

Postdivorce Living Arrangements, Parent Conflict, and Long-Term Physical Health Correlates for Children of Divorce

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The authors tested a biopsychosocial model in which young adults' long-term relationships with fathers and ongoing distress surrounding their parents' divorces mediated the relationship between disrupted parenting (i.e., exposure to parent conflict before the divorce and up to 5 years after, and amount of time with father postdivorce) and indicators of their physical health. University students whose parents divorced before they were 16 ($n = 266$) participated. Findings supported the model. The more time children lived with their fathers after divorce, the better their current relationships were with their fathers, independent of parent conflict. The more parent conflict they experienced, the worse their relationships were with their fathers and the more distress they currently felt about their parents' divorce, independent of time with father. Poor father-child relationships and more distress in turn predicted poorer health status. There was no interaction between exposure to parent conflict and time with father; thus, more time with father was beneficial in both high- and low-conflict families, and more exposure to parent conflict was detrimental at both high and low levels of time with father.

Keywords: divorce, custody, conflict, health, fathers

A burgeoning area of developmental research and theory is concerned with the long-term consequences of inadequate parenting for vulnerability to stress-related physical illnesses (for reviews, see Luecken & Lemery, 2004; Maunder & Hunter, 2001; Troxel & Matthews, 2004). In this new conceptualization, risk factors in early caregiving—such as high family conflict, abuse, parental psychopathology, and divorce—can serve to establish enduring dysregulations in the child's physiological stress responses, promoting pathophysiology in the brain and body (McEwen & Wingfield, 2003) and contributing to hypertension, heart disease, infectious diseases, and other illnesses (Markovitz & Matthews, 1991). Research on the consequences of one of these risk factors—divorce—has traditionally focused instead on psychological and behavioral outcomes, such as internalizing and externalizing disorders in children. In the present study, we examined aspects of young adults' experience of their parents' divorces (i.e., exposure to parent conflict and amount of time with father postdivorce) that are indicative of disrupted parenting and explored associations

between these experiences and indicators of their long-term physical health.

Although the effects of parent conflict on children's well-being have been the focus of much empirical and theoretical study, we know less about the effects of time spent with the noncustodial parent and little at all about how these two factors interact. This is unfortunate because an important contemporary issue facing courts and policymakers regarding child custody after divorce is whether increased amounts of visitation or shared residential custody can be beneficial to children when there is high parent conflict. At present, the research literature offers little guidance to courts and policymakers on this issue.

The divorce literature contains contradictory and inconclusive findings regarding the importance of the time children spend with their nonresident fathers. Amato (1993) reviewed the literature on frequency of contact with nonresident fathers and children's well-being and found 15 studies in which frequent contact appeared to benefit academic achievement, psychological adjustment, self-esteem, or social competence. In contrast, 10 studies found no association between contact and well-being, and 7 found that more frequent contact with fathers was associated with lower well-being of children.

Amato and Rezac (1994) hypothesized that those studies in which frequent contact appeared to be beneficial might be the ones in which parents had less conflict, whereas those in which frequent contact appeared to be detrimental might be the ones in which parents had more conflict. They found partial support for this interaction between father contact and parent conflict in data from the National Survey of Families and Households; namely, for boys (but not girls)

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from divorced families, more frequent contact with father¹ was associated with fewer serious problem behaviors when parent conflict was low but more problems when conflict was high. In the closest quantitative replication of this finding, Healy, Malley, and Stewart (1990) found that increased regularity (but not frequency) of visitation with fathers was associated with increased self-esteem in boys and girls when parent conflict was low but decreased self-esteem when conflict was high. They speculated that regularity might have been experienced as inflexibility by children with conflicted parents. Nevertheless, this interaction was short-lived. It was only present 6 months postseparation and not 18 months postseparation. In yet another example of the contradictions in this literature, Healy et al. found the opposite pattern for children's behavior problems; namely, increased frequency of visitation was associated with fewer behavior problems only when parent conflict was high, and this relationship persisted to 18 months postseparation. Similarly, Kurdek (1986) found that frequent visitation with fathers in the first year was associated with better child adjustment only when parent conflict was high. Kurdek's findings for regularity and length of visits tended to be inconsistent. We are unaware of any more recent studies that have performed statistical tests for similar interactions between time with father and parent conflict.²

Others have argued that it is the quality of time with fathers that matters, not the quantity. In an influential review of 63 studies at the end of the 1990s, Amato and Gilbraith (1999) found stronger evidence for direct effects on academic, internalizing, and externalizing problems of quality of time with father, as measured by authoritative parenting and emotional closeness, than quantity of time, as most often measured by frequency of contact. However, they also noted that the more recent studies had begun to show stronger effects of quantity of time.

Recently, Laumann-Billings and Emery (2000) hypothesized that frequency of contact with nonresident fathers³ is more closely related to long-term distress over the divorce than to psychological and behavioral disorders. They conceived of distress as a multifaceted set of painful feelings as well as emotionally neutral dissatisfactions with one's childhood and parents. To measure distress, they constructed and validated the Painful Feelings About Divorce (PFAD) Scale with college and low-income community samples of young adults. The PFAD includes six scales—which measure feelings of loss and abandonment; seeing life through the filter of divorce; blame directed toward mother, father, and self; and acceptance of the divorce—along with a few single items.

