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Dynamics in a Three-Generational Family: Teens, Grandparents, and Babies

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A sample of 64 2-grandparent, working-class families with a teen and her child under 2 was used to test the hypotheses that grandmothers have a direct influence on their grandchild and that grandparents also have an indirect effect on the young child through their influence on the teen's nurturance and perceptions of family support. Hypotheses were based on research concerning fathers, our previous research showing direct grandfather effects, and the literature on modeling, mediation, and surrogate parenting. Major findings from the path analyses were that grandfathers had a direct effect on children and that grandmothers had neither direct nor indirect influence. Results are discussed in terms of the salience of nurturant grandfathers in these families and the unique role they may play in the family.

Adolescent mothering is often viewed as a social problem that places teens' children at risk; their cognitive deficits and nonadaptive social functioning have been well documented (Brooks-Gunn & Furstenberg, 1986). Particularly persuasive are the results of a 17-year follow-up of women who had given birth as adolescents. The investigators described the situation of the children as one of "massive school failure" (Furstenberg, Brooks-Gunn, & Morgan, 1987, p. 92). To reduce this waste of human potential, we explored the potential beneficial influence that the teen's parents may exert on her baby.

Several factors support this approach to fostering the infant's development. First, few of these children are likely to have sustained contact with their biological fathers. Studies have revealed that only 19%–25% of the biological fathers of teens' babies live with them or are highly involved in their care (Vecchiolla & Maza, 1989). It is therefore possible that the baby's grandfather takes on the role of surrogate father in the absence of an alternative father figure in the home. Furthermore, the vast majority of teen mothers reside in the household of relatives, usually their parents, in the first few years after giving birth (Vecchiolla & Maza, 1989), and between 25% and 50% of those families contain two parents (Furstenberg & Crawford, 1978; Radin, Oyserman, & Benn, 1991). This living arrangement means that grandparents are physically available to the grandchild.

There is strong evidence that fathers, particularly involved or nurturant fathers, have a positive impact on their sons' and daughters' cognitive and social development (Easterbrook & Goldberg, 1984; Pedersen, Rubenstein, & Yarrow, 1979; Radin, 1981, 1986). In view of these findings, the direct influence of grandfathers (surrogate fathers) on the young children of adolescent mothers was assessed through regression analysis (Radin et al., 1991) in a sample with no other adult males in the home. The major results were that, in the total sample and the large subsample of 1-year-old children, (a) greater grandfather nurturance was related to more child compliance with maternal requests and (b) greater grandfather involvement in child care was related to less child-exhibited negative affect.

There is also strong support for the belief that fathers exert an indirect effect that has been conceptualized in various ways. For example, Parke and Anderson (1987) described mediating effects that occur when a parent influences a child by mediating another family member's impact. This process has been used to explain why an emotionally supportive father is associated with sensitive maternal interaction with the young child (Cowan & Cowan, 1987) and with positive child outcomes (Lamb, 1987). It has also been suggested that fathers can affect the quality of the family dynamics by being involved in child-related housework (Lamb, 1987). Modeling has also been cited as one of the processes involved in the indirect effects of fathers on children. It has been shown that considerable learning about parenting takes place with mothers and fathers modeling baby-directed behavior for one another (Berman & Pedersen, 1987). Nurturant caregiving, which has been shown to be associated with positive child outcomes (Ainsworth, Blehar, Waters, & Wall, 1978; Belsky, Lerner, & Spanier, 1984; Crockenberg, 1987), is among the behaviors that can be modeled.

A goal of the present article was to assess whether grandfathers, functioning as surrogate fathers, have an indirect effect on their adolescent daughters' young children through the mediating and modeling processes described earlier. Specifically, we posited that greater grandfather nurturance and participation in child care would foster the infant's socioemotional and cognitive development through the grandfather's positive impact on the teen's maternal nurturance and perception of support. Nurturing grandfather behavior with the baby is likely to

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provide a role model of parental interactions for the adolescent mother (Bandura, 1986), fostering her maternal nurturance that promotes the child's development (see references cited earlier). Similarly, there is evidence that when mothers, particularly teen mothers, feel supported, their mothering is more responsive and affectionate (Crnic, Greenberg, Ragozin, Robinson, & Basham, 1983). It is likely that when the baby's grandfather is more involved in child rearing and child-related housework, family dynamics will improve and the teen mother will feel more supported and be more responsive to the baby (Lamb, 1987).

