spillover during interaction tasks in a laboratory setting (e.g., Jouriles & Farris, 1992; Kitzmann, 2000; Stroud et al., 2011). For example, Jouriles and Farris (1992) randomly assigned parents to engage in a conflictual or nonconflictual interaction, and then subsequently engage in an interaction with their child, who was between the ages of 3 and 7. Parents who engaged in the conflictual interaction had poorer quality interactions with their sons; both parents engaged in less conversation with their child and fathers used more vague or confusing statements. Although longitudinal studies can address questions of temporal order, the spacing between occasions of measurement (one to two years) may be too long to adequately capture spillover processes as they are occurring.

Daily diary data, on the other hand, is well-suited for capturing how spillover relations occur in the short-term on a daily basis. Diary data has many benefits, two of which are capturing these relations in the ecologically valid context of the home and reducing retrospective recall bias (Almeida et al. 1999; Larson & Almeida, 1999). Further, diary data allows researchers to move beyond global perceptions about family relationships and examine fluctuations in the quality of relationships from the marital to the parent-child dyad. Notably, Almeida and colleagues (1999) had couples complete daily diaries for 42 consecutive days and found a positive relation between marital tension on one day and disciplinary problems with one's child on the next day. Other diary studies also support links between interparental conflict and parent-child conflict (e.g., Chung, Flook, & Fuligni, 2009); however, diary studies examining how fluctuations in the relationship quality of the marital dyad predicts mother- and father-child relationship quality on the same and next day are limited.

There is considerable variability in the relation between marital quality and parent-child relationship quality (Erel & Burman, 1995), which highlights the need to examine between-family differences in spillover relations (i.e., moderators). Parental depressive

symptomatology is an important moderator to examine, given links with the qualities of both marital (Whisman, 2001) and parent-child relationships (Goodman & Gotlib, 1999). Specifically, mothers' and fathers' depressive symptoms are related to impaired marital quality, including feeling less satisfied in their marriage and engaging in more frequent and destructive conflict (e.g., Davila, Karney, Hall, & Bradbury, 2003; Du Rocher Schudlich, Papp, & Cummings, 2004; Kouros, Papp, & Cummings, 2008). Depressive symptoms also disrupt parenting; parents with higher levels of depressive symptoms show more negative interactions with their child, including more hostility in, or withdrawal from, parent-child interactions (Goodman & Gotlib, 1999; Lovejoy, Graczyk, O'Hare, & Neuman, 2000; Wilson & Durbin, 2010).

Although previous research on spillover relations has considered the role of parental depression, studies typically focus on the main effect of parental depression on the parent-child relationship. Research has supported a cross-over effect, in which impairment in one's parenting is predicted by whether his or her spouse has high levels of depressive symptoms, rather than by one's own level of symptoms. The direction of this cross-over effect, however, has not been consistent in the literature. For example, whereas some research has found that having a depressed spouse is related to lower quality parent-child interactions among a wide age range of children (e.g., infants; Goodman, 2008; 10- to 18-year-olds; Ponnet et al., 2013), Nelson et al. (2009) found that parents compensated for their spouses' depressive symptoms by being more supportive toward their child. One difference among studies that may account for the different direction of this cross-over effect observed in the literature is that some studies examined parental depression as a predictor of broad characteristics of the parent-child relationship whereas other studies, such as Nelson et al. (2009), assessed specific parenting behaviors. Testing the *main effect* of parental depression on parenting, however, does not address the question of whether parental depression exacerbates or weakens spillover or compensatory effects. Based on the tenets of developmental psychopathology, parental depression should exacerbate the positive relation between marital discord and disruptions in the parent-child relationship (Cummings, Davies, & Campbell, 2000). In a sample of families with a kindergarten-age child, Davies, Sturge-Apple, and Cummings (2004) examined parental depressive symptoms as a moderator of relations between marital discord and parental acceptance one year later. Marital discord, maternal acceptance, and paternal acceptance were all assessed based on composites of both parents' reports. The authors found that the spillover between marital discord and lower maternal acceptance was significant at high levels of maternal depression; however, contrary to predictions, the relation between marital discord and lower fathers' acceptance was only significant at low levels of paternal depressive symptoms. Given the limited study of parental depression as a moderator of the relation between marital quality and parent-child relationship quality, exploring the moderating role of parental depression in spillover relations remains a gap in this literature.