Laumann-Billings and Emery (2000) did find evidence of substantial distress in young adults from divorced families, but the best predictor of distress was parent conflict rather than frequency of contact with nonresident parents. Across their two studies, parent conflict correlated with four of the six PFAD scales, but contact with the nonresident parent only correlated with the Paternal Blame scale. The less frequent contact college students had with their nonresident parents, the more they blamed their fathers for the divorce. The only other associations between contact with nonresi-

dent parents and distress were nonlinear, and these were weak, inconsistent, and unpredicted. In these associations, distress tended to be higher only at moderate levels of contact with nonresident parents. To interpret these associations, the researchers made the questionable assumption that at low levels of father contact children cease caring about their fathers and thus feel little distress, whereas at high levels they feel little distress because they see their fathers a lot and continue to care about them.

Meanwhile, other researchers have begun to discover that long-term physical health outcomes in adults are associated with exposure to parent conflict and distressful divorces (Katz & Gottman, 1997; Luecken & Fabricius, 2003; Mechanic & Hansell, 1989). Troxel and Matthews (2004) proposed a life span model whereby parent conflict and divorce affect children's long-term physical health. In their model, both distress and time with father play roles. Troxel and Matthews proposed that many of the effects of conflict and divorce are mediated through disrupted parenting, specifically diminished warmth and sensitivity and reduced physical and psychological availability of parents. Inadequate parenting and/or physical absence of the parent in turn are hypothesized to cause a particular type of distress in children, namely, emotional insecurity regarding their parents' love and ability to care for them (Davies & Cummings, 1994; Wolchik, Tein, Sandler, & Doyle, 2002). Emotional insecurity is hypothesized to disrupt emotional regulation processes and render children susceptible to stress-related health problems. One possible theoretical implication of their model is that higher father involvement in conflicted divorced families could counteract effects of parent conflict by reassuring the child of the continued relationship with the father. There are some findings to support this prediction (Healy et al., 1990; Kurdek, 1986).

Luecken and Fabricius (2003) found several of the above processes at work in relation to long-term health indicators and perceived health (i.e., self-reported somatic symptoms, days sick, and health care visits) in young adults from both intact and divorced families. In intact families, perceptions of parental caring and responsiveness during childhood

¹ Amato and Rezac (1994) measured contact with nonresident parents and controlled for whether the nonresident parent was the mother or father.

² In a meta-analysis of the few studies that have simply compared joint (legal or residential) custody and sole custody, Bauserman (2002) found that the improved adjustment of children in joint custody families was independent of the degree of parental conflict. On a related note, Gunnoe and Braver (2001) found that the benefits associated with joint legal custody were independent of the effects of preexisting levels of parent conflict.

³ Laumann-Billings and Emery (2000) also measured contact with nonresident parents (only during the last 2 years of high school) but did not control for whether it was mother or father. Mothers were the nonresident parents in 10% of the families in Study 1 and in 23% of the families in Study 2, which could help account for some of the differences between the two studies if different variables related to mother contact versus father contact exist. For example, paternal blame correlated with frequency of nonresident parent contact in Study 1 but not Study 2.

correlated with later health indicators. In divorced families, judgments about how distressing their parents' divorce had been for them correlated with later health indicators. Directly in line with Troxel and Matthews's model, time spent with a parent during childhood (including visitation arrangements for both nonresident fathers and mothers) and parent conflict predicted perceptions of that parent's caring and responsiveness in both family types.

We drew on these findings and theories in forming the model evaluated in the current research (Figure 1). College students whose parents had divorced before they were 16 years old reported on their experience of their parents' divorces and also on their perceived state of physical health. The model was evaluated with structural equation modeling (SEM). The effects of parent conflict and quantity of time spent with nonresident fathers on young adults' self-reported health were hypothesized to be mediated through two pathways: (a) the father-child relationship and (b) distress about the divorce. Greater parent conflict and less time with father were expected to independently predict poorer father-child relationships and higher divorce-related distress. Poor father-child relationships and higher distress in turn were expected to independently predict poorer physical health. Finally, we also tested for an interaction between time with father and parent conflict in order to evaluate the hypothesis (Amato & Rezac, 1994) that the benefits of increased time with father accrue only when conflict between the parents is low.

Method

Participants and Procedures

The survey questions for this study were randomly distributed to approximately two thirds ($n = 1,154$) of all the students in introductory psychology classes during one class period in the 2nd week of the spring semester of 2002 at a large southwestern state university. The questions were part of a larger survey sponsored every semester by the psychology department, to which independent researchers contrib-

ute different questionnaires. Of the students receiving our questions, 28.2% indicated that their parents were divorced. Students who indicated that their parents divorced before they were 16 years old (23.1% of the total; $n = 266$) were instructed to answer the remaining questions about their parents' divorces. These included young women (53%) and young men ranging in age from 16 to 36, with a mean age of 19. Ethnic composition included Caucasian (69%), Asian (5.7%), Hispanic (9.6%), African American (3.2%), Native American (2%), Middle Eastern (1.5%), combined (5.4%), and "none of the above" (2.8%). One hundred seven students reported that their parents divorced when they were between 0 and 5 years old, 88 when they were between 6 and 10, and 71 when they were between 11 and 15.

