

Increased father involvement with infants and young children has resulted in a demand for effective programs for fathers wanting to learn more about parenting during the child's early years. Most programs recommended for first-time parents are in the form of prenatal (Health Canada, 2000) and parenting (Government of Canada, 2004) education classes. Programs for fathers frequently are based on classes originally designed for mothers (Doherty, Erickson, & LaRossa, 2006). The purpose of this study was to evaluate a parenting education intervention with a community sample of first-time fathers of healthy infants. Some previous research has shown that fathers of both term and preterm infants show a decrease in parent-infant interaction skills during the infant's first year of life (Harrison & Magill-Evans, 1996). The intervention was designed to increase the father's skill in interactions; in particular, his ability to recognize and respond to the infant's behavioral cues and to promote cognitive and social-emotional growth.

Over the past two decades, there has been a recognition in North America of the importance of father involvement in families with corresponding changes in public policy and research agendas. For example, in Canada, the federal government changed the employment insurance program so that parental leave after childbirth or adoption could be claimed by one parent or shared between the mother and father (Department of Human Resources and Skills Development, 2005). The National Institute of Child Health and Human Development, Family and Child Well-Being Research Network was established in the United States in 1993 and identified father involvement and its effect on children as a research priority (Evans, 2004).

Recognition of the importance of father involvement has been influenced by social trends such as more mothers in the workforce (Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000). In 2004, nearly 60 percent of married women with preschool children in the United States were employed (US Department of Labor, Bureau of Labor Statistics, 2005). In 2001, 71 percent of partnered Canadian women with preschool children were in the labor force (Vanier Institute of the Family [VIF], 2004). In addition, fathers head 17 percent of lone-parent families, 69 percent of whom were separated or divorced (VIF, 2000).

Father involvement includes three components: (a) paternal engagement or direct interaction with the child, (b) accessibility or availability to the child, and (c) responsibility or efforts to ensure the child is cared for and has the necessary resources (Lamb, Peck, Charnov, & Levine, 1985). The parenting education intervention described in this study focuses on paternal engagement or direct interaction with the child, and assumes that fathers want to be involved in parenting their children and have the strength and potential for growth (Hawkins & Dollahite, 1997). Programs that promote fathering skills have resulted in increased involvement of fathers with preschool children (Mahoney, Wiggers, & Lash, 1996; McBride, 1990). It is unknown if programs for fathers with infants will have a similar effect.

Paternal engagement or direct interaction was selected as the focus of the parenting education program as father-infant interaction is related to child development. Social interactions between infants and parents provide the opportunity to acquire nonverbal

communicative competencies, an antecedent to formal language development (Holdgrafer & Dunst, 1991). Magill-Evans and Harrison (1999), controlling for family socioeconomic status, found that infants have better language development at 18 months if their fathers had more positive interactions with them at three and 12 months of age during a structured play interaction. Others have found that a father's sensitivity to infant behavior and ability to engage the infant in interactions is positively associated with emotion regulation in 12-month-old infants (Crockenberg & Leerkes, 2000) and related to more optimal child cognitive development (Shannon, Tamis-LeMonda, London, & Cabrera, 2002).

The program reported here was designed to increase the father's ability to recognize and respond contingently to his infant's behavioral cues and to promote the infant's cognitive and social-emotional development. Pasley, Futris, and Skinner (2002) argue that rewarding, active engagement with a child may affect the father's self-perceptions. For example, a father who accurately interprets his infant's behavior and successfully soothes or stimulates the infant could feel more competent. Therefore a secondary expected outcome of the program was an increase in paternal sense of competence as a parent.