Present Study

The purpose of the present study was to examine daily relations between marital quality and parent-child relationship quality for mothers and fathers, providing a test of the spillover and compensatory hypotheses. First, we tested whether marital quality predicted parent-child

relationship quality on the same day and, to tease apart the temporal order of relations, we also tested whether marital quality predicted changes in parent-child relationship quality on the next day. We hypothesized that marital quality would positively predict mother-child and father-child relationship quality on the same day and on subsequent days, supporting the spillover hypothesis. Based on previous research, we expected spillover relations to be stronger for fathers as compared to mothers. Second, we examined whether spillover or compensatory relations were moderated as a function of both maternal and paternal depressive symptoms. We hypothesized that maternal and paternal depressive symptoms would exacerbate spillover relations. The current study extends prior work in three important ways. First, analyses controlled for marital satisfaction, marital conflict, and parenting, to allow for a more conservative test of whether daily fluctuations in marital quality predict parent-child relationship quality over and above global levels of family functioning. Second, we tested maternal and paternal depressive symptoms simultaneously as moderators to examine the unique role of each parents' level of symptoms. Third, to provide a more cogent test of the temporal relations between marital quality and subsequent parent-child relationship quality, as posited by the spillover and compensatory hypotheses, we considered an alternative model in which the quality of the parent-child relationship predicted same day and next day marital quality.

Method

Participants

Participants for this study were drawn from Time 3 (T3) of a larger three-wave prospective study (T3 data collected in 2002–2003). The original sample included 296 heterosexual couples and their child recruited to participate in a longitudinal study on family relationships and child development. Participants were recruited from the community through flyers; newspaper, television, and radio advertisements; community events; and letters distributed to local schools and neighborhood residents. To be eligible to participate, families had to be living together for at least 2 years and have a child between the ages of 8 and 16 years who lived with them the majority of the time. If a family had more than one child in the target age range, families decided which child would participate in the study. At Time 3, 248 families participated in the study (16% attrition); of those 248 families, 204 mothers and 196 fathers completed 15 daily diaries. The analytic sample for the current study was the 203 families in which both parents completed the laboratory portion of the study and at least one parent completed the diary portion of the study ($n = 190$ families in which both the mother and father completed diaries).

The majority of couples was married (98%) for an average of 15 years ($SD = 6.64$). Mothers' mean age at T3 was 40.18 years ($SD = 6.64$, range = 26 to 72) and fathers' mean age was 42.77 years ($SD = 6.93$, range = 27 to 72). Participants were representative of the geographic area from which they were recruited (Cummings et al., 2006; Papp, Kouros, & Cummings, 2009). Of the mothers, 88.7% were European American, 8.4% were African American, 1.5% was Hispanic, .5% was Native American, and 1 mother did not report her race. Of the fathers, 88.2% were European American, 9.4% were African American, and 2.4% were Hispanic. Based on fathers' reports, the median family income was in the US

\$40,001–\$65,000 range ($n = 82$); 1 family reported a combined family income less than US\$10,000, 12 reported a family income between US\$10,001 and US\$25,000, 34 reported a family income between US\$25,001 and US\$40,000, 39 reported a family income between US\$40,001 and US\$65,000, 34 reported a family income above US\$65,000, and 1 father did not report this information. At Time 3, the mean age of the target child in the study was 13.17 years ($SD = 2.24$; 50.2% girls). On average, families reported having 2–3 children living with them in the home at T3 (range = 1–7)¹.

Procedures

During a laboratory visit, mothers and fathers reported on their marital satisfaction, marital conflict, and depressive symptoms, and children reported on parenting. Beginning on the next day, couples completed daily paper diaries for 15 days. The study procedure was approved by the university's institutional review board, and parent consent and assent from children was obtained. Only the measures pertinent to the current study are presented. Families received \$140 for their participation; a subset of families received \$200 for completing additional measures and tasks.

Measures

Relationship quality—Marital quality and parent-child relationship quality were assessed via daily diaries. During the designated 15 days, mothers and fathers were asked to rate the overall “emotional quality of your relationship with your spouse that day” on a scale ranging from 0 (*negative*) to 10 (*positive*). Mothers and fathers also rated the overall emotional quality of their relationship with their child that day, using the same scale. Parents were instructed to complete the diaries at the end of the day before going to bed and to not discuss their answers with each other. At the end of the reporting period, mothers and fathers separately mailed back their diaries.

Supporting the validity of the diary as a method for capturing daily fluctuations in family relationship quality, there was significant within-person variability in the diary ratings across the 15 days: Within-person variation accounted for 60.9% and 59% of the variability in mothers' ratings of marital ($\sigma^2 = 2.55$, $SE = .07$) and parent-child relationship ($\sigma^2 = 1.76$, $SE = .04$) quality, respectively, and 57.2% and 50.9% of the variability in fathers' ratings of marital ($\sigma^2 = 2.41$, $SE = .06$) and parent-child relationship ($\sigma^2 = 1.62$, $SE = .05$) quality, respectively. The respective average range of scores mothers and fathers used on the scales were 4.58 ($SD = 2.12$) and 4.41 ($SD = 2.24$) for ratings of marital quality and 3.63 ($SD = 2.32$) and 3.63 ($SD = 1.99$) for ratings of parent-child relationship quality. Ratings of marital quality and parent-child relationship quality were moderately correlated within each day for mothers (average $r = .44$, range = .36-.58, all $p < .05$) and fathers (average $r = .59$, range = .51-.66, all $p < .05$).