A second goal of this study was to explore the direct and indirect effects of grandmother nurturance and participation in child care on the infants' cognitive and socioemotional development. As is the case for grandfather indirect effects, mediation and modeling are likely to be involved. There is evidence that the teen's mother often provides the teen with child-care assistance (Wasserman, Brunelli, & Rauth, 1990); this form of aid should have the same beneficial effects whether provided by grandfather or grandmother. In addition, as with grandfathers, grandmothers who are nurturant in their interactions with the baby should provide a positive model of maternal behavior to the teen, resulting in increased teen maternal nurturance (Bandura, 1986) and enhanced cognitive and socioemotional development in the baby. As for direct grandmother effects on her adolescent daughter's child, because the teen's mother often plays a large role in caring for the teen's baby, it is possible that she will take on a surrogate mothering role toward the baby (Hogan, Hao, & Parish, 1990; Smith, 1983). To the extent that this phenomenon exists, the research findings cited previously concerning the positive outcomes of nurturant maternal behavior for children should apply to grandmothers as well.

The following hypotheses were therefore generated: (a) Nurturant grandmother behavior toward the baby will have a positive direct effect on the child, fostering his or her cognitive and socioemotional growth; (b) grandparent nurturance with the baby will be positively related to teen maternal nurturance; and (c) greater grandparent participation in rearing the baby will increase the teen's perception of being supported by her parent. In keeping with the literature cited earlier, greater teen mother nurturance and greater perceptions of being supported will foster the child's cognitive and socioemotional development.

The effect of grandparent involvement in child care on the teen's perception of conflict in the family was also explored. The literature suggests that greater feelings of conflict may lead to an increase in stress experienced and may eventuate in less maternal nurturance (Levitt, Weber, & Clark, 1986). There is evidence that conflict between grandmother and teen over child rearing is not uncommon (e.g., Smith, 1983). The same tensions may arise with grandfathers, particularly because there could be three caregivers in such families. Yet child-care assistance should relieve the teen of much stress and eventuate in less irritability.

Method

Sampling Procedure

The sample was obtained primarily from public schools offering special programs for pregnant and parent teens residing in the seven counties in the metropolitan Detroit area. To be eligible for the study, a teen had to have been under 18 when the baby was born; be currently living at home with her baby, her mother, or father or a mother or father figure; and neither the baby's father nor any adult male other than the grandfather could be living in the home. The baby had to be 1 or 2 years of age at the time of testing, the teen's first born, and not of low birth weight. The family was not eligible for the study unless the teen and one of her parents agreed to be interviewed and the child was administered a full battery of assessment instruments. Grandparents were interviewed in their homes; the teens were interviewed, with almost the same questionnaire, in the laboratory setting where most of the child assessment was conducted. The gender of the interviewers and interviewees was matched.

Subjects

The sample was the same as that used in the examination of the direct effects of grandfathers on the teens' children described previously. It consisted of 66 working-class, primarily White families with a teen mother, her 1- or 2-year-old child, and her father or father figures. In all but two families, the grandmother was present in the home. In 61% of the families, the male figure was the teen's father, in 36% her stepfather, and in 3% her grandfather. Seventy-six percent of the babies were White, and 24% were minority, primarily Black. Seventy percent of the babies were 1 year of age, and 30% were 2 years of age. Forty-seven percent of the babies were girls, and 53% were boys. Mean ages were 41.5, 45.3, and 17.6 years for grandmothers, grandfathers, and teen mothers, respectively. Because of the sampling procedure, almost all the teens were enrolled in school, or recently had been. Table 1 presents demographic information about the families as well as data about the study's measures to be described in the next section.

Despite diligent effort and a payment of $10 for each completed interview, only 50% of the eligible families invited to participate agreed to do so, a figure in keeping with other studies that attempted to interview grandfathers, teen mothers, working-class parents, or three-generational families (Cherlin & Furstenberg, 1986; Entwisle & Doering, 1988; Tomlin & Passman, 1989). Among the participating families, 12 grandfathers and 1 grandmother refused to be interviewed.

