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Children of Divorce in the 1990s: An Update of the Amato and Keith (1991) Meta-Analysis

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The present study updates the P. R. Amato and B. Keith (1991) meta-analysis of children and divorce with a new analysis of 67 studies published in the 1990s. Compared with children with continuously married parents, children with divorced parents continued to score significantly lower on measures of academic achievement, conduct, psychological adjustment, self-concept, and social relations. After controlling for study characteristics, curvilinear trends with respect to decade of publication were present for academic achievement, psychological well-being, self-concept, and social relations. For these outcomes, the gap between children with divorced and married parents decreased during the 1980s and increased again during the 1990s.

Interest in the effects of divorce on children remains strong among researchers, practitioners, policy makers, and the general public. This interest is a consequence of the continuing high divorce rate. Although after 1980 the divorce rate in the United States declined slightly, recent projections indicate that between 40% and 50% of first marriages contracted in the 1990s will end in divorce (Schoen & Standish, 2000). During the last decade, over one million children experienced parental divorce every year (U.S. Bureau of the Census, 1999).

In 1991, Amato and Keith published a meta-analysis of 92 studies that compared children residing with divorced and continuously married parents. Their analysis, based on studies conducted in the 1950s through the 1980s, indicated that children with divorced parents scored significantly lower on a variety of indicators of well-being, including measures of academic achievement, conduct, psychological adjustment, self-concept, social relations, and the quality of relationships with mothers and fathers. The mean effect sizes tended to be modest, however, ranging from −.26 for father–child relationships to −.08 for psychological adjustment. The results of this meta-analysis provided a benchmark that subsequent researchers have used to evaluate the magnitude of effect sizes generated in their own research. A computer search of the Social Science Citation Index indicates that the Amato and Keith meta-analysis has been cited over 250 times.

The purpose of the present study is to update the Amato and Keith (1991) meta-analysis, with a focus on studies published in the 1990s. One of the more intriguing findings reported by Amato and Keith was a shift in the magnitude of effect sizes over time. In particular, effect sizes for academic achievement, conduct, self-concept, and mother–child relations were significantly lower in studies conducted in more recent decades (the 1970s and 1980s) than in earlier decades (the 1950s and 1960s). As Amato and Keith concluded, "These results suggest that the implications of parental divorce for children's well-being have become less pronounced since the 1950s and 1960s" (p. 34). By calculating effect sizes for studies published in the 1990s, it is possible to see if the gap in well-being between children with divorced and continuously married parents has continued to change during the last 10 years. Good reasons

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exist for suspecting that such a shift has occurred.

Changes in Effect Sizes Associated With Divorce

Effect sizes in the scientific literature on children and divorce may be declining because of the manner in which research is conducted. Amato and Keith (1991) found that more methodologically sophisticated studies tended to yield weaker effect sizes. Depending on the outcome, weaker effect sizes appeared in studies that used randomly selected (rather than convenience) samples, larger (rather than smaller) samples, multiple-item (rather than single-item) measures of outcomes, and multivariate (rather than bivariate) analyses. A tendency for methodologically strong studies to yield relatively modest effect sizes may exist for several reasons. One explanation refers to the fact that large samples have greater statistical power than smaller samples and, hence, are better able to detect the significance of weak effects in the population. For this reason, the results of large-sample studies (with relatively weak but significant findings) are more likely to find their way into the published literature. More generally, methodologically sophisticated studies have a good chance of being accepted for publication, even if they report null results. In contrast, methodologically simple studies are unlikely to be published unless they show especially strong (and hence convincing) results. This tendency would result in a trend among published studies for the most sophisticated studies to report the weakest group differences.

Studies of children and divorce conducted in the 1990s were more sophisticated than studies conducted in earlier decades, including the 1980s. For example, in the 1990s, researchers increasingly turned to national, longitudinal data sets such as the National Longitudinal Study of Youth (Emery, Waldron, Kitzmann, & Aaron, 1999), the National Study of Families and Households (Hanson, 1999), the High School and Beyond Study (Astone & McLanahan, 1991), and the British National Longitudinal Study (Cherlin et al., 1991). Other researchers published reports based on smaller, but more intensively studied, longitudinal samples (Hetherington & Clingempeel, 1992). The availability of prospective data made it possible to control for a variety of predisruption factors that may be causes of parental divorce as well as child outcomes, such as parents' predivorce income (McLanahan & Sandefur, 1994), parents' antisocial personality (Simons, 1996), and parents' marital conflict (Forehand, Neighbors, Devine, & Armistead, 1994). Other researchers were able to examine children's postdivorce behavior problems by controlling for children's behavior problems prior to parental separation (Morrison & Cherlin, 1995). It is probable that these methodological advances resulted in further declines in the published effect sizes associated with marital disruption in the 1990s.

