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The Impact of Parental Life Change on the Early Development of Children

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The effect of parental life change on children's mental and social development was explored in a longitudinal study of 193 families. Data on life changes, social supports, home environment, child development and interactions were obtained in a series of nine interviews from before the child's birth to 48 months after birth. For the sample as a whole, significant negative correlations were obtained between maternal life change in the first year of the child's life, and the child's IQ and receptive language at 4 years. An examination of subgroups revealed, however, that this relationship was strongest for mothers low in both personal coping resources and in social support. Findings suggest that both direct and indirect effects of maternal life change on the child contribute to the observed relationship.

In recent years the attention of nurses and other health care providers has become increasingly focused on potential sources of illness other than biological pathogens. The terms "stress" and "life change" have been widely used to describe psychologically significant events that have an impact on physical health. There is now extensive evidence linking high levels of life change to increased risk of both physical illness and psychological disturbances such as depression (see Dohrenwend & Dohrenwend, 1978, 1974; Rahe & Arthur, 1978, for reviews). The effect is modest but consistent across many samples, with a variety of measures of life change and a variety of health-related dependent variables. Professional interest in these findings centers on better understanding of who is at high risk of negative health outcomes so that health services can be most supportive.

The primary purpose in the present paper is to explore an extension of the basic relationship between life change and health to a second-order effect. Specifically, we hypothesized that high levels of life change experienced by mothers would have a negative impact on their children's development. Dodge (1972), Greene and Miller (1958), and Sibert (1975) reported that illnesses and accidents occur at a higher rate among children whose mothers experience high life change. But there is no comparable data on the impact of maternal life change on other aspects of children's functioning, such as cognitive development, language, or problem behavior.

Two causal chains might lead to a relationship

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between parental life change and disturbance/illness in the child. First, there could be a direct impact of the parent's life change on the child. For example, when the family moves from one house to another, both the infant and the parents must adapt to new surroundings. Other changes in the mother's or father's life could require direct adaptation by the infant by increasing, decreasing, or altering the pattern of stimulation available to the child.

An indirect causal sequence is more likely. Mothers who experience increased demands for adaptation may, as a result, alter the way in which they interact with their infants or young children. They may be less attentive, spend less time with the children, allow greater disorganization, or reduce the amount of affection they express toward the children. These are precisely the kind of changes that Hetheringon, Cox, and Cox (1977) found occurring following a divorce, surely a major life change. Since other studies of early parent-child interaction show that the quality, quantity, and timing of parental stimulation are associated with later IQ and language development in the child (c.f. Bee et al., 1982; Bradley & Caldwell, 1976; Elardo, Bradley, & Caldwell, 1975; Ramey, Farran, & Campbell, 1979), any changes in the mother's behavior on these dimensions as a result of heightened life change could affect the child's later performance.

Such an indirect causal pathway leaves room for the parents to control the degree to which the children would be affected by the parents' life change. It is clear from recent research on stress and life change that adults vary markedly in their ability to handle high levels of change without symptoms. McFarlane, Norman, Streiner, Roy, and Scott (1980) argued for the existence of two clusters of mitigating variables: personal coping resources and social support systems. Personal coping resources include intelligence, previous learning, coping style, and cognitive processes. They help the individual to understand the life changes that are occurring, and to select reasonable strategies for softening the effect of those changes. In addition, individuals who have access to significant others from whom significant emotional and practical support may be received are less likely to respond to high levels of life change with pathology (see Kahn & Antonucci, 1980, for a review). Extending this argument one step further, we might expect that the existence of either or both of these types of resources would permit parents to buffer children against the impact of high parental life change.