Measures

Nurturance. Nurturance was operationalized as composed of three components: sensitivity to the child, reinforcement or positive affect, and responsiveness to the child as a thinking being (consultation with the child; Epstein & Radin, 1975). This three-factor conceptualization has been used by Radin and colleagues and found to have predictive validity (see references cited in this section). It is also congruent with the definitions of nurturance or warmth provided by other investigators (e.g., Maccoby & Martin, 1983; Russell & Russell, 1989). To measure the components of nurturance (i.e., sensitivity, positive affect, and consultation), we videotaped each child interacting separately with his or her mother, grandmother, and grandfather in 10-min structured play sessions. All sessions used a standard set of age-appropriate toys and consisted of two 5-min segments; in the first, the adult was told to permit the child to lead the play. In the second 5 min, the adult was asked to lead the play and to try to have the child follow. The structure of the play session followed Eyberg's description (Eyberg & Matarazzo, 1980; Eyberg & Robinson, 1981).

Because no single available coding scheme took into account all of the verbal and nonverbal behaviors displayed in the sessions, a coding scheme was devised based on the categories developed by Radin and colleagues on the basis of the literature on nurturance (Epstein & Radin, 1975; Radin, 1972) and by Eyberg and colleagues (Eyberg & Matarazzo, 1980; Eyberg & Robinson, 1981; Robinson & Eyberg, 1981).

Table 1
Description of the Variables

Variable	N	M	SD
Demographic			
Family Hollingshead score[a]	62	32.64	8.31
Grandmother's age in years	64	41.52	7.59
Grandmother's highest grade in school[b]	63	4.05	0.97
Grandmother's occupational rating[c]	47	4.60	1.85
Hours grandmother works per week	48	35.75	11.88
Grandfather's age in years	64	45.28	8.49
Grandfather's highest grade in school[b]	66	3.82	1.02
Grandfather's occupational rating[c]	60	3.80	1.62
Hours grandfather works per week	60	48.38	14.56
Teen mother's age in years	66	17.59	1.10
Teen mother's highest grade in school[b]	66	3.33	0.64
Nondemographic			
Grandfather nurturance	52	0.76	0.12
Grandmother nurturance	62	0.77	0.11
Teen nurturance	66	0.74	0.11
Grandfather involvement	64	19.89	3.56
Grandmother involvement	64	33.08	6.94
Teen perception of grandfather support[d]	66	0.04	0.99
Teen perception of grandmother support[d]	64	−0.09	1.06
Child's mastery motivation[d]	66	0.13	0.90
Child's Mental Development Index	65	104.68	14.78
Child's security of attachment[e]	66	1.68	0.47
Child's compliance[d]	66	0.00	0.70
Child's negative affect[d]	66	−0.11	0.52

Note. Values for demographic variables are based on information provided by the teen mother. There were no missing data for the teens as there were for grandfathers and grandmothers. A description of all the nondemographic variables appears in the text.

[a] The Hollingshead (1975) score is determined by multiplying the scale value for occupation by 5 and the scale value for education by 3 and then adding these two values. The family score is determined by adding the total score for each employed spouse and dividing by 2. If only one spouse is employed, that individual's total score becomes the family score. According to the Hollingshead (1975) Four-Factor Index of Social Status, total family scores ranging between 30 and 39 represent skilled craftsmen, clerical, and sales workers. Thus, this mean is reflective of a working-class sample.

[b] According to Hollingshead's (1975) 7-point rating scale for education in which 7 is the highest rating and 1 the lowest, 3 refers to 10th or 11th grade completed and 4 refers to high school completed.

[c] According to Hollingshead's (1975) 9-point rating scale of occupations in which 9 represents the highest rating and 1 the lowest, 3 refers to machine operators and semiskilled workers and 4 refers to skilled manual workers and craftsmen.

[d] Values represent *z* scores.

[e] 1 = *insecure attachment*; 2 = *secure attachment.*

The construct and predictive validity of Radin's coding scheme has been demonstrated in studies of nurturance of low-income, working-class, and middle-income parents with preschool children (Jordan, Radin, & Epstein, 1975; Radin, 1972, 1981), and construct validity of Eyberg's scheme has been demonstrated in clinical settings with children 2–7 years of age (Eyberg & Matarazzo, 1980; Robinson & Eyberg, 1981).

Based on the integrated coding scheme, we defined 26 discrete categories of verbal and nonverbal behavior, taking into account both content and tone of verbal behaviors. The amount of time in continuous nonverbal behaviors was coded following the timing rules described by Eyberg (Eyberg & Matarazzo, 1980; Robinson & Eyberg, 1981), and the frequency of discrete behaviors was coded as a frequency count. Table 2 shows the 26 categories of behavior organized by the conceptual subheadings of *nurturant* (16 behaviors) and *other* behaviors (10 behaviors) along with a code indicating the component in which the behavior was placed. Table 2 also reflects the relative frequency of each of the 26 behaviors. Because 2 grandfathers and 1 grandmother who were interviewed refused to be videotaped and 2 families did not contain grandmothers, a nurturance score is available for grandfathers, grandmothers, and teen mothers in 50 families.