### Video Self-Modeling

The education program included videotaped self-modeling of father-infant interaction with positive feedback to the father. Videotape self-modeling refers to behavioral change resulting from observation of one's self engaged in desired target behaviors (Dowrick, 1983). Videotape interventions such as that used by Webster-Stratton (2005) have altered parenting behavior but usually include examples of other parents and children. Adults focus their attention and become emotionally aroused when viewing themselves on screen (Bader, 2002). As a result, videotaped self-modeling may be even more effective than viewing a video-tape of other parents and children. Bandura (1977, 1982) proposed that perception of self-efficacy is essential to acquiring new skills and to cope with failures, i.e., fathers need to view themselves as competent in interactions with their child. Feedback, from viewing themselves on a videotape with commendations by a trained professional, could enhance the perception they are competent fathers. Researchers (Fagan & Iglesias, 1999; Meharg & Lipsker, 1992; Pasley et al., 2002) report that fathers are most interested in programs that include active participation rather than discussion and those that teach them how to help their child learn. Video self-modeling includes active participation by the father and a focus on specific paternal behavior. In this study, fathers reviewed videotapes of the father showing his infant how to play with a new toy.

Videotaped self-modeling with feedback has been an effective intervention with mothers of infants. It has been used with adolescent mothers (Koniak-Griffin, Verzemnieks, & Cahill, 1992), mothers of infants at risk for delays (Crittenden & Snell, 1983), mothers with insecure attachment (Bakermans-Kranenburg, Juffer, & van Ijzendoorn, 1998), and mothers socially at risk (Weiner, Kuppermintz, & Guttman, 1994). In all cases, significant improvement in important maternal interactional behaviors was reported. Mothers who reviewed videotapes of themselves in parenting interactions and received

feedback from a trained professional had increased awareness of and ability to respond appropriately to the child in comparison to control groups. Instruction on what to observe may be essential as mothers of children with behavior disorders did not increase their rate of desired parenting behaviors when viewing self videotapes without guidance, reporting that they did not recognize the intent of the videotapes (Meharg & Lipsker, 1992).

There is some recent preliminary evidence that viewing self videotapes with feedback may be effective with fathers of young children; in particular with children with disabilities that affect interaction. Elder, Valcante, Yarandi, White, and Elder (2005) provided in-home training of fathers of 18 children with autism aged 24 to 84 months using videotapes of the father playing with his child. Fathers who received the intervention significantly increased their positive responses in interactions with the child. The single subject research design of this study limits the generalizability of the results. It is not known if this intervention is effective for fathers of children without major disabilities or health issues.

In program evaluation studies, the timing and dose of the intervention are important variables. For mothers of a child under 12 months of age, the effective intervention dose of videotaped self-modeling with feedback varied from one to three sessions. For example, Koniak-Griffin and colleagues (1992) reported significant effects using one session of videotaped self-modeling with mothers of one-month-old infants. Bakermans-Kranenburg and colleagues (1998) had significant results with three sessions of the intervention with mothers of seven- to 10-month-old infants. The appropriate timing and dose for fathers is not known. Five and six months of age were arbitrarily chosen for the home visits in the present study as this is the age when families are in contact with the Canadian health system for infant immunizations. If the intervention was effective, then health professionals in contact with infants could identify fathers for whom this community based program would be useful.

## Hypotheses

The primary hypothesis was that, two months after the parenting education program, fathers in the intervention group who received two home visits with video-self modeling with feedback would have more positive interactions with their 8-month-old infant as measured during structured play. We anticipated that fathers in the intervention group would engage in more behaviors that showed sensitivity to their infants' cues and fostered the infant's cognitive and social-emotional growth. We did not anticipate differences in their responses to infant distress. The secondary hypothesis was that fathers in the intervention group would have a greater sense of parenting competence than fathers in the control group when their child was eight months old. Specifically, fathers in the intervention group would report increased competence with greater feelings of parenting self-efficacy and higher levels of satisfaction with parenting.