In addition to methodological advances, it is possible that effect sizes in this literature declined in the 1990s because the effects of divorce on children have become weaker. As marital dissolution has become more common, people's attitudes toward divorce have become more accepting (Thornton, 1985). Consequently, children with divorced parents may feel less stigmatized now than in earlier decades. Moreover, therapeutic interventions for children of divorce have become common during the last two decades. Programs in school settings have been shown to improve the functioning of children following marital disruption (Pedro-Carroll & Alpert-Gillis, 1997; Stolberg & Mahler, 1994). In addition, parenting courses are now widely available (and sometimes mandatory) for divorcing parents. Although it is not clear whether these courses directly benefit children, parents generally view them favorably (Emery, Kitzmann, & Waldron, 1999). With respect to the legal system, mediation for divorcing parents in contested cases is available in most states and mandatory in some. Mediation, compared with more adversarial procedures, results in better compliance by parents with agreements, more parental satisfaction (especially among fathers), and less conflict and more cooperation in coparenting following separation (Emery, Kitzmann, & Waldron, 1999). Taken together, the increasing availability of school-based interventions, parenting programs, and divorce mediation may have lowered the amount of stress experienced by children following parental separation. If this is true, then the gap in well-being between children with divorced and continuously married parents is likely to have declined during the last decade.

Although good reasons exist for hypothesizing a continuing decline in effect sizes, other

considerations lead to a different conclusion. Recent longitudinal research indicates that the effects of divorce on children vary with the level of discord between parents prior to marital disruption. On the one hand, when marital conflict is overt, intense, chronic, and unresolved, children appear to be better off in the long run if the marriage ends than if parents remain together. On the other hand, when parents engage in relatively little overt conflict, children appear to be worse off following divorce (Amato, Loomis, & Booth, 1995; Hanson, 1999; Jekielek, 1998; Morrison & Coiro, 1999). Under these circumstances, children are likely to view parental separation as an unexpected and inexplicable event that sets into motion a series of stressful transitions (declines in household income, loss of contact with one parent, moving to a new neighborhood) with few or no compensating advantages.

This phenomenon has implications for children if the average level of discord prior to marital dissolution is changing. In earlier decades, legal procedures for obtaining a divorce were difficult and costly, and public attitudes toward divorce were condemnatory. Consequently, it is likely that only the most dysfunctional and troubled marriages ended in voluntary disruption. To the extent that it removed children from a hostile home environment, many of these divorces would have benefited children in the long run. But with the introduction of no-fault divorce, the softening of public attitudes toward divorce, and the dramatic growth in the number of divorcing couples, it is likely that the threshold of marital unhappiness necessary to trigger a divorce has declined. This change would mean that an increasing number of divorces are preceded by a modest, rather than a severe, level of discord. Indeed, longitudinal evidence indicates that a majority of recent divorces are not preceded by an extended period of overt and intense marital conflict (Amato & Booth, 1997). Some observers have argued that people often terminate their marriages these days for reasons that have more to do with "personal growth" than escaping from a destructive relationship (Booth, 1999; Glenn, 1996). Consequently, the type of disruptions that children find especially distressing may represent an increasing proportion of all divorces. Little direct evidence is available to support (or refute) the notion that divorces are increasingly occurring in low-discord marriages. But if this reasoning is correct, then the decline in effect sizes prior to 1990, as noted in Amato and Keith (1991), may have slowed down or even reversed during the last decade.

Another line of reasoning suggests that the gap in well-being between children with divorced and continuously married parents may be expanding, not because divorce is becoming more problematic for children, but because living with married parents is becoming more advantageous. During the 1990s, the U.S. economy expanded, unemployment declined, the percentage of wives and mothers in the labor force increased, and wages rose—especially for women (White & Rogers, 2000). The benefits of economic growth, however, were not distributed equally among families. The family group that experienced the largest rise in income during the 1990s consisted of married couples with both spouses in the paid labor force. In contrast, single-parent families experienced a deterioration in economic resources during the 1990s (U.S. Bureau of the Census, 1999, Tables 749, 751, 754, and 757). Given that family income predicts a number of positive outcomes among children (Duncan & Brooks-Gunn, 1997), children with married parents may have "pulled further ahead" of children with divorced parents during the 1990s.

Contribution of the Present Study

Several perspectives suggest that the average observed difference between children with divorced and continuously married parents may have shifted during the 1990s, because of either the growing methodological sophistication of studies, the increased acceptance of marital dissolution, the spread of therapeutic and legal interventions for divorcing families, a decline in the level of marital discord that precedes parental separation, or growing economic inequality between children in single-parent and two-parent families. A meta-analysis of studies conducted in the 1990s, and a comparison of these results with the findings of earlier research, is necessary to determine the existence and nature of such a shift.

In the present study, I update the Amato and Keith (1991) meta-analysis to achieve three goals. First, I test the hypotheses that average differences in outcomes between children with divorced and continuously married parents have

changed (either decreased or increased) since the 1980s. To accomplish this task, I calculate effect sizes for various child outcomes from studies published in the 1990s and compare these with effect sizes calculated from studies published in earlier decades. Second, I consider how methodological characteristics of studies may have affected effect sizes in the 1990s, as well as in earlier decades. And third, because gender and age differences are of perennial interest in this literature, I consider how effect sizes in the 1990s varied with children's gender and age.

Method

In general, the methods used in the analysis of studies from the 1990s were identical to those reported by Amato and Keith (1991).

