

# Promoting Healthy Beginnings: A Randomized Controlled Trial of a Preventive Intervention to Preserve Marital Quality During the Transition to Parenthood

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Couples expecting their first child were randomly assigned to intervention ( $n = 28$ ) and comparison groups ( $n = 38$ ) to assess the efficacy of a couples intervention and examine marital satisfaction trajectories across the transition to parenthood. The primarily European American sample ( $M$  age = 30 years) completed assessments of marital satisfaction at 5 points from the final trimester of pregnancy to 66 months postpartum. Growth curve analyses indicated a normative linear decline in marital satisfaction. Intervention participants experienced significantly less decline than comparison participants, providing support for the efficacy of the intervention. Comparable childless couples ( $n = 13$ ) did not show a decline in marital satisfaction. The results suggest that early family transitions that strain couple relationships provide critical opportunities for preventive interventions to strengthen marriage.

*Keywords:* marriage, prevention, couples therapy, randomized controlled trial, parenthood

Although becoming a parent is a joyous event for most men and women, studies have indicated that couples normatively experience a small but significant decline in marital satisfaction after the birth of their first child (C. P. Cowan & Cowan, 1995; Shapiro, Gottman, & Carrere, 2000). Few studies have tracked the marital quality of couples from before the birth of their first child beyond the toddler years. Those that have followed couples for longer periods have suggested that marital quality may continue to decline, but further research is needed to clarify this issue (Belsky, Spanier, & Rovine, 1983; C. P. Cowan & Cowan, 2000). The trajectory of marriages following the birth of a child is likely to have important implications for both the long-term health of the parents' marriage and their children's development. Despite the fact that research has documented ties between marital difficulties and negative psychosocial outcomes in children (e.g., P. A. Cowan, Cowan, Schulz, & Heming, 1994; Grych, Fincham, Jouriles, & McDonald, 2000), very few preventive interventions have been developed to strengthen marriages during this critical time, and even fewer have been rigorously evaluated for effectiveness. The need for empirically validated marital support programs has grown more urgent in light of recent national and state-level policy initiatives on marriage that involve spending of millions of dollars on new services to strengthen the couple relationships of expectant

couples and those who are already parents of young children (e.g., Horn, 2002).

In this article, we report the results of new analyses of a randomized controlled trial designed to evaluate the long-term impact of a couples group on marital satisfaction during the transition to first-time parenthood. Previous analyses using conventional analysis of variance (ANOVA) strategies provided evidence of efficacy for the preventive intervention 18 months after the birth of the target child (C. P. Cowan & Cowan, 2000; C. P. Cowan et al., 1985). A complicated pattern of planned and unplanned missing data and unequally spaced intervals of assessment severely constrained the power and capability of traditional ANOVA-based analyses to test whether the intervention had a longer term impact on couples' marital satisfaction. ANOVA-based analyses with these constraints did not detect statistically significant differences in marital satisfaction between the intervention and control couples by the time their first child was 3.5 years old (C. P. Cowan & Cowan, 2000). In this article, we report for the first time the application of growth curve analyses to test more effectively the long-term efficacy of the preventive couples group intervention and to document the marital trajectories of men and women from the last trimester of a first pregnancy to 5.5 years after their babies were born.

The study of individual and group patterns of change and the evaluation of clinical intervention efficacy have been enhanced significantly by growth curve modeling techniques and the use of multiple waves of assessment (e.g., Gibbons et al., 1993). By taking advantage of all of the information provided by multiple waves of longitudinal data and explicitly modeling both individual and group patterns of change, growth curve analyses are able to characterize change over time more reliably and precisely than traditional statistical methods (Willett, 1994).

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This research was supported by National Institute of Mental Health Grant MH-31109 to Carolyn Pape Cowan and Philip A. Cowan.

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### Does the Transition to Parenthood Strain Marriage?

LeMasters (1957) reported that having a first child produced a moderate or severe crisis in the marriages of 83% of the couples he interviewed. His and other early reports were based on retrospective studies, but a number of prospective longitudinal studies have since been completed in which couples were followed from before to after they made the transition to parenthood (e.g., Heinicke, 2002; Shapiro et al., 2000). Most studies have focused on the period from late pregnancy through the first postpartum year, with only a few extending farther. More than 20 studies in different locales within the U.S.A. and overseas have supported the conclusion that marital satisfaction typically declines immediately following the birth of a first child (for more extensive reviews, see C. P. Cowan & Cowan, 1995; P. A. Cowan & Cowan, 1988; Heinicke, 2002).

Belsky and Rovine (1990) noted that the mean decline in marital satisfaction on the Short Marital Adjustment Test (MAT; Locke & Wallace, 1959) or the Dyadic Adjustment Scale (Spanier, 1976) was a small to moderate 10–15 points, from scores of about 125, which are indicative of relative happiness, to around 110, which is 10 points above the clinical cutoff considered to be indicative of marital distress (Christensen & Heavey, 1999; Gottman, 1994). We have previously reported that 18% of the participants in our study declined more than 20 points in marital satisfaction scores between late pregnancy and 18 months postpartum (C. P. Cowan & Cowan, 1995). About 15% of the men and women moved from above to below the clinical cutoff for marital distress, whereas only 4% shifted from below to above the cutoff. There is little doubt, then, that a significant proportion of partners becoming parents experience a reduction in the quality of their marriage in the first few years of parenthood. It is also clear that there is important variation across individuals and couples in how marriages are affected by the birth of a first child. Much less is known about the longer term impact of the birth of a first child on marriage.

Because most studies have not included a comparison group of couples who were not expecting their first child, researchers have appropriately raised questions about whether the declines in marital satisfaction are due directly to the transition to parenthood or reflect a commonly found association between the passage of time and declines in marital satisfaction. Huston and colleagues (McHale & Huston, 1985; MacDermid, Huston, & McHale, 1990) and White and Booth (1985) followed couples over time and found little difference between those who had and had not become new parents. The couples in these studies were young and in the very early stages of their marriages. For example, the couples followed in the McHale and Huston (1985) study all gave birth during the first year of their marriages, and the mothers' average age at marriage was under 20 years. In our own research, we followed a small group of couples (average age = 28 years) who had not yet experienced the transition to parenthood (C. P. Cowan et al., 1985) and found that there were more negative changes in the marital relationships of the new parents than in those of the childless couples. In this article, we compare the marital satisfaction trajectories of these childless couples with those experiencing the transition to parenthood in an attempt to add to the infor-

mation available regarding the impact of this transition on couple relationship quality.

Although the inclusion of no-baby comparison couples provides useful data, a key methodological problem limits what one can conclude from these studies. Because being pregnant with a first child is a status that cannot be assigned randomly in an experimental design, one will never be able to draw definitive causal conclusions about the influence of the birth of a first child on the quality of a couple's relationship. As we have argued elsewhere (C. P. Cowan & Cowan, 1995), couples who do not have children are likely to differ in important ways from couples who follow the more normative path of becoming parents. Although the extent and nature of these differences are not fully known, they are likely to contribute to the partners' marital satisfaction over time in ways that may be complicated to ascertain.

### Interventions to Promote Well-Being During the Transition to Parenthood

Despite research findings that emphasize the vulnerability of the couple relationship during the transition to parenthood and the centrality of marital quality to subsequent family relationships and children's adaptation (P. A. Cowan et al., 1994), systematically evaluated interventions to help couples function more optimally during the transition to parenthood are virtually nonexistent. Programs addressed directly or indirectly to easing the transition to parenthood for individual parents span a range from those focused on pregnancy and childbirth to parent support groups to several more comprehensive programs that combine information about child development, parent-child relationships, and parents' social support. Although prepared childbirth classes now commonly include men, they focus primarily on preparation for labor and delivery and rarely address men's or women's adjustment to pregnancy and parenthood or changes in marriage associated with the birth of a child (for an exception, see Hawkins, Gililand, Christiaens, & Carroll, 2002). Data on the effect of prepared childbirth classes on couples are sparse. Duncan and Markman (1988) compared couples with and without prepared childbirth. They reported stable levels of marital satisfaction from 3 months before to 9–10 weeks after birth in parents who attended classes and sharp decreases in marital satisfaction in parents with no classes.

