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Effects on Marriage of a Psycho-Communicative-Educational Intervention With Couples Undergoing the Transition to Parenthood, Evaluation at 1-Year Post Intervention

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This article reports the results on marriages of a randomized clinical trial for couples experiencing the transition to parenthood. In addition to a control group, there was 1 intervention, a psycho-communicative-educational 2-day couples' workshop. The outcome measures were marital quality, postpartum depression, and expressed hostile affect (assessed using an observational coding of marital conflict discussions videotaped in couples' homes). Data were collected at 3 time points: before the intervention in the last trimester of pregnancy, when the baby was 3 months old, and when the baby was 1 year old. Results showed that, in general, the preventive intervention using a psycho-communicative- educational format was effective compared to a control group for wife and husband marital quality, for wife and husband postpartum depression, and for observed wife and husband hostile affect scored from videotapes of marital conflict.

This article reports the results of a preventive intervention study with couples experiencing the transition to parenthood. It is now well accepted that the transition to parenthood can be stressful for marriages and parent–infant relationships. This was not always the case. In 1957, LeMasters claimed that 83% of new parents went

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through moderate to severe crisis in the transition from being a couple to becoming parents. His claims were initially refuted and subsequently strongly debated by scholars. LeMasters's claims were based entirely on the results of retrospective studies. However, beginning in the 1980s, prospective longitudinal studies began to appear that primarily confirmed LeMasters's claims (for reviews see Belsky & Pensky, 1988; Cowan & Cowan, 1988; Huston & Holmes, 2004; Huston & Vangelisti, 1995). It is now generally accepted that the transition to parenthood can be a stressful period for many marriages (Stamp, 1994) and, through decreased marital quality and parent–child interaction (Huston & Vangelisti, 1995), a potentially stressful period for the development of the baby, in part because the quality of the marriage is known to influence the quality of the parent–child relationship (Stafford & Dainton, 1995) and thus child development (Cowan & Cowan, 2000).

Furthermore, the phenomena of the transition to parenthood are fairly consistent across studies. These phenomena include the following reliable results: (a) marital conflict increases dramatically (Belsky & Kelly, 1994); (b) marital quality decreases precipitously for 40% to 67% of couples beginning within the 1st year of the baby's life (Shapiro, Gottman, & Carrère, 2000); (c) marital quality consistently declines, first for wives and then later for husbands (Belsky & Pensky, 1988); marital satisfaction is known to be at a high in the last trimester of pregnancy and generally declines thereafter (Cowan et al., 1985; Heinicke, Guthrie, & Ruth, 1997; Raush, Barry, Hertel, & Swain, 1974; Waldron & Routh, 1981); (d) there is great variability in the new parents' relationships with the baby; in path models, this variability is affected by marital quality (Cowan & Cowan, 2000; Huston & Vangelisti, 1995); (e) there is great variability in couples in the balance between life stresses, including work–family balance, social support, and the extent of the father's involvement with housework and child care chores (vs. his job; Cowan & Cowan, 1988); and (f) there is great variability in the continued involvement of fathers with their babies and with the marriage (with most fathers for whom marital quality declines distancing from both the baby and the marriage), with strong consequences for both marital quality and child development. There are many other more specific concomitants of the transition such as decreased individual adaptations, including increased risk for depression; marked changes in the marital relationship including asymmetry in the division of household labor (with wives typically carrying the larger share), this asymmetry is related to declining marital quality (Cowan et al., 1985); less time available for conversation and sex; and increased sleeplessness, fatigue, irritability, and depression (Cowan & Cowan, 2000).

It is well known that half of all the divorces in the family life course occur in the first 7 years of marriage (Cherlin, 1981); hence, these early years are clearly a period of high risk for the survival of marriages. The transition to parenthood and its associated decline in marital quality is part of this cascade toward divorce. This is not to say that avoiding having children is an answer to this early cascade toward

divorce. In fact, in the Cowan and Cowan (2000) study, the divorce rate in a 5-year period was 50% for childless couples and 25% for couples who went on to become parents. It is the most happily married newlyweds who typically go on to become parents (Shapiro et al., 2000).

HOSTILE MARITAL CONFLICT AND DEPRESSED AFFECT HAVE SERIOUS CONSEQUENCES FOR BOTH MARITAL STABILITY AND CHILD OUTCOMES

As we noted, Belsky and Kelly (1994) reported that marital conflict increases dramatically during the transition to parenthood. We also know from the direct observation of marital conflict patterns in the laboratory that the behaviors of contempt, defensiveness, criticism, and stonewalling are predictive of divorce (Gottman, 1994, 1996) or of continued decline in marital quality if couples stay married (Gottman, Coan, Carrère, & Swanson, 1998). The phenomenon of destructive marital conflict and divorce also can have serious consequences for the development of children. Research in our laboratory and by other investigators has linked destructive marital conflict to attentional and emotion regulation problems and psychopathology in children. Marital conflict, hostile affect, distress, and dissolution have also been linked to negative childhood outcomes including depression, withdrawal, poor social competence, and conduct-related disorders (e.g., Cowan & Cowan, 1987; Cummings & Davies, 1999; Dadds, Atkinson, Turner, Blums, & Lendich, 1999; Davies & Cummings, 1994; Easterbrooks, 1987; Eisenberg, Fabes, & Murphy, 1996; Gottman & Katz, 1989; Harold, Osborne, & Conger, 1997; Hetherington, 1999; Katz & Gottman, 1991; Lindahl & Malik, 1999; Osborne & Fincham, 1996; Peterson & Zill, 1986; Porter & O'Leary, 1980; Rutter, 1971; Whitehead, 1979). For example, Hetherington (1999) reported that in high marital conflict families (both those families that later experience a divorce and nondivorcing families) children score high on both internalizing and externalizing problems and lower on social competence, social responsibility, and self-esteem.