Depressive symptoms—Mothers and fathers reported on their own depressive symptoms on the Center for Epidemiological Studies on Depression Scale (CESD; Radloff,

¹The number of children living in the home was not related to mothers' or fathers' average ratings of marital quality or parent-child relationship quality. The number of children living in the home also did not moderate spillover or compensatory relations between marital quality and parent-child relationship quality.

1977). Participants reported how frequently they experienced a list of 20 symptoms in the past week on a 4-point scale ranging from 0 (*less than a day*) to 3 (*5–7 days*). Items were summed to create an overall depressive symptoms score. There was no significant difference between mothers' ($M = 8.52, SD = 7.18$) and fathers' ($M = 7.99, SD = 7.10$) CESD scores, $t(202) = .81, p = .42$. Cronbach's alpha for fathers' and mothers' reports were .85 and .87, respectively. Based on a cut-off score of 16 (Myers & Weissman, 1980), 15.8% of fathers and 15.2% of mothers reported potentially clinical levels of depression.

Global marital satisfaction—Mothers and fathers completed the Marital Adjustment Test (MAT; Locke & Wallace, 1959), which includes 15 items assessing marital disagreements, relationship cohesion and communication, and overall satisfaction with the relationship. Possible scores range from 2 to 158, with higher scores reflecting a more well-adjusted marital relationship. There was no significant difference in mothers' ($M = 106.24, SD = 26.75$) and fathers' ($M = 108.96, SD = 23.68$) reports of marital satisfaction, $t(202) = 1.48, p = .14$. Cronbach's alphas for fathers' and mothers' scores were .75 and .80, respectively. Forty percent of families had at least one parent report a score below 100, indicating marital distress ($n = 57$ fathers; $n = 68$ mothers); there were 34 families in which both parents indicated marital distress.

Marital conflict—To assess global marital conflict that occurred in front of their child within the past year, mothers and fathers completed the O'Leary-Porter Scale (OPS; Porter & O'Leary, 1980). Parents rated the frequency of occurrence of nine conflict scenarios (e.g., "How often is there physical expressions of hostility between you and your spouse in front of your child?") on a scale ranging from 0 (*never*) to 4 (*very often*). Items were summed to create a total conflict score, with higher scores indicating increased levels of overt hostility. There was no significant difference in mothers' ($M = 9.03, SD = 4.91$) and fathers' ($M = 9.06, SD = 4.92$) reports of marital conflict on the OPS, $t(202) = .17, p = .86$. In the current sample, Cronbach's alphas for fathers' and mothers' scores were .82 and .83, respectively.

Parenting—Children's reports of parenting were assessed with the Parenting Style Index (Lamborn, Mounts, Steinberg, & Dornbusch, 1991). The Acceptance/Involvement subscale included 15 items, some of which are true/false (e.g., "I can count on my father to help me out, if I have some kind of problem." "My mother keeps pushing me to do my best in whatever I do.") and some of which were rated on a 3- or 4-point scale [e.g., "How often do your parents spend time just talking with you?" rated 0 (*almost never*) to 3 (*almost every day*)]. Possible scores range from 0 to 22 ($M = 17.55, SD = 2.88$) with higher scores reflecting higher levels of acceptance and involvement. The Strictness/Supervision subscale included 9 items [e.g., "How much do your parents really know where you are most afternoons after school?" rated 0 (*don't know*) to 2 (*know a lot*)]. Possible scores range from 0 to 28 ($M = 20.30, SD = 4.55$), with higher scores reflecting higher levels of strictness and supervision. Cronbach's alpha for the Acceptance/Involvement and Strictness/Supervision subscales were .68 and .63, respectively.

Data Analysis Plan

Multivariate hierarchical linear modeling (MGLM; e.g., Raudenbush, Brennan, & Barnett, 1995) using HLM 6.06 was used to account for the nested structure of the diary data, and to simultaneously model relations for mothers and fathers in one model. The Level 1 model included the within-person daily diary ratings; this model therefore estimated within-person relations between marital quality and parent-child relationship quality (same day or next day) simultaneously for mothers and fathers. Time was coded such that 0 represented the first daily diary; time was also coded to account for the unequal spacing between diary days for some families. The Level 2 model aggregated these within-person estimates and provided parameter estimates for the average within-person association between marital quality and parent-child relationship quality in the sample. A positive coefficient would support the spillover hypothesis, whereas a negative coefficient would support the compensatory hypothesis. Predictors were added to Level 2 (intercepts) to control for between-person differences in relationship length, child age and sex, and global levels of marital satisfaction, marital conflict, and parenting. Following centering guidelines in HLM (Hoffman & Stawski, 2009), Level 1 variables were person-centered, and the person-mean of the Level 1 variables were added as predictors of the intercepts (grand-mean centered) at Level 2. Finally, to test for time-lagged relations, parent-child relationship quality was predicted by the previous day's rating of marital quality, controlling for the autoregressive effect of parent-child relationship quality (e.g., Almeida et al., 1999). Thus, these models tested the relation between marital quality and subsequent (or change in) parent-child relationship quality on the next day (see Supplemental Material for equations of HLM models).