This analysis leads to three specific questions, all of which can be examined in at least a preliminary way with data from a longitudinal study of a group of nearly 200 mothers and their young children (Bee et al., 1982). The purpose of the larger longitudinal study was to determine the early child, parent, and environmental characteristics that would help predict later childhood developmental problems. Identification of such predictor variables or patterns would assist in formulating beneficial nursing care for families during infancy and early childhood. A portion of the larger data set was used in this report to answer three questions: (a) Is there a demonstrable "second generation" effect of parental life change on the child's development? Our prediction at the outset of the project was that children whose parents experienced high life change would have lower IQ, poorer language, and more problem behavior at preschool age. (b) Is this effect heightened in families in which the mother lacks personal resources or adequate social support? Based on recent thinking, our hypothesis is that the maximum relationship between life change and child outcome should occur when the parent lacks both resources and support. (c) Is the causal pathway for this effect entirely indirect, with effects on the child brought about largely by changes in the parent's behavior, or is there evidence for a direct effect on the child?

Full answers to these three questions would require, at the least, adequate measures of maternal life change, personal coping resources and level of social support, and the actual quality and quantity of interaction between mother and child. We can estimate all four of these variables with data from the longitudinal study (Bee et al., 1982).

METHOD

Subjects

One hundred ninety-three primiparous mothers and their infants, all enrolled in a prepaid Health Maintenance Organization in the Northwest, formed the initial sample. Details of subject selection are provided in Bee et al., 1982. The sample was above average in education (56% of the mothers had more than high school education), income (median income was $11,000 in 1973), age (mean was 25.0 years at delivery), and family stability (88% were married at delivery). The mothers all had at least some prenatal medical care and the rate of perinatal problem was low. Thus this was a healthy, working-class and middle-class sample. Retention of subjects

was good; after 1 year in the study, 177 families remained (91.7% of the original sample); after 4 years, 169 families remained (87.6%).

Measures

The Social Readjustment Rating Scale (SRRS). Developed by Holmes and Rahe (1967), this widely used instrument consists of a list of 42 life changes which, if occurring, require some level of adaptation by the individual. Life events included deal with family constellation, marriage, occupation, economics, residence, group and peer relations, education, religion, recreation, and health. Both positive and negative events are included, since both require adaptation to change. Each item has an assigned weight ranging from 11 for minor violations of the law to 100 for the death of a spouse. The total life change score is a weighted sum of the items checked. The stability of the rankings of the assigned weights across study populations (Harmon, Masuda, & Holmes, 1970; Holmes & Masuda, 1967) and the relationships found between past life events and the onset and severity of illness (Holmes & Masuda, 1970) support the validity of this scale.

Recent theoretical and empirical work on the impact of life change on behavior and illness pointed to important weaknesses in the construction of the original SRRS (Dohrenwend & Dohrenwend, 1978; Sarason, Johnson, & Seigel, 1978). No differentiation is made between positive and negative changes, nor is individual weighting of adaptational demand built into the instrument. Regrettably, the SRRS as originally constructed does not lend itself to *post hoc* creation of subscores such as "positive change" or "negative change." (Is "gain of a new family member," for example, a positive change or a negative one?) The choice of the SRRS has required us to talk about the effects of *life change* rather than stress in the sense of negative or socially undesirable. With the SRRS, "the emphasis is on change from the existing steady state and not on psychological meaning, emotion, or social desirability" (Holmes & Rahe, 1967, p. 217).

In the present study, the SRRS was completed by the mothers at the prenatal and newborn contacts and at 1, 4, 8, and 12 months postnatal. At the prenatal contact they checked the previous 12-months changes. At each subsequent contact they checked those items that applied since the last interview. The score used in the analyses is the weighted sum of the life changes reported at the 1-, 4-, 8-, and 12-month contacts. This score covers 12 months, however, it differs from those typically reported for a 12-month period, since the same life change event could be reported more than once, thus making the score higher than if the 12-month period had been recalled at one time. This duplication of items is problematic only if comparisons were to be made to other samples. Several repeated changes would be expected due to the addition of a new baby to the household; for example, the sleep habits of a new mother might be expected to change several times throughout the baby's first year of life.