## Method

### Participants

The study was approved by an institutional ethics review board. Between July 2003 and December 2004, a community sample of first-time biological fathers was recruited from two western Canadian cities. Canadians have universal access to medical care and community-based programs target the general population, as well as those considered at risk for problems. Fathers were included in the study if they spoke primarily English to their infant and reported being able to read English at the 8th grade level. This level of reading competency was needed to complete the questionnaires. At the time of the first home visit, all fathers resided in the same home as the infant. Fathers of infants with a major congenital anomaly, fathers whose infant received care in a neonatal intensive care unit, and fathers of multiple births or an infant with a known medical problem were excluded as they may have received psychosocial interventions for parents of infants with health conditions. Fathers were screened at the time of recruitment and when scheduling the first home visit to ensure they met the study criteria. As part of the blinding process, fathers were told at the time of recruitment that they would be randomly assigned to receive either home visits when the infant was 5 and 8 months old (control) or home visits at 5, 6, and 8 months (intervention). During the study, fathers were not told whether they were in the control or intervention group. In Figure 1, the number of fathers screened, the number who did not meet inclusion criteria or who chose not to participate, the number of dropouts after being assigned to groups, and reasons for the dropouts are reported. Before they were informed about group assignment and prior to the first visit, 14 (7.6%) of 183 fathers were lost. Once fathers received their first home visit, the dropout rate to follow-up was very low (7/169 or 4%) and did not differ by group.

Fathers were recruited during prenatal classes or routine visits at community health clinics after the infant's birth; through advertising in community magazines, workplaces, and television features; and through community programs such as groups for new parents. Recruitment continued until 162 fathers completed the 8-month follow-up visit. Sample size was determined based on information from Koniak-Griffin and colleagues' (1992) study of videotape self-modeling using the same outcome measure, where an effect size of .90 was calculated using Cohen's *d* formula for two means (Cohen, 1988). As fathers' scores typically differ from those of mothers on the outcome measure used in this study (Harrison, Magill-Evans, & Benzies, 1999; Harrison, Magill-Evans, & Sadoway, 2001), the target sample size was set at 150 with more fathers recruited to allow for attrition over the three months of the study.

The sample was stratified on infant gender and father's education (less than university versus university). Prior to the first home visit, block randomization was conducted by the first author who had no contact with the fathers and was not part of the intervention. Fathers whose infants turned five months old in the upcoming month were: (a) assigned a participant number, (b) blocked according to reported education level, and (c) assigned to either an intervention or control group using a random numbers table. Demographic characteristics of the mothers and fathers are listed in Table 1. Paternal education ranged from partial high school to graduate degrees. Compared to the average for Alberta males where 21 percent had university education or higher (Statistics Canada, 2001), 42 percent of the current sample had university education or higher. Fathers described themselves as European Canadian (135 of 162), Aboriginal (2), Chinese (3), Hispanic (3), Philipino (1),

Asian (2), and other (16). Analysis of infant gender and paternal education by group showed no significant group differences: gender, [chi square] (1, N = 162) = 0.40,  $p = .53$  and years of completed education,  $t(1,160) = 0.31$ ,  $p = .76$ .

## Procedures

Home visitors were experienced with the home visiting process and understood infant development. They were trained by the researchers and did supervised home visits prior to the study and practiced with fathers in a pilot study. Adherence to home visit protocols was monitored by the project coordinator through debriefing and/or observing approximately 5 percent of the actual study home visits. All home visitors were blind to the study hypotheses. Home visitors for the control group did not know what was included in the intervention. Home visitors for the intervention group reviewed the Keys to Caregiving video series (NCAST, 1990) to develop their skill in identifying fathers' behaviors that were sensitive and appropriately responsive to the infant and promoted cognitive and social-emotional growth.

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Prior to the home visit at five months, a consent form and questionnaires were mailed to the fathers. The consent form was reviewed with the father at the first visit. During the home visit, the questionnaires were picked up. Only the father and child were present in the room with the home visitor to prevent distraction during videotaping and discussion.