Measures

Living arrangements (LA). Time with father was assessed with a single item that asked about students' global LA: "Between the time your parents got divorced and now, which of the following best describes your living arrangements with each of them?" Response options were on a 9-point Likert-type scale ranging from 0 (*lived entirely with mother, saw father minimally or not at all*) to 8 (*lived entirely with father, saw mother minimally or not at all*). Scores of 1, 2, and 3 were *lived with mother, saw father (some/a moderate amount/a lot)*, respectively. A score of 4 indicated *lived equal amounts of time with each parent*. Scores of 5, 6, and 7 were *lived with father, saw mother (a lot/a moderate amount, some)*, respectively. We asked students to make a global judgment because LA can change as children get older, and we were concerned that targeting a specific time period might produce ratings that were not representative. The response options capture all three types of residential arrangements (mother-, shared-, and father-residential custody). Researchers have typically looked at frequency of contact with only nonresident fathers (or nonresident parents, which involves combining a large group of nonresident fathers and a much smaller group of nonresi-

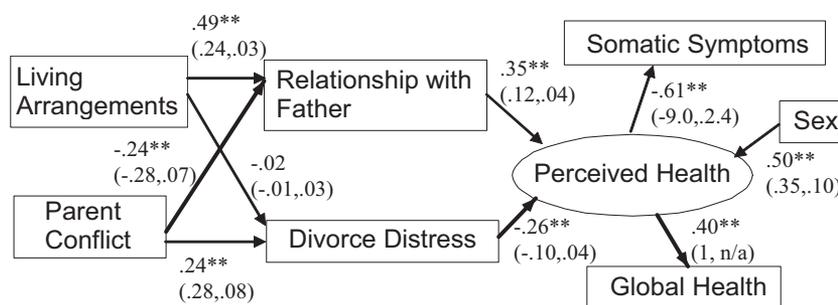


Figure 1. Hypothesized model of relations among living arrangements, parent conflict, relationship with father, divorce distress, and perceived health as well as obtained path coefficients. Standardized regression weights are shown, and within parentheses unstandardized estimates and standard errors are given. Error terms are not shown. Sex is coded as female = 0, male = 1. Higher scores on the Divorce Distress factor indicate more distress, and higher scores on the Relationship With Father factor indicate better relationships. ** $p < .01$.

dent mothers). This technique excludes shared-residential arrangements, which may be an important anchor of linear associations between outcomes and increasing time with fathers.

The LA question discriminates recognizable visitation schedules. We determined this with a different group of 582 students from the same population who participated in a larger online survey the next year to partially fulfill the course requirement for research participation. They answered the global LA question plus the following four questions: "Considering the most typical living arrangement you had after the divorce, what was (a) the number of days you spent any time at all with your father in an average 2-week period during the school year [0 to 14]? (b) the number of overnights (i.e., sleepovers) you spent with your father in an average 2-week period during the school year [0 to 14]? (c) the number of school vacation weeks out of 15 (Christmas = 2 weeks, spring = 1 week, summer = 12 weeks) during which your time with your father was different from what it was during the school year [0 to 15]? And (d) the percentage of time you spent with your father during those vacation weeks above that were different from the regular schedule [0% to 100% in 10% increments]?" We calculated each student's number of days and overnights with father per month (28 days).⁴

Those who reported minimal or no time with their father averaged 1 day and 1 overnight per month. Most of these reported they had no vacation time that differed from their school year visitation schedules, but 25% reported they had 1 to 3 weeks of vacation that differed, during which they averaged 31% of time with their fathers. Those who reported spending some time with their father averaged 3 days and 2 nights per month (the equivalent of one 3-day weekend with overnights on Friday and Saturday) and averaged 3 vacation weeks, during which they spent 50% of the time with their fathers. Those reporting moderate time with their father averaged 6 days and 4 nights (the equivalent of alternating 3-day weekends), and those reporting a lot of time with their father averaged 12 days and 7 nights (the equivalent of two 4-day weekends with overnights on Friday, Saturday, and Sunday but not Monday and two mid-week dinners on the alternate weeks). Both of these groups reported they had 4 weeks of vacation, during which they spent 50% of the time with their fathers. Those reporting equal time averaged 13 days and nights per month—essentially 2 weeks per month, representing truly joint residential custody—and 3 vacation weeks, with 50% of the time spent with their fathers. Finally, the four categories of living primarily with father averaged about 3 weeks per month with him during the school year and 5 vacation weeks, during which they spent 60% of the time with their mothers.

The LA measure predicts nonresident fathers' contributions to their children's college expenses (Fabricius, Braver, & Deneau, 2003), and similar LA measures predict nonresident fathers' provision of clothes, toys, a bike, and a bedroom at their homes for the child as well as money for car insurance and expenses (Fabricius & Braver, 2003, 2004).

Parent conflict (PC). Because the level of PC can change over time, we asked about the frequency of conflict at four time periods. Participants rated the amount of conflict between their parents "before the final separation," "during the final separation," "the first two years after," and "the next three years after" on a 9-point Likert-type scale ranging from *never* (0), through *a moderate amount of the time* (4) to *almost always* (8). Participants could also indicate *don't know*, *can't remember*, or *doesn't apply*.

