

POVERTY AND THE DAILY LIVES OF INFANTS

Consistent disadvantage

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It has been amply demonstrated that poor children suffer disadvantages as compared to their more advantaged peers. This paper examines important aspects of infants' daily experiences in a southeastern city in the United States in order to illustrate differences between poor and non-poor infants. "Poor" infants were compared to their "non-poor" counterparts on the quality of parenting they received; quality of their home environments; relative health and safety; stability, structure, and predictability of their daily lives; and exposure to diverse experiences in the community. Findings reveal that poor infants are at a consistent disadvantage across all domains when compared to their more affluent counterparts. These daily deficiencies might be conceptualized as the mechanisms through which poverty exerts its negative effects. This paper shifts the focus from macro-level variables such as larger economic and social factors to the cumulative effect of deficiencies at the micro-level. Intervening to ameliorate the micro-level deficits that are most modifiable may lessen the cumulative risk and provide some small avenues toward resilience for the most disadvantaged and at-risk infants.

Introduction

According to the U.S. Census more than 13 million American children lived in poverty in 2004 (Children's Defense Fund 2005). It has been amply demonstrated (e.g., Brooks-Gunn and Duncan 1997; McLoyd 1998; Yeung, Linver, and Brooks-Gunn 2002) that poor children suffer disadvantages compared to their more advantaged peers in virtually every area, including health, cognitive development, social development, mental and emotional health, and school achievement. Moreover, the effects of poverty are long lasting—higher rates of delinquency, school drop-out, and adolescent pregnancy clearly place poor children at a disadvantage with regard to achievement and quality of life as they enter adulthood (e.g., Duncan et al. 1998; Mayer 1997).

Yet we still have an incomplete understanding of how poverty is experienced by children. Brooks-Gunn and Duncan ask:

What does poverty mean for children? How does the relative lack of income influence children's day-to-day lives? Is it through inadequate nutrition; fewer learning experiences; instability of residence; lower quality of schools; exposure to environmental toxins, family violence, and homelessness; dangerous streets; or less access to friends, services, and, for adolescents, jobs? (1997, 56)

Researchers have indeed explored children's perspectives on poverty using qualitative methodologies. Attree (2004) reviewed qualitative studies of children's perspectives on living in poverty, focusing on nine studies that met criteria for methodological rigor. (Studies included only those published in English since 1987 concerning poor children under age 18 in industrialized nations.) Noting a serious paucity of research about children's perspectives on poverty, Attree also describes methodological limitations in the existing research. Nevertheless, Attree's review demonstrates that while children say that family, friendships, and positive neighborhood factors can mitigate some of the effects of poverty, these resources are themselves diminished by persistent poverty. Clearly, children's perspectives on their experiences in poverty are valuable.

However, due to developmental limitations in language capacity, studies have focused on older children; Willow (2002) interviewed the youngest children (age 5). Yet, given that the effects of poverty differ by age and developmental level (Duncan et al. 1998), our lack of understanding about how poverty influences younger children is a critical gap in our understanding of how poverty exerts its negative influences on children.

Infancy, in particular, is the period of the most rapid growth and development—particularly for the brain, which is the least mature organ at birth (Davies 2002). While previous research has been informative about the detrimental effects of specific poverty-related variables during infancy, such as under-nutrition and lack of stimulation, a fuller understanding of the effect of these variables in infants' daily lives does not exist.

Why is it important to understand the daily lives of poor infants? Current thinking points to the cumulative nature of stressors associated with poverty. Evidence from numerous studies demonstrates that it is the accumulation of risk factors, rather than any specific factor, that maybe responsible for the negative outcomes experienced by poor children (e.g., Brooks-Gunn, Klebanov, and Liaw 1995; Hooper et al. 1998). For example, Lupien et al. (2001) suggest that the health disadvantages of poverty may be related to the relationship between chronic life stress and chronically-elevated levels of cortisol, the "stress hormone." Their review shows that prolonged exposure to high levels of cortisol and other glucocorticoids leads to suppression of the immune system, as well as dysfunction and damage of the hippocampus. Knowledge of how the stressors of poverty begin to accumulate from the first days of life lends urgency to policy and intervention efforts on behalf of poor children.