Intervention group. The father was videotaped teaching his five-month-old child to play with a toy selected from a list provided by the home visitor following the protocol for the Nursing Child Assessment Teaching Scale (Sumner & Spietz, 1994). The father selected a toy that would be novel to the child. Toys included a rattle, squeak toy, blocks, and other items. Immediately after the videotaping, the father and the home visitor reviewed the videotape together and the home visitor identified the first segments where the father's behavior had been sensitive and responsive to the child or promoted cognitive or social-emotional growth. For example, fathers were praised for recognizing and responding to their infant's cues, pacing the interaction to allow their child to respond, verbally encouraging or praising their child, and using language to describe the task clearly. At times the behaviors reviewed were only approximations of the desired behavior or were extremely low frequency (e.g., a smile in response to the infant's babbling but no talking during a ten minute interaction). The home visitor encouraged the father to refine his skills in these behaviors. In addition, new information was shared in the form of a handout that was again linked to interaction behaviors on the videotape. The intervention required about 20 minutes. A copy of the videotape was mailed to the fathers after the home visit. A second home visit with an identical protocol was made when the child was six months old. The two handouts described aspects of parent-infant interaction. One handout described infant behavioral cues and the other outlined the components of the teaching loop (alert the baby, show and explain, give baby time to try, and praise and suggestions). With the exception of five home visits when personnel changed, the same home visitor made both home visits to build on the rapport established

with the father and child. The home visits took approximately one hour. There were no identified adverse effects of the intervention; none of the fathers were distressed during the intervention or chose to access any support services that were available in the community.

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**Control group.** At five months, the father was videotaped teaching his five-month-old child to play with a new toy using the same protocol as the intervention group, except that the father did not view the videotape or receive feedback. Instead, the home visitor discussed age appropriate toys using a standardized protocol and pamphlets currently provided at child health visits in community clinics or physician offices in the study area. Fathers were also asked about the activities they liked to do with their child. This general discussion acted as a control for the affirmation that fathers receive by a home visit focused on their contribution. The visit took approximately one hour.

**Outcomes.** Outcomes were measured when the child was eight months old. Questionnaires were mailed prior to the home visit, which consisted of videotaping the father and child during a structured play interaction without any feedback. The last home visits were completed in March 2005. At the end of the last home visit, fathers in both groups were asked to comment on what they liked or did not like about the home visits and information provided.

## Measures

**Nursing Child Assessment Teaching Scale (NCATS).** The NCATS measures parent-child interaction and has 73 behaviors scored on a yes/no scale; higher scores indicate more optimal interactions (Sumner & Spietz, 1994). The Parent Total Score, the sum of scores on four parent subscales, was used in this study and has a maximum of 50. Three of the subscales have 11 items (Sensitivity to Cues, Response to Distress, Social-Emotional Growth Fostering) and one has 17 items (Cognitive Growth Fostering). Example items from Sensitivity to Cues are "Caregiver allows child to explore the task material for at least 5 seconds before giving the first task related instruction" and "Caregiver pauses when child initiates behaviors." Items from Social-Emotional Growth Fostering include, "Caregiver smiles or touches the child within 5 seconds after the child smiles or vocalizes" and "Caregiver gently pats, caresses, strokes, hugs, or kisses child." Items from Cognitive Growth Fostering include, "Caregiver uses both verbal description and modeling simultaneously in teaching any part of the task" and "Caregiver focuses attention and child's attention on the task." The NCATS has been used with fathers of infants ages one to 24 months (Harrison et al., 1999; Harrison et al., 2001). The NCATS differentiates between maternal (Barnard, Bee, & Hammond, 1984; Harrison & Magill-Evans, 1996) and paternal (Harrison & Magill-Evans, 1996; Harrison, 1990) interactions with preterm and term infants. Paternal NCATS scores with a three-month-old child predicted receptive language development at 18 months (Magill-Evans & Harrison, 1999) and scores from interactions at 12 months predicted expressive language development at four years (Magill-Evans & Harrison, 2001). For this study, Cronbach alpha for fathers'

Parent Total Score was .72 at five months and .74 at eight months. Cronbach alpha for fathers has been reported to range from .68 to .70 (Harrison et al., 1999; Harrison et al., 2001).

The four raters scoring the videotapes were blind to group assignment and other scores obtained by fathers. Raters were trained by certified instructors using a standardized training program provided by the University of Washington. Rater reliability was greater than .90 using the standardized videotapes before they scored the study videotapes. Recertification was done part-way through the videotape scoring to ensure that there was no observer drift. Intra-class correlation coefficients for the total scores were .83. During data analysis, point-by-point inter-rater reliabilities were measured for every tenth tape and ranged from .71 to .99, with an average of .87. Whenever reliabilities dropped below .80, the raters met and reached consensus on scoring.