Global feelings about the divorce (GFAD). This single item, "Overall, how do you feel about the divorce between your parents?" had the following response options: *It was* [0 = *an extremely negative*/1 = *negative*/2 = *somewhat negative*/3 = *slightly negative*/4 = *neutral*/5 = *slightly positive*/6 = *somewhat positive*/7 = *positive*/8 = *extremely positive*] *experience for me*. This item is a significant predictor of physical health vulnerability in adult children of divorce (Luecken & Fabricius, 2003).

Test-retest reliabilities of the LA, PC, and GFAD questions were calculated on a subset of the 582 students who had provided the days-per-month equivalencies of the LA categories and who had also answered the PC and GFAD questions. The subset was composed of 93 students who responded to an e-mail request for retest data on only the LA, PC, and GFAD items 10 months later. Table 1 presents the means, standard deviations, and test-retest correlations for the six questions. The questions were quite stable over time in terms of reliability and mean levels. The exceptions were the significant decrease in reported PC before the divorce over the 10-month interval, $t(58) = 2.08, p < .05$, and the increase in positive feelings about the divorce, $t(92) = 2.01, p < .05$.

As a check on the validity of the LA and PC scales, we compared responses of matched pairs of students and parents. An additional 70 students who reported their parents were currently divorced from each other obtained extra course credit by responding to the LA and PC questions and contacting one or both of their parents to ask for their responses. Parents of 51 students responded; in 10 cases both mother and father responded. When both parents responded, we used the father's data. This procedure gave us parent reports that were roughly equally divided between fathers ($n = 22$) and mothers ($n = 29$). Students' and parents' reports of LA were essentially identical ($r = .92, p < .001$; $M_s = 2.33$ and $2.35, SD_s = 2.09$ and 2.00 , respectively, $t < 1$). Reports of PC⁵ were significantly correlated ($r = .63, p < .001$). A 2 (reporter) \times 4 (time period) analysis of variance showed that students and parents did not differ in the overall frequency of reported PC: $M_s = 4.44$ and $4.09, SE_s = .35$ and $.37$, respectively; multivariate $F(1, 34) < 1.5, p > .25$.

⁴ Number of days and number of overnights per month each correlated .82 ($p < .001$) with LA.

⁵ We used the means of the standardized scores of the PC questions in the correlation (see Results section) and the raw scores in the analysis of variance.

Table 1
Means, Standard Deviations, and Psychometric Properties

Measure	<i>M</i>	<i>SD</i>	<i>n</i>	Alpha	Time 1		Time 2		Test-retest
					<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Living arrangements (LA)	2.18	2.03	266		2.27	1.99	2.20	2.21	.86
Parent conflict (PC)									
Before separation	4.27	2.48	175		4.98	2.52	4.51	2.41	.75
During separation	4.33	2.58	172		4.87	2.86	4.56	2.83	.74
First 2 years after separation	3.37	2.51	200		3.71	2.55	3.59	2.54	.68
Next 3 years after separation	2.75	2.45	218		2.94	2.50	2.99	2.42	.75
Global feelings about divorce (GFAD)	3.36	2.28	261		3.19	2.33	3.57	2.29	.70
Father caring (FC)	23.12	10.09	251	.94					
Somatic symptoms (SS)	5.99	5.28	256	.76					
Global health (GH)	2.79	0.90	238						
Loss (L)	18.60	5.50	260	.68					
Paternal blame (PB)	15.27	6.21	259	.88					
Maternal blame (MB)	11.19	5.41	259	.73					
Self-blame (SB)	9.51	4.62	245	.89					
Filter of divorce (FD)	18.15	5.69	259	.73					
Acceptance (A)	14.61	3.05	258	.59					
Wonder if dad loves me (WD)	1.93	1.27	248						

Note. Test-retest reliabilities were calculated on a new sample of 93 participants.

Father caring (FC). The 12-item Care subscale of the Parental Bonding Instrument (PBI; Parker, 1989) provided a measure of the quality of the father-child relationship. The PBI is a self-report instrument with well-documented reliability and validity. Participants rated how well each statement described their fathers "as you remember your father in your first 16 years." Sample items include "Spoke to me in a warm and friendly voice" and "Did not help me as much as needed," and response options were *very unlike* (0), *moderately unlike* (1), *moderately like* (2), and *very like* (3). Total scores could range from 0 to 36.

Painful Feelings About Divorce (PFAD) scale. The PFAD scale (Laumann-Billings & Emery, 2000) is a 34-item self-report instrument with six subscales plus five single items. The subscales are Loss and Abandonment (L), Paternal Blame (PB), Maternal Blame (MB), Self-Blame (SB), Seeing Life Through the Filter of Divorce (FD), and Acceptance of the Divorce (A). The only one of the single items we used was "Sometimes I wonder if my father even loves me" (WD). Responses are *strongly disagree* (1), *disagree* (2), *neutral* (3), *agree* (4), and *strongly agree* (5), with the additional response option *does not apply*. Following Laumann-Billings and Emery (2000), we treated *does not apply* as missing data, calculated the scale means on the remaining items, and multiplied the means by the number of items. Laumann-Billings and Emery reported that the six scales are internally consistent and generally reliable over time, with test-retest correlations between .41 and .88 as well as stable means (with one exception) over a 1-year period.