The objective of this project was to examine important aspects of infants' daily lives in order to illustrate differences between poor and non-poor infants. Infants cannot tell us about their lives, so we chose to use multiple methods of collecting data about their daily routines, their environments, and their interactions with their mothers and others.

Methods

The Voluntary Infant Parent Study (VIPS) was a longitudinal study of 246 mothers and infants, recruited between February and November of 1999 from the Mother–Baby Unit of a large university-affiliated hospital in a mid-size southeastern city. The hospital serves not only the residents of the city, but is also the delivery site for women from many nearby poor, rural communities without delivery facilities. Because it is a teaching hospital,

it also is frequently selected for women believed to be at risk for delivery complications. Discharge occurred within 24 hours for most vaginal deliveries and within 48 hours for most Cesarean section deliveries. Therefore, most interviews were conducted between 12 and 36 hours after delivery.

Circumstances precluded probability sampling, as the hospital was not willing to provide an enumeration of delivering patients, and resources would not permit an interviewer on the Unit at all times. Therefore, interviewers were present about 20 hours per week, including some weekends, during the data collection period and approached mothers who were available, without set criteria. The few refusals of participation were related to lack of time due to early discharge, mothers' being sleepy or in pain, or the presence of visitors in mothers' rooms.

In order to obtain a sample large enough for testing relationships within race (for use in another study), we approached African-American mothers first and interviewed only African-American mothers in the last few weeks of the study (see Cain forthcoming, and Cain and Combs-Orme 2005, for within-race studies). Comparisons to the birth population at the hospital indicate that the sampling procedure increased the proportion of African-American mothers to 43.2 percent, as compared to the 22 percent of the general delivering population during this time. Because of this overrepresentation of African-Americans, and their socioeconomic disadvantages compared to European-Americans, and because recruitment took place in a publicly-funded hospital, the sample was more disadvantaged than the general delivering population during the data collection period (Table 1).

Thus, our study compares the experiences of infants in "deep poverty" (Dunifon 2002) to those whose families are not poor. In interviews we recorded annual income as an ordinal variable from 1 (\$5,000 or less) to 10 (\$75,000 and over). Similar to methods used by Duncan, Brooks-Gunn and Klebanov (1994), the 1999 federal poverty guidelines (U.S.

TABLE 1
Descriptive information

	Poor (50% federal poverty level) (N = 74)	Non-poor (200% federal poverty level) (N = 46)
African-American	63.5%	17.0%
Caucasian	26.5%	83.0%
Mean maternal age	22.5 (SD 5.0)	29.1 (SD 6.0)
Mean years maternal education	11.3 (SD 1.2)	14.4 (SD 2.1)
Median family income	\$6,500	\$63,500
Welfare benefits	56.8%	6.4%
Married	10.8%	78.7%
Father living in home	33.8%	91.5%
Mean number in household	4.4	3.9
Mother employed full-time	12.2%	42.6%
Mother employed part-time	10.9%	25.5%
Mother enrolled in school	19.0%	8.5%
Home ownership	9.5%	67.4%
Mean rental payment (for renters)	\$117.7 (SD 165) (N = 58)	\$591.0 (SD 440.5) (N = 32)

Department of Health and Human Services Office of the Assistant Secretary for Planning & Evaluation n.d.) were used to construct the “poverty gap,” a ratio of income to poverty level for household size. Two groups were then established for contrast—the “deep poverty” group (hereafter simply referred to as the “poor” group), and the “non-poor” group. These mother–infant dyads had respective ratios of 0.5 or less (50 percent of the poverty level, $N = 74$), and 2.0 or greater (200 percent of the poverty level, $N = 46$).

Our measurement of “deep poverty” is based on an interest in children who experience the most severe consequences of poverty. In 2000, 6.5 percent of American children lived in deep poverty (Dalaker 2001).

Data Collection

Baseline and Follow-up Interviews

To reduce project expense, the mother–child sample was restricted to residents of counties within a 30-minute drive (although mothers who moved after initial recruitment were retained). Interviewers first explained the nature and purpose of the study, the incentive, and the requirement that interviews be conducted in private, and then completed the Informed Consent process. The baseline interview required approximately 20 minutes, and mothers received \$10 gift certificates.