Results

Preliminary Results

Families in the analytic sample ($n = 203$) did not significantly differ from the remaining T3 families that did not complete diaries ($n = 45$) based on mothers' or fathers' race, education, or family income. However, couples in which at least one parent completed the diary portion of the study reported being in their relationship longer ($M = 15.24$ years, $SD = 6.22$) compared to those couples that did not complete diaries ($M = 13.56$ years, $SD = 5.35$), $t(240) = 2.26$, $p = .024$. Relationship length was included as a covariate in all analyses. Participants who completed diaries also did not significantly differ from those who did not on measures of marital satisfaction, marital conflict, paternal depressive symptoms, or child-reported parental strictness and supervision. Families completing the diary phase, however, did have higher levels of maternal depressive symptoms, $t(244) = 1.98$, $p = .048$, and lower levels of child-reported parental acceptance and involvement, $t(243) = 2.47$, $p = .014$.

Based on the analytic sample, mothers and fathers completed an average of 14.30 ($SD = 2.69$) and 14.06 ($SD = 3.0$) daily diaries, respectively, during the reporting period. The majority of families (80%) completed diaries on 15 consecutive days. On average, the remaining families ($n = 40$) completed the diaries over 18.65 days (range = 16 to 27 days)². One family completed the 15 diaries over 38 days; this family was excluded from the time-lagged analyses.

An intercept only model was first tested to examine average levels of, and variability in, marital relationship quality and parent-child relationship quality across the 15 diaries. There was no significant mean difference in the average level of marital relationship quality reported by mothers ($M = 6.18, SE = .10$) as compared to fathers ($M = 6.65, SE = .10$), $\chi^2(11) = 3.10, p = .07$. However, mothers reported higher levels of emotional quality with their child ($M = 7.33, SE = .08$) compared to fathers' reports ($M = 6.93, SE = .09$), $\chi^2(1) = 17.58, p < .001$. There was significant variability in both mothers' and fathers' ratings of marital quality and parent-child relationship quality.³

Marital Quality and Same Day Parent-child Relationship Quality

Main effects model—Controlling for relationship length, child age and sex, and global levels of marital satisfaction, marital conflict, and parenting, mothers' ratings of marital quality positively predicted mother-child relationship quality on the same day, $b = .34, SE = .02, p < .001$, consistent with the spillover hypothesis. Similarly, fathers' ratings of marital quality positively predicted father-child relationship quality on the same day, $b = .39, SE = .03, p < .001$. The concurrent link between parent-child relationship quality and marital quality did not significantly differ for fathers as compared to mothers, $\chi^2(1) = 2.74, p = .09$.

Parental depressive symptoms as a moderator—Next, both maternal and paternal depressive symptoms were added to Level 2 as simultaneous moderators of the daily link between marital relationship quality and parent-child relationship quality (Table 1). Similar to the main effect model, fathers' marital quality positively predicted father-child relationship quality on the same day, $b = .40, p < .001$. Mothers also showed evidence of spillover, with a positive association between mothers' marital quality ratings and mother-child relationship quality on the same day; however, this was moderated by fathers' depressive symptoms, $b = -.01, p = .004$. The significant interaction indicated that mothers' showed less spillover (i.e., a less positive relation between marital quality and mother-child relationship quality) in the context of higher father depressive symptoms (Figure 1, Panel A). Both simple slopes, representing the relation between marital quality and mother-child relationship quality at low ($-1 SD$) and high ($+1 SD$) levels of fathers' depressive symptoms were significant. Maternal depressive symptoms did not moderate same day spillover relations for mothers or fathers.

Time-lag Relations between Marital and Parent-child Relationship Quality

Main effects model—A time-lagged model was tested, in which marital quality predicted subsequent parent-child relationship quality on the next day, controlling for the autoregressive effect of the previous day's level of parent-child relationship quality. Models included covariates of relationship length, child age and sex, global levels of marital satisfaction, marital conflict, and parenting. The results indicated that marital quality negatively predicted mother-child relationship quality on the next day, $b = -.04, SE = .02, p$

²The length of time it took parents to complete the diaries was not significantly correlated with levels of marital satisfaction, marital conflict, parental depressive symptoms, or child-reported parental acceptance/involvement or strictness/supervision. Average daily ratings of parent-child relationship quality and marital quality also did not differ based on how long parents took to complete the diaries.

³Post-hoc analyses using only the first 15 days of the diary reporting period revealed a similar pattern of results.

= .03, consistent with the compensatory hypothesis. Fathers' ratings of marital quality did not significantly predict next day ratings of father-child relationship quality, $b = .01$, $SE = .02$, $p = .64$. The coefficients representing the relation between marital quality and subsequent parent-child relationship quality were significantly different for mothers and fathers, $\chi^2(1) = 4.19$, $p = .04$.