Social support. A measure of social support was derived from eight items on the prenatal interview where mothers were asked several questions about the level of support and assistance they received from the baby's father and other sources. Three of the items pertained to general support: mother had enough emotional support, mother had enough physical help, and mother had someone with whom to share her concerns and feelings. Five items touched on the mother's perception of the father's support: father shared mother's concerns, father gave most emotional support, father gave most physical help, father was pleased about pregnancy when he learned of his partner's pregnancy and at the third trimester. Replies to these eight items were combined into a single prenatal social support score, which has an internal consistency (Cronbach's alpha) of .77. The heavy loading of items relating to the father's support, of course, biases the score in favor of mothers who had partners. However, as will be discussed later, only a small percentage of the mothers in this sample were without partners, and the influence of this factor will be examined statistically.

The HOME inventory. The Home Observation for Measurement of the Environment (HOME), developed by Caldwell and Bradley (1978), consists of 45 binary (yes/no) items describing aspects of the child's home environment and interaction with the major caregiver, usually the mother. Items touch on the emotional and verbal responsivity of the mother, her avoidance of restriction and punishment, the organization of the physical and temporal environment, provision of appropriate play materials, maternal involvement with the child, and opportunities for variety in the child's daily stimulation. An observer/interviewer fills out the list of items after a 1- to 1-1/2-hour home visit. The authors report an internal consistency coefficient of .89, and a predictive validity correlation of .58 ($p < .05$)

with the Stanford-Binet IQ at 36 months for the 12-month total score.

The total HOME score from the observation at 12 months was used in the present analysis. For this sample, interobserver reliability (percent agreement) was 95%.

Child outcome measures. We chose to use the 48-month assessments of the children's functioning, rather than the 12- or 24-month scores, as tests of our basic hypotheses for two reasons. First, measures of IQ and language at 12 months have poorer test-retest reliability and predictive validity than later measures. By 48 months, children's performances are markedly more stable. Second, other data from the longitudinal study suggested the existence of important lagged effects between environmental variations during the child's first year and the child's subsequent test performance. Three 48-month scores were used as "outcomes": IQ, language, and problem behavior.

IQ was assessed using the 1960 version of Form L-M of the Stanford-Binet Intelligence Scale (Terman & Merrill, 1973). This is a standard instrument for the assessment of children's intelligence. The IQ is a standard score with a mean of 100 and a standard deviation of 16.

Language was assessed with the Fluharty Speech and Language Screening Test (Fluharty, 1974). This screening test was designed to identify children for whom additional diagnostic information is desired. Four test sections include vocabulary, articulation, receptive language, and expressive language. Only the receptive language score was analyzed for the present sample since the majority of our subjects were performing at or near ceiling on the other sections. For the standardization sample of 203 preschool children, cutoff scores were verified by results of a battery of tests including the Peabody Picture Vocabulary Test. Correlations between the screening tests and the results of the complete diagnostic evaluation was .87. For receptive language, a cutoff score of 7 was established for 4-year-olds. A test-retest reliability coefficient of .95 was obtained for the receptive language score in the standardization sample. For the present sample, interobserver reliability (percent agreement) was 93.3% for the receptive language score.

Problem behavior was identified by the mothers using the Behar Preschool Behavior Questionnaire (PBQ) (Behar & Stringfield, 1974). It consists of 30 items describing specific behaviors such as nail biting, fighting, restlessness, shyness, and stuttering. The PBQ was standardized on a sample of 496 children enrolled in normal preschools and 102 children enrolled in programs for emotionally disturbed preschoolers. The total score on the PBQ significantly differentiated between the two groups. Mean test-retest reliability for the total scale was .87 in the standardization sample.