Coders were trained until they reached a reliability level of 95% using Cartwright's (1956) alpha, which yields the percentage agreement between coders. When the coding was completed, we computed a nurturance score by summing the frequency of the 16 nurturant behaviors and dividing this sum by the total number of behaviors the adult emitted in the session to control for his or her verbal fluency. Reliability of the nurturance scores for each family member as measured by Cronbach's alpha were .56, .63, and .37 for grandmother, teen mother, and grandfather, respectively. Average nurturance scores were 77%, 74%, and 76% for grandmother, teen mother, and grandfather, respectively.

Quantity of grandmother and grandfather participation in child rearing. We assessed the quantity of grandfather involvement by including a modified version of the *Paternal Involvement in Childcare Index* (PICCI; Radin, 1982) in the interview schedule. The instrument was altered to make it relevant to grandparents of children 1 or 2 years of age. Previous studies have demonstrated the construct and predictive validity of the PICCI (Radin, 1982; Radin & Harold-Goldsmith, 1989; Sagi, 1982). In a study of working-class families with preschoolers, the Cronbach alpha obtained was .62 from the father's perspective and .72 from the mother's perspective (Radin & Harold-Goldsmith, 1989). To assess the test–retest reliability of the instrument in the present study, we administered a shortened version twice, 1 week apart, to 102 parents of preschool children. The average correlation of the 23 items in the two administrations was .72, $p < .001$.

In the present study, we measured the quantity of grandfather caregiving by examining the extent of grandfather participation in (a) physical care of the child; (b) socialization of the child; (c) decision making about the child; (d) play with the child; (e) overall estimate of participation in the care of the child; and (f) availability to the child. Grandfather PICCI scores were obtained from teen mothers and grandmothers, and a mean was computed of the two perspectives (M = 19.89, SD = 3.56). The Cronbach alpha for the teen's score was .75, whereas that for the grandmother's was .67. Teen mother and grandmother scores were significantly correlated (r = .49, $p < .001$). Quantity of grandmother caregiving was computed in the same manner as described for the grandfather; the mean grandmother PICCI was 33.08 (SD = 6.94). The Cronbach alphas for the grandmother's view of her involvement and the teen's view were .81 and .82, respectively. The Pearson product-moment correlation between teen mothers' and grandmothers' total scores was .75, $p < .001$. The grandfathers' perspective was not included in the computation of grandfather and grandmother involvement scores because 12 grandfathers refused to be interviewed. However, the correlations between the means of the three perspectives (grandfather, grandmother, and teen mother) and the means of the two perspectives (grandmother and teen mother) for the reduced sample were very high: rs = .97 and .94 for grandmother and grandfather involvement, respectively, with $p < .001$ in both cases.

Teen's perception of support. The teen's perception of support from the grandmother and grandfather was composed of two variables: (a) the number of affective situations (e.g., when feeling angry or upset) for

Table 2
Mean Frequency of Verbal and Nonverbal Behaviors in the 10-Minute Play Session Ordered by Frequency of Occurrence

Behavior	Teen mother	Grandmother	Grandfather
Nurturant			
Positive/neutral acknowledgment of baby (S)	26.4	15.0	25.4
Descriptive statement (C)	17.3	13.9	15.2
Continuous affectionate physical behaviors (R)	17.0	24.6	13.4
Asking information of baby (C)	5.8	6.0	10.4
Reflective statement/engages baby in conversation (C)	4.9	2.1	4.6
Indirect command with question (C)	3.8	2.0	2.7
Shares with baby (S)	2.8	1.2	3.6
Discrete affectionate physical behaviors (R)	1.8	1.7	1.4
Praise (R)	1.8	0.9	1.8
Affectionate words (R)	0.5	0.2	0.8
Fully meet/acknowledge baby's explicit needs (S)	0.4	0.4	0.6
Correcting in a neutral tone (C)	0.4	0.3	0.3
Direct command with explanation (C)	0.1	0.1	0.0
Partially meet/acknowledge baby's explicit needs (S)	0.0	0.0	0.0
Limit setting with explanation (C)	0.0	0.0	0.0
Indirect command with explanation (C)	0.0	0.0	0.0
Other behaviors			
Direct command without explanation	23.8	21.9	19.4
Physically stopping undesirable behaviors	2.2	1.0	0.9
Limit setting without explanation	2.0	2.6	3.2
Indirect command without explanation	0.6	0.4	0.6
Direct command/limit setting in aversive tone	0.1	0.0	0.0
Descriptive statement of undesired behaviors	0.0	0.0	0.0
Makes critical statement in an aversive tone	0.0	0.0	0.0
Does not meet/acknowledge baby's explicit needs	0.0	0.0	0.0
Aversive nonverbal/physical punishment	0.0	0.2	0.0
Threatening/name calling	0.0	0.0	0.0