Depression becomes more likely during the transition to parenthood (Gorman, 1997; Walther, 1997), especially for new mothers, and even mild depressed affect has been shown to have serious consequences for the emotional development of infants (e.g., Donovan, Leavitt, & Walsh, 1997; Field, 1998).

Hence, based on research, we can create a list of components that need to be included in a successful prevention program for the transition to parenthood. That list needs to include being able to cope with increasing marital conflict, hostile affect, being able to cope with postpartum depression, and changing gender roles that are characteristic of the transition to parenthood. The continued involvement of fathers with their babies also needs to be added to that list.

Father's Involvement in Family Tasks

There is evidence that unhappily married fathers withdraw from their families. For example, Dickstein and Parke (1988) found that babies do not socially reference to unhappily married fathers, but they still do socially reference to unhappily married mothers. Cowan and Cowan (2000) reported that in the transition to parenthood much of marital conflict centers on the inequities in father's versus mother's involvement with the family. The Cowans wrote that these inequities are inevitable in the first few months of the baby's life, but that for most couples they continue through the 2nd year of life, long past the time when many women have returned to work. There is growing evidence that the father's continued involvement with his infant bodes well for the future of the marriage and for the infant's intellectual and emotional development (Lamb, 1997; Lerman & Ooms, 1993; Kimmel & Messner, 1995; Parke & Brott, 2001). Thus, it should be an important objective of any transition to parenthood intervention to keep fathers involved with their babies.

MARITAL INTERVENTIONS FOR THE TRANSITION TO PARENTHOOD

Given the importance of this developmental transition for couples, it is perhaps surprising that so little research on preventive intervention has been done and also that so little of it has focused on managing the increased conflict that characterizes the transition to parenthood. There have been two published marital intervention studies with normal, non-high-risk couples making the transition to parenthood and one intervention study focusing on the transition only for wives. None of these interventions focused on conflict regulation skills for couples going through the transition to parenthood.

One marital intervention was the First Baby Project at the Tavistock Institute of Marital Studies in London, England (Clulow, 1982). This project offered expectant couples a series of six groups held monthly through the last trimester of pregnancy and the first 3 months of parenthood. Clulow reported mixed results from this intervention. Attendance of couples was sporadic after the baby's birth, and the couples often did not use the groups to work on marital problems. Clulow was discouraged about the potential of a group intervention to help couples with marital issues. There was no quantitative assessment of the effects of the intervention.

An early nonmarital transition to parenthood study with some marital outcomes focused on aiding expectant mothers to prepare for the stresses of pregnancy, delivery, and parenthood (Shereshefsky & Yarrow, 1973). In this study, health care professionals trained in a type of counseling described as "anticipatory guidance" worked with expectant mothers through individual therapy sessions. Several therapy sessions were offered to husbands, but none of the husbands accepted the offer.

The study found that 6-months post birth, the mothers who received the therapy maintained their prebaby marital satisfaction levels, whereas the marital satisfaction level in the control group and alternative counseling declined. Research on marriage over the life course has known for some time that there are high levels of marital satisfaction in the last trimester of pregnancy that subsequently decline (Rollins & Feldman, 1970). Hence, the outcome of no decline in marital quality, rather than increases, from the last trimester of pregnancy is the desired outcome of preventative interventions.

The third study was a randomized clinical trial with married couples. The Cowans' Becoming A Family Project used a randomized clinical trial with 24 expectant couples assigned to the intervention and 24 control expectant couples, with an additional 24 childless couples used as a matched control group (assessing whether they changed in similar ways in five measurement domains). They used an intervention format similar to Clulow's: Couples met in groups of four couples each, and the groups discussed the pleasures and strains of the transition and how to minimize their individual and marital stresses. The groups were run by male–female teams of doctoral students in clinical psychology at University of California Berkeley.

There were positive intervention effects in the Cowans' program for both husbands and wives and for their relationship. The experimental group men were more involved in their roles as fathers than the control group men; wives in the experimental group maintained their prior level of marital quality, whereas the marital quality of control group women deteriorated. Both men and women in the experimental group reported fewer negative changes in their sexual relationship than was the case for control group. There were significant effects on marital stability at 18 months, with a 12.5% separation and divorce rate for control group couples and a 0% rate in the experimental group.

DERIVING AN EMPIRICALLY BASED INTERVENTION: OUR TRANSITION TO PARENTHOOD STUDY

We pursued a strategy of empirically developing the components of an intervention using data on what initial newlywed process variables might predict whether a couple will or will not experience a drop in marital quality following the birth of their baby. We conducted a 6-year longitudinal study of the transition to parenthood starting with 130 newlywed couples. Few studies following couples longitudinally as they become parents have included time points several years after the birth of the first child (Belsky & Rovine, 1990; Cowan, Cowan, & Kerig, 1993). Our study was unusual in that we did not begin studying couples' relationships in the 3rd trimester of pregnancy (Belsky, Spanier, & Rovine 1983; Cowan & Cowan 1988); the study began with couples a few months after their wedding. Only a

handful of longitudinal studies have examined the transition to parenthood from a perspective that includes a time period before the wife's pregnancy (Crawford & Huston, 1993; McHale & Huston, 1985; Raush et al., 1974). This is unfortunate, because Raush et al. (1974) demonstrated that the nature of the marriage has already changed dramatically once the wife is pregnant. For example, Raush et al. found that husbands were more conciliatory during their wives' pregnancies than either before pregnancy or after the birth of the child.