A few programs have attempted to help new parents adapt to becoming a family. They range from self-help and support groups with and without leaders to more intensive ongoing counseling with mental health professionals. In one of the earliest interventions designed to ease the transition to parenthood for women, Shereshefsky and Yarrow (1973) trained mental health professionals to work with individual expectant mothers during pregnancy and to offer several appointments to their husbands. Almost all of the men declined to participate. The women participating in the intervention maintained their prebaby levels of marital satisfaction 6 months after giving birth, whereas mothers in comparison groups experienced declines in marital satisfaction.

The First Baby Project (Clulow, 1982) offered expectant couples at birth clinics in London, England, a series of six

groups focused on marriage that were held monthly throughout the last trimester of pregnancy and the first 3 months of parenthood. Because the groups were not consistently well attended and did not seem to stimulate talk of marital strain, Clulow (1982) seemed discouraged about the potential for a group intervention to assist partners with marital issues. There were no preintervention, baseline assessments of the marriages, and the group leaders could not discern any positive effects of the group discussions on the couples' relationships.

We are aware of three recent transition-to-parenthood interventions. Heinicke et al. (1999) described a systematic evaluation of a weekly home-visiting relationship-focused program for at-risk mothers. They found positive effects of the 15-month intervention on the support mothers received from their partners and family members, mother–infant interaction, and the children's attachment to their mothers. Shapiro and Gottman (2003) reported on the preliminary results of a 10-hr 2-day workshop for expectant couples, with postintervention assessments at 3 and 9 months postpartum, compared with a randomly assigned no-intervention comparison group. The intervention couples reported significantly fewer signs of psychopathology, and the wives in the intervention showed less hostility in a marital problem-solving discussion after the intervention. Finally, Jordan and colleagues (as discussed in Silliman, Stanley, Coffin, Markman, & Jordan, 2002) have developed a preventive intervention for the transition to parenthood that is based on PREP (Stanley, Blumberg, & Markman, 1999), a widely studied intervention designed to enhance marriage and prevent divorce, but this randomized clinical trial has not yet been completed.

There is no long-term evaluation of a couples-focused preventive intervention for partners becoming parents, and that was the main focus of this study. This article also presents new data on the trajectories of parents' marital satisfaction from a first pregnancy through the child's 5th year and compares these trajectories with those of a group of comparable couples who did not have a child.

## Method

### Participants

Participants were part of a larger study examining how family factors influence children's early development. They were recruited in the greater San Francisco Bay Area of California from announcements in community newsletters, from a large HMO, and from clinic and private obstetrical practices. Eligible participants were couples in which the partners were living together, expecting their first child, and over 18 years of age. Expectant couples were recruited until, by random assignment, there were 24 couples who had agreed to participate in the couples group intervention and 24 assigned to a comparison group that completed the same assessments as the intervention group. Of the 28 assigned to the intervention condition, 24 (86%) agreed to participate in the couples group. One of these 24 couples gave birth before the groups began and was not able to participate in the assigned group. Two of the couples assigned to the comparison group dropped out of the study after completing an initial interview but before completing any questionnaires. Because pilot work had suggested that a prebirth assessment might influence couples' experience of becoming parents, a third randomly assigned subsample of 24 expectant couples was interviewed during pregnancy but not asked to complete questionnaires until the postbirth follow-ups. Sixteen of the 24 couples in this comparison group completed the postbirth questionnaire-based assessments.

A group of 24 couples who had not yet decided about whether to become parents was recruited from similar sources—the same community newsletters and clinic and private obstetric–gynecology practices. Six of the 24 initially childless couples gave birth to babies during the longitudinal study. Five additional childless couples dropped out of the study after their initial interview without completing any questionnaire data.

Questionnaire-based assessments of marital satisfaction were conducted at the start of the last trimester of pregnancy and at 6, 18, 42, and 66 months following birth. Data on separations or divorces in the sample were also collected at each follow-up assessment. Childless couples completed assessments at the same first three time points as the new-parent couples.<sup>1</sup> At each assessment, participants completed an extensive battery of additional questionnaires and interviews relevant to the purposes of the larger study. Over the 5.75 years of the study, participation rates varied as some couples separated or divorced ( $n = 11$  expectant couples), some moved away, and some declined to complete particular assessments (see Figure 1 for a summary of participation throughout the study). Of the 55 couples experiencing the transition to parenthood who contributed data and did not divorce during the time of the study, 80% ( $n = 44$ ) completed all, or all but one, of the assessments they were invited to complete.

Following the work of others investigating change over time and marital satisfaction trajectories, in our principal analyses we utilized all available data on the 66 new-parent couples and the 13 couples who remained childless (Gibbons et al., 1993; Karney & Bradbury, 1997; O'Brien & Peyton, 2002). A critical advantage of the growth curve modeling approach used in this study is that couples with missing data at a given time point can be included in analyses if the data are missing at random (O'Brien & Peyton, 2002; S. W. Raudenbush, Brennan, & Barnett, 1995). The planned missingness in the second comparison group of new parents at the prebirth assessment was completely randomized by group assignment. The number of assessments not completed by the new-parent couples was uncorrelated with their group assignment (intervention vs. comparison), initial marital satisfaction, age, length of relationship, education, ethnicity, or income. When examining the effects of the couples groups, we conducted our analyses with two different intervention samples: (a) an *intervention completer* sample ( $n = 23$ ) that excluded the 5 couples assigned to the intervention condition who did not participate in the couples groups and (b) an *intent-to-treat* sample ( $n = 28$ ) that included those 5 couples.

At entrance to the study, 83% of the couples were married; 71% of the cohabiting couples married after their babies were born. On average, couples had been together for 4.2 years ( $SD = 2.8$ ), and the mean age for husbands and wives was 30.5 years ( $SD = 4.3$ ) and 29.2 years ( $SD = 4.0$ ) respectively; 13% of the husbands and 11% of the wives described themselves as African American, Asian American, or Hispanic, and the remaining participants identified themselves as White or Caucasian. All but five (6%) of the husbands reported completing high school, 52% reported completing some college, and 42% reported completing some postcollege training. Three (4%) of the wives reported completing only some of high school, 54% reported completing some college, and 42% reported completing some postcollege training. Most of the husbands (95%) and half of the wives (53%) were employed 3 months prior to the birth of their first child. The median income reported was between \$54,000 and \$64,700 for

<sup>1</sup> The childless couples were not asked to complete marital satisfaction questionnaires during the fourth assessment period. We did make an attempt to recontact these couples for the final assessment (5.75 years following their initial assessment) and were successful in getting three of the couples to complete marital satisfaction questionnaires. All available data on the childless couples were used in analyses.