Note. S = sensitivity; C = consultation; R = reinforcement.

which the teen spontaneously mentioned her mother or father as someone with whom she could share the affect, and (b) the frequency with which she rated herself as talking with each of her parents about everyday events and about more serious topics. The support score was the standardized mean across each of the three affect-of-communication items and across the two content-of-communication items. The basis for this measurement comes from Crnic and colleagues (Crnic & Greenberg, 1983; Crnic et al., 1983). All of the intercorrelations among pairs of scores for perceived support from grandmothers were significant; for support from grandfathers, all of the intercorrelations except two were significant. Teen perceptions of support from grandmother and grandfather were not significantly correlated.

Teen's perception of family conflict. To assess the teen mother's perceived family conflict, we used the Conflict subscale of the Moos Family Environment Scale (Moos, Insel, & Humphrey, 1974; Moos & Moos, 1975) and the General Functioning Scale of the McMaster Family Assessment Device (Epstein, Baldwin, & Bishop, 1983), with the latter reversed scored. The two measures were highly correlated ($r = -.72$, $p < .001$). Scores on each measure were standardized, then a mean was taken to form the conflict measure.

Child measures. A battery of instruments was administered to the children in the home and in a laboratory at Merrill-Palmer Institute. Because the child measures were standardized separately for 1- and 2-year-olds, the child variables were generally not significantly correlated with child's age. Three measures assessed the children's socioemotional functioning: (a) security of attachment as assessed in the Strange Situation (using the A, B, C, D classification) and as analyzed as a dichotomous variable, secure–insecure (Ainsworth et al., 1978; Main & Solomon, 1986); (b) mean compliance with teen mother's requests as assessed in three components, during two aspects of a toy clean-up session in the laboratory and during the last 5 min of the videotaped play session when the teen attempted to get the baby to follow her lead, with each component of the score standardized separately for each baby age group (procedure adapted from Matas, Arend, & Stroufe, 1978); and (c) mean negative affect (i.e., fear, anger, and distress) as assessed in three situations: during the Strange Situation, during the play situation with the teen mother (both coded with the rating scales developed by Gaensbauer & Harmon, 1981), and also during the administration of the Bayley Scales of Mental Development (Bayley, 1969) using the mean of three scores of the Infant Behavior Record.

Attachment and compliance were coded from videotapes, and negative affect was assessed by the examiner.

Two measures assessed the children's cognitive development: (a) the Mental Development Index (MDI) on the Bayley Scales of Mental Development (Bayley, 1969), and (b) mastery motivation as assessed by adaptations of procedures developed for children 1 and 2 years of age (Yarrow et al., 1983). Standardized scores for each age group were computed of the number of seconds the child persisted on all of the mastery tasks.

Results

We performed a Pearson product-moment correlational analysis to determine the significant associations between grandparent and teen measures, teen and child measures, and grandparent and child measures. Following our hypotheses, two criteria were used in deciding on the path analyses to be performed: (a) when a significant association between one of the teen mother variables or one of the grandparent variables and a child outcome measure was found, and (b) when the association was with a teen variable, there was a significant association between one of the grandparent variables and the teen variable. The significant associations that were obtained appear in Table 3. Correlations between pairs of variables were computed because of missing data in numerous variables, and the parameters of the path analyses to be computed were not known initially.