We used our previous research to hypothesize what might discriminate those couples who would experience the drop in marital quality in wives, which characterizes the majority of couples going through the transition to parenthood. We asked, "Is there anything in the early months of newlywed marriages that can predict whether a couple's marriage will be at risk for decline once the first baby arrives?" Using growth curve analysis for couples who became parents, we found that marital quality declined for 67% of the wives and remained stable or increased for 33% of wives. What discriminated the two groups even several months after the wedding? Among our findings (Shapiro et al., 2000) were the following: We found that wives who eventually became mothers had relatively stable or increasing marital quality during the transition to parenthood if, in our newlywed oral history interview, the husband had expressed a higher level of fondness and admiration toward his wife and the husband and the wife had expressed high awareness of the wife's inner world and knowledge about their relationship (a dimension we called making a "love map" of one's partner's psychological world). In contrast, there was a decline in marital quality for wives who became mothers if, in the newlywed oral history interview, the husband had expressed negativity toward the wife, the husband had expressed disappointment in the marriage, or both the husband and wife had felt their lives were chaotic (meaning they had little control of important events that occurred). The negativity and disappointment in the oral history interview are also consistently related to more dysfunctional and hostile styles of conflict regulation in our videotaped marital interactions (e.g. Buehlman, Gottman & Katz, 1992), which also included increased physiological activation during conflict (highlighting the importance of physiological soothing during conflict discussions). Thus, this research has revealed that coping with conflict is not adequate. We need to add working on the couple's friendship and intimacy to our list of components of a successful prevention program for the transition to parenthood. We also noticed that many of our couples, even those who were college educated, knew very little about parenting or about the development of infants, particularly infants' psychological development.

[1]Due to ethical human participants considerations, couples in all the groups were not asked to avoid participating in other interventions, although the support groups, therapy, or other interventions the couples did participate in were tracked.

Using these results, and the results of other longitudinal research studies on the transition to parenthood, we designed a 2-day psycho-communicative-educational workshop for transition- to-parenthood couples, with lectures, role plays, and exercises that would inform them about the typical experience of couples going through the transition to parenthood; build skills in coping with conflict and the maintenance of friendship and intimacy, especially with issues that our own and other previous research had identified as correlated with the decline in marital quality transition to parenthood; keep fathers involved with their babies; teach couples about psychological milestones their baby's development; and teach couples basic tips on how to play with their babies. We now describe this intervention in greater detail.

The Bringing Baby Home Workshop

A psycho-communicative-educational intervention was designed because it can reach many people with less investment of resources than therapy. This workshop was designed to help expectant and new parents make a smooth, positive transition to becoming a family. The workshop focused on three goals: (a) strengthening the couple's relationship and preparing them for the marital difficulties typically associated with the transition to parenthood; (b) facilitating the father's as well as the mother's involvement in the family (Parke, 1999); and (c) giving expectant and new parents basic information about infant psychological development and giving them some basic parenting tips, particularly on how to play with babies (Fivaz-Depeursinge & Corboz-Warnery, 1999; Gianino & Tronick, 1988; Stern, 1985). This psycho-communicative-educational weekend workshop was designed to fill what we feel is a gap in the current hospital-based birth preparation system, which currently focuses only on the delivery of the baby. The Bringing Baby Home workshop consists of a combination of lectures, demonstrations, role plays, videotapes, and communication exercises that help couples work on their relationship issues and focus on promoting the positivity in their relationship, enhancing and maintaining the quality of their friendship, creating a shared meaning system as new parents, and managing conflict. The second author and his wife, who are clinical psychologists and the developers of the workshop, personally facilitated the workshop. A workshop manual was written so that the workshop could eventually be run by family educators rather than by the more highly trained doctoral students in clinical psychology used in the Cowans' study (1995). Couples in both the workshop and workshop-plus-support group received the workshop either while they were pregnant or shortly after the birth of their first baby. Detail about the workshop follows.

There were 18 exercises the workshop during which each couple worked together on a particular task: Exercise 1: The Emotional Communication Game; Exercise 2: Knowing Each Other's Inner Worlds: Creating Love Maps; Exercise 3:

Making Love Maps for Everyday Life Together; Creating Rituals of Connection; Exercise 4: Creating Meaningful Rituals of Emotional Connection; Exercise 5: Building the Fondness and Admiration System; Exercise 6: Creating a Culture of Appreciation in Your Family; Exercise 7: Turning Toward One Another Instead of Away: Building the Emotional Bank Account; Exercise 8: The Daily Stress-Reducing Conversation: Deposits to Your Emotional Bank Account; Exercise 9: Physiological Self-Soothing: Flooding and Self-Soothing and Taking Breaks; Exercise 10: Develop a Break Ritual for Flooding; Problem Solving in 4 Steps; Exercise 11: Step One: Soften Your Startup; Exercise 12: Who Does What in the Marriage—Anticipate and Negotiate; Step Two: Repair Interaction and De-Escalate Conflict; Exercise 13: Step Three: Repair and De-Escalate—Formalizing the Repair Process—The Repair Checklist; Exercise 14: Step Four: Compromise and Accept Influence: The Art of Compromise; Fighting in Front of Babies and Children—What the Research Concludes; Exercise 15: Honoring Mothers and Fathers: Fishbowl About the Emotional Transition for Each Gender; Exercise 16: Building More Rituals of Emotional Connection, How Can Dads Stay Involved with Their Kids? Preserving Sex and Romance in the Marriage; Step 1: Building More Rituals of Emotional Connection; Step 2: Is There Sex After Kids? The Big "Yes Buts" About Scheduling Sex, The Big "Yes Buts" About Romantic Dates; Plan Your Romance; Exercise 17: Lecture and Discussion: What Do You Need to Know About Your Baby? Your Baby's Psychological Development: Milestones; and Exercise 18: Building Shared Values.