Physical health outcomes. Health indicators included a measure of somatic symptoms (SS) and a single-item global self-rating of health (GH). The SS measure was the somatization scale of the Symptom Checklist-90-Revised (Derogatis, 1994). The scale asks participants to report how much in the past week each of 12 symptoms (e.g., head-

aches, dizziness, chest or back pains, nausea) has distressed or bothered them on a 5-point Likert-type scale ranging from 0 (*not at all*) to 4 (*extremely*). Total scores can range from 0 to 48. Schappert (1992) reported that higher frequencies of somatic symptoms are associated with substantial functional impairment and considerable decrement in health-related quality of life and account for more than half of outpatient health care visits. Kroenke, Spitzer, and Williams (2002) found that each of four levels of total scale scores (from "minimal" to "high") was associated with approximately a one-half standard deviation decrement in each of six areas of general health and comparable increases in days sick, clinic visits, and difficulty with daily tasks. Somatic symptoms are accompanied by psychological distress, but the adverse consequences of somatic symptoms are distinct from those of coexisting depression and anxiety (Gureje, Simon, Ustun, & Goldberg, 1997; Kirmayer & Robbins, 1991; Spitzer et al., 1994), from the number of coexisting physical disorders (Kroenke et al., 2002), and from the side effects of prescribed medications (Reidenberg & Lowenthal, 1968).

The GH measure was one item: "Would you say that in general your health is ___?" Responses were given on a 5-point Likert-type scale of *poor* (0), *fair* (1), *good* (2), *very good* (3), and *excellent* (4). Similar items have been used with a variety of populations and have been shown in two nationally representative European studies to be stable from age 23 to 33; to be related (at age 23) to specific health problems (respiratory problems, obesity, backache, and migraines), general reports of long-standing illness, infirmity that limits daily activities, health-related behavior (smoking), and psychological distress (Manor, Matthews, & Power, 2001); and to predict (at ages 16 to 24) early mortality (Burstrom & Fredlund, 2001). Both European studies found several-fold increases in specific health prob-

lems and in the risk of early mortality associated with “fair” or “poor” rated health.

Table 1 shows that the FC, SS, and PFAD scales were internally consistent (α s = .59 to .94). Laumann-Billings and Emery (2000) found alphas similar to ours for the PFAD scales.

Data Analysis

Principal-axis factor analysis with varimax rotation was used with the PFAD, FC, and GFAD scales and items in order to determine factor scores for father-child relationship quality and divorce distress. SEM with AMOS 5.0 was then used to evaluate the proposed model shown in Figure 1. A latent variable representing “perceived health” included SS and GH. Mediation analyses were conducted by testing for direct effects of PC and LA on the latent health variable. Sex was included in the model as a control variable because it was significantly related to SS ($r = -.306, p < .001$) and GH ($r = .271, p < .001$), such that young women reported more health problems. An alternate model included a term for the interaction of LA and PC. We used maximum likelihood estimation and examined model fit using cumulative fit index (CFI), root mean square error of approximation (RMSEA), and a chi-square goodness-of-fit test.

Results

Descriptive Information

Table 1 shows the means, standard deviations, and number responding to each measure. Students reported that the frequency of PC declined over the four time periods, multivariate $F(3, 155) = 14.89, p < .000$. Because some students' parents separated when they were too young to remember the early periods, and others separated too recently for 5 years to have passed, different numbers of students answered these questions. We imputed these missing data in subsequent analyses by using the mean of the standardized scores on whichever PC questions a student answered.⁶

Correlations between measures are shown in Table 2. There was no linear relationship between our predictor variables PC and LA. There was a U-shaped quadratic relationship, $F(2, 222) = 6.64, p < .01$, wherein more frequent conflict was associated with both sole mother-residence (“minimal or no time with dad”) and the four primary father-residence arrangements, and progressively less conflict was associated with arrangements that gave the father “some,” “moderate,” “a lot,” or “equal” time.

Regarding relations between predictors and mediators, LA and PC both correlated with FC, L, PB, and MB. PC was also related to GFAD, FD, and A, whereas LA was related to WD. Among the mediators, GFAD correlated significantly with all six of the PFAD scales, and FC correlated with L, PB, FD, and WD. There were many correlations among the PFAD scales.

The outcome health measures were significantly correlated, and there were many relations between them and the

predictor and mediator variables. SS was significantly related to PC, FC, GFAD, L, PB, FD, and WD and was marginally related to LA. GH was significantly related to WD and marginally related to LA.

Factor Analysis of the Mediating Variables

A principal-axis factor analysis with a varimax rotation was conducted on the PFAD and FC scales and on the WD and GFAD items. A two-factor solution (Table 3) accounted for over 58% of the variance with eigenvalues of 3.4 and 1.9, and the factors were readily interpreted as reflecting divorce distress (GFAD, FD, MB, SB, A, and L) and relationship with father (FC, WD, and PB). Participants' scores on each factor (Anderson-Rubin method) were saved, and these factor scores were used in the SEM. Higher scores on the Divorce Distress factor indicate more distress, and higher scores on the Relationship With Father factor indicate better relationships.

SEM

The model tested the hypothesis that children's postdivorce LA and their exposure to PC during the time of the separation and up to 5 years later would contribute independently to the divorce-related distress they experienced as young adults and to the quality of their relationships with their fathers, and that these factors in turn would predict their current physical health. This model provided a very good fit: CFI = 1.0; $\chi^2(12, N = 266) = 11.4, p = .50$; and RMSEA = 0.0, CI = 0.0, 0.06. All paths were significant at $p < .01$, except the path from LA to the Divorce Distress factor⁷ ($p = .81$; see Figure 1).