Parenting Sense of Competence (PSOC). Johnston and Mash's (1989) revision of Gibaud-Wallston and Wandersman's PSOC (1978) was used in this study. The 16 items are rated on a 6-point scale (strongly agree to strongly disagree). The self-report questionnaire provides two subscale scores, Efficacy and Satisfaction, which were validated using factor analysis by Ohan, Leung, and Johnston (2000). In this study, Cronbach alphas for Efficacy was .75 at five months and .80 at eight months and for Satisfaction, .77 and .81, respectively. Others (Ohan et al.; Johnston & Mash) have reported internal consistency for Efficacy as .76 to .77 and .75 to .80 for Satisfaction for fathers of four- to 12-year-old children. Parents of infants with feeding problems felt less effective and had lower PSOC scores (Clarke et al., 2002).

Demographic data. At five months, an investigator-designed questionnaire was used to collect demographic information related to father age and education, mother age and education, employment, and child gender.

## Results

Scores on outcome measures are listed in Table 2. The mean NCATS Parent total scores at five months for both groups were somewhat higher than the mean of 38.5 reported by Harrison et al. (1999) for fathers of infants ages two to 12 months old but well below the ceiling of 50. Mean scores on Sensitivity to Cues (9.6 for intervention group and 9.5 for control group) and Social-Emotional Growth Fostering (9.2, 8.9) when the infant was five months old were close to the ceiling of 11 for those subscales. However, there was a range of scores in both groups. Mothers' scores below the 10th percentile on the NCATS are cause for follow-up (Sumner & Spietz, 1994) and Harrison et al. (2001) identified the 10th percentile for fathers as a score of 32 on the NCATS Parent Total. When the infant was five months old, three fathers in the intervention group and six fathers in the control group scored below the 10th percentile indicating the extent of the range of scores.

PSOC Efficacy scores ranged from 14 to 42 (maximum is 42). PSOC Satisfaction scores ranged from 18 to 54 (maximum is 54). Our means on the PSOC were higher than those reported by Johnston and Mash (1989) for fathers of 121 Canadian children ages four to

six years old (Satisfaction = 39; Efficacy = 25). Means in this study were more similar to those reported by Ohan et al. (2000) for a sample of 17 fathers of children ages five to six years old. There are no cut-off scores on the PSOC.

Changes in fathers' scores on the NCATS and PSOC were analyzed using a 2 (group) by 2 (time) ANOVA with repeated measures for time. The sphericity assumption was tested using a Huynh-Feldt test (SPSS 13.5) and there was no need to adjust the degrees of freedom. There was a significant interaction between group and time for Parent Total Score on the NCATS. Average scores for fathers in the intervention group increased from 40.6 to 41.7 while scores for fathers in the control group decreased from 40.0 to 38.4 [ $F(1, 160) = 12.60, p = .001$ ]. Effect size was 0.07 (partial eta squared) and observed power was .94. The years of completed paternal education were not significantly correlated ( $r = .12$ ) with the Parent Total score on the NCATS. When the NCATS subscales were analyzed using 2 by 2 ANOVAs, there were significant group by time interactions for two subscales. Fathers in the control group became less sensitive to infant cues over time unlike fathers in the intervention group [ $F(1, 160) = 5.21, p = .024$ , partial eta squared = 0.03, power = .62] and fathers in the intervention became more skilled in fostering cognitive growth than fathers in the control group [ $F(1, 160) = 9.58, p = .002$ , partial eta squared = 0.06, power = .87]. There were no significant differences in the fathers' behaviors that fostered infant social-emotional growth (power = .26).