An inspection of Table 3 indicates that two path analyses were appropriate to test the hypotheses. One path included the influence exerted by grandfather nurturance on teen mother nurturance, by teen mother nurturance on child compliance, and by grandfather nurturance on child compliance. The second path included the influence exerted by the grandfather's quantity of involvement on the teen mother's perception of support from her father, by the teen mother's perception of this support on child negative affect, and by the grandfather's quantity of involvement on child negative affect. The above hypothesized path structures were tested by using the LISREL VII package (Joreskog, & Sorbom, 1988). The grandmother variables did not relate significantly to teen mother or child variables, and so none of the path analyses included the grandmother.[1]

To the extent that demographic variables had an impact on the effects being investigated, they were included as exogenous variables in the path analyses. The significant correlations emerging between the demographic variables listed in Table 1 and the grandparent and teen variables appear in Table 3. Because neither of the grandmother variables was relevant to the path analyses to be computed, only the significant associations with teen mother and grandfather variables are discussed. Teen nurturance was significantly correlated with the family's socioeconomic status (SES), that is, with their score on Hollingshead's Four-Factor Index of Social Status (Hollingshead, 1975), with grandmother's occupation, and with the hours of grandmother's employment. In addition, teen perception of support from the grandfather was positively related to the grandfather's age, and amount of grandfather participation in child rearing was related to the number of hours the grandfather was employed. None of the demographic factors were related to grandfather nurturance.

Grandmother occupational level is included in the computation of the Hollinghead score if she is employed. Thus, it would be redundant to include both her occupational level and the SES score. Furthermore, the use of either grandmother occupational level or the number of hours she worked per week would have limited analyses to those 48 families with an employed grandmother, reducing the ratio of sample size to free parameters and thus the generalizability of the findings (Bentler & Chou, 1987). Therefore, only the family's SES score was entered in the path analyses as an exogenous variable affecting the teen's nurturance. The age of the grandfather and the number of hours he worked were also used as exogenous variables, with age in the path analysis containing teen perception of support from grandfather and with number of hours worked in the path containing amount of grandfather participation in child rearing. Following Bentler and Chou, we limited inclusion of exogenous variables in these paths to maintain a ratio of sample size to free parameters as close to 10:1 as possible.

Figures 1 and 2 present the findings for the two path analyses. The path coefficients (standardized beta weights) are entered in each figure.

Figure 1 presents the relationships among grandfather nurturance, teen mother nurturance, and child compliance with maternal requests. As the beta weights in Figure 1 indicate, all of the paths were significant except that between teen mother nurturance and child compliance, $\chi^2(2, N = 49) = 1.41$, $p = .493$. Because it did not achieve significance at the .05 level, it can be said that the model was not significantly different from the data set (Joreskog & Sorbom, 1988). The goodness-of-fit index was .986, and the adjusted goodness-of-fit index was .930. These measures indicate a good fit of the model to the data (Joreskog & Sorbom, 1988). The R^2 value was .099. The total effect of grandfather nurturance on child compliance with maternal requests was .340.

Figure 2 presents the relationships among grandfather participation in child care, the teen mother's perception of support from her father, and negative affect displayed by the child. As can be seen, all of the paths were significant except that between teen mother's perception of support and child negative affect, $\chi^2(4, N = 57) = 4.12$, $p = .391$. The goodness-of-fit index was .972, the adjusted goodness-of-fit index was .895, and $R^2 =$

[1] The hypothesized direction of influence was from the grandparent to teen. However, because only concurrent data were collected, one could also posit a direction from the adolescent to the grandparent or a cyclical influence pattern. To explore influence in the nonhypothesized direction, we ran each path analysis twice, with the direction of influence going from grandparent to teen and also going from teen to grandparent. In the latter analyses, it was found that the teen had an indirect effect on the child through her impact on her father. Her perception of being supported by him was predictive of his involvement in child rearing, which in turn predicted less negative affect displayed by the child. In addition, teen nurturance was predictive of her father's nurturance, which enhanced the baby's compliance with maternal requests. Thus, it appears that the direction of influence in the family may go in both directions, although it is less likely that the teen's perception of support was a determinant of her father's involvement in child rearing or that the 17-year-old was a role model for her father's nurturing behavior.

Table 3
Significant Correlations Among Variables

First variable	Second variable	*n*	*r*
Significant correlations among grandparent, teen, and child outcome variables			
Grandfather nurturance	Teen mother nurturance	52	.38**
Grandfather involvement	Teen mother's perception of grandfather support	64	.25*
Grandmother involvement	Teen mother's perception of grandmother support	64	.37**
Teen mother nurturance	Child compliance	66	.27*
Grandfather nurturance	Child compliance	52	.34*
Grandfather involvement	Child's negative affect	64	−.31*
Significant correlations between demographic and grandparent/teen variables			
Family Hollingshead score[a]	Teen mother nurturance	62	.32*
Grandmother's occupational rating[b]	Teen mother nurturance	47	.32*
No. of hours grandmother works per week	Teen mother nurturance	48	.37*
Grandfather's age	Teen mother's perception of grandfather support	64	.28*
Grandmother's occupational rating[b]	Grandmother nurturance	46	.30*
No. of hours grandfather works per week	Grandfather involvement	58	−.29*
Family Hollingshead score[a]	Grandmother involvement	61	−.26*
Grandmother's occupational rating[b]	Grandmother involvement	47	−.43*
No. of hours grandmother works per week	Grandmother involvement	48	−.52**

