Family Relations, 57 (July 2008), 309–323. Blackwell Publishing.

Randomized Study of a Prebirth Coparenting Intervention With Adolescent and Young Fathers*

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Abstract: This randomized study tested the effects of 2 prebirth interventions, Minnesota Early Learning Design coparenting and childbirth curricula, on young African American and Hispanic fathers and their adolescent partners ($N = 154$). The coparenting intervention ($n = 44$) was associated with changing fathers' perceptions of their coparenting behavior rather than mothers' perceptions of the fathers' behavior compared with the childbirth program ($n = 46$). Fathers and mothers consistently reported fathers' improved coparenting behavior when the coparenting intervention was compared with a no-intervention control group ($n = 64$). Fathers (regardless of residence) and mothers residing with the father reported higher levels of fathers' engagement with the infant when the father participated in the coparenting intervention compared with fathers who participated in the childbirth intervention.

Key Words: adolescent fathers, coparenting, fatherhood, interventions with fathers, paternal engagement, transition to parenthood.

In recent years, researchers, policymakers, and practitioners have become increasingly aware of the importance of the adolescent mother-father coparenting relationship in relation to young fathers' involvement with their children. When the adolescent mother and young father are able to maintain positive and healthy coparenting relationships, defined as "the ways that parents work together in their roles as parents" (Feinberg, 2003, p. 1499), the father is more likely to stay involved with the mother of the baby and the young child (Gavin et al., 2002; Johnson, 2001). Fathers who stay involved with their children and who provide good quality parenting, even when those men do not reside with their children, are more likely to have children who succeed academically, have fewer behavior problems, and relate well with peers in social situations (Marsiglio, Amato, Day, & Lamb, 2000). Further, healthy coparenting relationships have been shown to have a direct and positive influence on children (Feinberg, Kan, & Hetherington, 2007) and on adolescent mothers' well-being (Gavin et al.; Johnson).

Many adolescent mothers and young fathers have great difficulty establishing and maintaining positive coparenting partnerships. Romantic and coresidential relationships between these parents frequently end within the first few years following the child's birth, and when this happens, young fathers' and mothers' coparenting relationships often cease (Fagan, Farrie, Cabrera, & Roy, 2007b). Social service programs have recognized the importance of addressing the coparenting issues of adolescent parenting couples (Vosler & Robertson, 1998), but research is yet to examine whether such programs have a positive influence on participants. The present study examined the effects of a prebirth intervention program (Minnesota Early Learning Design [MELD], 1997), a nationally recognized educational model that includes a curriculum on coparenting. Although MELD is widely used by many social service agencies, it has not undergone rigorous efficacy testing. The present study is therefore a preliminary evaluation of this curriculum.

*This study was funded by a grant from the U.S. Department of Health and Human Services, Public Health Service, Office of Adolescent Family Life Research, Grant APRPA006004-03-02.

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Theoretical Perspective

The present study is based on an ecological systems perspective, which stresses the importance of viewing parenting within the context of the multiple systems in which the parent is located (Doherty, Kouneski, & Erickson, 1998). Bronfenbrenner (1986) suggested that individual behavior can best be understood within the context of the complex array of systems. Although this perspective emphasizes systems at all levels, including immediate and remote environments, recent studies have shown the significance of the father-mother dyad relationship to parent-child relationships (Bradford & Hawkins, 2006). Further, immediate environments such as the family and coparenting relationship may be more amenable to intervention than remote environments such as the educational or the class systems (Fernandez & Nichols, 1996). Significant aspects of the father-mother relationship include the establishment of close family structures such as marriage and cohabitation (Cabrera et al., 2004), emotional and physical intimacy with one's partner (Schamess, 1993), and healthy coparenting relationships, which can occur both inside and outside marriage and cohabitation (McBride & Rane, 1998). The focus on coparenting may be especially important for adolescent and young parents because they are far less likely than older parents to sustain close unions and long-term intimate relationships with each other (Fagan et al., 2007b). Interestingly, some biological parents are able to develop healthier coparenting relationships following the dissolution of an intimate partnership than they had when they were together (Segrin & Flora, 2005).

Coparenting is a dyadic process characterized by bidirectional influences (Van Egeren & Hawkins, 2004). The present study focuses on components of coparenting, which have been widely addressed in the research literature and which are consistent with the focus of the MELD intervention, including coparenting support (Bonds & Gondoli, 2007; Van Egeren & Hawkins), maintaining an ongoing communication with one another around the needs of the child (McBride & Rane, 1998; McHale, 1995), and coparenting solidarity or alliance (McBride & Rane; Van Egeren & Hawkins).

Coparenting support, defined as ''strategies and actions that support and extend the partner's efforts to accomplish parenting goals'' (Van Egeren & Hawkins, 2004, p. 169), has been correlated with nonresident father-child contact (Sobolewski & King, 2005). Researchers have suggested that coparenting support may be even more important for adolescent parents than it is for older parents who are likely to have greater internal and external resources available to them (Letourneau, Stewart, & Barnfather, 2004). Communication between parents about the child or child-related matters is another important aspect of coparenting. Communication between parents may be positive or disruptive, as when parents undermine each other's parenting behavior or compete with each other in an effort to ''outdo'' each other in their efforts to work successfully with the child (Schoppe-Sullivan, Mangelsdorf, Brown, & Sokolowski, 2006; Van Egeren & Hawkins). Qualitative studies of young nonresidential fathers reveal high levels of undermining between new parents, particularly in relation to fathers' lack of financial support of children (Young & Holcomb, 2007). Adolescent parents also tend to engage in low levels of communication with each other regarding their children (Vosler & Robertson, 1998). Coparenting solidarity has also been referred to as supportive alliances between coparenting partners (McHale & Rotman, 2007). Cohen and Weissman (1984) further defined parenting alliance as the capacity of partners to ''acknowledge, respect, and value the parenting roles and tasks of the partner'' (p. 35). Finally, McBride and Rane (1998) found significant associations between mothers' and fathers' reports of parenting alliance and fathers' involvement in childrearing activities.