Parental depressive symptoms as a moderator—Next, both maternal and paternal depressive symptoms were added to Level 2 as simultaneous moderators of the relation between marital relationship quality and subsequent parent-child relationship quality on the next day (Table 2). Similar to the main effects model, mothers' ratings of marital quality were negatively related to ratings of mother-child relationship quality on the next day, $b = -.04$, $p = .029$; neither maternal nor paternal depressive symptoms moderated this relation. In contrast, there was a significant interaction between fathers' ratings of marital quality and maternal depressive symptoms in predicting change in father-child relationship quality on the next day, $b = .005$, $p = .033$, suggesting greater spillover for fathers when mothers reported higher levels of depressive symptoms (Figure 1, Panel B). The simple slope, representing the relation between father-reported marital quality and subsequent father-child relationship quality was significant at higher levels of mother depressive symptoms (1 *SD* above the mean), and nonsignificant at lower levels of mother depressive symptoms (1 *SD* below the mean).³

Alternative Model: Parent-child Relationship Quality Predicting Marital Quality

An alternative model was tested in which the quality of the parent-child relationship predicted marital quality. As before, models controlled for relationship length, child age and sex, global marital satisfaction and conflict, and parenting. The first model tested same day, concurrent relations. Higher levels of mother-child ($b = .46$, $SE = .03$, $p < .001$) and father-child ($b = .48$, $SE = .03$, $p < .001$) relationship quality predicted higher levels of same day marital quality. These relations were not moderated by either maternal or paternal depressive symptoms. A second model was run to test for time-lagged relations, in which parent-child relationship quality predicted subsequent marital quality on the next day. Neither mothers' ($b = -.03$, $SE = .02$, $p = .21$) nor fathers' ($b = -.04$, $SE = .03$, $p = .14$) reports of parent-child relationship quality predicted change in marital quality from one day to the next. Time-lagged relations were also not moderated by either maternal or paternal depressive symptoms.

Discussion

The present study examined daily links between marital quality and parent-child relationship quality, providing a test of the spillover and compensatory hypotheses. Extending previous research, this study examined these relations in the ecologically-valid context of the home using diary data; controlled for global levels of marital satisfaction, conflict, and parenting; and examined parental depressive symptoms as moderators of relations to address the question of which families are most vulnerable to spillover and/or compensatory processes. Several important findings emerged. First, support was found for the spillover hypothesis for mothers and fathers, and there was also support for the compensatory hypothesis for mothers

when considering time-lagged relations. Second, the results showed that parental depressive symptoms can alter the transmission of relationship quality from the marital dyad to the parent-child dyad, and consistent with previous research, this effect appears to be a cross-over effect. That is, mothers' and fathers' depressive symptoms moderated the relation between marital quality and the other parent's relationship quality with their child. Whereas mothers' depressive symptoms strengthened next day spillover relations for fathers, in contrast, fathers' depressive symptoms weakened same day spillover relations for mothers.

With regard to the spillover between fathers' marital quality and father-child relationship quality, fathers evidenced same day spillover. Specifically, poor marital quality predicted lower levels of father-child relationship quality on the same day. Further, spillover of marital quality to the father-child dyad was stronger on the next day in the context of maternal depressive symptoms; specifically, when mothers reported higher (but not lower) levels of depressive symptoms, fathers' marital quality predicted decreased father-child relationship quality from one day to the next. This is consistent with Almedia et al.'s (1999) diary study, in which fathers experiencing another stressor showed stronger spillover of tension from the marital to the parent-child relationship.

Mothers also demonstrated same day spillover from the marital to the parent-child dyad regardless of fathers' depressive symptoms; however, there was *less* spillover when fathers reported higher levels of depressive symptoms. Further, poor marital quality predicted *improvements* in mother-child relationship quality on the next day, supporting the compensatory hypothesis. The findings suggest that although mothers may transmit the feelings from their marital relationship to the parent-child relationship, this spillover is short-lived, as mothers compensate for poor marital quality by showing increases in mother-child relationship quality by the next day. Nelson et al. (2009) also found evidence for compensatory and cross-over effects, such that mothers' and fathers' depressive symptoms predicted higher levels of the other parents' supportive responses to their child's negative emotions. Whereas Nelson et al. and previous research has considered the main effect of depressive symptoms on parenting, the current study builds on this research by directly assessing how parental depressive symptoms alter the transmission of relationship quality between the marital and parent-child dyad.