Selection of Studies

Studies were located through computerized databases (such as PsycINFO and Sociological Abstracts) and the reference sections of review articles. Studies had to meet two criteria for inclusion. First, studies had to include a sample of children living with a parent who was single because of divorce and a sample of children living with continuously married parents. Second, studies had to report data on at least one child outcome that could be represented as an effect size. As in the Amato and Keith (1991) meta-analysis, studies focusing on adult children of divorce were excluded, although samples based entirely on college students were included. Unpublished conference papers or doctoral dissertations were excluded. The search produced 67 studies published between 1990 and 1999 that met these criteria. This total included 1 study (Smith, 1990) covered in the original Amato and Keith meta-analysis. These 67 studies are listed in the reference list. (See Amato and Keith, 1991, for studies used in the earlier meta-analysis.)

Calculation of Effect Sizes

The most direct method of calculating effect sizes involved subtracting the mean score on the dependent variable for children with married parents from the mean score for children with divorced parents and dividing the difference by the pooled within-group standard deviation (Hedges & Olkin, 1985). If means or standard deviations were not available, effect sizes were calculated from *t* values, correlation coefficients, probability values, or other statistics following procedures described by Rosenthal (1994). Signs were affixed to effect sizes so that a negative sign indicated that children with divorced parents were worse off than other children.

Effect sizes were calculated for each "independent sample" in a study. Independent samples existed when data from a single study were reported separately for two nonoverlapping groups, such as boys and girls. If an independent sample contributed two or more effect sizes within the same outcome category (such as academic achievement), then the within-category mean of the effect sizes was calculated. This procedure ensured that each independent sample contributed only one effect size to the overall mean effect size for a particular outcome (as reported in the Results section).

It was not uncommon for two or more articles to present results based on the same data set. When articles reported on essentially the same cases and outcomes, the article with the most complete information was included in the meta-analysis and the other articles were excluded. Sometimes two studies used the same data set but reported results for different outcomes. In these cases, both studies were included. In other cases, studies used the same data set and similar outcomes but relied on different subsamples of children. If there was no overlap—or only minimal overlap—in the subsamples, then both studies were included in the meta-analysis.

Three types of effect sizes were distinguished through the use of control variables. First, some studies reported simple mean differences (i.e., zero-order differences) between children with divorced and nondivorced parents. Effect sizes calculated from these data indicate how different (or similar) the two groups of children were but tend to overestimate the effects of divorce. (In other words, part of the difference is due to divorce and part of the difference is spurious.) Second, some studies reported mean differences (or comparable statistics) adjusted for predivorce variables, such as parents' education, parents' personality, parents' marital conflict, or children's adjustment prior to separation. Effect sizes based on outcomes adjusted for predivorce differences provide estimates of the total effect of divorce on children. And third, some studies reported mean differences adjusted for postdivorce variables, such as household income or parent–child relations following separation. Because these studies controlled for possible mediating variables, the resulting effect sizes tend to underestimate the total effect of divorce. If studies provided more than one type of data (which was common), then it was necessary to decide which type of effect size would be calculated. The following priorities were used: (a) effect sizes based on mean differences adjusted for predivorce variables, (b) effect sizes based on simple mean differences, and (c) effect sizes based on mean differences adjusted for postdivorce variables.

Variables

Outcomes were coded into five general categories: academic achievement (standardized tests, grades, teacher's or parents' ratings of school achievement, dropping out of high school), conduct (misbehavior, aggression, delinquency), psychological and emotional adjustment (depression, anxiety, general happiness), self-concept (self-esteem, self-efficacy), and social relations (popularity, cooperativeness, quality of peer relations). The original Amato and Keith (1991) meta-analysis included categories for mother–child relations and father–child relations, but these outcomes were not coded in the present study.

Consistent with Amato and Keith (1991), four methodological characteristics of studies were coded: whether the sample was selected on the basis of a random process as opposed to convenience (1 = *random,* 0 = *convenience*), whether the study used multiple-item or single-item measures of outcomes (1 = *multiple items,* 0 = *single item*), whether the study used control variables or reported zero-order associations (1 = *control variables,* 0 = *no control variables*), and the sample size. (Clinical samples of children, although rare in the 1990s, were counted as convenience samples.) With respect to gender, samples were coded as boys, girls, or mixed. With respect to age, samples were coded into five levels: preschool, primary school, secondary school, mixed primary and secondary school, and college. Finally, data were recorded on the year of publication and the year in which the sample was collected. If the year of data collection was not reported, then it was coded as two years prior to the date of publication.

In the original Amato and Keith (1991) meta-analysis, two coders independently calculated effect sizes from a sample of articles, with a resulting intercoder correlation of .98. Two coders also independently classified measures into outcomes categories (academic achievement, conduct, etc.), resulting in a kappa reliability coefficient of .84. In the present meta-analysis, two coders independently calculated a sample of effect sizes, with a resulting intercoder correlation of .90. The coders also independently classified child outcomes, with a kappa reliability of .95. In general, the coding of data achieved a high standard of reliability.