Healthy coparenting relationships are associated with higher quality parent-child relationships (Feinberg et al., 2007) and higher levels of fathers' participation in child care and child rearing (McHale, 1995; Van Egeren & Hawkins, 2004). Shapiro and Mangelsdorf (1994) found that the support that parents receive from their partners is positively associated with parents' sense of competence in the parental role. On the basis of these findings, the present study hypothesized that fathers' participation in the coparenting intervention would be associated with higher levels of parenting sense of competence among fathers and mothers, higher levels of fathers' engagement with infants, and greater involvement of fathers with the mother and child during the pregnancy.

Research has suggested that coparenting relationships may be more difficult to establish between

parents who have never resided together (Cabrera et al., 2004). On the other hand, fathers who reside with their partners may be more committed to the relationship with their partner (Cabrera et al.) and therefore more invested in developing coparenting strategies or in applying the content of a coparenting intervention. Fagan and Stevenson (2002) suggested that residential fathers benefit more than nonresident fathers from parent education programs, possibly because fathers who live with their children and partners have more opportunities to implement the material presented in the program. Fathers' residence is therefore included in the present study.

Coparenting Curriculum

MELD for Young Dads, a program of information and support for young fathers aged 16 – 25 years, includes a five-session coparenting curriculum intended to engage young fathers about ways they can successfully share parenting with their babies' mothers regardless of their relationship status, assist fathers to become knowledgeable about barriers to successful coparenting, and find solutions to those barriers (MELD, 1997). MELD is also intended to reduce isolation among young fathers who may not have the opportunity to talk about being a father with their peers, to provide positive role models by recruiting and training volunteers from the community to facilitate groups of young fathers, and to provide information in a culturally relevant manner. Minor changes were made to the script provided in the MELD curriculum so that it would be appropriate for use prenatally. For example, fathers were asked to think about how they *will* share childcare responsibilities with the mother rather than how they *do* share those responsibilities.

The MELD coparenting intervention was conducted before the birth of the child in the present study. The rationale for conducting the intervention at this time rather than following the child's birth is that many fathers discontinue their involvement with the mother and child within the first year following the birth. Although the bulk of coparenting starts after the birth of the child, parents begin to formulate mental representations of coparenting during the pregnancy and sometimes before conception (Van Egeren & Hawkins, 2004). Prebirth coparenting discussions often entail deciding how parents will support each other, addressing potential problems that might arise around each others' needs and wants as parents, and beginning to form a couple parenting alliance (Feinberg, 2003). Research has shown that parents' prenatal expectations for their future coparenting are highly correlated with later coparenting behavior (McHale & Rotman, 2007). The present study therefore examined the effects of the coparenting intervention on coparenting behavior both before and after the birth of the child.

The topic of the first session focused on fair sharing of the responsibilities of parenthood and on the idea that involvement with the baby is a father's responsibility. The second session focused on communication with the mother. The instructors helped the young fathers realize their own and their babies' mothers' coparenting expectations and responsibilities, communicate with their partners regarding their needs and parental responsibilities, and obtain a clearer perspective by writing down their responsibilities and expectations. Fathers interviewed their partners between the second and the third sessions to determine the mother's expectations for herself and the young father. The couple also completed a contract, whereby they establish agreement about those caregiving responsibilities that belong to both the mother and the father—and those that they share together. The third session focused on the benefits to babies when they have both parents in their lives and when parents support each other in the parental role. The fourth session focused on solutions to barriers of successful coparenting. This session started with identifying the barriers and challenges regarding communication with mothers that potentially could limit young fathers' involvement with their babies and make coparenting difficult. Then, solutions to those problems were offered and negotiating techniques discussed. Finally, the fifth session focused on creating a sense of solidarity as coparents. Emphasis was placed on how dealing with each others' families and significant others affects their coparenting abilities. In this session, panel guest speakers were invited to share their experiences and discuss what worked for them. These guests were couples who had completed this or similar programs and were therefore aware of the participants' problems and concerns.

A potential threat to validity in intervention studies is the participants' experience of novelty and special attention associated with participation in the intervention (Rubin & Babbie, 2005). Researchers have suggested using comparison groups that provide alternative treatments that are equal in time and

intensity in addition to using no-intervention control groups (Rubin & Babbie). The comparison group in the present study was a childbirth/baby care curriculum conducted for the same number of sessions and length of time as the experimental intervention. Many adolescent and young parents lack knowledge of infant development and baby care (O'Callaghan, Borkowski, Whitman, Maxwell, & Keogh, 2000). Thus, this comparison group was likely to be relevant to young parents.

To summarize, the present study hypothesized that adolescent and young fathers' participation in the prebirth coparenting intervention would be associated with higher levels of fathers' support of the mother, improved parenting alliance, and more positive communication about parenting (as reported by fathers and mothers) at posttreatment and 3 months following the birth of the child, compared with fathers who attended a childbirth/baby care program or no intervention. Fathers' participation in the coparenting intervention was also expected to be associated with higher levels of fathers' involvement with the mother and child during the pregnancy, higher levels of fathers' engagement with the infant, and higher levels of fathers' and mothers' sense of parenting competence.

Method

Research Design

The present study used a randomized research design to test the effects of two interventions—coparenting intervention (experimental group) and childbirth/baby care intervention (comparison group)—that were implemented before the birth of the child. All adolescent and young fathers who consented to participate in the study and completed the pretest interview were randomly assigned to one of the two treatment conditions; participants were not informed about their group assignment until they attended the first session (after completing the pretest interview). A substantial number of fathers who completed the pretest protocol did not attend the intervention. Rather than to exclude these fathers from the study, they were treated as a no-intervention control group, thus qualifying this study as a "strong" quasi-experimental design (Morgan, Gliner, & Harmon, 2000, p. 796). The study was a 3 × 2 design; the first factor was treatment condition (experimental, comparison, and control) and the second factor was mother-father residential status (coresidential and nonresidential). Fathers and adolescent mothers completed the pretest interview shortly before fathers attended the intervention program. Posttest interviews were completed shortly following the completion of the intervention. All pretest and posttest interviews were conducted before the child's birth. The follow-up interview was conducted when the baby was 3 months old. Only fathers participated in the intervention. The five-session intervention program was held weekly in the evening at a hospital-based obstetrics and gynecology (OB/GYN) clinic.