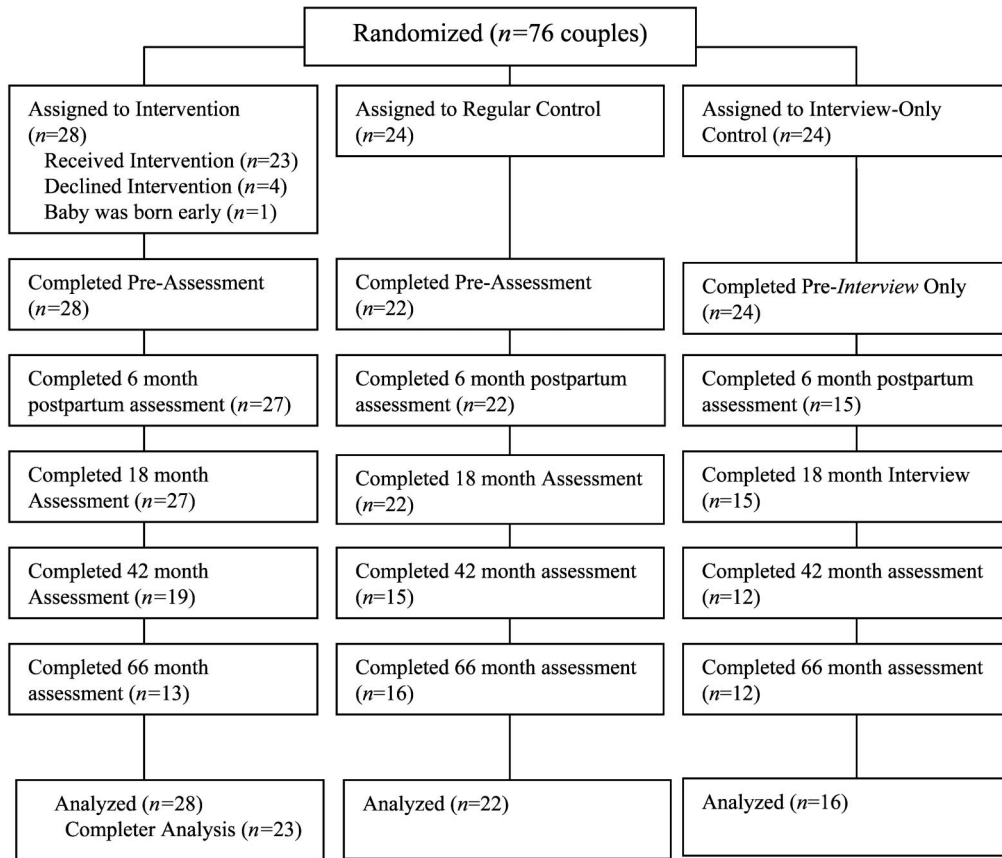


Figure 1. Summary of flow of participants in the randomized controlled part of the study.

husbands and between \$21,600 and \$32,200 for wives.<sup>2</sup> The intervention and comparison couples did not differ significantly on any of these background variables. The 5 couples who did not complete the intervention did not differ from the 23 who did on any of these variables except for husband's age. The husbands who did not complete the intervention were 4.3 years older than those that did. The 13 childless couples did not differ from the new-parent couples in initial marital satisfaction, but they did have some small but significant demographic differences: The husbands in the childless couples reported less income, and the wives were younger and had fewer years of education.

### Procedure

All participants completed a 2.5-hr interview at the start of the study (prior to the third trimester of pregnancy for expectant couples). Expectant couples were randomized to condition using a random number table prior to the interview and informed of their condition during the interview. The research was approved by the Institutional Review Board, and signed informed consent was obtained from participants at the initial interview. Participants in the intervention and regular comparison groups completed a battery of questionnaires following the interview. Participants in the intervention condition completed their prebirth questionnaires prior to the start of their couples group.

The couples groups began at the start of the third trimester of pregnancy and met weekly for 2.5 hr over 24 weeks. Each group included four participant couples and one coleader married couple. Each of the three coleader couples conducted two groups. The groups followed a semistructured format that was less scripted and didactic than couples interventions

emphasizing a behaviorally oriented skills training approach. Although an important focus of the intervention was on helping spouses deal with differences they were having as a couple, the content also reflected a belief that many interconnected domains of family life are important to satisfying couple relationships. The agenda for each week was shaped by the coleaders initiating discussion around a set of topics that our theoretical model suggested were relevant to couple functioning and by a check-in to identify salient issues or events affecting participants during the week. The topics initiated by coleaders included how participants viewed themselves and their relationships, their division of family labor, their communication and problem-solving styles, their ideas about parenting and actual parenting practices, their work and social support outside the family, and the influence of their experiences growing up on their parenting and their relationship as a couple (for more details, see C. P. Cowan & Cowan, 2000, and an intervention manual available from Carolyn Pape Cowan and Philip A. Cowan).

Coleaders helped participants describe their everyday experiences and concerns, articulate difficult or potentially embarrassing issues, and recognize and talk with their spouses about within-couple differences in experiences, concerns, or needs. Reactions to study questionnaires were also used to help focus discussion during the more structured part of the groups. The group format was designed to reduce the sense of isolation that individuals typically feel when going through the transition to parenthood. The groups provided opportunities to normalize participants' experiences

<sup>2</sup> Income figures have been readjusted to 2003 equivalents using the Consumer Price Index to account for inflation.

Table 1  
*Means and Standard Deviations for Marital Satisfaction at Each Time Point*

Months from birth	Wives			Husbands		
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>
New-parent couples						
-3	122.46	17.08	50	119.62	18.67	50
6	113.10	22.87	64	114.98	17.91	64
18	109.31	25.18	64	107.66	24.17	64
42	107.74	26.76	46	108.46	19.36	41
66	105.30	30.39	36	104.25	24.80	40
Childless couples						
-3	124.15	20.43	13	116.62	14.24	13
6	120.03	13.74	13	115.23	15.02	13
18	122.31	13.70	13	111.00	20.03	13
66	143.00	16.82	3	118.00	17.69	3

*Note.* For the childless couples, months from birth are used to represent the timing between assessments, which was similar to that for the new-parent couples.

("We're all in the same boat"). After the birth of their babies, couples brought their infants to the groups, and this provided a living laboratory on the topic of how partners could discuss issues and solve problems while their babies provided ongoing distractions, both positive and negative.

The intervention drew on a number of constructs now being emphasized in couples therapies, including the need to consider intergenerational patterns and attachment relationships (Johnson, 2004), understanding and acceptance of within-couple differences (Jacobson & Christensen, 1998), reframing of negative attributions (Grych & Fincham, 1990), and interruption of escalating negative emotional exchanges (Gottman & Levenson, 1988). The open-ended nature of parts of each session increased the importance of having coleaders with clinical skills. Five of the six coleaders were clinical psychologists or advanced doctoral students in clinical psychology, and the sixth was a businesswoman who received additional training to insure clinical competence. All the coleader pairs were married.<sup>3</sup> Carolyn Pape Cowan and Philip A. Cowan functioned as one of the staff couples and trained the other two coleader couples. Adherence to the treatment protocol was facilitated and monitored by regular review of audiotapes of the couples sessions during an every-other-week group supervision that was led by Carolyn Pape Cowan and Philip A. Cowan.

### Measures

The MAT (Locke & Wallace, 1959) is a widely used 16-item questionnaire assessing marital satisfaction that has been demonstrated to have high levels of discriminant, concurrent, and predictive validity (Gottman, 1994). Higher scores reflect greater satisfaction with the overall marriage. Scores below 100 are considered to be indicative of clinically significant marital distress (Christensen & Heavey, 1999; Gottman, 1994).

### Results

Examination of mean marital satisfaction scores (see Table 1) across the study gives an indication of group trends for all participants. During the last trimester of pregnancy, the mean score for expectant parents on the MAT was 121.0 (*SD* = 17.9), suggesting that most were relatively happily married at the start of the transition to parenthood. Childless couples reported similar levels of initial marital satisfaction and little decline over the period of time that they completed assessments for the study. When their first

child was 5.5 years old, parents' marital satisfaction scores had declined, on average, to within 4.7 points of the clinical cutoff for marital distress. Across the transition to parenthood, marital satisfaction declined an average of 17.2 points for new mothers (a drop of 14%) and 15.4 points for new fathers (a drop of 13%).