There were lectures, demonstrations, role plays, and videotapes on the following topics: (a) the basic questions—What is the transition to parenthood like? What are the warning signs of marital meltdown? What can be done to avoid meltdown? How can dads stay involved with their kids? What do we need to know about our baby? Fundamental conclusion about the transition: emotional communication is important; (b) understanding marital communication: the sound relationship house theory; (c) maintaining friendship, romance, and passion—love maps, fondness, and admiration; bids for emotional connection; and turning toward one another; (d) positive sentiment override instead of negative; (e) conflict management and regulation in solvable and perpetual problems; (f) physiological self-soothing during conflict; (g) knowing and honoring your partner's life dreams—and the philosophical transformations of the transition to parenthood; (h) building and maintaining a shared meaning system; and (i) interacting with new babies, using Monica Hedenbro's film from the Karolinska Institute in Stockholm, Sweden, called "The Dialogue of Love."[2]

[2]In our study we created a brief teaching video that added a module on playing with the baby—coordination and avoiding overstimulation—reading baby's nonverbal cues that was based on the first author's dissertation.

METHODS

Participants

In 1999, 38 expectant and new parents were recruited from the Puget Sound area in Washington. Couples were recruited through birth preparation classes at the Swedish Medical Center in Seattle and through interest in the study generated by an article in the *Seattle Times.* Couples were eligible for the study if they were either expecting a baby or had a baby that was born within 3 months of their first interview. In addition, couples were required to be married, and both the husband and wife were required to be older than 18 years. Eligible couples were invited to participate in a 3-year longitudinal study examining the effectiveness and timing of a workshop we developed for couples and following their family's development. The study reports on the transition these families made from the time we conducted our first visit with them through their child's 1st birthday.

The sample approximated the demographics of Seattle in that it was predominantly a White middle class sample with ethnic diversity consistent with (but not exactly equal to) the city of Seattle's planning report (City of Seattle Planning Department, 1990) demographic study. Specifically, the racial and ethnic distribution of our sample included 12% Asian American couples, 5% Hispanic American couples, and 5% of other non-Euro-American background (African American, Native American, or Hawaiian Islander). The study was open to parents expecting both first and later children, but only two couples expecting a second child volunteered to participate in the study. Thirty-two of the couples were pregnant at the time of their first visit, and seven had given birth to a baby within 3 weeks of their first visit. The average husband age was 35.4 years old (SD = 6.0), the mean wife age was 32.5 (SD = 4.3), and both the average husband and wife had completed a college degree with some wives and husbands having completed only some college and some having completed a graduate degree. The average wife marital quality at the time of recruitment as measured on the Locke-Wallace (1959) Marital Adjustment Test was 120.21 (SD = 22.35), and the mean husband marital quality was 117.59. These scores reflect the relatively high marital quality that would be expected in a sample of pregnant couples expecting their first baby based on previous research (Raush et al., 1974; Shapiro et al., 2000). There has been some attrition in this sample over the time we have followed the couples. Specifically, three families dropped out of the study shortly after our first visit with them, two due to family illness and one due to scheduling conflicts. In addition, one family moved shortly after our first visit with them and we were not able to locate them, and numerous couples have had difficulties that have made it impossible for us to come to their home during the time of one of our scheduled visits, or they did not return their questionnaires.

Procedures

Experimental Design

The study used an experimental design in which couples were randomly assigned to one of two groups: (a) a workshop group or (b) a control group. On deciding to participate in the study, couples were randomly assigned to either an experimental group, which received a workshop at the beginning of the study, or a control group, which was promised a workshop at the end of the time they were followed (when the babies were 3 years old). Specifically, 18 couples were assigned to the workshop group, and 20 were assigned to the control group. No significant differences were found in any of the demographic data examined between the workshop group and the control group.

Repeated Measures

All families are being followed over a 3-year period to assess the impact of the workshop and support groups for our experimental couples relative to the controls. This study focuses on the first 1½-year period that families were followed, from each couple's first visit through their baby's 1st birthday. We have planed five developmentally timed home visits to follow each family and have conducted three of the five home visits at the time of this writing. Our first visit with each couple was a preintervention visit, taking place before the workshop was given or support groups had started, and was conducted either while the couple was expecting their baby or shortly after the baby's birth. The second home visits took place after the workshop and when the baby in each family was 3 months old. The third visit took place close to the first birthday of the baby in each family, after the workshop had been completed. At each time point, we asked couples to participate in a marital interaction task in which they discussed an ongoing area of disagreement for 15 min and asked couples to fill out a battery of questionnaires.

Questionnaires

At the time of our first visit, a short demographic inventory was administered that assesses education, income, ethnicity, and other demographic information. The following questionnaires were administered repeatedly on each of the five occasions of measurement.