Recruitment Procedures

Expecting adolescent mothers and their partners were recruited from three OB/GYN clinics affiliated with hospitals in low-income neighborhoods in a northeastern U.S. city between March 2004 and March 2006. Young couples who initiated contact with the researchers after seeing flyers in other hospitals also participated in the study. Recruiters and interviewers for the study were part-time university employees or students with a minimum of 2 years of college education. They participated in extensive training in recruitment and interviewing. Their ethnic/racial backgrounds were African American or Hispanic. As per recommendations for the implementation of experimental studies (Rubin & Babbie, 2005), all project staff were blind to the research hypotheses, to assignment of fathers to intervention groups, and to information about the content of the interventions.

Recruiters approached all pregnant teenaged women in the clinics, explained the research program to them, and filled out a screener. The screener contained the date of the initial contact; the name of the recruitment site; and, upon the mothers' consent, the names, addresses, telephone numbers, ages, and race/ethnicity of the expecting parents. The screeners also included a brief description of the study. Mothers were informed that they had to be less than 20 years old and the father of the baby had to be less than 25 years old to participate. Target ages were derived from previous work that suggested the majority of adolescent mothers to have older partners who are, on the average, about 2 years older than the mother (Fagan et al., 2007b). Also, mothers had to be between 5 and 9 months pregnant to

participate in the study; participants were not included in the study during the early months of pregnancy because they might elect to terminate the pregnancy. Mothers in the early stages of the pregnancy were contacted at a later time if they expressed initial interest in participating. The recruiters informed the potential participants that their participation was entirely voluntary, they could discontinue when they wished, and they were to be compensated for their time filling out the questionnaires and participating in the workshops for fathers. Upon the young mothers' consent, the fathers were contacted, and the program was explained to them as well as to get their consent. For participants who were younger than 18 years, their parents or guardians also signed the consent forms. Mothers and fathers each received $10 after completing each interview, which took place mostly at the participants' homes. Interviewers read all questionnaire items aloud to the participants.

Participants

A total of 501 age-eligible couples were screened. Among them, 165 fathers and mothers completed the pretest interview. These 165 fathers were randomly assigned to either the coparenting or the childbirth intervention. However, 64 fathers did not attend any sessions (these fathers became the no-intervention control group). Forty-four fathers completed the coparenting intervention (i.e., attended at least four or five sessions), 46 completed the childbirth intervention, and 11 completed fewer than four sessions of either intervention (these fathers were excluded from subsequent analyses). All couples who completed the pretest interviews also completed the posttest interviews, yielding a final sample of 154 fathers and mothers who completed the intervention or were included as controls. Of these 154 couples, 97 also completed the follow-up interviews.

Table 1 provides information on participants who completed the pretest and posttest interviews. All the fathers were younger than 25 years; the youngest participant was 14 years old and the oldest was a few weeks short of his 25th birthday ($M = 18.84$, $SD = 2.16$). Seventy-eight fathers were African American (47.3%), 64 Hispanic (38.8%), 13 White (7.9%), and 10 mixed race/ethnicity (6.1%). The majority of the young fathers in this study were expecting their first biological child (85.5%). Most of the fathers (55.6%) had completed less than 12th grade. All the expecting mothers were younger than 20 years ($M = 17.29$, $SD = 1.64$). Sixty-eight mothers were African American (41.2%), 71 Hispanic (43%), 13 White (7.9%), 1 American Indian (0.6%), 3 Asian (1.8%), and 9 mixed race/ethnicity (5.5%). The majority of the adolescent mothers (82.4%) in this study were expecting their first biological child. About one half of the mothers (57%) were presently attending school.

Interventions

The experimental and comparison interventions each included five 90-min sessions held once a week for 5 consecutive weeks. At the end of each session, participants filled out a questionnaire that queried for how much they had learned in that session. Fathers were paid a small stipend ($9) at the end of each session and served dinner and refreshments. Six waves of each intervention were conducted. The facilitators were male African American parents. The experimental coparenting intervention was co-led by an experienced social worker and a peer facilitator who had previously participated as a parent in the MELD program and who was trained to facilitate the curriculum. The comparison childbirth intervention was led by a male nurse with a bachelor's degree in nursing. The same facilitators conducted all six waves of the intervention. The MELD coparenting curriculum is described earlier in this article.

Comparison childbirth group. The curriculum for this group focused on pregnancy, childbirth, and newborn care. The first session focused on pregnancy, nutrition, health, and exercises. The second session focused on childbirth and labor, fathers' help during the labor, premature babies, what a newborn looks like, and APGAR scores. The third session focused on newborn nutrition, hygiene, soothing, dressing, diapering, and safety. The fourth session addressed infant development, including rate of development, physical and psychological needs, communication, nutrition, and safety. Finally, the fifth session focused on labor rehearsal, preparing space for the new baby, and knowing what to do when a baby is sick or crying.

Measures

Fathers' prenatal communication and involvement with the mother and child. Fathers' prenatal