The PBQ was designed to be completed by preschool teachers. Since many of the subjects in the present sample were not enrolled in preschool, the mothers completed the instrument. Pilot research with a group of 128 Seattle preschool teachers and parents (Gray, Clancy, & King, 1981) concluded that parents are not interchangeable with teachers as respondents on the PBQ; the correlation between teacher and parent scores was .23. Thus it appeared that parents and teachers were basing their reports on somewhat different underlying dimensions of social competence. This finding required us to view our PBQ score as a measure of the mother's perception of problem behavior. An internal consistency coefficient (Cronbach's alpha) of .83 was obtained for the present sample, indicating that our measure of problem behavior is reliable, although not comparable to Behar and Stringfield's measure.

Procedure

The general procedure for the study involved interviews with the mother during the final trimester of pregnancy; at birth; and at 1, 4, 8, 12, 24, 36, and 48 months after delivery. At birth, the child's physical status was assessed by study personnel in the hospital; at 1, 4, 8, 12, 36, and 48 months, observation of the child took place during a home visit; at 12, 24, 36, and 48 months, the child was also seen in a university laboratory setting for individual assessment. Informed consent was obtained from the mothers at the initial contact and again at each contact after 12 months.

RESULTS

To determine if the relationship between mothers' life change and children's outcome varied for mothers with differing levels of personal resources or social support, groups were created by dividing the sample at or near the median on both mother's education and social support. Mothers with high school education or less comprised the "low education" group; those with more than high school education made up the "high education" group. On the social support score, the mothers were divided between those who had a score of 8 (high social support) and those who

had scores of 7 or lower (low social support). When looking at the effect of both education and social support, four groups were created using the same criteria.

A comparison of the four education/social support groups on the variables of interest is in Table 1. The low education/low support group stands out as different on a number of the mothers' characteristics. In addition to their low level of education, they were the least supported and tended to be younger. This group also had a higher percent of mothers without partners: 20.8% versus 0.0% to 2.2% for the other groups ($X^2 = 20.69$, $p < .01$). Their HOME scores also were significantly lower than the other groups, and they reported more life change.

An item analysis of the life change score revealed several items on which the low education/low support group differed significantly from the other groups. Most notable were items pertaining to marital relations. Of the low education/low support group, 25% reported marriage as a life change during the first year compared with 0.0% to 4.9% for the other groups; 20.8% reported marital reconciliation (0.0% to 3.7% for the other groups); and 25.0% reported marital separation (3.6% to 8.9% for the other groups). The low education/low support group also showed significantly more changes related to schooling; 33.3% reported beginning or ceasing schooling (2.6% to 14.5% for the other groups) and 16.7% reported change in schools (0.0% to 8.9% for the other groups).

As mentioned previously, the method of computing the life change score by summing over four reporting timepoints during the first year of life could result in items being reported more than once. The percentages of all subjects reporting changes for more than one time period showed that the most frequently duplicated items included change in sleeping habits (49.7%), change in eating habits (22.1%), change in the number of family get-togethers (17.8%), change in usual type and/or amount of recreation (15.3%), change in financial state (15.3%), and took a vacation (15.3%). These items appear to be those which would logically change multiple times during the first year with a new baby. Thus it appears that the repetition of items is not a result of spurious reporting but of logical changes in life style, social activities, and finances due to the addition of a new baby to the household.

Comparison of the four groups on the child's characteristics in Table 1 shows that at age 4 years, the children in the low education/low support group had lower IQ scores. Although not significant, this group also tended to have poorer receptive language and more disturbed behavior. Note, however, that at birth the children in this group did not differ in gestational age (a measure of perinatal status), suggesting that the infants in the low education/low social support group did not begin life with major physical disadvantages.

While the majority of children in each group had IQ scores within a normal range, the actual number of low IQs (less than 84) was highest in the low education/low support group with 10.5% having IQ scores less than 84. The percentage of low IQ scores was 5.6% in the high education/high support group, 0% in the high education/low support group, and 5.1% in the low education/high support group. Similarly, the percentage of low (less than 7) receptive language scores was highest in the low education/low support group (13.6%) compared with 2.1% in the high education/high support group, 0% in the high education/low support group, and 2.6% in the low education/high support group. Using a cutoff score of 25 for the PBQ score, 16.7% of the low education/low support group had deviant behavior compared with 5.8% in the high education/high support group, 6.7% in the high education/low support group, and 2.6% in the low education/high support group.