Tests of the mediation effect of the Divorce Distress factor and the Relationship With Father factor were conducted in two steps. First, we tested a model with only direct paths from LA and PC to the latent health variable. This model was of good fit, CFI = 1.0; $\chi^2(11, N = 266) = 10.0, p = .53$; RMSEA = 0.0, CI = 0.0, 0.06, and the direct paths were significant (LA $\beta = -.20, p = .05$; PC $\beta = .23, p = .03$). Second, we reanalyzed the full hypothesized model with direct paths included from LA and PC to the latent health variable. The direct paths were no longer significant (LA $\beta = -.03, p = .77$; PC $\beta = .12, p = .26$). Thus, there

⁶ The distribution of missing PC data was as follows: 15% of participants missed the first two time periods, 2% missed the last two, 8% had other patterns (missed only the first, only the last, or one or both of the middle time periods), and 15% did not answer any of the PC questions. The remainder (59%) answered all four time periods. The individual time period conflict scores had the same relations to the other measures in Table 2 as the mean of the standardized scores, with two exceptions: (a) Higher conflict in the two earlier time periods, but not in the two later time periods, was associated with more acceptance (A); and (b) higher conflict in the two later time periods, but not in the two earlier time periods, was associated with more negative feelings about the divorce (GFAD).

⁷ There was no evidence that a linear relationship was obscured by a curvilinear relationship between LA and the Divorce Distress factor.

Table 2
Bivariate Correlations Between Measures

Measure	1	2	3	4	5	6	7	8	9	10	11	12
1. Living arrangements (LA)	—											
2. Parent conflict (PC) ^a	.049	—										
3. Father caring (FC)	.436**	-.209**	—									
4. Global feelings about divorce (GFAD)	-.018	-.218*	.081	—								
5. Somatic symptoms (SS)	-.120 [†]	.152*	-.150*	-.185**	—							
6. Global health (GH)	.125 [†]	-.026	.091	.010	-.234*	—						
7. Loss (L)	-.275**	.243**	-.344**	.248**	.039	-.039	—					
8. Paternal blame (PB)	-.429**	.183**	-.558**	.198**	-.048	-.048	.293**	—				
9. Maternal blame (MB)	.238**	.338**	.067	-.274**	.016	-.039	.322**	.094	—			
10. Self-blame (SB)	-.095	.013	-.014	-.254**	.087	-.122	.250**	.212	.458**	—		
11. Filter of divorce (FD)	-.108	.238**	-.136*	-.406**	.256	-.074	.545**	.326**	.370**	.541**	—	
12. Acceptance (A)	.063	.136*	-.109	.315**	-.010	-.073	.118	.070	-.132*	-.308**	-.121 [†]	—
13. Wonder if dad loves me (WD)	-.400**	.041	-.632**	-.079	.235**	-.136*	.281**	.546**	.016	.261**	.191**	-.005

Note. ^a Mean of the standardized scores on whichever of the 4 conflict questions a student answered.

[†] $p = .055$. * $p < .05$. ** $p < .01$.

Table 3
Results of Factor Analysis of Mediating Variables and Scales

Variables and scales	Factor	
	Divorce Distress	Relationship With Father
Global feelings about divorce (GFAD)	-.510	-.101
Filter of divorce (FD)	.725	.261
Maternal blame (MB)	.588	-.085
Self-blame (SB)	.632	.123
Acceptance (A)	-.340	.098
Loss (L)	.524	.370
Father caring (FC)	.057	-.807
Wonder if dad loves me (WD)	.092	.713
Paternal blame (PB)	.108	.722

were direct relations between LA and health and between PC and health, and these were no longer significant when we took into account the indirect effects through the relationship with father and divorce-related distress, indicating a complete mediation effect (Baron & Kenny, 1986; Judd & Kenny, 1981).

The alternate model tested the hypothesis that PC and LA would interact in their effects on distress and relationship with the father. The model was found to be of poor fit relative to the hypothesized model, $CFI = .966$; $\chi^2(15, N = 266) = 25.6$, $p < .05$; $RMSEA = 0.05$, $CI = 0.01, 0.085$. Neither of the paths from the interaction of PC and LA to distress and relationship with the father was significant, indicating that the improvement in the father-child relationship associated with increased time with father was similar in low- and high-conflict families, and the increase in distress and worsening of the relationship associated with PC were similar across the different categories of LA.

Follow-Up Analyses

The possibility exists that associations between LA and relationships with fathers could be at least partly accounted for if “good” fathers were the ones who chose to have more time with their children. As part of the original survey, we also asked students to report which type of LA they thought their fathers wanted. According to students, fathers wanted substantially more time with their children than they had. For example, 55% said their fathers wanted either equal time or one step above or below equal time, whereas only 28% actually had one of those arrangements. Among individuals with “minimal or no time” with their fathers, 63% reported their fathers wanted more time, and the percentages were 87%, 83%, and 62% for those with “some,” “moderate,” and “a lot” of time. At equal time, fewer (37%) wanted more time. Although this finding suggests that fathers generally did not choose the exact LA they had, it might still be the case that fathers received some of what they wanted so that “good” fathers still ended up with more time than others. In fact, the correlation between LA and the arrangements students reported their fathers wanted was significant: $r = .54$, $p < .001$. However, LA was a better predictor of

the mediators and outcomes than the LA fathers wanted. We regressed LA and the LA fathers wanted onto each of the variables that was significantly related to LA in Table 2. LA remained significant or marginally significant for all of the mediators (FC, L, PB, WD, and MB; the latter was marginally significant with $\beta = .14$, $p < .06$) and remained significant for one of the health outcomes (GH). The LA fathers wanted was significantly related only to FC, WD, and MB and to neither of the health measures.