Table 1. *Demographics of Young Fathers and Adolescent Mothers at Pretest*

Characteristics	Fathers ($N = 165$)	Mothers ($N = 165$)
Age, *M* (*SD*)	18.84 (2.16)	17.29 (1.64)
Currently in school, *n* (%)	62 (37.6)	94 (57.0)
Current grade in school, *n* (%)		
≤11th grade	35 (55.6)	63 (67.0)
12th grade	19 (30.2)	26 (27.7)
1st-year college	5 (7.9)	4 (4.3)
2nd-year college	3 (4.8)	1 (1.0)
3rd-year college	0	0
4th-year college	1 (1.5)	0
Highest grade completed, *n* (%)		
≤11th grade	111 (67.3)	134 (81.2)
12th grade	46 (27.9)	27 (14.4)
1st-year college	6 (3.5)	4 (2.4)
2nd-year college	1 (0.6)	0
3rd-year college	1 (0.6)	0
Race/ethnicity, *n* (%)		
Asian	0	3 (1.8)
African American	78 (47.3)	68 (41.2)
Hispanic	64 (38.8)	71 (43.0)
White	13 (7.9)	13 (7.9)
Mixed	10 (6.1)	9 (5.5)
American Indian	0	1 (0.6)
Couples' relationship status, *n* (%)		
Cohabiting	82 (49.7)	—
Noncohabiting, romantically involved	60 (36.4)	—
On again, off again	10 (6.1)	—
Only friends	8 (4.8)	—
Barely talking	5 (3.0)	—
First-time parent, *n* (%)	141 (85.5)	136 (82.4)
Currently working, *n* (%)	59 (35.8)	19 (11.5)
Total earnings per week, *n* (%)		
<$100	4 (6.8)	8 (42.1)
$100 – $200	16 (27.1)	6 (31.6)
$201 – $300	18 (30.5)	3 (15.8)
$300 or more	21 (35.6)	2 (10.5)

involvement was measured using a 9-item instrument (Fagan, Bernd, & Whiteman, 2007a) developed on the basis of a review of the transition to parenthood literature and on interviews with pregnant parents about the important components of fathers' prenatal involvement. Fathers and mothers completed this measure at pretest and posttest. Participants were asked to indicate how often the father of the baby participated in various prenatal activities on a 5-point scale (1 = *never* to 5 = *always*). There were five items measuring communication with the mother (e.g., ''How often do you and your partner talk about plans for the baby?''), two items on interacting with the mother and child prenatally (e.g., ''How often do you speak with the baby while in the mom's belly?''), and two items on purchasing things for the baby (e.g., ''How often do you buy things for the baby?''). A high score on this scale suggests that fathers are more involved in various aspects of the pregnancy. Factor analysis with varimax rotation was performed on the scale to determine the structure of the nine items. The results for

fathers indicated that the five communication items loaded on one factor at pretest (eigenvalue = 3.86), explaining 42.9% of the variance in the data set (Cronbach's $\alpha = .80$), and the two items measuring involvement with the mother and child during the pregnancy loaded on one factor (eigenvalue = 1.12), explaining an additional 12.5% of the variance ($\alpha = .73$). The items measuring buying things for the baby did not load on any scale and were dropped from the analysis. The five communication items loaded on one factor for fathers at posttest (eigenvalue = 4.3), explaining 47.7% of the variance in the data set ($\alpha = .86$), and the two items measuring involvement with the mother and child loaded on one factor (eigenvalue = 1.09), explaining an additional 12.15% of the variance ($\alpha = .66$). Similar factor loadings were obtained for mothers (results are available from the author). On the basis of these findings, the standardized factor scores for communication and involvement with the mother and child during the pregnancy were used in the analysis.

Parenting alliance. Fathers and mothers completed the Parenting Alliance Scale of McBride and Rane (1998), a 17-item Likert-type questionnaire, with responses ranging from 1 = *strongly disagree* to 5 = *strongly agree*, at pretest, posttest, and follow-up. Sample items include the following: "Even if my baby's mother and I (baby's father and I) have problems in our relationship, we can work together for our child," "The baby's mother and I (baby's father and I) have similar goals for our child," and "My (baby's father/mother) believes that I will be a good parent." A high score on this scale suggests high levels of parenting alliance. The Cronbach's alpha for the scale was .79 for fathers and .93 for mothers at pretest, .92 for fathers and .77 for mothers at posttest, and .81 for fathers and .95 for mothers at follow-up.

Fathers' support of mother. Fathers and mothers rated fathers' support of the mother at pretest, posttest, and follow-up using Coparental Cooperation measure of Ahrons (1981). All the items are based on a scale, with responses ranging from 1 = *never* to 5 = *always*. The items included the following: "Did you (he) comfort the mother of the baby (you)," "Did you (he) help the mother of your baby (you) get to the baby's doctor," "Did you (he) help the mother of your baby (you) solve her (your) problems as a new parent," and "Did you (he) buy things for the baby?" Composite indexes were created by summing fathers' or mothers' responses across the four items ($\alpha = .79$ for fathers and .86 for mothers at pretest, .68 for fathers and .78 for mothers at posttest, and .81 for fathers and .86 for mothers at follow-up).

Fathers' engagement with infant. Fathers and mothers assessed fathers' engagement in caregiving activities with the 15-item Parental Childcare Scale (Hossain & Roopnarine, 1994) when the baby was 3 months old. Participants were asked to indicate the extent (1 = *never* to 5 = *always*) to which the father engages with the child in activities such as holding the baby during play, feeding the baby, and changing the baby's diaper. Higher total scores reflect more frequent involvement with the infant ($\alpha = .86$ for fathers and .91 for mothers).

Parenting sense of competence. Fathers and mothers completed the 17-item Parenting Sense of Competence Scale (Gibaud-Wallston & Wandersman, 1978) in relation to their own sense of competence as new parents at follow-up. Respondents were given a set of statements and indicated their agreement or disagreement (1 = *strongly disagree* to 6 = *strongly agree*). Sample items included the following: "Being a parent is manageable, and any problems are easily solvable" and "A difficult problem in being a parent is not knowing whether you're doing a good job or a bad one." Cronbach's alpha was .66 for fathers and .67 for mothers.

Measure of fathers' subjective experiences with the intervention. Fathers completed a four- to five-question form at the end of each session to assess the degree to which they learned or felt the content of the session was helpful; the questions were different for the two interventions. For example, fathers who attended the childbirth intervention were asked at the end of Session 1 whether infection can lead to premature labor. Fathers who attended the coparenting intervention were asked whether today's session emphasized the point that being a good father means that your child will be able to count on you when he or she needs you. The forms were scored and used to monitor the implementation of the interventions. The percentage of positive responses was also calculated for each father. On the average, fathers in the coparenting group provided positive answers to 85% of the questions and those in the childbirth group provided positive answers to 83% of the questions.