Marital quality. By far the major measure for assessing the outcome of marital interventions has been Locke-Wallace Marital Adjustment Test (MAT; Locke & Wallace, 1959) or the very closely related Spanier Dyadic Adjustment Scale (DAS; Spanier, 1976). The DAS was actually derived directly from the Locke-Wallace items. Effect sizes in meta-analyses of marital therapy studies have been estimated almost entirely based on these two scales (Shadish, Montgomery,

Wilson, Bright, & Okuwambua, 1993; Shadish, Ragsdale, Glaser-Renita, & Montgomery, 1995; see Hahlweg & Markman, 1988; and Bray & Jouriles, 1995 for a summary of these meta-analyses). However, the Locke-Wallace scale is inappropriate for assessing outcome in most marital interventions. The reason for this contention is that there are two ways of getting a high score on this scale. One way to get a high score is to rate one's relationship as closer to perfectly happy (the scale ranges from 0 [*very unhappy*] to 15 [*happy*] to 35 [*perfectly happy*]), a heavily weighted single item, along with several other items that assess overall happiness. Presumably, these items tap a marital happiness dimension. However, the second way of obtaining a high score is to not disagree very much, rating the following items closer to agree (on a scale that ranges from *always disagree* to *always agree*): handling family finances, matters of recreation, demonstrations of affection, friends, sex relations, conventionality (right, good, or proper conduct), philosophy of life, and ways of dealing with in-laws. Taken together, the disagreement items account for much of the range in the combined marital quality scale, from 0 to 53, which is a sizable part of the total score. Hence, one way couples can score high on the Locke-Wallace is to be conflict avoiders. Thus, the total marital satisfaction score does not control for conflict avoidance in its assessment of marital quality. Conflict-avoiding couples do, in fact, exist (see Gottman, 1993, 1994; Raush et al., 1974). However, most of the couples' intervention programs that have been researched have focused on marital conflict. They have included the admonition for couples to disagree, but they have provided training for couples to conflict in a more constructive fashion. Hence, if these programs were successful, couples would find themselves facing their conflicts more directly and, hence, at least initially, disagreeing more; therefore, these programs would be penalizing themselves by using the Locke-Wallace as a means for evaluating effectiveness. It might even be more likely that control-group couples would avoid conflict than intervention-group couples. The total Locke-Wallace score may consequently be problematic for assessing marital quality.

Therefore, in this study, only the Locke-Wallace items that assessed global happiness were summed to create a marital quality score. These items were the items in which couples rate their overall degree of happiness, their assessment of who gives in when decisions are made (with mutual give and take scored highest), their assessment of whether they engage in outside interests together, and their assessment of the extent to which they spend leisure time together.[3] The Cronbach alpha for these items was .76. In general, based on longitudinal research in the life course, because the marital quality during the last trimester of pregnancy is generally quite high, the objective of preventive interventions with respect to marital quality would seem to be to

[3]Other items that assessed global happiness were "if you had it to do over again would you marry the same person, marry a different person, or not marry at all," and how much one confides in one's mate were not included because at least one cell in the design had no variability.

avoid the expected decline in marital quality (particularly for wives) that occurs with most marriages rather than to create increases in marital quality as a result of intervention (see Markman, Floyd, Stanley, & Storaasli, 1988).

Postpartum depression. The Derogatis Symptom Checklist 90-item version (SCL-90) was administered. The SCL-90 has demonstrated high levels of reliability and validity in previous research (Derogatis, Lipman, & Covi, 1973). The total score was computed at each time point because Zahn-Waxler, Duggal, and Gruber (2002), in reviewing the effects of parental depression on children, noted that many psychological disorders are often comorbid with parental depression, which is common in the transition to parenthood. For this reason, the total score of the SCL-90 was used in this study as an index of postpartum depression; it is the sum of the following scales: somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, anger-hostile affect, phobic anxiety, paranoid ideation, psychoticism, poor appetite, overeating, trouble falling asleep, awakening in early morning, restless or disturbed sleep, thoughts of death or dying, and feelings of guilt. The Cronbach alpha for these subscales was .77. In general, based on longitudinal research, the objective of preventive interventions with respect to postpartum depression should be to avoid the expected increase that occurs in many marriages during the transition to parenthood.

Marital Interaction Procedure

To supplement the self-report measures of perceptions of marital quality and postpartum depression, it was considered important to obtain observational data of actual conflictual marital interaction to more directly examine interactive marital behavior. During each of our home visits, couples were asked to complete the Couple's Problem Inventory (Gottman, Markman, & Notarius, 1977), which measures the severity of various marital problems. Items include standard marital problem areas such as in-laws, finances, and sex. Each item was rated on a scale from 0 to 100, with higher scores signifying that the problem is considered more severe. The researcher facilitating the home visit then reviewed the results of this questionnaire with couples to reflect on the issues that they rated as most problematic and helped them to choose several issues to use as the bases for a discussion of disagreement. This process of interviewing the couple about their areas of disagreement helps to ensure that the couple has identified a good, clear, current, and emotional area to discuss. After choosing topics for the discussion, couples were asked to discuss their chosen topics for 15 min. Portable high-8 Sony videocameras were used to videotape these discussions, and couples were asked to sit facing each other at a 45-degree angle such that both the husband and wife could be seen clearly for coding in one camera view. Once the camera was rolling, staff left the room during the marital discussion. Observational data were considered important in this research

because self-reported hostile affect and depression were considered more subject to social desirability response bias than observed behavior at home.