Discussion

Our findings were that the more time children lived with their fathers after divorce, the better their long-term relationships were with their fathers. This held true for families with high parent conflict in the period from before the divorce to 5 years later as well as for families with low parent conflict. At the same time, the more parent conflict children experienced, the worse their relationships were with their fathers and the more distress they felt as young adults about their parents' divorce; this held true regardless of the amount of time they lived with their fathers. Poor father-child relationships and more distress were both associated with poorer reported physical health as young adults. We discuss below the theoretical and policy implications of these findings, acknowledge limitations of the study, and offer suggestions for future research.

A persistent and serious shortcoming of the divorce literature is the scarcity of studies that measure both the time children spend with their nonresident fathers and the level of conflict between the parents; as a result, "parental conflict remains an important confound in research comparing adjustment in different custody settings" (Bauserman, 2002, p. 98). We found, as have others (Bauserman, 2002; Kurdek, 1986), that as time with fathers increased up to and including shared residential custody, parent conflict decreased. This means that to the extent that divorced fathers see their children less when there is high parent conflict, the negative outcomes often found to be associated with parent conflict in past research can be confounded with the unmeasured variable of time with father; we cannot tell how much is due to conflict and how much is due to decreased time with father. An important finding of the present study was that the model testing showed that the effects of time with father and parent conflict were independent of each other.

Researchers (Davies & Cummings, 1994; Troxel & Matthews, 2004) have been developing deeper theoretical conceptualizations than we have had in the past of how parent conflict harms children, and these theories posit that conflict threatens children's emotional security by causing them to worry that their parents will no longer care for them. These researchers have pointed out that unavailability of a parent because of divorce can have the same effect on children's emotional security. If this is true, then increased visitation could theoretically have benefits even in high-conflict divorced families, because more time with the nonresident parent could compensate to some extent for the effects of parent conflict. This theory would explain the benefits to children of increased time with nonresident fa-

thers in high-conflict families that we found here and that some others (Healy et al., 1990; Kurdek, 1986) have also found.

In past studies that have measured outcomes associated with both time with nonresident fathers and parent conflict, the results have been inconsistent between and within studies (Amato & Rezac, 1994; Healy et al., 1990; Kurdek, 1986; Laumann-Billings & Emery, 2000). The clear roles we found for both time and conflict may have been a result of a distinction we were able to draw between somewhat different aspects of the child's emotional security, represented by our two mediating factors—the quality of the father-child relationship and the amount of divorce-related distress the student continued to feel. The variables making up the Relationship With Father factor reflected the degree to which the father could be counted on for emotional warmth, responsiveness, and love as well as the amount of residual anger and resentment the student still felt toward him. The variables comprising the Divorce Distress factor included feelings of worry about how well one is prepared for life and what important experiences one may have missed as a result of the divorce as well as feelings of guilt for one's possible responsibility for the divorce. These two aspects of emotional security—the degree to which one can continue to rely on parents and how well prepared one feels for life—may be particularly important in young adulthood. They served distinct roles in our model, clarifying the similarities and differences in the ways that time with father and parent conflict relate to long-term physical health. Time with father related to the relationship factor, whereas parent conflict related to both the relationship and distress factors. Laumann-Billings and Emery (2000) had expected that time with father would relate to most of the Painful Feelings About Divorce (PFAD) scales but found instead that parent conflict did. Our findings help clarify theirs. We found (Table 3) that most of the PFAD scales (filter of divorce, maternal blame [MB], self-blame, acceptance) loaded clearly on the Divorce Distress factor and, as such, were predicted by parent conflict. The paternal blame (PB) scale and the wonder if dad loves me item loaded on the Relationship With Father factor (along with FC) and were predicted independently by both time with father and parent conflict. The Loss scale included three items expressing loss of time with father and three others expressing more general loss, and it tended to load on both factors. Future research should attempt to further clarify these two possible aspects of emotional security. In our model, these two aspects of emotional security provided complete mediation. In other words, if it were not for harm to the child's emotional security, then there would be no relationship between parent conflict and loss of time with father in childhood and poorer health in young adulthood. Thus, these findings strongly support Troxel and Matthews's (2004) model, which specifies that threats to the child's emotional security propagate the effects of parent conflict and divorce on physical health.

The divorce literature has almost exclusively focused on psychological outcomes, but modern biopsychosocial models allow us to hypothesize and explore relations to physical health. The markers we used in the present study were

somatic symptoms and perceived global health, which are valid self-report health measures and, in the case of global health, a strong indicator of risk for later health problems and early mortality. Our model indicates that one source of this risk involves current emotional insecurity that in turn can be traced to having experienced higher levels of conflict between their parents and less amount of time with their fathers.