Data Analyses

A series of comparison tests (t tests and χ^2-tests) were conducted between fathers (and between

mothers) who were screened but did not participate in the data collection and those who were screened and participated in data collection. Next, significance tests were conducted to determine equivalency between the treatment groups (coparenting, childbirth, and control). Comparison tests were then conducted to determine whether couples who dropped out of the study at follow-up differed from those who did not. We also explored the following possible covariates: parent's age, education, fathers' subjective experience with the intervention, and recruitment site.

Change scores for the pretest- and posttest-dependent variables (posttest minus pretest scores) were calculated. Analysis of variance (ANOVA) was used to examine treatment group and residential status effects on these change scores. Effect size was calculated using partial eta squared (η_p^2), where an effect size of .01 is considered to be small, .06 is moderate, and .14 is large (Cohen, 1988, p. 284). Analysis of covariance (ANCOVA) was conducted on the follow-up outcome scores when the outcome measure was not administered at pretest and posttest (e.g., parenting competence). Repeated measure ANCOVA was conducted on the follow-up outcome scores when the outcome measure was also administered at pretest and posttest. The between-group factors consisted of the treatment groups and residential status groups. The repeated factors consisted of posttest and follow-up scores. Pretest scores and other significant covariates were included in these analyses.

Results

Preliminary Analyses

Comparisons between screened-only participants and those who completed the pretest/posttest. An independent sample *t* test was performed to examine age differences between couples who participated in the pretest and posttest (165 fathers and mothers) and screened couples who did not complete the interviews (336 fathers and mothers). No statistically significant age differences were found between those who completed the interviews and screened-only fathers and mothers. The χ^2-analysis showed that there were significant differences for fathers' race/ethnicity between those who completed the interviews and screened-only participants, $\chi^2(3, N = 501) = 26.79$, $p < .001$ (race/ethnicity categories: White, Asian, Native American, and mixed were combined into one category). This significant difference was because of a higher percentage of participating fathers in the combined category. These findings suggest that African American and Hispanic fathers were less likely to participate in the present study. No significant differences were found between those who completed the interviews and screened-only participating mothers for race/ethnicity. The results revealed significant differences for recruitment site among those who completed the interviews and screened-only participants, $\chi^2(4, N = 501) = 22.97$, $p < .001$. This significant difference was because of the higher percentage of self-referred fathers who participated in the interviews compared with those self-referred fathers who were only screened.

Equivalency between treatment groups. Significance tests were conducted to determine equivalency between the coparenting, childbirth, and control groups for demographic and pretest variables for fathers. The χ^2 analyses revealed no significant association between treatment group and recruitment site or fathers' race/ethnicity. One-way ANOVA revealed that treatment group was significantly associated with fathers' age, $F(2, 153) = 4.87$, $p = .009$. Scheffe's method for multiple comparisons revealed that fathers in the childbirth group were significantly older than those in the control group. As younger fathers were also probably higher risk fathers, caution should be exercised when examining the relative effects of the intervention and control groups on outcomes. There were no significant treatment group differences for fathers' highest grade completed in school, pretest scores for parenting alliance, fathers' support of the mother, communication with the mother, or fathers' involvement with the mother and child during the pregnancy.

Significance tests for mothers revealed no significant association between fathers' assignment to treatment group and mothers' race/ethnicity. One-way ANOVA revealed no treatment group effect for mothers' age, highest grade completed in school, pretest scores for parenting alliance, fathers' support, fathers' communication, or fathers' involvement with the mother and child during the pregnancy.

Follow-Up Attrition Analyses

Significance tests were conducted to determine whether couples who dropped out of the study at

follow-up ($n = 57$) were different from those who remained in the study at follow-up ($n = 97$). A 2 × 3 (Attrition × Treatment Group) ANOVA was conducted with posttest variables as the dependent variable. Only attrition main effects and Attrition × Treatment Group interaction effects are relevant to this analysis (results are available from the author). The findings revealed no significant univariate effects for attrition or Treatment × Attrition for fathers' or mothers' reports of posttest parenting alliance, support, communication, or involvement with the mother and child during the pregnancy.

Analysis of Covariates

Pearson Product Moment Correlation Coefficients were calculated between fathers' age, education, and subjective experience with the intervention and fathers' pretest/posttest change scores. There were no significant associations between these variables and change scores for parenting alliance, fathers' support of the mother, communication, or involvement with the mother and child during the pregnancy. One-way ANOVA revealed no significant associations between recruitment site and fathers' pretest/posttest change scores for parenting alliance, fathers' support of the mother, communication, or involvement with the mother and child during the pregnancy. There were also no significant associations between the covariates and the fathers' follow-up scores. No significant associations were found between mothers' age or education and mothers' pretest/posttest change scores for parenting alliance, fathers' support of the mother, communication, or involvement with the mother and child during the pregnancy. One-way ANOVA revealed no significant associations between recruitment site and mothers' change scores for parenting alliance, fathers' support of the mother, communication, or involvement with the mother and child during the pregnancy. There were also no significant associations between the covariates and the mothers' follow-up scores. On the basis of these findings, there was no need to control for demographic variables, recruitment site, or subjective experience with the intervention in the analyses of treatment effects on outcome measures.

Treatment Effects on Pretest/Posttest Difference Scores

Fathers' reports. Table 2 presents the results of the ANOVA of pretest to posttest difference scores for fathers and mothers. Univariate tests showed that treatment condition was significantly related to parenting alliance change scores, $F(2, 152) = 7.71$, $p = .001$. Scheffe's method for multiple comparisons (Scheffe test) revealed that fathers in the coparenting group reported significantly larger parenting alliance change scores than those in the childbirth or control groups. The effect size for parenting alliance was

Table 2. *ANOVA of the Effects of Interventions and Residential Status on Pretest-Posttest Difference Scores*