[a] The Hollingshead (1975) score is determined by multiplying the scale value for occupation by 5 and the scale value for education by 3 and then adding these two values. The family score is determined by adding the total score for each employed spouse and dividing by 2. If only one spouse is employed, that individual's total score becomes the family score. According to the Hollingshead (1975) Four-Factor Index of Social Status, total family scores ranging between 30 and 39 represent skilled craftsmen, clerical, and sales workers. Thus, this is reflective of a working-class sample. [b] According to Hollingshead's (1975) 9-point rating scale of occupations in which 9 represents the highest rating and 1 the lowest, 3 refers to machine operators and semiskilled workers and 4 refers to skilled manual workers and craftsmen.
* $p < .05$. ** $p < .01$.

.129. Thus, it can be said that the model was not significantly different from the data and that the model was a fairly good fit for the data. The total effects of quantity of grandfather involvement on the child's negative affect was −.282.

To assess the impact of grandmother's and grandfather's participation in child rearing on the teen mother's perception of conflict in the family, we computed Pearson product-moment correlations for these variables. There was a significant negative correlation between the amount of grandmother involvement and the adolescent's view of family conflict ($r = -.25$, $p < .05$). The more the grandmother participated in child rearing, the less conflict in the family from the teen's perspective. The relationship with the amount of the grandfather's participation was not significant.

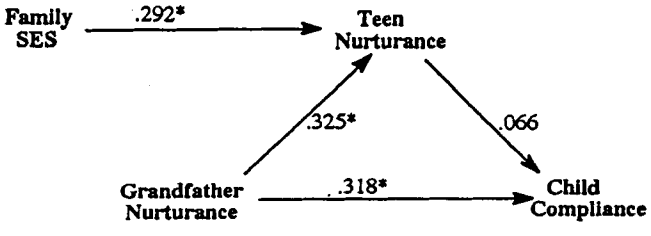

Figure 1. Path analyses for grandfather nurturance, teen mother nurturance, and child compliance with maternal requests. (SES = socioeconomic status; $N = 49$; *$p < .05$.)

Discussion

It was hypothesized that there would be an indirect effect of grandfathers and grandmothers on their grandchildren through their influence on the teen mother, as well as a direct effect of grandmothers on the baby. There was no evidence of either direct or indirect grandmother effects on the baby. Despite this, grandmother participation in child rearing appears to have an effect on family dynamics. Families in which grandmothers provided more child care were perceived as less conflictual by the teen. In the long run, such reduction in family tension may have a beneficial effect on the teen's maternal behavior and on her child.

Other means of assessing grandmother behavior might have produced other findings. For example, naturalistic observations in the home over a prolonged period of time and lengthy interviews have been used in other investigations of mother-

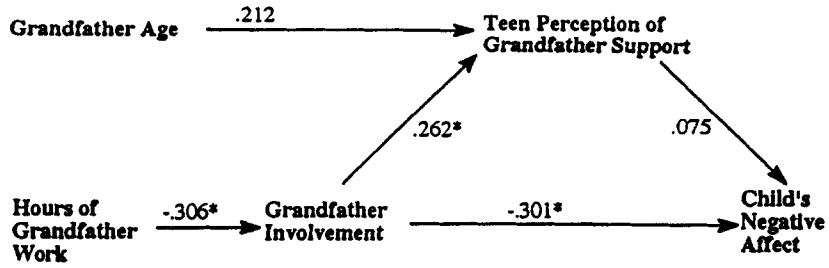

Figure 2. Path analyses for grandfather involvement in child care, teen mother's perception of support from her father, and child's negative affect. ($N = 57$; $*p < .05$.)

child relationships (Russell & Russell, 1989). One of the few other studies conducted with teen mothers, their own mothers, and their babies used an in-depth interview with the adults to determine the predictors of the baby's security of attachment to the mother (Benn & Saltz, 1989). It was found that babies were more secure when the grandmothers took over responsibility for their care and were directive in their relationship with the teen. These variables were not examined in this investigation. Although the merits of alternative approaches are recognized, it is not immediately apparent why the brief, semistructured observational methodology used in this study detected grandfather but not grandmother influence on the grandchildren. The means and standard deviations of the nurturance scores for grandmother and grandfathers were almost identical, as can be seen in Table 1.