Results

Study Characteristics Across Decades

Table 1 presents data on characteristics of studies published between 1950 and 1979, 1980 and 1989, and 1990 and 1999. Data for the 1990s were obtained from 67 studies involving 98 independent samples. These 98 samples, in turn, contributed 177 effect sizes to the meta-analysis. Somewhat fewer studies were available from the 1980s than from the 1990s, and even fewer studies were available from earlier decades. (The total number of studies published prior to 1990 is less than the number reported in Amato and Keith, 1991, because studies that reported data only on parent–child relations were excluded from Table 1.)

The distribution of child outcomes did not differ much across decades, although researchers appeared to give slightly more attention to self-concept during the 1980s and 1990s than in earlier decades. Researchers appeared to give roughly equal attention to children of each gender, although the most common situation, irrespective of decade, was to report results for mixed samples of boys and girls. With respect to age, studies in the 1990s gave little attention to children of preschool age—even less than in earlier decades. There appeared to be a corresponding modest increase in the use of college-age samples in the 1990s. In each time period, however, the most common focus was on children of primary school age.

The largest changes in Table 1 are reflected in methodology. The use of random samples became increasingly common over time, as did the use of control variables to adjust for predivorce factors. The use of multiple-item instruments was common in the 1990s, although the percentage did not increase since the 1980s. Samples were larger in the 1990s than in earlier decades. (Medians rather than means appear in Table 1 because the distributions were positively skewed.) Curiously, sample sizes were somewhat smaller in the 1980s than in earlier or later decades.

Effect Sizes in the 1990s

As a preliminary step, the distribution of 177 unweighted effect sizes from studies published in the 1990s was examined without regard to outcome. Effect sizes ranged from −1.25 to 0.37, with a mean of −0.29 and a median of −0.24. In other words, the typical result was one in which children with divorced parents scored about one-fourth of a standard deviation lower than children with continuously married parents. Of the 177 effect sizes, 88% were negative and 42% were negative and significant ($p < .05$). Only one effect size was positive and significant. Therefore, although the majority of comparisons were negative, most (58%) did not

Table 1
Characteristics of Effect Sizes by Decade of Publication

Effect size characteristic	Decade of publication		
	1950–1979	1980–1989	1990–1999
Number of effect sizes	68	142	177
Number of independent samples	38	76	98
Number of studies	26	53	67
Child outcome (%)			
Academic achievement	25	13	22
Conduct	32	24	23
Psychological adjustment	24	23	23
Self-concept	4	19	16
Social relations	15	20	16
Gender of sample (%)			
Boys only	27	17	27
Girls only	16	16	24
Mixed gender	57	67	49
Age of sample (%)			
Preschool	9	10	2
Primary school	37	41	41
Mixed primary/secondary	27	19	10
Secondary school	22	23	31
College	6	7	16
Methodology (%)			
Random samples	15	31	53
Control variables	18	25	40
Multiple item measures	56	88	88
Mdn size divorced sample	57.5	42.0	72.0
Mdn size nondivorced sample	188.0	74.5	207.0

Note. Percentages are based on the total number of effect sizes.

lead to a rejection of the null hypothesis. (Note that all significance tests reported in the present study are two-tailed.)

Table 2 reports the mean unweighted and weighted effect sizes from studies published in the 1990s. The mean unweighted effect size is a good indicator of the typical study result, because each study (or sample) is weighted equally. Larger samples, however, have smaller standard errors and for this reason provide more accurate estimates of population parameters. Consequently, the mean weighted effect size (which weights the individual effect size by its sample size) provides a better estimate of the effect size in the population. In the present meta-analysis, effect sizes were weighted and combined using formulas for fixed-effect models, as described by Hedges (1994) and Shadish and Haddock (1994).

The mean unweighted and weighted effect

Table 2
Mean Effect Sizes Derived From Studies Published in the 1990s That Compared Children With Divorced and Continuously Married Parents

Child outcome	*n* of samples	Mean unweighted effect size	Mean weighted effect size	Heterogeneity	Fail-safe *N* values
Academic achievement	39	−0.26***	−0.16***	119.47***	1,745
Conduct	40	−0.33***	−0.22***	103.04***	1,771
Psychological adjustment	41	−0.31***	−0.21***	104.38***	1,939
Self-concept	28	−0.24***	−0.12**	58.28**	256
Social relations	29	−0.28***	−0.15***	114.79***	544

** $p < .01$. *** $p < .001$.

sizes were negative and statistically significant for all outcomes. Unweighted mean effect sizes ranged from −0.24 for self-concept to −0.33 for conduct; the corresponding weighted mean effect sizes were −0.12 and −0.22. The fact that the weighted effect sizes were consistently lower than the unweighted effect sizes indicates that larger studies revealed narrower group differences than smaller studies. In general, although the mean weighted effect sizes for the 1990s were modest in magnitude, they demonstrate the continuing gap in achievement, adjustment, and well-being between children with divorced and continuously married parents.