	Group						
Outcome	Control ($n = 64$)	Childbirth ($n = 46$)	Coparenting ($n = 44$)	F^a	p	Scheffe	η_p^2
Fathers' reports							
Parenting alliance	−2.40 (5.77)	−2.02 (7.92)	3.26 (8.50)	7.71	.001	3 > 1, 2	.09
Fathers' support	3.24 (4.48)	2.14 (4.76)	4.72 (2.65)	3.68	.028	3 > 1	.05
Communication	0.36 (4.02)	−0.51 (3.95)	2.76 (3.52)	6.94	.001	3 > 1, 2	.10
Prenatal involvement	0.98 (2.29)	1.30 (2.47)	0.65 (2.53)	0.86	*ns*		.01
Mothers' reports							
Parenting alliance	−2.14 (5.55)	−0.42 (4.59)	2.47 (5.03)	10.01	.000	3 > 1	.12
Fathers' support	−0.06 (5.09)	0.39 (5.01)	2.83 (4.25)	4.92	.009	3 > 1	.07
Communication	−0.84 (5.01)	1.71 (5.59)	2.19 (5.15)	5.04	.008	3 > 1	.07
Prenatal involvement	0.04 (2.82)	0.38 (3.12)	0.26 (2.60)	0.16	*ns*		.00

Note. For Scheffe analyses: 1 = *control*, 2 = *childbirth*, 3 = *coparenting*. Couples' residential status was significantly related to mothers' report of fathers' support, $F(1, 152) = 4.72$, $p = .032$, $\eta_p^2 = .03$. Couples' residential status was significantly related to mothers' report of fathers' prenatal involvement, $F(1, 152) = 5.88$, $p = .017$. ANOVA = analysis of variance.

[a] F for treatment condition, $df = (2, 152)$.

moderate, $\eta_p^2 = .09$. Treatment condition was also significantly related to change scores for fathers' support of the mother, $F(2, 152) = 3.43$, $p = .03$. The Scheffe test revealed that fathers in the coparenting group reported significantly larger fathers' support change scores than those in the control group. The effect size for fathers' support was moderate, $\eta_p^2 = .05$. Similarly, treatment condition was significantly associated with communication change scores, $F(2, 152) = 6.94$, $p = .001$. The Scheffe test showed that fathers in the coparenting group reported significantly larger communication change scores than those in the childbirth and control conditions. The effect size for communication was moderate, $\eta_p^2 = .10$. There was no significant association between treatment condition and fathers' involvement with the mother and child during the pregnancy. Further, there were no residential status main effects or Treatment Condition × Residential Status interaction effects on the outcome measures.

Mothers' reports. Univariate tests showed that treatment condition was significantly related to mothers' reports of parenting alliance change scores, $F(2, 152) = 10.01$, $p < .001$. The Scheffe test revealed that mothers reported significantly larger parenting alliance change scores when fathers were in the coparenting group compared with fathers in the control group. The effect size for mothers' report of parenting alliance change was moderate, $\eta_p^2 = .10$. Treatment condition was significantly related to mothers' reports of fathers' support change scores, $F(2, 152) = 4.92$, $p < .001$. The Scheffe test revealed that mothers reported significantly larger fathers' support change scores when fathers were in the coparenting group compared with fathers in the control group. The effect size for mothers' report of fathers' support change was moderate, $\eta_p^2 = .07$. Treatment condition was also significantly related to fathers' communication with the mother, $F(2, 152) = 5.04$, $p = .008$. The Scheffe test revealed that mothers reported significantly larger fathers' communication change scores when fathers were in the coparenting group compared with fathers in the control group. The effect size for mothers' report of fathers' communication was moderate, $\eta_p^2 = .07$. Mothers' reports of fathers' involvement with the mother and child during the pregnancy change scores were significantly related to the couples' residential status but not to treatment condition; fathers were significantly more likely to be involved prenatally when the couple resided together, $F(1, 152) = 5.88$, $p = .017$.

Treatment Effects on Follow-Up Scores

Fathers' reports. Table 3 presents the results of the ANCOVA of follow-up paternal engagement with the infant and parenting sense of competence scores for fathers. Univariate tests showed that there was no significant treatment group main effect for fathers' parenting sense of competence, $F(2, 96) = 0.32$, *ns* (covariates included posttest parenting alliance and involvement with the mother and child during the pregnancy). However, there was a significant interaction effect between treatment condition and residential status, $F(2, 96) = 4.20$, $p = .018$,

Table 3. *ANOVA of the Effects of Interventions and Residential Status on Follow-Up Scores*

Outcome	Group: Control ($n = 40$)	Childbirth ($n = 27$)	Coparenting ($n = 30$)	F^a	p	Scheffe	η_p^2
Fathers' reports							
Parenting sense of competence	73.86 (8.23)	70.92 (7.25)	73.62 (7.44)	0.32	*ns*		.01
Fathers' engagement	40.67 (8.39)	39.15 (12.06)	46.57 (8.54)	3.47	.035	3 > 2	.07
Mothers' reports							
Parenting sense of competence	74.18 (6.69)	72.85 (6.51)	79.08 (8.33)	3.50	.035	3 > 1	.07
Fathers' engagement	35.88 (12.21)	33.80 (13.26)	44.15 (10.12)	3.54	.033	3 > 1, 2	.08

Note. For Scheffe analyses: 1 = *control*, 2 = *childbirth*, 3 = *coparenting*. The interaction effect for treatment condition and residential status was significant for fathers' report of parenting competence, $F(2, 96) = 4.20$, $p = .018$, $\eta_p^2 = .09$. Couples' residential status was significantly related to mothers' report of fathers' engagement, $F(1, 96) = 4.46$, $p = .038$, $\eta_p^2 = .05$. The interaction effect for treatment condition and residential status was significant for mothers' report of fathers' engagement, $F(2, 96) = 3.48$, $p = .035$, $\eta_p^2 = .07$. ANOVA = analysis of variance.

[a] F for treatment condition, $df = (2, 96)$.

$\eta_p^2 = .09$. The Scheffe test revealed that residential fathers in the coparenting group scored significantly higher on parenting sense of competence than nonresidential fathers in the childbirth group. Treatment condition was significantly related to fathers' engagement with the child, $F(2, 96) = 3.47$, $p = .035$ (covariates included posttest parenting alliance and fathers' support). The Scheffe test revealed that fathers in the coparenting group reported significantly higher levels of engagement than those in the childbirth group. The effect size for engagement was moderate, $\eta_p^2 = .07$.