The correlations between life change score and the three child outcomes for the total sample, the high and low education groups, the high and low social support groups, and for the four education/social support groups are given in Tables 2 and 3. Because of differences among the groups in the variances of the life change scores, we corrected the appropriate correlations for the difference in range (McNemar, 1962). Since this correction did not appreciably change the magnitude of the coefficients or their significance levels, we have presented the uncorrected correlations.

For the sample as a whole, there are modest but statistically significant correlations between life change and the three child outcome variables. However, it is clear from Table 2 that the relationship between life change and child outcomes is confined to low education or low social support subgroups. Table 3 shows that when four groups are used, those who have both low education and low social support have children whose IQ and language scores more strongly reflect the level of the mother's life change.

Because the mothers in the low education/low social support group were younger and without partners, we partialled out these demographic variables from the relationship between life change and child outcomes. These partial correlations for

Table 1. Means and Standard Deviations for Study Variables by Maternal Education/Social Support Groups

	Total Sample n = 142–152		High Education/ High Support n = 47–53		High Education/ Low Support n = 43–44		Low Education/ High Support n = 34–35		Low Education/ Low Support n = 16–20	
Study Variables	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Life change score—first year	289.27	197.52	255.57_{a}	165.65	323.77_{ab}	208.72	228.50_{a}	157.45	409.03_{b}	253.31
Mother's years of education	14.36	2.50	15.74_{b}	1.65	16.05_{b}	1.92	11.74_{a}	0.82	11.60_{a}	0.60
Social support—prenatal	7.09	1.47	8.00_{c}	0.00	6.22_{b}	1.29	8.00_{c}	0.00	5.02_{a}	1.81
Mother's age at delivery	25.55	4.02	27.04_{b}	2.89	27.18_{b}	3.29	23.74_{a}	4.01	21.15_{a}	3.70
Gestational age	39.08	1.31	39.22_{a}	1.09	39.30_{a}	1.36	38.67_{a}	1.09	38.95_{a}	1.88
IQ at 48 months	114.72	16.36	117.35_{b}	17.24	119.23_{b}	15.82	111.57_{ab}	12.72	100.94_{a}	14.22
Receptive language at 48 months	9.11	1.06	9.28_{a}	1.04	9.14_{a}	0.86	9.18_{a}	0.94	8.50_{a}	1.54
Disturbed behavior at 48 months	15.59	6.39	15.68_{a}	5.95	16.34_{a}	5.98	13.17_{a}	6.14	17.95_{a}	7.75
Total HOME score at 12 months	36.80	5.08	38.92_{c}	3.58	38.09_{c}	3.39	36.03_{b}	3.99	29.65_{a}	6.61

Note. Means with different subscripts differ significantly (Scheffe's test, $p < .05$).

Table 2. Correlations between Mother's Life Change Score and Child Outcome Measures by Level of Maternal Education and Social Support

Variables in Correlations	Total Sample n = 142–150	High Education n = 90–95	Low Education n = 51–55	High Support n = 81–87	Low Support n = 59–64
Life change—first year with IQ at 48 months	−.17*	−.01	−.47**	−.05	−.28*
Life change—first year with receptive language at 48 months	−.29**	−.07	−.54**	−.14	−.37**
Life change—first year with disturbed behavior at 48 months	.16*	−.01	.38**	.15	.10

*$p < .05$. **$p < .01$.

the low education/low social support group, presented in Table 4, are only slightly attenuated from the zero-order correlations between the mother's life change and child outcomes (Table 3).