The present meta-analysis almost certainly failed to locate and include some studies published in the 1990s, and the sampling strategy deliberately excluded unpublished studies. If most of these excluded studies reported null results, then the significance tests reported in Table 2 are too liberal. To address this problem, fail-safe *N* values were calculated (Rosenthal, 1979). This statistic indicates the number of additional studies with null results that would need to be added to the meta-analysis to reduce the mean effect sizes in Table 2 to insignificance. All of the fail-safe *N* values were large. For example, there would need to be an additional 1,745 studies of academic achievement—all with null results—to reduce the mean effect size of −0.16 to an insignificant level. Because the fail-safe *N* values were large, it is reasonable to conclude that the significance tests are valid. That is, in the larger population from which these samples were drawn, children with divorced parents scored lower than children with continuously married parents on these outcomes.

Table 2 also contains heterogeneity values (Hedges, 1994; Hedges & Olkin, 1985). The statistical significance of these values indicates that the variability in effect sizes across samples is greater than expected by chance. If these values are significant, then one is justified in exploring between-studies (or between-samples) characteristics that might account for variability in effect sizes.

Effect Sizes and Study Characteristics

Children's gender. Comparisons of all-girl and all-boy samples across the five outcomes revealed few significant differences in effect sizes in the 1990s, with the exception of conduct. For this outcome category, the mean weighted effect size was −0.28 among the 15 all-boy samples and −0.16 among the 15 all-girl samples ($z = 2.04$, $p < .05$). It is well-known that boys are more prone to behavioral problems than girls, and divorce may exacerbate this difference. In the Amato and Keith (1991) meta-analysis, effect sizes associated with marital disruption were significantly higher among all-boy samples than all-girl samples with respect to social relations, but not with respect to conduct. It is not clear why earlier studies suggest a gender difference in social relations and later studies suggest a gender difference in conduct. One possibility is that the apparent discrepancy reflects overlap between the two outcome domains. Researchers may consider aggression among boys to be a conduct problem, but aggressive boys also experience difficulty forming and maintaining networks of close friends. In general, the present meta-analysis, considered with the earlier Amato and Keith meta-analysis, provides modest support for the notion that divorce has stronger effects on boys than girls, at least in some domains. Nevertheless, the mean weighted effect sizes were significant for girls as well as boys across all five outcomes. The central finding, therefore, is that divorce is associated with a range of poor outcomes among children irrespective of gender.

Children's ages. Although children's ages were coded into five categories, the number of samples involving preschool children was too small for analysis, and the mixed category (part primary school students, part high school students) was difficult to interpret. Consequently, a series of comparisons were carried out between children in primary and secondary school. Of these comparisons, two were statistically significant. The mean weighted effect size for academic achievement was stronger for children in primary school than in secondary school (−0.20 vs. −0.14; $z = 2.48$, $p < .01$). In contrast, the mean weighted effect size for psychological adjustment was weaker for children in primary school than in secondary school (−0.15 vs. −0.32, $z = 4.98$, $p < .001$). The explanation for this apparent discrepancy is not clear. One possibility is that it is easier to measure psychological adjustment among adolescents than younger children. However, adolescents with serious academic problems, unlike younger

children, may drop out of school, leading to weaker effect sizes for academic achievement among adolescents. It is difficult to interpret these results substantively because the data reflect children's ages at the time of data collection rather than children's ages at the time of parental separation. Data on the latter variable were not available in most studies. One cannot tell, therefore, if a large effect size for high school students reflects the recency of divorce or the long-term accumulation of disadvantage due to experiencing divorce at an early age. In spite of this ambiguity, the data indicate that, for most outcomes, mean effect sizes were negative and significant regardless of children's ages at the time of data collection.

Study methodology. Although relatively few gender and age differences appeared in the data, methodological characteristics of studies appeared to be more consequential. Amato and Keith (1991) reported a trend for methodological sophistication to be associated with weaker effect sizes, at least for some outcomes. The results of studies published in the 1990s were consistent with this earlier observation. Random samples yielded weaker effect sizes than did convenience samples in terms of academic achievement (-0.20 vs. -0.41, $z = 3.67$, $p < .001$). Studies that conducted multivariate analyses reported smaller group differences than studies that reported zero-order associations with respect to academic achievement (-0.14 vs. -0.26, $z = 1.97$, $p < .05$) and psychological adjustment (-0.17 vs. -0.30, $z = 3.67$, $p < .001$). The use of multiple-item measures, as opposed to single-item measures, was associated with weaker effect sizes for psychological adjustment (-0.20 vs. -0.49, $z = 3.27$, $p < .01$) and social relations (-0.13 vs. -0.27, $z = 2.74$, $p < .01$). Finally, studies that involved samples of 100 or more children from divorced families revealed weaker effect sizes than studies with smaller samples in terms of self-esteem (-0.05 vs. -0.20, $z = 2.23$, $p < .05$) and social adjustment (-0.13 vs. -0.24, $z = 4.04$, $p < .001$). Overall, these results are consistent with the prior meta-analysis in showing that methodologically sophisticated studies tend to report smaller differences between children from divorced and nondivorced families than methodologically simple studies.

Effect Sizes Across Decades

To explore variation in effect sizes across decades, in Table 3 I report mean effect sizes by decade of publication. For each outcome, the first row (labeled *Unadjusted*) shows the mean weighted effect size for each time period. These means were obtained from weighted multiple regression analysis—one analysis for each outcome—with decade serving as a predictor. (See Hedges, 1994, for a description of multivariate methods for effect sizes.) The Q change statistic reflects the amount of between-studies heterogeneity accounted for by decade. If the overall Q statistic was significant, then z tests were used to compare each pair of mean effect sizes.