Socialization and evolutionary perspectives offer two explanations for why stronger spillover effects were observed for fathers whereas less spillover in the context of father depression and compensatory relations were observed for mothers in the current study (Coiro & Emery, 1998). With regard to socialization processes, mothers are posited to be better able to compartmentalize family relationships, thereby keeping their feelings and perceptions of their marriage from adversely affecting their relationship with their child (Belsky, Gilstrap, & Rovine, 1984). In contrast, previous theory has posited that spillover effects are stronger for fathers because they have less clearly defined parenting roles; therefore, the boundary between the parent-child and marital dyad more easily blend together (Belsky et al., 1984). Based on evolutionary theories, an alternative and complementary explanation is that the father-child relationship is more adversely affected by marital discord given men's evolutionary drive to reproduce. That is, men view parenting as "a vehicle to ensure further reproduction" (Coiro & Emery, 1998, p. 25); when the quality of

the marital relationship is low, the motivation to maintain a high quality parent-child relationship diminishes.

Consistent with the present findings, these theoretical explanations suggest that there should be greater spillover for fathers and either less spillover or compensatory relations for mothers; however, empirical investigations have not consistently found such patterns of results. For example, Erel and Burman (1995) did not find evidence that the strength of the association between marital quality and parent-child relationship quality differed for mothers and fathers, and Coiro and Emery's (1998) review of the literature found inconsistent evidence for parent gender differences among studies with intact families. Further, regarding the moderating role of parental depressive symptoms, Davies et al. (2004) found an opposite pattern of findings compared to the present study, in which the negative relation between interparental discord and maternal acceptance was significant only at high levels of maternal depressive symptoms and the negative relation between interparental discord and paternal acceptance was significant only at low levels of paternal depressive symptoms. They posited that mothers may be more sensitized to marital tension and conflict than fathers, undermining their ability to engage in warm and sensitive parenting, and this is exacerbated when mothers exhibit high levels of depressive symptoms. In the current study, however, fathers were more vulnerable to stronger spillover the next day in the context of maternal depression, whereas mothers evidenced less spillover on the same day in the context of paternal depression. Likely, differences in the time-scale used to assess relations (yearly versus daily) and the specific constructs examined (e.g., specific parenting dimensions versus quality of the parent-child relationship) may account for the inconsistent findings in the literature.

A weakness of previous research testing the spillover hypothesis is that studies examined either (a) global measures of marital quality and parenting without considering how marital quality impacts the parent-child relationship in the short-term or (b) daily links between marital quality and parenting, without taking into account the overall climate of these relationships. Notably, the current study examined daily time-lagged relations between marital quality and the parent-child relationship, controlling for marital satisfaction, marital conflict, and parenting. Global indices of marital quality and of the parent-child relationship, based on many cumulative experiences over a period of time, undoubtedly are related. The current findings, however, demonstrate that daily fluctuations in marital relationship quality, *over and above* global perceptions and feelings parents have of each other and children have of their parents, are important and predictive of changes in the parent-child relationship from one day to the next. Findings from the alternative model indicated that when considering same day relations, the parent-child relationship predicted the quality of the marital relationship, suggesting bidirectional relations between the relationship quality among different family dyads on the same day. Supporting the temporal order of relations, however, marital quality predicted changes in parent-child relationship quality on the next day whereas support was not found for the parent-child relationship as a predictor of subsequent changes in marital relationship quality. Consistent with family systems theory (Cox & Paley, 1997), the current study adds further support that the marital relationship may serve as a hub for the family, predicting the quality of other family relationships.

The limitations of this study provide directions for future research. First, although rates of potentially clinical levels of parental depression are consistent with expected values given prevalence rates of depression in the community, on average, this sample exhibited low levels of depressive symptoms. Spillover and compensatory processes may differ when one or both parents have clinical levels of depression. Research with clinical populations, as well as research examining specific characteristics of parental depression beyond severity (e.g., chronicity, recurrence) is warranted to fully understand the role of parental depression in the transmission of emotions and tension from one family dyad to another. Second, the sample was predominately European American and the findings may not generalize to other diverse populations. Moreover, we utilized data from T3 of a longitudinal study; therefore, our sample may not generalize to other community samples as it includes those families willing to continue participation. Third, parents with multiple children in the eligible age range chose the target child to participate in the study which may have affected the results; it is possible that parents may have selected the child with whom they have a higher quality relationship or chose the child they were most concerned about. Fourth, our control variable of child-reported parenting did not distinguish between maternal and paternal parenting behaviors. Fifth, relationship quality was assessed with 1 item, and we did not assess children's perceptions of daily parent-child relationship quality or fluctuations in daily mood. One-item measures are common in daily diary research as researchers aim to keep diaries short to ensure compliance and avoid participants becoming tired of completing diaries for an extended period of time (Bolger, Davis, & Rafaeli, 2003). However, this comes at a trade-off of having valid assessments of constructs. Using a Visual Analog Scale or shortened versions of well-validated measures is one alternative for providing better measurement of constructs on daily diaries; for example, the *Couples Satisfaction Index* (Funke & Rogge, 2007) includes a 4-item version that allows for a quick assessment of marital quality. However, researchers must be cautious that the questions are framed in such a way as to be able to capture daily fluctuations in, rather than stable characteristics of, family members' relationship quality. In our study, there was significant within-person variation in responses across the diary days, strengthening the validity of our diary method for assessing subtle fluctuations in relationship quality.