Behavioral coding of the marital interaction. The Specific Affect Coding System (SPAFF; Gottman, McCoy, Coan, & Collier, 1996) was used to code the couples' conflict interactions. The system was used to index specific affects expressed during the session of marital problem resolution. SPAFF focuses solely on the affects expressed. The system draws on facial expression (based on Ekman and Friesen's Facial Action Coding System; Ekman & Friesen, 1978), vocal tone, and speech content to characterize the emotions displayed. Coders categorized the affects displayed using 5 positive codes (interest, validation, affection, humor, joy), 10 negative affect codes (disgust, contempt, belligerence, domineering, anger, fear and tension, defensiveness, whining, sadness, stonewalling), and a neutral affect code.

Summary variable from observational coding. One summary code was created for theoretical and data reduction purposes. The following negative affect codes were summed to form a hostile affect summary code: contempt, belligerence, criticism, defensiveness, whining, and stonewalling; stonewalling is listener withdrawal, that is, the absence of the usual listener back-channel cues (see Duncan & Fiske, 1977). These codes were selected because they have been predictors of divorce in previous research (e.g., Gottman, 1994). In general, based on longitudinal research, the objective of preventive interventions with respect to marital hostility would seem to be to avoid the expected increase that occurs in many marriages during the transition to parenthood.

Eighty percent of the videotapes were coded by two independent observers using a computer-assisted coding system that automated the collection of timing information; each coder noted only the onset of each code. A time-locked confusion matrix for the entire videotape then was computed using a 1-sec window for determining agreement of each code in one observer's coding against all of the other observer's coding (see Bakeman & Gottman, 1986). A kappa was calculated at the end of each interaction coded, and only kappas greater than a 0.6 were accepted, or the tape was recoded by two other coders. The mean kappa for the entire study was 0.63, with an average free marginal kappa of 0.80. The diagonal versus the diagonal-plus-off-diagonal entries in these matrices also entered into a repeated measures analysis of variance using the method specified by Wiggins (1977). We computed the Cronbach alphas for each code as the ratio of the mean square for observers minus the error mean square and the mean square for observers plus the error mean square (see also Bakeman & Gottman, 1986). The Cronbach alpha generalizability coefficients ranged between .65 and .99 and averaged .91 for the entire coding. Because the data were collected in the couple's home and not in our standard laboratory, some of the discussions did not last exactly 15 min, or 900 sec. The data were proportions of each

of the two summary codes; in cases in which there were fewer than 900 sec coded, the total number of seconds was used as the denominator.

Experimental Design and Analyses

There were two groups, an experimental (workshop) group and a control group. There were three time points of assessment for this articles: the preintervention time point, the 3-month time point (when the babies were approximately 3 months old), and the 1-year time point (when the babies were approximately 1 year old). There was also a repeated measures spouse factor (husband and wife). The three dependent variables of the study were marital quality, postpartum depression, and hostile affect. Missing data were replaced with the mean of each group at each time point. Effect sizes are computed for the interventions in this study.

RESULTS

Marital Quality

The 2 × 2 × 3 analysis of variance resulted in a statistically significant quadratic Group × Time interaction effect: linear $F(1, 32) = 1.59$, n.s., quadratic $F(1, 32) = 5.36$, $p = .027$; a significant quadratic Group × Time × Spouse effect: linear $F(1, 32) = .04$, n.s., quadratic $F(1, 32) = 7.42$, $p = .01$; and significant Spouse × Group effect: $F(1, 32) = 13.98$, $p < .001$. Husbands' marital quality in the control group plummeted from 3 months to 1 year, whereas it increased in the workshop group during this period, $t(32) = 2.64$, $p < .01$. Wives' marital quality declined linearly in the control group but remained stable in the workshop group. To control for the initial (but nonsignificant) difference in the wives' pretest marital quality, the (1-year minus pretest) change in marital quality was computed. The t ratio for differences between control and workshop groups on this change variable was $t(32) = 2.53$, $p < .02$. Hence, the changes in the two groups were significant, independent of the different initial levels. Wives' overall marital quality was higher than husbands' in the control group and lower than men in the workshop group. These results are graphed as Figure 1.

To summarize, relationship quality stayed stable in the workshop group, but in the control group relationship quality declined steadily and linearly for wives and remained steady from preassessment to 3 months but then plummeted from 3 months to 1 year of the baby's life for husbands.

Postpartum Depression

For postpartum depression there was a significant linear Time × Group effect: linear $F(1, 32) = 5.83$, $p = .022$; quadratic $F(1, 32) = .10$, n.s. There was a significant

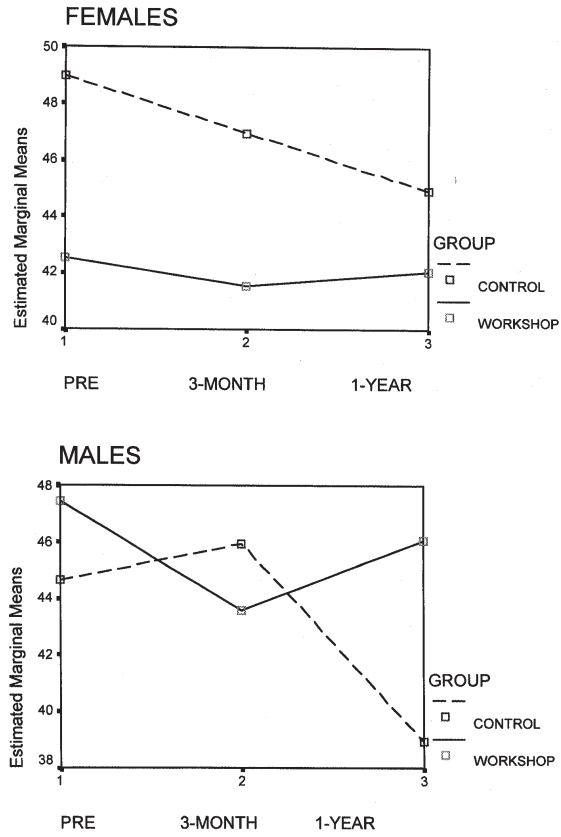

FIGURE 1 Marital quality: comparisons between control group and workshop group.