With respect to academic achievement, decade of publication was related significantly to effect sizes (see Table 3, first row), as reflected in the significant Q statistic. Individual z tests revealed that the mean effect size declined significantly from -0.29 in the earliest period to -0.14 in the 1980s. Similarly, the mean effect size for the earliest period was significantly larger than the mean effect size of -0.16 in the 1990s. These findings suggest that the effects of divorce on academic achievement were relatively strong prior to 1980, then became weaker in the last two decades. The mean effect sizes for the 1980s and 1990s, however, did not differ.

Making comparisons across decade may be misleading, however, because of the shifts in study methodology documented in Table 1. To take changes in research methods into account, I conducted a second weighted multiple regression analysis, with the four methodology variables (random sample, multivariate analysis, multiple item indicators, and large sample size) included as predictors. The second row for each outcome (labeled *Adjusted*) shows the mean effect sizes controlling for these study characteristics. In other words, this row shows what the mean effect sizes would have been if there had been no improvements in methodology across decades. The corresponding Q statistic shows the amount of between-studies heterogeneity accounted for by decade after the effects of methodology were removed from the data. (In supplementary analysis, controls also were introduced for sample gender and age, but because these study characteristics changed little across decades, these adjustments affected the

Table 3
Mean Weighted Effect Sizes by Decade of Study Publication

Child outcome	Decade of publication: 1950–1979	1980–1989	1990–1999	*Q* change
Academic achievement				
Unadjusted	-0.29_a	-0.14_b	-0.16_b	14.95***
Adjusted	-0.25_a	-0.09_b	-0.17_c	14.27***
N of samples	17	19	39	
Conduct				
Unadjusted	-0.30_a	-0.21_b	-0.22_b	11.76**
Adjusted	-0.29_a	-0.19_b	$-0.23_{a,b}$	8.08*
N of samples	22	34	40	
Psychological adjustment				
Unadjusted	-0.04_a	-0.10_a	-0.21_b	36.02***
Adjusted	-0.06_a	-0.09_a	-0.21_b	15.49***
N of samples	16	33	41	
Self-concept				
Unadjusted	−0.22	−0.09	−0.12	5.29
Adjusted	-0.22_a	-0.07_b	$-0.14_{a,b}$	7.64*
N of samples	3	27	28	
Social relations				
Unadjusted	−0.13	−0.13	−0.15	0.47
Adjusted	−0.14	−0.14	−0.15	0.03
N of samples	10	29	29	

Note. Mean effect sizes with different subscripts differ from one another at $p < .05$, two-tailed.
* $p < .05$. ** $p < .01$. *** $p < .001$.

results in only minor ways and are not reported.)

The second row in Table 3 shows mean effect sizes for academic achievement adjusted for study quality. The *Q* statistic reveals that decade of study continued to have a significant association with effect sizes with study methodology held constant. Comparable to the results based on unadjusted data, *z* tests on the adjusted means revealed a significant decline in the estimated effect of divorce between the earliest period and the 1980s (i.e., the mean effect size moved closer to zero). But contrary to the results based on unadjusted data, the mean for studies in the 1990s was significantly different from the mean for studies published in the 1980s. If studies in the 1980s and 1990s had been comparable in methodology, then the observed gap in achievement between children with divorced and married parents would have increased during the last decade.

With respect to conduct, the unadjusted results indicate that effect sizes decreased significantly between earlier decades and the 1980s, then changed little during the next decade. With study methodology held constant, the mean effect size for the 1990s was no longer significantly different from the mean effect sizes in earlier decades. With respect to psychological adjustment, both the unadjusted and the adjusted means indicate that effect sizes became stronger in the 1990s than in earlier decades. These data suggest that the gap in psychological and emotional adjustment between children with divorced and continuously married parents was wider in the 1990s than at any earlier time. The unadjusted results for self-concept suggest a decline in effect sizes between the earliest studies and studies in the 1980s, but the overall trend (as reflected in the *Q* statistic) was not significant. Adjusting for study characteristics made the pattern more curvilinear and fully significant. Although not reported in Table 3, the difference between the 1980s and 1990s approached significance ($p < .10$). Finally the results for social relations, both unadjusted and adjusted, show no time trend.

Consistent with the findings of Amato and Keith (1991), the data in Table 3 suggest that effect sizes for several outcomes were weaker in the 1980s than in earlier decades. The results for the 1990s, however, suggest that effect sizes for

several outcomes (academic achievement, psychological adjustment, and to a lesser extent, self-concept) became stronger during the last 10 years. Although Table 3 is suggestive of historical trends, the data are limited by the somewhat arbitrary division of time into decades. Shifts between one decade and the next may not represent the most appropriate cutting points for determining trends over time.