Although there has been less support for the compensatory hypothesis in previous research, a consideration for future theory and research is refining explanations for the process by which marital quality may negatively predict parent-child relationships. Specifically, the negative relation between marital quality and parent-child relationship quality has been explained as one parent's attempt to compensate or "make up for" the negative relationship with their spouses. Whereas this interpretation has intuitive appeal, a negative relation between marital and parent-child relationship quality also implies that a positive marital relationship is related to worse parent-child relationship quality. Why might high levels of marital quality jeopardize and weaken the parent-child relationship? Erel and Burman (1995) noted that parents may view their child as a source of stress or threat to their marital happiness, resulting in low parent-child relationship quality. This interpretation, however, is speculative and further thought and empirical testing of this potential explanation is warranted.

A strength of the current study was the use of daily diaries to assess relations; however, the appropriate time-scale needed to capture spillover and compensatory processes has not been clearly delineated in the literature. Based on theoretical notions of spillover as a specific hypothesis, the transfer of negative mood from one family dyad to another could occur from one interaction to the next and then dissipate. In this case, a day may be too long to capture these processes, and more momentary assessments may be needed to fully understand how the marital relationship affects the parent-child relationship.

Further, the mechanisms accounting for spillover relations have remained a gap in this area. Some hypothesized mechanisms have included scapegoating, in which parents undermine the parent-child relationship by focusing on the child's negative qualities as a method for distracting themselves from their marital problems, and decreased emotional energy to engage in consistent discipline and high-quality parenting (see Erel & Burman, 1995). Another possible mechanism posited by the spillover hypothesis that can be directly assessed via daily diaries is fluctuations in daily mood. Overall, however, there has been little process-oriented research aimed at understanding the mechanisms that account for spillover or compensatory relations. In a longitudinal study of parents with a kindergarten-age child, Davies et al. (2009) found that fathers' relationship insecurity mediated the relation between interparental conflict and fathers' parental insensitivity and psychological control two years later. Whether relationship insecurity mediates relations on a daily level and for families with older children remains to be tested. Depending on the time-scale in which relations are examined, different or additional mechanisms may be needed to fully account for the relation between marital and parent-child relationship quality. Moreover, although the spillover and compensatory hypotheses are often presented as competing models in the literature, an important contribution of the current study is showing that *both* processes may operate within families, depending on the time frame within which relations are observed and level of parental depressive symptoms. Examining other contextual factors that may account for or moderate the transmission of relationship quality between family dyads is an important direction for future research.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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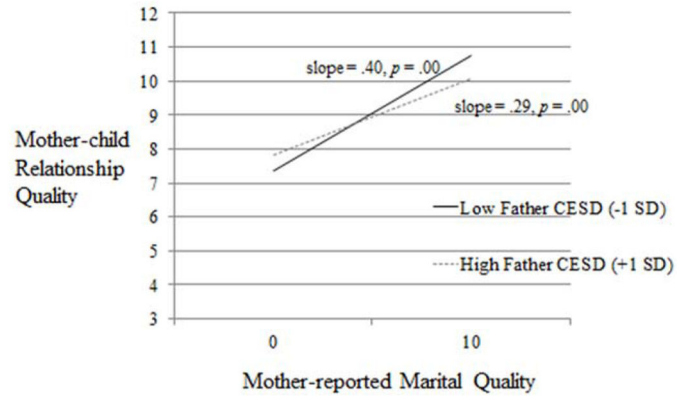
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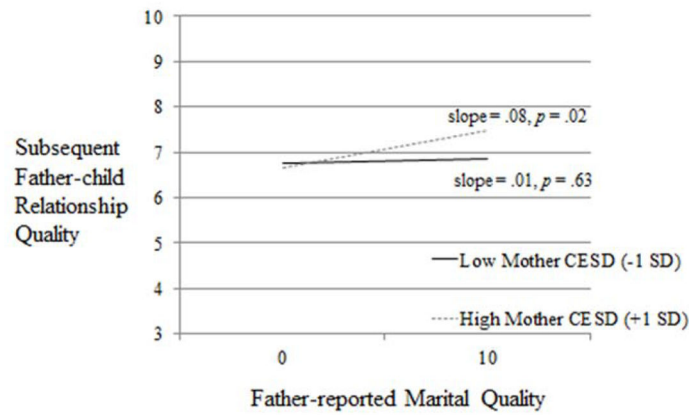
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Panel A



Panel B

**Figure 1.**

Panel A Concurrent relation between marital quality and mother-child relationship quality, as moderated by paternal depressive symptoms. *Panel B*. Time-lagged relation between marital quality and subsequent father-child relationship quality, as moderated by maternal depressive symptoms.

Note. CESD = Center for Epidemiological Studies on Depression Scale; SD = standard deviation.