Using a 2 (group) by 2 (time) ANOVA with repeated measures for time, there was a significant main effect for time for PSOC Efficacy scores [ $F(1, 159) = 46.57, p < .001$ ; partial eta squared = 0.23, power = 1.00] but there was no main effect for PSOC Satisfaction and no significant interaction effects for either PSOC subscale. Fathers' Efficacy scores in both groups increased over time by approximately two points.

## Discussion

The study was conducted to determine if an education program that used videotaped self-modeling with feedback would be effective for first time fathers with healthy infants and whether fathers would be interested in participating. The results of the study indicate that videotaped self-modeling with feedback should be investigated further as a potential intervention with first-time fathers.

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Although there was no significant difference in paternal reports of self-efficacy and satisfaction, there were significant differences in behavior between the intervention and control groups. On average, fathers in the intervention group who reviewed videotapes of themselves in interaction with their infant when five and six months old with positive feedback had an increased NCATS Parent Total score over time. Conversely, the average Parent Total score of fathers in the control group decreased over time. The average scores and the decrease in scores for the control group are similar to that reported by Harrison and Magill-Evans (1996) for fathers of infants born at term who were observed when

their infants were three months old and 12 months old (1.9 points). In that study scores of fathers of children born preterm also dropped over time (2.3 points).

When subscales of the NCATS were examined, fathers in the intervention group increased their skill in fostering their infant's cognitive growth at eight months and maintained their sensitivity to infant cues in interactions while the average scores of fathers in the control group decreased on these same subscales. The intervention appears to support fathers in maintaining their attention to the infant's behavior and their sensitivity to what the infant is communicating. The period between five months (baseline) and eight months (outcome measurement) is one where many infants become more mobile and can select their own toy or activity. This timeframe may have made it more difficult for fathers in the control group to interact with the baby in a manner that stimulates cognitive development without the additional skills such as the teaching loop taught as part of the intervention and described earlier.

It is unclear why the education program had an impact on the behavior of the father in interaction but not on the father's self-efficacy or satisfaction with parenting. Fathers in both the intervention and the control group reported increased self-efficacy and satisfaction over the three months. Although the sample included fathers who had never been alone with their child without the infant's mother, the fathers who volunteered for the study were likely to be motivated fathers who were relatively confident in their parenting skills and satisfied with their parenting. An intervention that focuses specifically on behavioral interaction between the father and infant may not further increase a father's self-efficacy and satisfaction with parenting. Alternatively, the home visitor's interest in fathering along with the information about age appropriate toys provided to the control group may have been as effective as videotaped self-modeling in increasing perceived self-efficacy and satisfaction with parenting while not influencing paternal behavior.

The format of the education program was appealing to fathers as they made positive comments about the program at the eight month home visit and there was little attrition. Intervention fathers commented on their increased awareness about describing toys to the infant, positioning the infant face-to-face, and giving praise. Fathers said that, after the intervention, they would make a conscious effort to respond to their child's vocalizations. Fathers indicated that they liked the home visits and did not recommend that the intervention be implemented in a group setting with other fathers. They suggested that they would be more interested to hear about what other fathers had to say in a group setting when their child was 12 months of age.

There was little research evidence to guide the timing or dose of the education program. Therefore, we made the decision to offer two home visits (dose) in this study when the infant was five and six months old (timing). When individual scores were examined, not all fathers in the intervention group had positive gains. Some fathers may require more than two doses of the program for changes to occur in their behavior. For example, in a study that used videotaped self-modeling with 18 fathers of older children with autism, Elder and colleagues (2005) found that a dose of two to four sessions followed by a

booster session was effective; fathers significantly increased their communicative behavior in interactions with their child. The optimal timing and dose of the intervention also may vary depending upon other factors in the father's life. In the present study, one father scored well above the 10th percentile when his child was five months old. Subsequently, family challenges including a brief period of marital separation occurred and the father's score post-intervention was below the 10th percentile. Events such as illness in the father's extended family, increased work demands or loss of job may have a greater effect on the father-child interaction than the intervention tested in this study and should be examined in future research.