To address this issue, additional analyses involving weighted multiple regression for effect sizes were conducted—one for each outcome—in which decade was replaced with the actual year of publication. Additional predictors included year of publication squared (to capture curvilinearity) and the four methodological variables described above. These analyses revealed significant curvilinear trends for academic achievement ($z = 3.00$, $p < .01$), conduct ($z = 2.41$, $p < .05$), psychological adjustment ($z = 4.47$, $p < .001$), and self-concept ($z = 3.34$, $p < .001$). The resulting equations were used to predict effect sizes for each year of publication between 1960 and 2000, with methodological characteristics set at the mean of all studies for that particular outcome. (Too few studies were published prior to 1960 to result in reasonable estimates, and projections for 2000 represent a slight extrapolation from the data.)

These predicted values appear in Figure 1. Note the curvilinear trends for all four outcomes. For academic achievement, effect sizes moved closer to zero (i.e., became weaker) between 1960 and the late 1980s, then declined slightly (became stronger) during the 1990s. The curve for conduct reached its peak (was closest to zero) in the early 1980s, then fell during the 1990s. For psychological adjustment, the curve rose (became weaker) during the 1960s, reached its highest (weakest) point in the mid 1970s, then fell (became stronger) during the next 25 years. The curve for self-concept followed a similar pattern, rising throughout the 1960s and 1970s, reaching its highest point in the early 1980s, then falling throughout the latter half of the 1980s and the 1990s.

One should keep in mind that the year of publication differs from the year in which data were collected, with data collection sometimes taking place years (or even decades) prior to publication. To address this issue, a similar set of regression analyses were carried out based on year of data collection rather than year of publication. However, as noted in the Method section, nearly one half of all articles in this analysis failed to indicate the year of data collection. To include studies with missing data in the analysis, it was assumed that data were collected 2 years prior to the year of publication. The analyses focusing on year of collection, therefore, were only approximate. Nevertheless, the results of analyses based on year of data collection were similar to the results based on year of publication, with significant curvilinear trends appearing for academic achievement, conduct, psychological adjustment, and self-concept. This similarity is not surprising, given

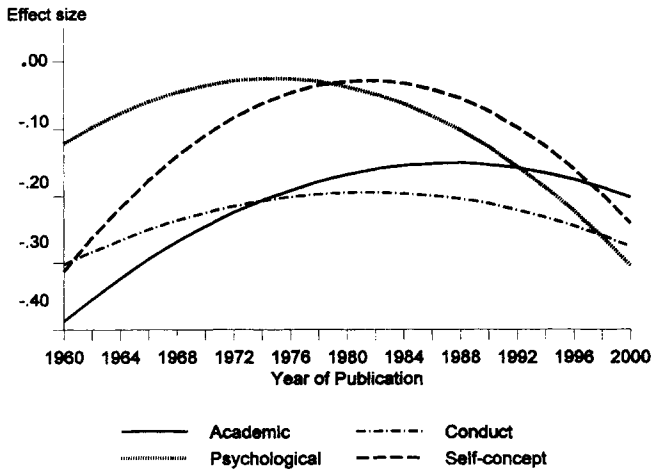

Figure 1. Yearly trend in effect sizes associated with divorce for four child outcomes.

that year of publication and year of data collection correlated at .86 prior to substitution of missing data and .89 after substitution. The main difference between the regression lines based on year of data collection and year of publication was that the former curves reached their highest (and weakest) point 3 to 6 years earlier, depending on the outcome.

Discussion

Many of the findings from the present study reinforce conclusions from the earlier Amato and Keith (1991) meta-analysis. In the 1990s, as in earlier decades, research indicated that children with divorced parents scored significantly lower than children with continuously married parents on a variety of measures of achievement, adjustment, and well-being. Moreover, in the 1990s, as in earlier decades, the evidence for gender differences in children's outcomes following divorce is modest. Amato and Keith (1991) found that the deficit in social adjustment associated with marital disruption was greater for boys than for girls. In the 1990s, divorce was associated with greater conduct problems among boys than girls. But the more general conclusion—in the earlier meta-analysis as well as in the present one—is that most of the disadvantages associated with divorce are similar for boys and girls.

Another continuity with the Amato and Keith (1991) meta-analysis involves the methodological characteristics of studies. In the 1990s, as in earlier decades, more methodologically sophisticated studies were associated with weaker effect sizes. Of course, there are important exceptions to this trend. Exemplary studies by Hetherington and Clingempeel (1992), Simons (1996), and several other researchers produced larger-than-average effect sizes. But in spite of these exceptions, across the broad range of studies published in the 1990s, researchers who reported multivariate analyses based on large, randomly selected samples tended to generate weaker effect sizes than researchers who reported bivariate analyses based on small, convenience samples.

Given the fact that studies became more methodologically sophisticated during the 1990s and given that more methodologically sophisticated studies tend to yield relatively modest effect sizes, it follows that studies in the 1990s should produce smaller effect sizes than studies conducted in earlier decades. But this was not the case. Across most outcomes, studies in the 1990s yielded effect sizes comparable to those in the 1980s. Furthermore, controlling for methodological characteristics of studies tended to expand the differences in effect sizes between decades. More detailed analyses, in which effect sizes were regressed on year of publication (as well as year of data collection), revealed significant curvilinear trends for academic achievement, conduct, psychological adjustment, and self-concept, with effect sizes tending to be weakest in the early 1980s and stronger in the 1990s.