### Marital Satisfaction Trajectories Across the Transition to Parenthood

In preliminary analyses, we examined individual plots of the actual marital satisfaction scores for each husband and wife to observe general trends in marital satisfaction trajectories. Most new parents showed a slow but steady decay in marital satisfaction across the 5.75-year period studied, whereas the childless couples remained relatively stable in their satisfaction. The plots also indicated that individual trajectories within couples were highly similar and suggested the importance of accounting for this parallel growth in analyses. The declines in marital satisfaction were largely constant across the period studied, suggesting that a linear growth model would adequately capture these declines. There was also evidence of variation in the rates of decline in this sample. A small percentage of the couples showed increases in marital satisfaction over the transition to parenthood. The variability in rates of decline (or growth) supported the use of growth curve analyses, which could explicitly model each individual's trajectory of change over time.

A multivariate extension of hierarchical linear modeling (HLM) was used so that husbands' and wives' marital satisfaction trajectories could be analyzed simultaneously (O'Brien & Peyton, 2002; S. W. Raudenbush et al., 1995). The multivariate approach had three distinct advantages over modeling husbands' and wives'

<sup>3</sup> A subsequent couples group intervention study using a similar format with four male-female teams, all of whom were married but not to each other, suggested that the clinical skills, and not the marital status, of the leaders are the factor most relevant to the success of the intervention (C. P. Cowan, Cowan, & Heming, 2005).

Table 2  
HLM Estimated Coefficients of Marital Satisfaction Trajectories During the Transition to Parenthood (*n* = 66 Couples)

Growth parameter	Fixed effect				Random effect	
	Unstandardized coefficient	SE	<i>t</i>	Effect size <i>r</i>	Variance component	$\chi^2$ (65, <i>N</i> = 66)
Preliminary model: No constraints						
Wife						
Initial status, $\gamma_{f00}$	115.92	2.33	49.87***		274.94	280.22***
Linear change, $\gamma_{f10}$	-0.17	0.05	-3.60**	-0.41	0.08	150.76***
Husband						
Initial status, $\gamma_{m00}$	114.38	2.16	53.02***		225.47	239.75***
Linear change, $\gamma_{m10}$	-0.15	0.04	-3.66***	-0.41	0.05	105.28**
Final model: Gender constraints						
Wife						
Initial status, $\gamma_{f00}$	114.89	2.01	57.81***		274.88	281.60***
Linear change, $\gamma_{f10}$	-0.16	0.04	-4.27***	-0.47	0.08	150.76***
Husband						
Initial status, $\gamma_{m00}$	114.89	2.01	57.81***		225.35	239.75***
Linear change, $\gamma_{m10}$	-0.16	0.04	-4.27***	-0.47	0.05	105.59**

Note. HLM = hierarchical linear modeling.  
\*\* *p* < .01. \*\*\* *p* < .001.

trajectories independently. First, because it appeared that changes in marital satisfaction over time for married spouses were correlated and likely to influence each other, the marital satisfaction trajectories of husbands and wives were best conceptualized as being nested within couples rather than as individual trajectories. Second, the multivariate approach facilitated gender comparisons of the growth trajectories. Finally, if preliminary HLM analyses indicated that husbands and wives had highly similar trajectories, a more parsimonious and statistically precise model could be estimated in which the growth parameters of both spouses were constrained to be equal.

Variation within couples in marital satisfaction across the transition to parenthood was modeled at Level 1 in HLM. The initial set of HLM analyses modeled growth for the new parents only (*n* = 66 couples). The Level 1 model can be written as

$$\text{Marital Satisfaction}_{it} = (\text{female})_{it}[\pi_{f0i} + \pi_{f1i}(\text{time})_{it}] + (\text{male})_{it}[\pi_{m0i} + \pi_{m1i}(\text{time})_{it}] + e_{it}. \quad (1)$$

Time was calibrated in months and centered (equal to zero) during the initial assessment. Thus, this equation indicates that the marital satisfaction of the husband and wife in couple *i* at any given time *t* is a function of a person-specific intercept ( $\pi_{f0i}$  or  $\pi_{m0i}$ ) representing that individual's marital satisfaction at the start of the wife's final trimester of pregnancy, a person-specific linear change related to months ( $\pi_{f1i}$  or  $\pi_{m1i}$ ) since the start of the final trimester,<sup>4</sup> and a random error of measurement ( $e_{it}$ ).

In HLM, the Level 1 parameters estimated for each couple are pooled at Level 2 to obtain estimates for the group as a whole. The initial Level 2 equations can be written as

$$\pi_{f0i} = \gamma_{f00} + r_{f0i}, \pi_{f1i} = \gamma_{f10} + r_{f1i}, \pi_{m0i} = \gamma_{m00} + r_{m0i}, \text{ and } \pi_{m1i} = \gamma_{m10} + r_{m1i}. \quad (2)$$

$\gamma_{f10}$  and  $\gamma_{m10}$  are the pooled estimates of the linear growth rate in marital satisfaction for the women and men in this sample. These pooled estimates, along with unexplained random effects for each couple (the *rs*), predict each participant's linear rate of change in marital satisfaction.  $\gamma_{f00}$  and  $\gamma_{m00}$  are the pooled estimates of prepartum marital satisfaction for participants.

The results of these HLM analyses are shown in the top half of Table 2. Wives declined, on average, 0.17 units per month (or 2.04 units per year) in their marital satisfaction scores, and husbands declined, on average, 0.15 units per month (or 1.80 units per year). The chi-square values associated with the estimated variance components for both wives' and husbands' growth rates were significantly different from zero, indicating that there was meaningful variation across participants in their rates of change over the transition. Although the marital satisfaction of participants generally declined, wives and husbands with growth rates one standard deviation above the mean rate (the square root of the variance component,  $\sigma = 0.28$  for wives and  $\sigma = 0.22$  for husbands) actually experienced modestly increasing marital satisfaction across the transition to parenthood. There was also meaningful variation in the intercepts for wives and husbands, which captured estimates of participants' marital satisfaction during the last trimester of pregnancy.

As our visual inspection of the marital satisfaction plots had suggested, there was a very strong correlation between wives' and

<sup>4</sup> The linear growth terms accounted for 29% of the variation across time in marital satisfaction scores for couples. In the preliminary stages of model building, we had incorporated quadratic terms for male and female growth in the model. The parameters indexing quadratic growth for both men and women were not statistically significant, nor were the variance components associated with these parameters, so a simplified linear model was retained.

husbands' initial intercepts ( $r = 0.91$ ) and also between their linear growth ( $r = 0.97$ ). This high degree of correlation confirmed the importance of estimating partners' trajectories simultaneously in a multivariate model rather than independently in separate models. A multivariate test indicated no gender differences in initial levels of marital satisfaction or in linear growth,  $\chi^2(2, N = 66) = 0.79$ ,  $p > .5$ . Because no gender differences were found, we reestimated the growth curve model by constraining the pooled estimates of initial status and growth to be equivalent across gender ( $\gamma_{f00} = \gamma_{m00}$  and  $\gamma_{f10} = \gamma_{m10}$ ; see Barnett, Marshall, Raudenbush, & Brennan, 1993; S. Raudenbush, Bryk, Cheong, & Congdon, 2000). In addition to being more parsimonious, this reestimated model improved the precision of estimates.

The results of this model are shown in the bottom half of Table 2. The estimates of initial status and growth in marital satisfaction are highly similar to those estimated uniquely for wives and husbands, and the standard errors indicate greater overall precision. The  $t$  ratios for the linear growth terms, which are formed by dividing the estimated parameter by its standard error, have been converted to effect-size correlations in Table 2 to give an indication of the magnitude of these effects (Karney & Bradbury, 1997; O'Brien & Peyton, 2002).<sup>5</sup> The  $r_{\text{effect}}$  of 0.47 in the constrained model indicates a large (Cohen, 1988) linear growth effect and confirms that a linear growth model accounts for a substantial amount of the variation within couples in marital satisfaction over time.