### Recommendations for Future Research

The education program in this study appears to be effective with first-time fathers of healthy infants in a home setting but there are a number of considerations for clinicians to address prior to full scale implementation of the program in their setting. Kellam and Langevin (2003) propose that the term, efficacy trials, be used when research tests the intervention under optimal conditions. In contrast, effectiveness trials test the intervention under everyday conditions. Our study is an example of an efficacy trial in which the interventionist was specifically trained to carry out the study protocol under precise conditions. One of the difficulties in bridging research and practice is that practitioners in the community need interventions that can be carried out effectively by individuals who may differ in educational preparation and experience in working with families. Prior to full scale implementation, there is a need to evaluate the intervention in the field, using agency staff, as parenting programs may not have the same impact in community settings as they did when tested in an intervention study (Kellam & Langevin). In addition, the benefits of using the program in comparison to the costs need to be weighed.

There are several limitations of our study that should be addressed in future research. The effectiveness of parenting programs may be specific to the fathers who are included in the study. Fathers in the present study were not randomly selected and although there was a range of education levels, the mean years of paternal education were more than the average for men in the province where the study took place. Although there was no significant correlation between years of paternal education and the NCATS Parent Total score, the over-representation of more educated fathers may create a selection bias (Costigan & Cox, 2001) and limit generalizability of findings to all fathers. There was minimal cultural variation in the study; most fathers were European Canadian. There is some suggestion that reviewing self videotapes with feedback may be acceptable and effective with fathers of other cultures. Elder and colleagues (2005) included Asian American, Hispanic, African American, and European American fathers in their study and reported that fathers viewed the intervention favorably. All fathers in our study were resident with their child at the time of the first home visit. As other researchers (Fagan & Stevenson, 2002) have found that resident and nonresident fathers differed in their response to an empowerment-based intervention, it is important that further testing of the intervention be done with fathers who do not currently reside with their infant.

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Table 1

Infant Gender and Characteristics of Fathers and Mothers by Intervention (n = 81) and Control (n = 81) Group at 5-Month Visit

Variables	Intervention		Control	
	M/Frequency	SD/%	M/Frequency	SD/%
Infant gender: male	n = 45	56%	n = 40	49%
female	n = 36	44%	n = 41	51%
Father's age (years)	32.28	4.40	31.56	5.22
Father's education (years completed)	15.97	2.77	15.84	2.53
Paternal employment for pay (% yes)	n = 77	95.1%	n = 74	91.4%
Paternal hours worked/week (outside home)	44.22	9.39	44.85	8.38
Mother's age (years)	30.35	4.62	29.93	4.44
Mother's education (years completed)	15.88	2.88	15.74	2.71

Table 2

Scores on the Outcome Measures for Intervention Fathers (n = 81) and Control Fathers (n = 81) at 5 and 8 Months

	Intervention			
	5 months		8 months	
	M	SD	M	SD
NCATS (a) Scores				
Parent Total Score	40.60	3.87	41.73	3.79
Sensitivity to Cues	9.60	0.92	9.51	0.99
Response to Distress	10.11	0.98	10.15	1.23
Social-emotional				

Growth Fostering	9.22	1.30	9.17	1.31
Cognitive Growth				
Fostering	11.67	2.67	12.90	2.18
PSOC (b) Efficacy	30.52	4.70	32.45	4.94
PSOC (b) Satisfaction	42.27	5.81	42.39	6.31

Control

	5 month		8 months	
	M	SD	M	SD
NCATS (a) Scores				
Parent Total Score	40.04	4.78	38.44	4.66
Sensitivity to Cues	9.51	1.11	8.90	1.03
Response to Distress	10.14	0.98	9.84	1.58
Social-emotional				
Growth Fostering	8.88	1.32	8.47	1.34
Cognitive Growth				
Fostering	11.52	3.06	11.23	2.58
PSOC (b) Efficacy	29.54	4.80	31.59	3.96
PSOC (b) Satisfaction	41.85	6.10	42.8	5.99

Note: (a) NCATS = Nursing Child Assessment Teaching Scale.

(b) PSOC = Parenting Sense of Competence.

(c) n = 80 for this mean; otherwise n = 81