Repeated measures ANCOVA revealed a significant between-group (average of posttest and follow-up adjusted means) treatment effect for fathers' report of parenting alliance, $F(2, 90) = 11.04$, $p < .001$ (Table 4). The effect size was large, $\eta_p^2 = .19$. However, there was no interaction effect between the repeated measure and the treatment group or residential status for parenting alliance. There was also a significant between-group treatment effect for fathers' report of support of the mother, $F(2, 90) = 3.24$ $p = .04$. The effect size was moderate, $\eta_p^2 = .07$. Further, there were significant interaction effects between the repeated measure and the treatment group, $F(2, 90) = 6.98$, $p = .002$, $\eta_p^2 = .13$, and between the repeated measure and the residential group, $F(1, 90) = 8.44$, $p = .005$, $\eta_p^2 = .08$. Results of pairwise comparisons for treatment group indicated significant differences from posttest to follow-up, with the childbirth group showing a significant decrease in fathers' support from posttest to follow-up (mean difference = −1.85, $p = .004$) and the experimental group showing a significant increase from posttest to follow-up (mean difference = 1.30, $p = .03$). Results of pairwise comparisons for residential group indicated significant differences from posttest to follow-up, with the nonresidential group showing a significant decrease in fathers' support from posttest to follow-up (mean difference = −1.38, $p = .005$).

Mothers' reports. Table 3 also presents the results of the ANCOVA of follow-up mothers' reports of paternal engagement with the infant and mothers' parenting sense of competence scores. Univariate tests showed that there was a significant treatment group main effect for mothers' parenting sense of competence, $F(2, 96) = 3.50$, $p = .035$ (covariates were posttest parenting alliance, fathers' involvement with the mother and child during the pregnancy, and communication). The Scheffe test revealed that mothers who had fathers in the coparenting group reported significantly higher levels of parenting competence than mothers who had fathers in the control group. The effect size for mothers' parenting competence was moderate, $\eta_p^2 = .07$. Treatment group was also significantly associated with mothers' reports of fathers' engagement with the baby, $F(2, 96) = 3.54$, $p = .033$ (covariates included posttest parenting alliance, fathers' involvement with the mother and child during the pregnancy, and communication). The Scheffe test showed that mothers who had fathers in the coparenting group reported significantly higher levels of fathers' engagement than mothers who had

Table 4. *Repeated Measures ANOVA for Fathers' and Mothers' Reports of Parenting Alliance and Fathers' Support of Mother*

	Between-Subjects Effect						Within-Subjects Effect								
	Treatment Group			Residential Group			Repeated Measure			Repeated Measure × Treatment Group			Repeated Measure × Residential Group		
	F	*p*	η_p^2	*F*	*p*	η_p^2	*F*	*p*	η_p^2	*F*	*p*	η_p^2	*F*	*p*	η_p^2
Fathers' report															
Parenting alliance	11.04	.000	.19	0.30	*ns*	.00	0.60	*ns*	.01	1.55	*ns*	.03	0.53	*ns*	.01
Fathers' support	3.24	.04	.07	3.79	*ns*	.04	6.46	.01	.07	6.98	.002	.13	8.44	.005	.08
Mothers' report															
Parenting alliance	16.35	.000	.27	5.85	.018	.06	0.35	*ns*	.00	6.85	.002	.14	2.77	*ns*	.03
Fathers' support	1.79	*ns*	.04	1.38	*ns*	.02	9.49	.003	.10	1.66	*ns*	.03	1.65	*ns*	.02

Note. ANOVA = analysis of variance.

fathers in the control group or in the childbirth group. The effect size for mothers' perception of fathers' engagement was moderate, $\eta_p^2 = .08$. Couple residential status was also significantly related to mothers' report of fathers' engagement, $F(1, 96) = 4.46$, $p = .038$, $\eta_p^2 = .05$. Residential fathers were more engaged with their infants than nonresidential fathers. Further, there was a significant interaction effect between treatment condition and residential status for mothers' report of fathers' engagement, $F(2, 96) = 3.48$, $p = .035$, $\eta_p^2 = .07$. Multiple comparisons revealed that fathers in the coparenting residential group scored significantly greater on mothers' perception of fathers' engagement with the child than fathers in the childbirth nonresidential group and fathers in the control residential group.

Repeated measures ANCOVA revealed a significant between-group treatment effect for mothers' report of parenting alliance, $F(2, 90) = 16.35$, $p < .001$ (Table 4). The effect size was large, $\eta_p^2 = .27$. There was a significant interaction effect between the repeated measure and the treatment group, $F(2, 90) = 6.85$, $p = .002$, $\eta_p^2 = .14$. Results of pairwise comparisons for treatment group indicated significant differences from posttest to follow-up, with the childbirth group showing a significant decrease in parenting alliance from posttest to follow-up (mean difference $= -5.31$, $p = .000$). Repeated measures ANCOVA revealed no significant between-group treatment effect for mothers' report of fathers' support. There was also no significant Repeated Measure × Treatment Group or Repeated Measure × Residential Group interaction effects on fathers' support at follow-up.

Discussion

The focus of the present study was on one facet of the parenting ecology—the adolescent mother-young father coparenting relationship. The results of this study showed that fathers' participation in a five-session coparenting intervention before the birth of their child was associated with improvements in coparenting between pretest and posttest as perceived by fathers as compared with fathers in the childbirth intervention or who received no intervention. Mothers reported improved coparenting among fathers in the coparenting intervention compared with fathers who received no intervention. There were no significant differences in mothers' perceptions of fathers' coparenting between fathers in the coparenting and childbirth groups. The coparenting intervention seems to be more effective in changing fathers' perceptions of their behavior rather than mothers' perceptions of the fathers' behavior. These findings underscore the importance of obtaining assessments from multiple raters or from objective measures when testing the effects of parent education programs on fathers. Most studies of the effects of parent education on low-income fathers have found positive influences on men (e.g., Harrison, 1997; Kerr, 2001), but these studies may be overstating the effects by only including self-reported father measures. It is also possible that significant change in fathers' coparenting behavior is taking place, but mothers do not recognize the change. Previous research has shown that teachers often do not recognize changes in students' behavior, especially when the change is gradual or the teacher has a strong opinion about the child (Reitman, Murphy, Hupp, & O'Callaghan, 2004). Such findings point to the need to use objective measures of coparenting in future research.