### *Analyses of Intervention Efficacy and of the Impact of the Transition to Parenthood*

Additional HLM analyses examined the effect of the couples group intervention on marital satisfaction trajectories across the transition to parenthood using both the intervention completer and the intent-to-treat samples. Because the results of analyses with the two samples were highly similar, we report the details of the analyses only for the intervention completer sample but do report the results of the final model for the intent-to-treat sample. The marital satisfaction trajectories of the childless and new-parent couples were also compared in these analyses. We first estimated a preliminary model to test whether random assignment of the expectant couples created intervention and comparison groups that were equivalent on prepartum marital satisfaction and to confirm that the childless and new-parent couples had comparable marital satisfaction at the start of the study. Dummy variables representing intervention group status ( $\gamma_{f02}$  and  $\gamma_{m02}$ ; 1 = intervention group, 0 = comparison groups) and new-parent status ( $\gamma_{f01}$  and  $\gamma_{m01}$ ; new parents = 1, childless = 0) were incorporated into the Level 2 equations for participants' initial status on marital satisfaction. Multivariate analysis revealed no gender differences in the association of intervention or parenthood status to initial marital satisfaction, so the model was reestimated with these Level 2 parameters constrained to be equal across gender (results summarized in top of Table 3). Intervention participants did not differ significantly from comparison participants in initial marital satisfaction, indicating that random assignment was successful in creating equivalent groups. No differences in initial marital satisfaction were found between new-parent and childless couples.

Dummy variables for intervention ( $\gamma_{f12}$  and  $\gamma_{m12}$ ) and new-parent ( $\gamma_{f11}$  and  $\gamma_{m11}$ ) status were then added to the Level 2

equations predicting participants' linear change in marital satisfaction across the 5.75 years of the study. No gender differences were found in the effect of the intervention or in the link between parenthood status and marital satisfaction trajectories, so the model was reestimated with constraints on these Level 2 parameters. The results, summarized in the middle of Table 3, indicated that the intervention significantly reduced the normative decline in marital satisfaction for those experiencing the transition to parenthood. Over the course of the transition to parenthood, participants who completed the intervention declined 0.174 units less per month on marital satisfaction than new parents not assigned to the intervention. The rate of decline per month for nonintervention spouses ( $\gamma_{10} + \gamma_{11} = -0.238$ ) was almost 4 times as high as that of spouses who participated in the intervention ( $\gamma_{10} + \gamma_{11} + \gamma_{12} = -0.063$ ). New parents not assigned to the intervention condition lost an average of 16.4 units of marital satisfaction over the 5.75 years of the study (or 14% of their initial marital satisfaction), whereas the intervention participants lost an average of only 4.1 units (or 4% of their initial marital satisfaction). The intervention effect was estimated to be medium in both the intervention completer ( $r_{\text{effect}} = 0.27$ ) and the intent-to-treat (bottom of Table 3;  $r_{\text{effect}} = 0.30$ ) analyses. In contrast to the normative decline in marital satisfaction across the transition to parenthood, the childless couples showed a small but insignificant linear increase in marital satisfaction ( $\gamma_{10} = 0.034$  units per month) over the course of the study.<sup>6</sup> These differential trajectories are illustrated in Figure 2.

There were no separations or divorces in the couples from the intervention group in the first 3 years of parenthood. At the 3.5-year postbirth assessment, 1 of the 23 intervention couples (4%) had separated and later divorced, and another 4 divorced when their child was in kindergarten, for a total of 5 out of 23, or 22%.<sup>7</sup> In the comparison group of new parents who had completed questionnaires before and after the birth of their child, 3 of 22 couples (14%) had divorced by the time their child was 3.5 years old, and an additional couple divorced before the child was 5.5 years old (18%). Because of higher attrition in the second group of comparison parents who were not asked to complete prebirth data, we cannot accurately estimate the rate of divorce in that group.

## Discussion

This study extends previous findings documenting declines in marital satisfaction in the first few years following the birth of a first child. We found a small but steady normative decline in marital satisfaction from the last trimester of pregnancy through to the child's kindergarten year (when the child was 5.5 years old). The 24-week couples group intervention significantly reduced the

<sup>5</sup> The formula used for converting the  $t$ s into  $r_{\text{effect}}$ s was  $r_{\text{effect}} = \sqrt{[t^2/(t^2 + df)]}$ .

<sup>6</sup> Analyses conducted without the last data point for the three couples in the childless sample who completed the final assessment yielded virtually identical results, indicating that these three couples did not influence the results unduly.

<sup>7</sup> Including the couples originally assigned to the intervention who did not participate in a couples group, 6 of 28 intervention couples (21%) had divorced by their child's kindergarten year.

Table 3  
*HLM Estimates of Intervention Effect on Marital Satisfaction Trajectories and Comparison of Trajectories for New Parents and Childless Couples*

Growth parameter	Unstandardized coefficient	SE	<i>t</i>	Effect size <i>r</i>
Preliminary model for completer sample ( <i>n</i> = 74): Intervention/child status and prepartum marital satisfaction				
Initial status				
Intercept, $\gamma_{00}$	118.40	4.17	28.41***	
New parent vs. childless, $\gamma_{01}$	-4.10	4.76	-0.86	-0.10
Intervention vs. comparison, $\gamma_{02}$	-0.49	3.92	-0.13	-0.01
Wife linear change, $\gamma_{f10}$	-0.12	0.04	-2.91**	
Husband linear change, $\gamma_{m10}$	-0.14	0.03	-4.07***	
Final model for completer sample ( <i>n</i> = 74): Intervention/child status and change in marital satisfaction				
Initial status				
Intercept, $\gamma_{00}$	115.10	4.33	26.57***	
New parent vs. childless, $\gamma_{01}$	0.78	5.02	0.16	0.02
Intervention vs. comparison, $\gamma_{02}$	-3.62	4.12	-0.88	0.10
Linear change				
Intercept (linear change for childless couples), $\gamma_{10}$	0.03	0.08	0.45	
New parent vs. childless, $\gamma_{11}$	-0.27	0.09	-3.08**	-0.34
Intervention vs. comparison, $\gamma_{12}$	0.17	0.07	2.41*	0.27
Final model for intent-to-treat sample ( <i>n</i> = 79): Intervention/child status and change in marital satisfaction				
Initial status				
Intercept, $\gamma_{00}$	115.45	4.35	26.56***	
New parents vs. childless, $\gamma_{01}$	0.58	5.04	0.12	0.01
Intervention vs. comparison, $\gamma_{02}$	-2.57	3.90	-0.66	-0.08
Linear change				
Intercept (linear change for childless couples), $\gamma_{10}$	0.03	0.07	0.45	
New parent vs. childless, $\gamma_{11}$	-0.27	0.09	-3.17**	-0.34
Intervention vs. comparison, $\gamma_{12}$	0.19	0.07	2.79**	0.30

Note. HLM = hierarchical linear modeling.

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

decline in marital satisfaction for both husbands and wives. The number of divorces in the first few years following the birth of a child was lower for the couples who participated in the intervention than for those in the comparison group. Nevertheless, by the time the first child was 5.5 years old, the rate of divorce was similar in both groups. Our impression is that the couples who had participated in the groups for 6 months worked harder at their relationships over time before ending their marriages. We do not know whether this work enabled them to protect their children better from the consequences of their unresolved conflict. The findings as a whole indicate that this intervention does not prevent divorce over the long term but that it does help to preserve satisfaction with marriage in the large majority of couples who stay together during the family formation years.

These results, obtained with prospectively collected data, random assignment to intervention and comparison groups, long-term follow-up, and the use of sensitive statistical techniques, provide strong evidence for the efficacy of the preventive group intervention for couples who are making the transition to first-time parenthood. The medium effect size of the intervention is particularly noteworthy when considered in the context of previous research.