Table 1

Parameter Estimates from HLM Analyses Examining Daily Relations between Marital Quality and Same Day Parent-child Relationship Quality: Parental Depressive Symptoms as Moderators

	Mothers' Rating of Parent-child Relationship Quality	Fathers' Rating of Parent-child Relationship Quality
Fixed Effects		
Level 1	b (SE)	b (SE)
Intercept	7.35 (.14)**	6.71 (.13)**
Day	.01 (.01) [†]	.01 (.005)*
Marital Quality	.35 (.02)**	.40 (.03)**
$\chi^2 (1) = 2.46$		
Level 2		
Intercept		
Average Diary Marital Quality Rating	.45 (.07)**	.58 (.06)**
Marital Satisfaction	-.003 (.003)	.002 (.003)
Marital Conflict	.003 (.01)	.02 (.01)
Parental Acceptance/Involvement	.03 (.02) [†]	.03 (.02)
Parental Strictness/Supervision	-.02 (.02)	-.02 (.01) [†]
Relationship Length	-.004 (.01)	.004 (.01)
Child Age	-.02 (.03)	-.08(.04)*
Child Sex	-.02 (.11)	.01 (.11)
Mothers' Depressive Symptoms	-.01 (.02)	.01 (.02)
Fathers' Depressive Symptoms	.03 (.02) [†]	-.03 (.02) [†]
Marital Quality		
Mothers' Depressive Symptoms	-.001 (.003)	-.003 (.003)
Fathers' Depressive Symptoms	-.008 (.003)**	.002 (.003)
$\chi^2 (1) = 6.57**$		
Random Effects (Variance Estimates)		
Level 2		
Intercept	2.51**	1.98**
Day	.004**	.001*

Mothers' Rating of Parent-child Relationship Quality		Fathers' Rating of Parent-child Relationship Quality	
Fixed Effects			
Level 1		b (SE)	b (SE)
Marital Quality		.06***	.07***

Note. $N = 203$. Mothers' and fathers' ratings of parent-child relationship quality estimated simultaneously in one multivariate hierarchical linear model. Marital quality ratings at Level 1 were person-centered, and the average rating was included at Level 2, as per centering recommendations in HLM (e.g., Hoffman & Stawski, 2009). Time was coded such that the Intercept represents Day 1 ratings.

$-p < .10$,

* $p < .05$,

*** $p < .01$

Table 2

Parameter Estimates from HLM Analyses Examining Daily Relations between Marital Quality and Subsequent Parent-child Relationship Quality: Parental Depressive Symptoms as Moderators

	Mothers' Rating of Parent-child Relationship Quality at time t + 1		Fathers' Rating of Parent-child Relationship Quality at time t + 1	
	b (SE)		b (SE)	
Level 1				
Intercept	7.27 (.15)**		6.77 (.15)**	
Day _t	.01 (.01)		.01 (.01)*	
Marital Quality _t	-.04 (.02)*		.003 (.02)	$\chi^2(1) = 3.90^*$
P-C Quality _t	.19 (.03)**		.17 (.03)**	
Level 2				
Intercept				
Average Diary Marital Quality Rating	.55 (.07)**		.61 (.06)**	
Marital Satisfaction	-.01 (.003)**		.004 (.003)	
Marital Conflict	.01 (.01)		.02 (.01)	
Parental Acceptance/Involvement	.004 (.02)		.004 (.02)	
Parental Strictness/Supervision	-.02 (.01)		-.02 (.01)	
Relationship Length	-.005 (.01)		-.01 (.01) [†]	
Child Age	-.02 (.03)		-.06 (.03) [†]	
Child Sex	.02 (.11)		.07 (.10)	
Mothers' Depressive Symptoms	.02 (.01)		-.01 (.01)	
Fathers' Depressive Symptoms	.02 (.01)		-.003 (.01)	
Marital Quality				
Mothers' Depressive Symptoms	-.001 (.002)		.005 (.002)*	$\chi^2(1) = 5.13^*$
Fathers' Depressive Symptoms	-.00 (.00)		.003 (.002)	
Random Effects (Variance Estimates)				
Level 2				

	Mothers' Rating of Parent-child Relationship Quality at time t + 1	Fathers' Rating of Parent-child Relationship Quality at time t + 1
Fixed Effects		
Level 1	b (SE)	b (SE)
Intercept	1.11 *	.89 †
Day	.004 ***	.0004 ***
Marital Quality	.01 ***	.02
P-C Quality	.03 ***	.04 ***

Note. $N = 202$. Mothers' and fathers' ratings of parent-child relationship quality estimated simultaneously in one multivariate hierarchical linear model. Marital quality ratings at Level 1 were person-centered, and the average rating was included at Level 2, as per centering recommendations in HLM (e.g., Hoffman & Stawski, 2009). Time was coded such that the Intercept represents Day 1 ratings.

- † $p < .10$,
- * $p < .05$,
- *** $p < .01$