Though the findings of this study suggest that fathers' participation in the coparenting intervention was only associated with changing fathers' perceptions of coparenting compared with fathers' participation in the childbirth intervention, fathers and mothers consistently reported fathers' improved coparenting behavior when the coparenting intervention was compared with the no-intervention group between pretest and posttest. These findings seem to suggest that the content of the program is less important than fathers' participation in some type of good quality parent education program. It is possible that programs focused on childbirth and child development have the unintended effect of improving fathers' coparenting behavior. This idea is consistent with an ecological systems perspective, which suggests that there are multiple entry points to affecting change in individual's behavior. Few fathering intervention studies have included a comparison as well as a control group (e.g., Fagan & Stevenson, 2002). Continued research on programs such as MELD is needed and should include comparison as well as control groups in the design of the study.

Intervention outcome studies have sometimes reported delayed effects of experimental interventions. Therefore, follow-up assessment was especially important in the present study because coparenting behavior change may take effect after the birth of the child. The follow-up assessment in the present study showed

a similar pattern of results as the pretest to posttest findings. Fathers in the coparenting intervention reported improved support of the mother, but mothers reported no such effects. Mothers reported a significant decline in parenting alliance at follow-up when fathers were in the childbirth intervention, but they reported no changes in alliance when fathers were in the other groups.

One of the more interesting findings of the study was that fathers (regardless of residence) and mothers residing with the father reported higher levels of fathers' engagement with the infant when the father participated in the coparenting intervention compared with fathers who participated in the childbirth intervention. The MELD coparenting curriculum includes a considerable amount of content on fathers sharing the responsibilities of parenting with mothers. It is possible that this aspect of the program had a stronger effect on fathers' behavior (engagement with the infant) than components of the program that addressed communication with partners and parenting alliance. We caution, however, that the effect size of the coparenting intervention on fathers' engagement was moderate. Nonetheless, the results are consistent with an ecological systems perspective, which suggests the importance of addressing ecological factors such as the adolescent mother-young father couple relationship when attempting to increase young men's involvement with their children (Johnson, 2001).

The coparenting intervention appears to have some effect on fathers' and mothers' sense of parenting competence. For fathers, MELD is associated with increased sense of competence when the father resides with the mother compared with nonresidential fathers in the childbirth group. For mothers, MELD is associated with increased competence in relation to no intervention. Again, these findings are consistent with those pertaining to change in coparenting behavior. The coparenting intervention seems to be more effective in changing fathers' perceptions of their own behavior, and the content of the program seems to be of less consequence than attendance in any type of program. These findings are nonetheless significant, given that teenage mothers tend to feel less confident than older mothers in their ability to parent effectively (Birkeland, Thompson, & Phares, 2005).

Couples' residential status proved to be an important variable in the present study. Interestingly, residential status did not influence the effect of the coparenting intervention on coparenting behavior, but it did influence the effect of this intervention on fathers' sense of parenting competence and mothers' perception of fathers' engagement with the infant. In short, it appears that the effect of the coparenting intervention on the father-infant relationship depends on the fathers' residence. As suggested by previous researchers (Fagan & Stevenson, 2002), residential fathers may benefit more from parent education programs because they have more opportunities to implement what they have learned in an intervention.

There were a number of limitations of the present study. A substantial number of fathers who completed the pretest and posttest protocols did not attend the intervention or complete the follow-up interview. Although fathers who did not attend the intervention were kept in the study as controls, the study design would have been improved if fathers had been randomly assigned to the control group as they were to the experimental and comparison groups. Further, the findings revealed that fathers in the childbirth group were significantly older than those in the control group. It appears that fathers did not randomly avoid participation in the intervention. As younger fathers were also probably higher risk fathers, caution should be exercised when examining the relative effects of the coparenting, childbirth, and control groups on outcomes.

Implications for Practice and Research

Practitioners who use the MELD coparenting curriculum prior to the child's birth should pay particular attention to several findings of the present study. First, it is not yet clear whether the curriculum is associated only with fathers' perception of improved coparenting behavior or actual behavior change when compared to other parent education programs. Researchers will need to use objective measures (i.e., observational instruments) of coparenting behavior to determine the impact of the intervention. Second, practitioners should be aware that the MELD coparenting curriculum was found to be associated with positive change in coparenting behavior as perceived by fathers and mothers when compared to no intervention in the present study. This finding suggests that a good quality parenting program for fathers may result in improved fathers' coparenting behavior, regardless of the content of the program. Practitioners should not hesitate to use the MELD

coparenting curriculum and they should anticipate positive effects on coparenting behavior when fathers attend regularly, compared with fathers who attend no intervention, but they should be cognizant also that other programs may have equally positive effects on fathers' coparenting behavior. Third, they should be aware that the impact of this coparenting curriculum on fathers' engagement with the infant and on fathers' sense of competence as a parent may depend on the couples' residential status. Practitioners and researchers should work together to determine how best to deliver or alter the coparenting intervention so that it is effective with both residential and nonresidential fathers.

The findings of the present study suggest that it will be important to explore intervention approaches that result in stronger effects on young couples that persist over time. For example, mothers' and fathers' attendance at the intervention may have a greater effect than fathers' sole attendance. It would also be valuable to explore the implementation of coparenting programs both prior to and subsequent to the child's birth, when parents' coparenting really begins to take shape. Further, programs that last longer than five sessions may be beneficial to couples, although there is the risk that adolescent parents will not attend interventions with more sessions. Researchers and practitioners should also explore developing more powerful intervention approaches. For example, coaching adolescent couples to engage in positive coparenting may be more effective than group interventions that use a didactic/discussion format. On the basis of findings from the present study, practitioners should not only continue to use the MELD coparenting program with young parents before the birth of the child but also be cognizant of the limitations of this program.

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