The effect size of the intervention in this study is stronger than the average effect size ( $r_{\text{effect}} = 0.17$ ) of the preventive interventions using self-reports of marital quality reviewed in the largest meta-analysis of marital prevention programs (Giblin, Sprenkle, & Sheehan, 1985; see similar effect sizes in Hahlweg & Markman, 1988). Giblin and colleagues (1985) found that effect sizes for prevention programs were larger when they included more distressed couples. The participants in the present study were not generally distressed at the start of the intervention, but they were followed during a transition period that increases risk for marital difficulties. A meta-analysis of 27 studies of couples therapies designed to remediate already existing marital problems found an effect size similar to the one found in this study (Shadish et al., 1993).

This study's long-term tracking of marital quality following an intervention focused on couple relationship issues is unusual. The average length of follow-up of the 85 prevention studies in the Giblin et al. (1985) meta-analysis was 12 weeks postintervention. Of the 163 marital and family treatment studies included in Shadish et al.'s (1993) meta-analysis, only one study included assessments more than 9 months following treatment. Evaluation of the

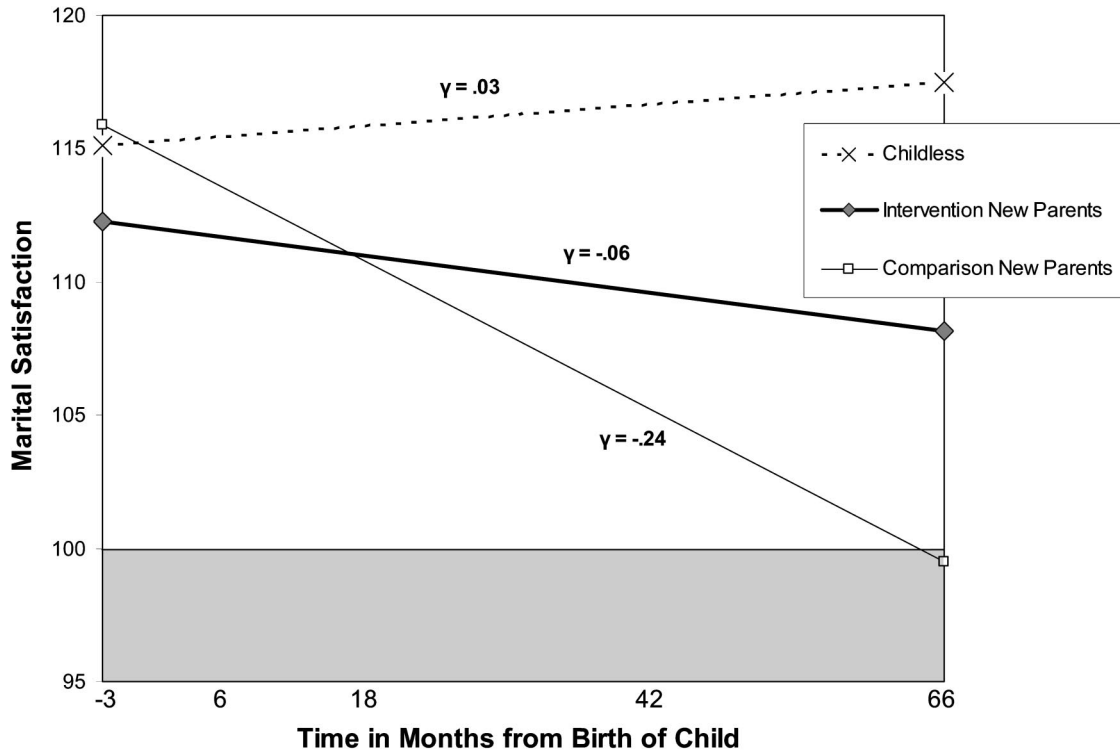


Figure 2. Hierarchical linear modeling estimated marital satisfaction trajectories for new-parent couples randomly assigned to intervention, new-parent couples randomly assigned to comparison group, and childless couples. The  $\gamma$ s are the estimated linear change in marital satisfaction per month for each group. The shaded area at the bottom of the figure represents marital satisfaction scores indicative of clinical distress. For the childless couples, months from birth are used to represent the timing between assessments.

PREP premarital intervention found positive effects on marital satisfaction at 1.5 years postintervention and even stronger effects at 3 years post (Markman, Floyd, Stanley, & Storaasli, 1988), declining effects at the 5-year follow-up (Markman, Renick, Floyd, Stanley, & Clements, 1993), and no effects 12 years after the intervention ended (Clements, Stanley, & Markman, 2004). Because previous meta-analyses have indicated that effect sizes were smaller in studies with longer follow-ups, the medium effect size found in our 5-year follow-up study is encouraging (Giblin et al., 1985).

An important question is whether the normative decline in marital satisfaction during the transition to parenthood is a consequence of the birth of a child or merely reflects the passage of time. Couples not expecting their first child but recruited from similar sources as the expectant couples in this study did not show the same declines in marital satisfaction. However, this comparison group was followed most carefully only over the first 21 months of the study, and the small sample and attrition rate limit the generalizability of these findings. A recent study of newlywed couples followed through their transitions to parenthood compared with couples not having a baby also found sharper declines in marital satisfaction for the new parents (Shapiro & Gottman, 2003). Future replication of these two sets of results is critical, but the findings taken together support the conclusion that the transition to parenthood has a unique impact on marital satisfaction.

Several limitations in the study should be noted. Although the coleaders of the couples groups were guided by a treatment manual

and were carefully trained and supervised and audiotapes of the groups were regularly reviewed to improve adherence to the treatment protocol, no systematic data on adherence were collected. Adherence is more difficult to assess in interventions that are not highly structured. The lack of systematic data on adherence raises the possibility that the groups may have differed in important ways or may not have followed the intended treatment protocol. We believe that both of these possibilities were minimized by the close, ongoing supervision provided and the small number of coleader teams involved.

It is possible that initially measuring marital satisfaction during the last trimester of pregnancy may have artifactually inflated estimates of the degree of decline in marital satisfaction during the transition to parenthood because of a prebirth spike in satisfaction. This concern is strongest when analyses use traditional analytical methods focused on change from the third trimester to a single period shortly after the transition to parenthood. Using growth curve modeling to estimate trajectories across five time points over 5.75 years lessened the degree to which this is a concern. The growth curve analyses conducted for this study showed no indication of a deceleration (i.e., a quadratic effect) in the decline in marital satisfaction, as would be expected if there was a momentary spike in satisfaction during pregnancy followed by a return to prepregnancy levels. Moreover, Shapiro and Gottman's (2003) recent study of newlywed couples suggested that the decline associated with the transition to parenthood is not an artifact of prebirth spikes in marital satisfaction.

The couples were aware of their group assignment before they completed their prebirth questionnaires. It is possible that knowing they would receive the intervention increased the intervention couples' expectations of success for the future and inflated their early reports of marital satisfaction.

The 86% participation rate for couples assigned to the group intervention is impressively high given the commitment of time required, the fact that both husbands and wives participated, and the strong demands on time and energy that new parents are likely to be facing. The four couples who declined to participate in the intervention indicated either that they did not have the time or that they did not feel they needed additional assistance. The nonparticipating couples were slightly older than those who participated, and they may have been particularly competent or confident about their futures. Intent-to-treat analyses that included these couples suggested that their marital satisfaction trajectories were similar to those of the typical intervention couple.

The normative decline in marital satisfaction during the transition to parenthood has important public health implications. A number of studies have documented the negative psychological, social, and health consequences of marital problems (Waite & Gallagher, 2000). For example, marital difficulties are linked with poorer immune functioning (Kiecolt-Glaser & Newton, 2001) and an increased risk for depression (Whisman, 2001). Using data from families in this study, we have linked marital difficulties during the transition to parenthood with less effective parenting and more negative child outcomes (P. A. Cowan et al., 1994). The small but steady decline in marital satisfaction experienced by most couples after the birth of a first child and the seriousness and wide range of risks associated with marital strain suggest that it would be worthwhile to devote more resources and attention to helping couples adapt during this important early marital transition.