As noted earlier in this article, two explanations may account for the recent increase in the gap in well-being between children with divorced and continuously married parents. First, there may have been a shift in the nature of marital dissolution, with more recent divorces increasingly including cases in which only moderately (rather than extremely) dissatisfied individuals leave their spouses to find greater happiness with new partners (Booth, 1999; Glenn, 1996). At the same time, the rise in age at first marriage, as well as the increase in nonmarital cohabitation, may have decreased the number of poor marital matches—matches that would otherwise have resulted in seriously troubled, conflicted marriages. Low-discord marriages that end in divorce appear to be especially distressing to children and are associated with long-term decrements in children's adjustment and well-being (Amato et al., 1995; Hanson, 1999; Jekielek, 1998; Morrison & Coiro, 1999). Consequently, the type of divorce that is most distressing to children (i.e., separations preceded by relatively little interparental discord) may represent a greater proportion of all marital dissolutions. It is difficult, of course, to document such a trend, and no direct evidence is available to support this explanation. Nevertheless, new research focused on this topic would make an important contribution to the literature.

A second reason for the increase in effect sizes in the 1990s refers to the increasing gap in economic well-being between children with single parents and children with married parents (White & Rogers, 2000). Two-parent families tended to benefit from the economic expansion of the 1990s, especially if both parents were in the paid labor force. Single-parent families, in

contrast, did not share in the prosperity of the last decade. To the extent that children benefit from increases in family income, those with married parents (as a group) would have pulled further ahead of those with single parents. Although this idea seems reasonable, however, no direct data are available to test it.

Whatever the reason for the apparent decline in the relative well-being of children with divorced parents during the last decade, this shift occurred in spite of the growth of school-based interventions for children, parenting classes for divorcing parents, and divorce mediation. This conclusion does not mean that the spread of therapeutic and legal interventions has not benefitted children—it only means that other social forces have operated even more strongly to disadvantage children from divorced families.

Before concluding, it is necessary to point out some limitations of the present study. First, this study did not include unpublished conference papers or dissertations, so the results may have been influenced by publication bias. The calculation of large fail-safe values, however, suggests that this omission did not seriously distort the results. Second, the manner in which study quality was operationalized was crude, as it was based on simple dichotomies such as random versus convenience sampling. Moreover, many important characteristics of studies—using multiple informants, direct observation of children, or longitudinal designs—were not considered. Of course, it was necessary to code study quality in this manner to maintain comparability with the earlier study by Amato and Keith (1991). Finally, pooling the results of multiple studies is not the ideal method of establishing trends in effect sizes over time. The studies included in the present meta-analysis differed in many ways that could not be controlled. A better strategy would involve conducting identical comparisons, using the same sampling strategy, instruments, and analytic techniques, on repeated cross-sections of children in different decades. Unfortunately, such data are difficult to obtain. Nevertheless, new research that focuses on cohort differences in children's adjustment to divorce, and the processes that help to explain them, would represent an important contribution to our understanding of how marital disruption affects children's lives.

Implications for Practitioners

Although marital dissolution has become normative in American culture, practitioners should be aware that children with divorced parents, as a group, continue to fare more poorly than children with continuously married parents. In particular, children with divorced parents achieve lower levels of success at school, are more poorly behaved, exhibit more behavioral and emotional problems, have lower self-esteem, and experience more difficulties with interpersonal relationships. Indeed, the gap in well-being between the two groups of children appears to have grown larger during the last decade. Furthermore, this gap is present irrespective of children's gender or age. Practitioners working with divorcing families or children with single parents, therefore, should not underestimate the extent to which family disruption continues to represent a risk factor for a range of undesirable child outcomes.

At the same time, however, practitioners should be aware that the average differences between children with divorced and continuously married parents are not large in absolute terms. These relatively small differences reflect the diversity of outcomes among children in both groups. The adjustment of children following divorce depends on a variety of factors, including the level of conflict between parents before and after separation, the quality of parenting from both the custodial and noncustodial parent, changes in the child's standard of living, and the number of additional stressors to which children are exposed, such as moving or changing schools. Depending on the specific constellation of factors around the time of divorce, children may exhibit an improvement in functioning, a modest decline in functioning that improves over time, a substantial long-term decline in functioning, or little change. Knowledge of group averages, therefore, cannot predict how a particular child will adjust to family disruption.

Nevertheless, the persisting—and apparently increasing—gap between children with divorced and continuously married parents suggests the continuing importance of developing and evaluating therapeutic and educational programs for divorcing families. Classes for divorcing parents, for example, have been introduced in many cities and states, but they vary widely in length and content, and evaluations of

these programs are sparse. The same can be said of many legal approaches. For example, an increasing number of mothers and fathers are completing parenting plans prior to marital dissolution. Yet we know little about the consequences of parenting plans for children's postdivorce relations with parents and emotional well-being. Closer ties between practitioners and researchers will be necessary to formulate effective strategies for minimizing the disruptive effects of marital dissolution on children.

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