As to grandfather influence, path analyses supported the findings of the previous report (Radin et al., 1991) that there appear to be direct beneficial effects of grandfathers on the babies in this sample. A positive association between nurturing grandfather behavior and the functioning of his infant grandchild was also found in one of the few other observational investigations of this dyad (Tinsley & Parke, 1987). In the present study, the path analyses suggested that quality of grandfather involvement enhanced the baby's compliance with maternal requests and that the quantity of grandfather participation in child rearing reduced the negative affect the children displayed.[2] Higher socioeconomic level was also predictive of greater teen nurturance, but that relationship did not affect the impact of grandfather nurturance on his daughter's behavior with her baby.

The finding of direct grandfather influence on his grandchild is notable for a number of reasons. First, the grandfather's involvement was considerably less than that of his wife's. Their mean PICCI scores were 33.1 for grandmothers and 19.9 for grandfathers. The difference was significant, paired $t(63) = 14.72$, $p < .001$. Thus, grandfathers' level was only about two thirds as great as the grandmothers'. Furthermore, the variance in the grandmothers' and grandfathers' total involvement scores were about the same in relation to their means, with each about one fifth of the relevant mean. In view of the limited amount of grandfather involvement, his nurturance and participation must have been very salient, perhaps because it was unexpected in a working-class family (Entwisle & Doering, 1988).

Perhaps the major reason for the discrepancy found in this study between grandmother and grandfather influence is the absence of any other father figure in the home, whereas there was another mother figure, the adolescent. Thus the grandfathers may have been playing a unique role, whereas the grandmothers were, at best, sharing the maternal role. The grandmother role may even have been redundant with the teen's maternal role. Until this study is replicated with families that include another adult male in the home, such as the baby's father, the issue cannot be resolved. However, it has been suggested that grandfathers play a "unique and distinctive role in the extended family" (Tinsley & Parke, 1988, p. 246) and may exert an influence on their grandchildren even when the child's father is in the home.

So far as teen perceptions of support were concerned, there was no evidence to indicate that these views were related to baby outcome measures, although support was related to the amount of grandparent involvement. Perhaps family support itself will not have an impact on the child without a concomitant change in maternal behavior (Crnic et al., 1983). In this study, perceived support and maternal nurturance were not significantly related.

It was not surprising that social-class factors were associated with nurturing maternal behavior by the adolescent. Previous studies have shown a positive relationship between SES and paternal nurturance (Jordan et al., 1975; Radin, 1972). Unexpected, however, was the absence of a linkage between nurturing behavior of the grandfather and measures of the family's socioeconomic status. The finding may be related to the theory and empirical evidence that men become more nurturant as they age (Gutmann, 1977). It is possible that as men enter the fourth decade of their lives, factors other than those linked to social class become important in predicting their warmth with babies.

[2] Based on the correlation matrix computed for the subgroup of 46 one-year-old children and the same hypotheses generated for these young children as were generated for the entire sample, the path analyses performed on the total group were performed on this subgroup. It was found that grandfather nurturance tended to have an indirect effect in enhancing the children's security of attachment through its positive impact on teen nurturance. The standardized beta weight (B) for the relationship between grandfather nurturance and teen mother nurturance was .230 ($p = .053$), and the B value for the linkage between teen mother nurturance and baby's security of attachment was .349 ($p < .05$).

A note of caution about the generalizability of the findings is necessary. The adolescent mothers involved in the study were almost all currently or recently enrolled in educational programs. They may therefore be more competent than teen mothers who drop out of school. Furthermore, only 50% of the eligible families agreed to participate. Whether families who refused were unique in some way cannot be determined at this point. However, despite the small sample and high refusal rate typical of studies of similar populations (see references cited in the *Subjects* section), this exploratory study has identified some important general themes that warrant further consideration.

In conclusion, our most significant finding was that grandmothers and grandfathers have a different impact on the teens' baby when she lives with her family of origin. Although it must be acknowledged that the limited number of variables considered and the cross-sectional design of the study cannot adequately capture the complex family dynamics that may be involved, it does appear that grandfathers are a potent source of influence in three-generational families with a teen mother, her baby, both of her parents, and no other adult males. These grandfathers should not be overlooked by researchers investigating aspects of adolescent parenting.

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