To test the direct versus indirect effect of life change on child development, the total HOME score was partialled out of the relationship between life change and child outcomes. These partial correlations for the low education/low social support group are presented in Table 4. For this group, the zero-order correlation between life change and receptive language (r = −.60) indicates that approximately 36% of the variance in receptive language for this group was explained by the life change score. The partial correlation controlling for the HOME score is −.51, indicating that about 26% of the original 36% of the explained variance between life change and receptive language is due to *direct* transfer, while the remaining 10% appears to result from the impact that life change has on the HOME score. Similarly, in this same group, 32% of the variance in the 4-year IQ is explained by the life change score in the zero-order correlation (r = −.57). The partial correlation controlling for the HOME score is −.40, suggesting that about 16% of the explained variance is the result of a direct influence of life change on the child, while the remaining 16% of explained variance is the result of the indirect effect of life change on mother-child interaction as reflected in the HOME score.

Figures 1 and 2 show the relationships among mother's life change, the HOME score, and the child outcomes (IQ and receptive language) for the low education/low social support group. The correlation coefficient in parentheses is the partial correlation between the mother's life change and the child outcome controlling for the HOME score.

DISCUSSION

As predicted, there is a modest correlation between level of maternal life change and the child's cognitive and linguistic development and disturbed behavior. For the sample as a whole,

Table 3. Correlations between Mother's Life Change Score and Child Outcome Measures by Maternal Education/Social Support Groups.

Variables in Correlations	High Education/ High Support n = 47–52	High Education/ Low Support n = 43–44	Low Education/ High Support n = 34–35	Low Education/ Low Support n = 16–20
Life change—first year with IQ-48 months	.01	−.05	−.21	−.57**
Life change—first year with receptive language at 48 months	−.01	−.10	−.34*	−.60**
Life change—first year with disturbed behavior at 48 months	.02	−.05	.30*	.28

*$p < .05$. **$p < .01$.

Table 4. Partial Correlations between Mother's Life Change and Child Outcome Measures for Mother's with Low Education and Low Social Support

Control Variables	Child Outcome Variables at 48 Months		
	IQ	Receptive Language	Disturbed Behavior
Mother's Age	−.55*	−.57**	.16
Partner/No Partner	−.57*	−.59**	.32
Total HOME Score at 12 months	−.40	−.51*	.14
Age, partner, and HOME	−.42	−.48*	.08

*$p < .05$. **$p < .01$.

mothers who experience high levels of life change during their child's first year of life have children who later show somewhat lower IQ, poorer language, and more disturbed behavior.

However, as current thinking about the effect of life change led us to expect, the link between parental experience and child outcome is not automatic. Most mothers apparently were able to buffer their children from the effects of their own life changes. Only those mothers who lacked coping resources (as indicated by less education) or adequate social support appeared unable to do so. The relationship between mothers' life change and children's IQ and language development was strongest for the group with both low education and low support. This does not hold when child behavior is the dependent variable. This may be because this, in contrast to the other developmental variables, measures problematic or disturbed behavior rather than children's behavioral competencies. Or it may be that other environment and individual characteristics are involved in causing behavior problems which were not included in these analyses.

Whether the causal link between high life change and children's IQ and language development is direct or indirect is more difficult to sort out with the data available from this study. Obviously, the fact that such a link does not exist at all in well-educated, socially supported mothers is evidence for an indirect pathway. These mothers appear not to have allowed their own behavior with the children, or the environment they provide, to be altered markedly in the face of heightened changes in their own lives. Similarly, the fact that the life-change/outcome correlations were attenuated when a broad-gauged measure of environmental quality was partialled out also points to an indirect link. However, it is worth noting that, while attenuated, the partial correlations are not zero. Thus in the low education/low social support group, those mothers who experienced very high life

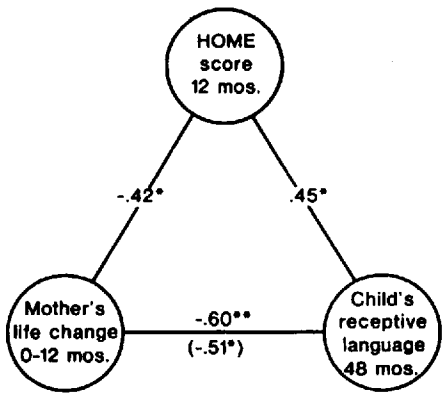

Figure 1. Relationships among mother's life change, HOME score, and child's IQ for low education/low social support group ($n = 16$).