Past research has suggested that most divorces occur in the early years of marriage (Cherlin, 1981; Gottman & Levenson, 2002; Shiono & Quinn, 1994), further indicating that early marital transitions in which relationships are vulnerable to strain may provide a critical opportunity for preventive intervention. The transition to parenthood is a period when couples are motivated to seek out information in preparation for their role as new parents. The public health benefits of providing expectant parents with the resources they need to promote healthy fetal and early child development have long been recognized. The results of this study suggest that society may want to take advantage of existing resource networks to expand opportunities for expectant couples to receive psychological support for their marriages as well.

The data we have presented on the couples intervention have focused mainly on whether it was effective. Although more research is needed on why the intervention may have been effective, we offer several ideas about which aspects of the intervention might be responsible for buffering couples against expected declines in marital satisfaction. The focus of the intervention was not primarily educational in the sense of delivering information about parenting, children's early development, or how marriages typically change during the transition to parenthood. Nor was the focus primarily on strengthening a set of relationship skills, as is the case in most behaviorally or cognitively based marital enrichment programs (Sayers, Kohn, & Heavey, 1998). Rather, the intervention attempted to help men and women make sense of their changing experiences as partners and new parents in the key domains of

their lives while these experiences were occurring. Work in the groups focused on helping men and women take stock of the implications of these changes—for their relationships with each other and with their babies. By encouraging and facilitating discussion of the implications of leaving difficulties between partners unresolved, the intervention helped encourage couples to search for their own solutions to the challenges that confronted them while at the same time providing a safe environment in which to try out new patterns of interaction and evaluate their effectiveness.

On the basis of interviews with participants, we believe that a key element of the intervention was the opportunity for men and women to normalize their experiences by hearing that others were going through similar changes and challenges. Being able to recognize that their experiences were not unusual seemed to reduce the tendency for new parents to blame themselves or their partners for the stresses they were experiencing. This normalizing process may have helped compensate for the naturally occurring support and commiseration available in times past when most couples started their families in the cities and towns in which they had grown up. Does this mean that the impact was primarily a product of social comparison and support? The groups would still have had value if that were the case, but we believe that the effects of the couples groups were more complex. Wives often find either formal or informal sources of support to talk about family issues. The unique feature of these groups is that they included the husbands, both as active contributors to the group and as listeners to others' experiences. The new parents told us that even when they discussed their lives with other couples outside the group, they did not exchange the kind of information that was regularly part of our group discussions—about the nitty-gritty details of parenthood and the emotional ups and downs in their intimate relationships as couples. The group leaders worked to create a safe environment in which spouses could explore intimate and sometimes troubling family matters, issues that the participants said they did not discuss on their own or with others. Two of the groups decided to continue meeting monthly without the leaders after the study was completed, but both ended when hot couple issues were raised and the groups could not find ways to discuss them effectively. Participants reported that it was then they recognized just what the clinically trained leaders had contributed to the group process.

Elsewhere, we have indicated that part of the decline in marital satisfaction during the transition to parenthood may be attributable to gender-based changes in sense of self and role arrangements that propel men and women down separate paths (C. P. Cowan & Cowan, 2000). Couples in the intervention group commented on the value of having a setting in which they were encouraged to discuss the changes, challenges, uncertainties, and disappointments they were experiencing as couples. Sharing these experiences with their partners and others may bring men and women closer together even as they have unique experiences during this transition.

We also believe the timing of the groups was important. The groups began 3 months prior to birth and continued until the babies were 3 months old. The prebirth meetings allowed couples to anticipate the changes and challenges they were about to experience before they had to attend constantly to a new infant. Following the birth, couples brought their babies to the weekly meetings, which increased the likelihood that participants would recognize the common challenges they faced as new parents.

Additional research is necessary to determine exactly which aspects of the intervention are necessary to its success. A critical task for future research is comparing the efficacy of different kinds of interventions to strengthen marriage during the transition to parenthood.

In today's society, most men and women becoming parents for the first time are virtually on their own when it comes to figuring out how to balance and address the needs of their new baby, their couple relationship, and their commitments to work outside the family. The declining marital satisfaction of the control couples in this study suggests that if it is left to new parents to work out this balance by themselves, the relationship between them will be vulnerable to strain. Our analyses indicate that although the 24-week couples group did not reduce the long-term incidence of divorce, there was strong support for the efficacy of the intervention in stemming the usually reported decline in marital satisfaction over a period of 5.75 years for the majority of couples who stayed together.