We focused on the father-child relationship because in the great majority of divorced families children live with their mothers and visit their fathers; thus, variations in visitation arrangements would be expected to affect children's relationships with their fathers more than their relationships with their mothers. Among those few families in the reversed situation of primary residence with father and visitation with mother, we would expect that the mother-child relationship would be similarly affected by living arrangements and predictive of health outcomes. In fact, students who lived primarily with their fathers scored higher on MB than those who lived with their mothers; the opposite was true for PB. Laumann-Billings and Emery (2000) found the same. The different patterns for MB and PB mirror other findings with college students (Fabricius, 2003; Luecken & Fabricius, 2003), in which the relationship with the resident parent (mother or father) remained high across living arrangements categories up to and including equal residency, whereas the relationship with the nonresident parent improved across categories and "caught up" when the student lived substantial amounts of time with each parent. As a result, students with equal or near-equal residence arrangements had the best relations with both parents.

Limitations of this study include the possibility of multiple causal directions and the possibility that significant model paths may have been influenced by method variance because of our use of a single informant. For example, it is possible that reports of living arrangements that include little time with father are a consequence of poor father-child relations rather than a cause. Although our results are not definitive, we did find that students' reports of the living arrangements they had were better predictors in the model than reports of what their fathers wanted. Best practice among researchers in the field is to avoid relying on single informants when possible. For our mediators (relationship with father, divorce distress), the participant is likely to be the only reliable source. For our outcomes, we used valid self-report measures common in the health field as an alternative to obtaining medical records. The use of a single informant (and single item) for information on time with father did not seem to be a problem because the objectivity of our living arrangements item was indicated by the essentially identical responses we obtained from matched pairs of students and parents. Responses from students and parents to our parent conflict questions were significantly correlated ($r = .63, p < .001$), indicating some objectivity but also room for differences. We asked students rather than parents to report about parent conflict because children have to be aware of parent conflict for it to cause stress arousal (Lazarus & Folkman, 1984), and they are the best reporters of their awareness (Wolchik et al., 2002). Nevertheless, we

cannot rule out the possibility that students' responses to the parent conflict questions could have been partly subject to negative bias in recall among those students most currently distressed about the divorce and with poorer father-child relationships. Finally, poorer health and/or related depressive symptoms could have negatively biased judgments of father-child relations and divorce distress. However, Laumann-Billings and Emery (2000) found few relationships between psychological symptoms and PFAD scales. Concern about the reliance on self-report measures is mitigated but not eliminated by adequate psychometric properties, including the fact that our new measures (living arrangements, parent conflict, and global feelings about divorce) were reliable over time. Many of the potential limitations of our study are inherent to retrospective data, and an important test of our model will be to determine whether it also fits longitudinal data. The good fit to the retrospective data, however, provides the empirical foundation for planning such longitudinal studies.

A potential confound in the present model may involve fathers' financial contributions to their children, which covary with living arrangements (Fabricius & Braver, 2003; 2004; Fabricius et al., 2003) and which may have a direct effect on their physical health. We did not have measures of father's socioeconomic status and financial support in the current data, and it will be important to control for these variables in future research. Another potential confound, age at divorce, was not related to any relationship quality measures or to any health measures. It was related to only one of the distress measures, global feelings about divorce ($r = -.15, p < .05$).

Our participants were limited to college students, who might be expected to be healthier or less negatively affected by divorce-related threats to their current emotional security. However, detailed comparisons (available upon request) indicate that our college sample is similar to noncollege samples that have been tested on the measures used here. On a related note, Laumann-Billings and Emery (2000) found similar levels of divorce distress in college and community samples; in addition, a meta-analysis of studies comparing child adjustment in sole custody versus joint custody found no differences attributable to convenience versus random samples (Bauserman, 2002). Nevertheless, it would be important to replicate these findings on noncollege samples.

We measured only the frequency of parent conflict, not whether domestic violence was present, and so our results cannot be taken to apply to families with domestic violence. More research is needed on the mediating role of the child's emotional security in biopsychosocial models of families with domestic violence, and such research could provide useful tests of theoretical models.

Previous research has sensitized courts and policymakers, rightly so, to the risk of exposing children to high levels of parent conflict, sometimes suggesting that an appropriate strategy might be to limit visitation when evidence is presented of high conflict (e.g., Amato & Rezac, 1994; Johnson, Kline, & Tschann, 1989). Our findings suggest that the combination of high conflict and little time with the father

exposes children to more risk than either one alone for long-term, serious physical health problems. These findings present decision makers with a challenge when increased time with the noncustodial parent could be suspected to lead to increased conflict. Relevant considerations would seem to be that if more visitation time leads to an increase in conflict, then benefits from more time might be canceled out by greater conflict. Conversely, if less visitation time would lower conflict, then benefits from reduced conflict might be canceled out by less time. Policymakers can consider the fact that parent conflict does tend to decrease over time, as we and others (King & Heard, 1999; Maccoby & Mnookin, 1992) have found, but damaged relationships between divorced fathers and their children persist into adulthood (Furstenberg, Hoffman, & Shrestha, 1995; Lye, Klepinger, Hyle, & Nelson, 1995), and the relationships especially likely to deteriorate may be the ones in which the living arrangements give little time with the father. Finally, these results support intervention and education programs for divorcing parents that include information about not only the negative effects of parent conflict but the positive, long-term health outcomes for children whose divorced parents arrange for them to have substantial time with both parents.

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