quadratic Time × Spouse × Group effect: linear $F(1, 32) = .46$, n.s.; quadratic $F(1, 32) = 6.29$, $p = .017$. There was a significant spouse main effect, $F(1, 32) = 5.79$, $p = .022$, with wife mean = 5.36 and husband mean = 3.69. Postpartum depression for wives increased quadratically for wives in the control group and decreased quadratically for wives in the workshop group. For wives, the major change in postpartum depression was from 3 months to 1 year: the control group increased and the workshop group decreased, $t(32) = 2.13$, $p < .05$. Postpartum depression for husbands increased linearly for husbands in the control group and decreased from preassessment to 3 months for husbands in the workshop group and essentially remained stable from 3 months to 1 year. For husbands, postpartum depression at 1 year was significantly lower in the workshop than in the control group, $t(32) = 1.71$, $p < .05$. These data are plotted as Figure 2.

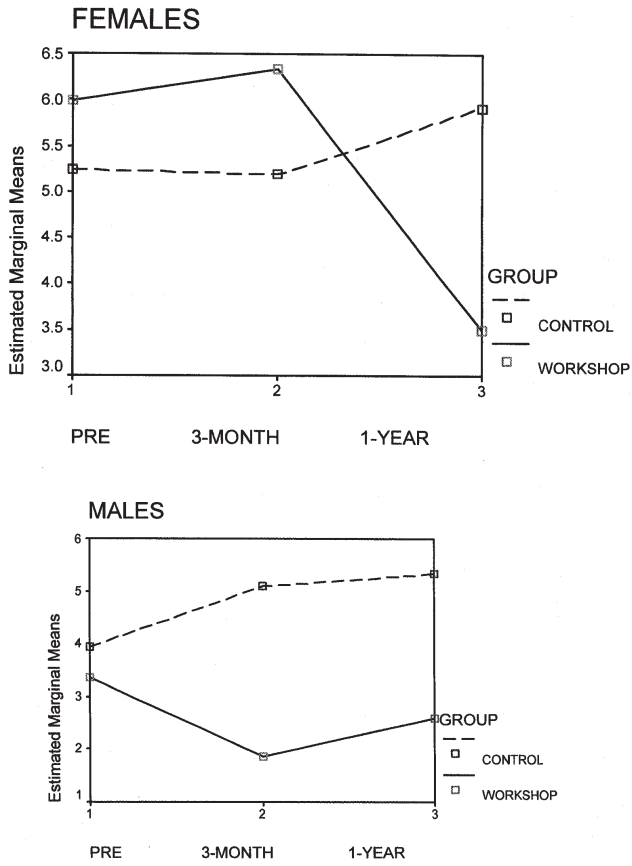

FIGURE 2 Postpartum depression: comparisons between control group and workshop group.

To summarize, postpartum depression increased for both spouses in the control group and decreased in the workshop group.

Hostile Affect Observed During Marital Conflict

The linear Time × Group effect was marginally significant, $F(1, 34) = 3.28$, $p = .079$, quadratic $F(1, 34) = .79$, n.s. There was a significant spouse main effect, $F(1, 34) = 5.44$, $p = .026$, with husbands more hostile than wives: husband mean = .099, wife mean = .080. There were also significant linear and quadratic Time × Spouse effects: linear $F(1, 34) = 5.56$, $p = .024$; quadratic $F(1, 34) = 11.84$, $p = .002$. For wives in both groups, hostility increased from preassessment to 3 months

and decreased from 3 months to 1 year. For husbands, hostility decreased linearly in the control group, but it plummeted dramatically in the workshop group from preassessment to 3 months and remained low from 3 months to 1 year. At 1 year, wives' hostility was significantly lower in the workshop than in the control group, $t(34) = 7.6$, $p < .001$, and husbands' hostility was also significantly lower in the workshop than in the control group, $t(34) = 4.6$, $p < .001$. These data are plotted as Figure 3.

To summarize, although there was a different temporal pattern for wives' and husbands' marital hostility, marital hostility in both wives and husbands at 1 year was significantly lower in the workshop than in the control group.

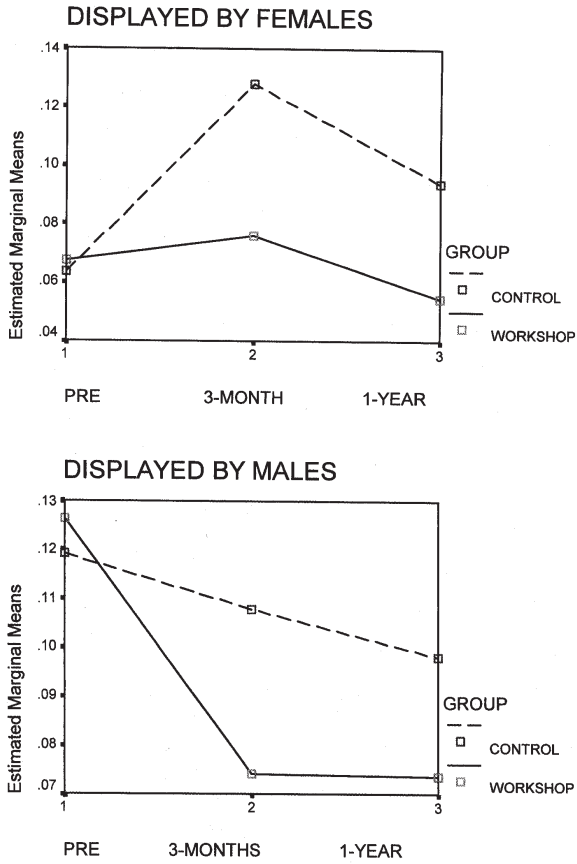

FIGURE 3 Hostile affect expressed during marital conflict discussions: comparisons between control group and workshop group.