### References

- Barnett, R. C., Marshall, N. L., Raudenbush, S. W., & Brennan, R. T. (1993). Gender and the relationship between job experiences and psychological distress: A study of dual-earner couples. *Journal of Personality and Social Psychology, 64*, 794–806.
- Belsky, J., & Rovine, M. (1990). Patterns of marital change across the transition to parenthood. *Journal of Marriage and the Family, 52*, 109–123.
- Belsky, J., Spanier, G., & Rovine, M. (1983). Stability and change in marriage across the transition to parenthood. *Journal of Marriage and the Family, 45*, 567–577.
- Cherlin, A. J. (1981). *Marriage, divorce, remarriage*. Cambridge, MA: Harvard University Press.
- Christensen, A., & Heavey, C. L. (1999). Interventions for couples. *Annual Review of Psychology, 50*, 165–190.
- Clements, M. L., Stanley, S. M., & Markman, H. J. (2004). Before they said "I do": Discriminating among marital outcomes over 13 years. *Journal of Marriage and the Family, 66*, 613–626.
- Clulow, C. F. (1982). *To have and to hold: Marriage, the first baby and preparing couples for parenthood*. Aberdeen, Scotland: Aberdeen University Press.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, NJ: Erlbaum.
- Cowan, C. P., & Cowan, P. A. (1995). Interventions to ease the transition to parenthood: Why they are needed and what they can do. *Family Relations, 44*, 412–423.
- Cowan, C. P., & Cowan, P. A. (2000). *When partners become parents: The big life change for couples*. Mahwah, NJ: Erlbaum.
- Cowan, C. P., Cowan, P. A., & Heming, G. (2005). Two variations of a preventive intervention for couples: Effects on parents and children during the transition to elementary school. In P. A. Cowan, C. P. Cowan, J. Ablow, V. K. Johnson, & J. Measelle (Eds.), *The family context of parenting in children's adaptation to elementary school* (pp. 277–312). Mahwah, NJ: Erlbaum.
- Cowan, C. P., Cowan, P. A., Heming, G., Garrett, E., Coysh, W. S., Curtis-Boyles, H., & Boles, A. (1985). Transitions to parenthood: His, hers, and theirs. *Journal of Family Issues, 6*, 451–481.
- Cowan, P. A., & Cowan, C. P. (1988). Changes in marriage during the transition to parenthood: Must we blame the baby? In G. Y. Michaels & W. A. Goldberg (Eds.), *The transition to parenthood: Current theory and research* (pp. 114–154). Cambridge, England: Cambridge University Press.
- Cowan, P. A., Cowan, C. P., Schulz, M. S., & Heming, G. (1994). Prebirth to preschool family factors predicting children's adaptation to kindergarten. In R. D. Parke & S. G. Kellam (Eds.), *Exploring family relationships with other social contexts* (pp. 75–114). Hillsdale, NJ: Erlbaum.
- Duncan, S. W., & Markman, H. J. (1988). Intervention programs for the transition to parenthood: Current status from a prevention perspective. In G. Y. Michaels & W. A. Goldberg (Eds.), *The transition to parenthood: Current theory and research* (pp. 270–310). Cambridge, England: Cambridge University Press.
- Gibbons, R. D., Hedeker, D., Elkin, I., Waternaux, C., Kraemer, H. C., Greenhouse, J. B., et al. (1993). Some conceptual and statistical issues in analysis of longitudinal psychiatric data: Application to the NIMH Treatment of Depression Collaborative Research Program dataset. *Archives of General Psychiatry, 50*, 739–750.
- Giblin, P., Sprenkle, D. H., & Sheehan, R. (1985). Enrichment outcome research: A meta-analysis of premarital and family interventions. *Journal of Marital and Family Therapy, 11*, 257–271.
- Gottman, J. M. (1994). *What predicts divorce? The relationship between marital processes and marital outcomes*. Hillsdale, NJ: Erlbaum.
- Gottman, J. M., & Levenson, R. W. (1988). The social psychophysiology of marriage. In P. Noller & M. A. Fitzpatrick (Eds.), *Perspectives on marital interaction* (pp. 182–200). Clevedon, England: Multilingual Matters.
- Gottman, J. M., & Levenson, R. W. (2002). A two-factor model for predicting when a couple will divorce: Exploratory analyses using 14-year longitudinal data. *Family Process, 41*, 83–96.
- Grych, J. H., & Fincham, F. D. (1990). Marital conflict and children's adjustment: A cognitive-contextual framework. *Psychological Bulletin, 108*, 267–290.
- Grych, J. H., Fincham, F. D., Jouriles, E. N., & McDonald, R. (2000). Interparental conflict and child adjustment: Testing the mediational role of appraisals in the cognitive-contextual framework. *Child Development, 71*, 1648–1661.
- Hahlweg, K., & Markman, H. J. (1988). Effectiveness of behavioral marital therapy: Empirical status of behavioral techniques in preventing and alleviating marital distress. *Journal of Consulting and Clinical Psychology, 56*, 440–477.
- Hawkins, A. J., Gililand, T., Christiaens, G., & Carroll, J. S. (2002). Integrating marriage education into perinatal education. *Journal of Perinatal Education, 11*, 1–10.
- Heinicke, C. M. (2002). *The transition to parenting*. Mahwah, NJ: Erlbaum.
- Heinicke, C. M., Fineman, N. R., Ruth, G., Recchia, S. L., Guthrie, D., & Rodning, C. (1999). Relationship-based intervention with at-risk mothers: Outcome in the first year of life. *Infant Mental Health Journal, 20*, 349–374.
- Horn, W. (2002). Welfare reform reauthorization: Promoting self-sufficiency, protecting children, and strengthening marriage. *Poverty Research News, 6*, 3–6.
- Jacobson, N. A., & Christensen, A. (1998). *Acceptance and change in couple therapy: A therapist's guide to transforming relationships*. New York: Norton.
- Johnson, S. M. (2004). *The practice of emotionally focused couple therapy: Creating connection* (2nd ed.). New York: Brunner-Routledge.
- Karney, B. R., & Bradbury, T. N. (1997). Neuroticism, marital interaction, and the trajectory of marital satisfaction. *Journal of Personality and Social Psychology, 64*, 221–242.
- Kiecolt-Glaser, J. K., & Newton, T. L. (2001). Marriage and health: His and hers. *Psychological Bulletin, 127*, 472–503.
- LeMasters, E. E. (1957). Parenthood as crisis. *Marriage and Family Living, 19*, 352–355.
- Locke, H., & Wallace, K. (1959). Short marital adjustment and prediction tests: Their reliability and validity. *Marriage and Family Living, 21*, 251–255.
- MacDermid, S. M., Huston, T. L., & McHale, S. M. (1990). Changes in

- marriage associated with the transition to parenthood: Individual differences as a function of sex-role attitudes and changes in the division of household labor. *Journal of Marriage and the Family*, 52, 475–486.
- Markman, H. J., Floyd, F. J., Stanley, S. M., & Storaasli, R. D. (1988). Prevention of marital distress: A longitudinal investigation. *Journal of Consulting and Clinical Psychology*, 56, 210–217.
- Markman, H. J., Renick, M. J., Floyd, F. J., Stanley, S. M., & Clements, M. (1993). Preventing marital distress through communication and conflict management training: A 4- and 5-year follow-up. *Journal of Consulting and Clinical Psychology*, 61, 70–77.
- McHale, S. M., & Huston, T. L. (1985). The effect of the transition to parenthood on the marital relationship. *Journal of Family Issues*, 6, 409–435.
- O'Brien, M., & Peyton, V. (2002). Parenting attitudes and marital intimacy: A longitudinal analysis. *Journal of Family Psychology*, 16, 118–127.
- Raudenbush, S., Bryk, A., Cheong, Y. F., & Congdon, R. (2000). *HLM5: Hierarchical linear and nonlinear modeling*. Lincolnwood, IL: SSI.
- Raudenbush, S. W., Brennan, R. T., & Barnett, R. C. (1995). A multivariate hierarchical model for studying psychological change with married couples. *Journal of Family Psychology*, 9, 161–174.
- Sayers, S. L., Kohn, C. S., & Heavey, C. (1998). Prevention of marital dysfunction: Behavioral approaches and beyond. *Clinical Psychology Review*, 18, 713–744.
- Shadish, W. R., Montgomery, L. M., Wilson, P., Wilson, M. R., Bright, I., & Okwumabua, T. (1993). Effects of family and marital psychotherapies: A meta-analysis. *Journal of Consulting and Clinical Psychology*, 61, 992–1002.
- Shapiro, A. F., & Gottman, J. M. (2003, September). Bringing baby home: Effects on marriage of a psycho-education intervention with couples undergoing the transition to parenthood, evaluation at 1-year post intervention. In A. J. Hawkins (Chair), *Early family interventions*. Symposium conducted at the meeting of the National Council on Family Relations, Vancouver, British Columbia, Canada.
- Shapiro, A. F., Gottman, J. M., & Carrere, S. (2000). The baby and the marriage: Identifying factors that buffer against decline in marital satisfaction after the first baby arrives. *Journal of Family Psychology*, 14, 59–70.
- Shereshfsky, P., & Yarrow, L. J. (Eds.). (1973). *Psychological aspects of a first pregnancy and early postnatal adaptation*. New York: Raven Press.
- Shiono, P. H., & Quinn, L. S. (1994). Epidemiology of divorce. *Future of Children*, 4, 15–28.
- Silliman, B., Stanley, S. M., Coffin, W., Markman, H. J., & Jordan, P. L. (2002). Preventive interventions for couples. In H. A. Liddle, D. A. Santisteban, R. F. Levant, & J. H. Bray (Eds.), *Family psychology: Science-based interventions* (pp. 123–146). Washington, DC: American Psychological Association.
- Spanier, G. B. (1976). Measuring dyadic adjustment: New scales for assessing the quality of marriage and similar dyads. *Journal of Marriage and the Family*, 38, 15–28.
- Stanley, S. M., Blumberg, S. L., & Markman, H. J. (1999). Helping couples fight for their marriages: The PREP approach. In R. Berger & M. T. Hannah, (Eds.), *Preventive approaches in couples therapy* (pp. 279–303). Philadelphia: Brunner/Mazel.
- Waite, L. J., & Gallagher, M. (2000). *The case for marriage: Why married people are happier, healthier, and better off financially*. New York: Doubleday.
- Whisman, M. A. (2001). The association between depression and marital dissatisfaction. In S. R. Beach (Ed.), *Marital and family processes in depression: A scientific foundation for clinical practice* (pp. 3–24). Washington, DC: American Psychological Association.
- White, L. K., & Booth, A. (1985). The transition to parenthood and marital quality. *Journal of Family Issues*, 6, 435–450.
- Willett, J. B. (1994). Measurement of change. In T. Husen & T. N. Postlethwaite (Eds.), *The international encyclopedia of education* (2nd ed., pp. 671–678). Oxford, England: Pergamon Press.

Received August 20, 2004

Revision received August 3, 2005

Accepted August 8, 2005 ■