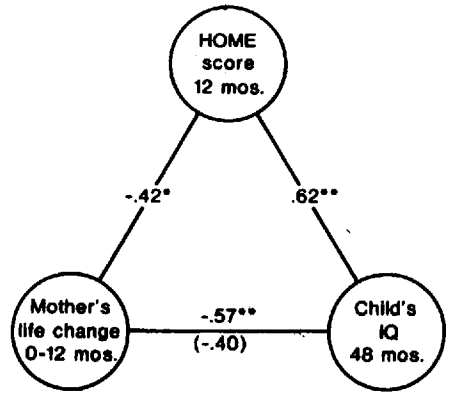

Figure 2. Relationships among mother's life change, HOME score, and child's receptive language for low education/low social support group ($n = 18$).

change probably provided less stimulation, less order, and less affection for their children. In this group the correlation between the life change score and the HOME was −.42; in the other three groups this correlation ranged from −.28 to .16. But there also are suggestions in these results that these same mothers fail to compensate for the potential direct effects of their life changes on their children.

To make this point clearer, take the example of a marital separation as a major life change. From the child's perspective, at least two types of changes flow from such an event. First, the remaining parent (usually the mother), because of her own emotional distress, may change the level of attention shown the child, change her typical pattern of discipline, or allow the family routine to become disorganized. At the same time, the child also has one less adult to talk with or to be close to physically. The first of these effects we described as the indirect effect, and the second the direct effect. We believe that our results point to the fact that the mother with adequate personal resources (intellectual and social) can buffer her child against both of these effects, by maintaining her own typical behaviors to a greater degree, and by providing extra time and attention to make up for the missing adult in the child's life. The mother who lacks adequate resources, in contrast, appears to do less of both.

We are aware, however, that there are other possible interpretations of our findings. One alternative is based on a genetic argument. Less well-educated women may be simply genetically less bright, and because of that they both have children with lower IQs *and* are more likely to experience high life change. Since life change is typically higher in adults of lower social class, this alternative has a sort of surface plausability. Two arguments can be made against this option. First, we are not simply reporting that mothers with low education have children with lower IQ or poorer language. That is a well-established fact, and is not the focus of our interest. The basic point we are making is that within a group of mothers with low education, those who experience higher life change have children with less optimal development. Second, note that it is the combination of low education and low social support that is crucial for the effect we are describing. Mothers with equally low education who have adequate social support have children whose development is unaffected by the mother's life change. If only genetic variance were at work, we should expect to find parallel results for both low education subgroups.

These findings, if they continue to be substantiated, have practical implications. As might be anticipated, the low education/low support mothers in this study not only reported high levels of life change; they also were younger and fewer of them had partners to assist with childrearing. Partialling out age and having a partner did not substantially decrease the relationships between life change and IQ and language development. This is in a way encouraging because these factors are not amenable to health services. On the other hand, it is feasible to direct care to change parents' behavior with the aim of giving the environment they provide for children special attention during times of life change. These findings suggest that the effects of high life change are not automatic. The mother's response to life change appears to be a critical intervening variable, and her capacity to respond in growth-enhancing ways toward her child, even in the face of high life change, appears to be dependent on both her cognitive and emotional resources. This suggests future avenues for further identification of high-risk groups through research on the environment of children as supportive or nonsupportive for health and development (Barnard & Neal, 1977).

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