DISCUSSION

The data suggest that the Bringing Baby Home preventive intervention using a psycho-communicative-educational format was effective over time compared to a control group. Thus, overall, this preventive intervention study has shown significant positive results over time compared to a control group in the variables studied—marital quality, postpartum depression, and observed marital hostility.

It is worth discussing why several variables may have followed a quadratic pattern in the intervention groups. In this pattern, things got worse from the prescore to 3 months but then improved significantly from 3 months to 1 year. The variables and groups for which this happened were wives' and husbands' marital quality and postpartum depression and wives' hostility, all in the workshop group. This quadratic pattern is not an unexpected effect in the marital intervention field. A similar pattern was reported by Markman, Stanley, Floyd, Hahlweg, and Blumberg (1991). They found no immediate effect on marital satisfaction of their social skills training. They wrote:

> The couples appeared to learn the skills taught in the program. Nevertheless, all other measures of relationship quality failed to show similar immediate effects…the results at Time 3 generally indicated that control couples evidenced declines in levels of relationship quality, including decreased satisfaction, greater problem intensity, and less positive communication, whereas the intervention couples maintained or improved their already high level of functioning. By Time 4 (3 years after the intervention), the results were even stronger. (p. 118)

Our best guess as to why the quadratic pattern occurs is the following. With intervention, things get worse at first because the immediate effects of the interventions are to *increase* the amount of conflict that the couple experiences. Our interventions encourage couples to honestly face and discuss their conflicts, particularly potential or actual inequities in housework and childcare, conflicts that they would naturally avoid and which they do avoid in the control group. This early increase in the amount of conflict in our intervention group probably causes temporary discomfort, which is reflected in lowered marital quality and increased postpartum depression. However, because the couples in the intervention group learn the communicative skills to cope with these issues, the conflicts get dealt with to some degree, and thereafter marital quality and postpartum depression both improve, whereas in the control group, because these conflicts have not been dealt with, things get worse over time.

This research is clearly only a beginning, and it is limited in scope. The sample size, although comparable to the Cowans' intervention (1995), is nonetheless small. Furthermore, despite the attempt to match our sample to Seattle's demographics, we fell somewhat short of the mark, and, hence, the research clearly

needs to be expanded. The interventions may need to be modified appropriately to fit greater cultural diversity and the many other special populations undergoing the transition to parenthood. For example, unmarried women now constitute 30% of all births in the United States, up from 7% in the mid-1960s and 5% in 1940 (Ventura & Bachrach, 2000). As McLanahan et al. (2002) have reported among low-income unmarried parents, the vast majority (82%) are romantically involved and the biological fathers are highly involved with and supportive of the mothers during pregnancy; this is not a new trend (see Parke & Neville, 1987). However, 1 year after the baby's birth many of these parental relationships are no longer together, and the remainder are at risk for dissolution (Carlson, 2002). Thus, couple interventions are important for low-income as well as middle-income and higher income parents, and the Bringing Baby Home *couples'* workshop format is appropriate for most unwed mothers.

For a significant minority of teenage mothers, the primary supportive adult relationship will include multigenerational arrangements such as the grandmother–mother dyad (see Burton, 1995, 1992; Chase-Landsdale, Gordon, Coley, Wakschlag, & Brooks-Gunn, 1999; Kellam, Adams, Brown, & Ensminger, 1982). Thus, our intervention will then need to be modified for the special needs of other family arrangements such as the grandmother–mother supportive dyad. This is not a difficult change to make. The grandmother–mother supportive dyad, for example, will need to be able to cope with increased interpersonal conflict. However, the stressors for this dyad will be different in many ways that the stressors for couples, and the development of the teenage unpaired mother will need to be a prominent consideration.

The Bringing Baby Home workshop will probably have to be suitably modified for other important groups of families that must be included in transition to parenthood intervention research. These families include lesbian and gay couples, couples adopting infants and older children, step-parent families who have a new child together, and couples whose infants are born handicapped.

In future research it will be important to oversample minorities. We are doing that in our second intervention study. Our intervention will need to be modified sensitively to fit specific cultural subgroups, including African American, Hawaiian Islander, Native American, and the various Asian American and Hispanic American groups. The success of this intervention will inspire us and others to create interventions specific for these populations (e.g., see Socha & Diggs, 1999).

We will be continuing this study and will follow the infants until they are 3 years old and assess whatever child effects may have resulted from these two interventions. Our next study, which is currently underway, involves evaluating the effects of an added support group and also transferring these two interventions to hospital personnel at Swedish Medical Center in Seattle, family educators who typically teach birth preparation classes. Our goal, and that of Swedish Medical Center, is to make these interventions a standard part of the hospital's offerings,

taught by family educators. Once these interventions become a standard part of the hospital's offerings, research such as this study has the potential of reaching the millions of infants born in the United States in hospitals every year and of minimizing the risks of the transition to parenthood.

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