Follow-up interviews completed in respondents’ homes when infants were 6–12 months of age permitted observational assessment of the home and neighborhood, as well as mother–infant interaction. These interviews varied in length from 90 minutes to two hours, and included a number of standardized measures, as well as an inventory of infants’ routines and tours of respondents’ homes. Extensive tracking activities allowed us to conduct follow-up interviews with 93 percent of the original sample.

To examine whether attrition bias existed, mothers interviewed at the follow-up ($N = 227$) and those not interviewed ($N = 19$) were compared using logistic regression. These results showed that there was no difference between participants and non-participants in terms of race, marital status, age, and level of education.

Constructs and Instruments

Infants’ daily lives are influenced by their physical environments (including home, neighborhood, and community), parenting (including parents’ attitudes, knowledge, and behavior), interactions with others, and activities. These elements may interact, for example, when a parent takes an infant to the library or museum. To create a comprehensive picture, we collected data using standardized instruments; observations of the child, mother, and environment; and reports of infant activities using a diary format. Specific aspects of infants’ lives were selected over two years in the context of a review of the pediatrics, child development, and other literature about infant developmental tasks and related parenting behaviors (Combs-Orme et al. 2003). (This section only discusses the measures used in this study. A complete list of variables may be obtained from the corresponding author.)

Physical environment. Environmental measures must contain a broad census of indicators of each dimension to be sure of adequate representation, since specific effects may come from a variety of causal factors (Bradley et al. 2001). The physical environment includes not only the house or apartment where an infant lives, but also the block and neighborhood. We selected indicators related to the safety, orderliness, and stimulation in the environment. (See Combs-Orme et al. 2003, for a review of these issues in relationship to infants' developmental needs.)

Home environment: first, interviewers completed checklists about the block and the environment outside of each home, and about dangerous conditions and amenities such as landscaping. These evaluations were combined with block group data provided by the U.S. Census, which was being conducted at the same time as our follow-up interviews. Census data were obtained for 94 percent of our sample (47 non-poor and 74 poor mothers). Missing data were due to PO Box addresses with no corresponding street addresses, mothers who moved out of state, and addresses that could not be located using U.S. Census Bureau American FactFinder. Block groups are a subdivision of census tract data and are the smallest geographic units for which the Census Bureau tabulates sample data (U.S. Census Bureau 2005).

Block group data for poor mothers were compared to block group data for non-poor mothers for variables associated with disadvantage (female-headed household with children and no father present, percent of total households receiving public assistance, percent of households with poverty level incomes in 1999, percent unemployed in 1999, and number of households with no telephone service), and variables associated with relative affluence (residential stability over five years, owner-occupied housing units, college-educated residents, and household incomes greater than \$75,000). Block group data on median household income are also reported.

Second, we asked mothers for tours of their homes or apartments and, using a checklist, documented conditions and the presence of resources. The tour also provided a conversational context for questions about the environment, such as "Do you have a first aid kit?" and "Has your child ever. . .?"

Parenting. The parenting a child receives includes parental attitudes, knowledge, and behavior.

Attitudes: attitudes about parenting can be thought of as preconceptions of desirable parenting behavior—or a generalized model (or several models) of how parents are supposed to behave while fulfilling childrearing duties. The question of how parents are differentiated by their attitudes about parenting practices has been a subject of study throughout most of the 20th century, primarily through descriptive studies.

The influence of attitudes on behavior is not consistently clear. Attitudes that parents have toward corporal punishment, for example, are not perfect predictors of the use of corporal punishment and may be moderated by other variables (e.g., Crouch and Behl 2001). However, parenting attitudes are generally believed to be responsible for important contributions to actual behavior, even if this relationship is not absolute (Holden and Buck 2002).

The 40-item Adult Adolescent Parenting Inventory (AAPI-2) (Bavolek and Keene 1999) was completed at delivery to measure parenting attitudes and knowledge, including: (i) developmental expectations, (ii) empathy for children's needs, (iii) endorsement of alternatives to corporal punishment, (iv) view of parent-child roles, and (v) attitudes related to encouraging child independence as opposed to requiring total control over the child.

The AAPI-2 was based on knowledge about known parenting and childrearing characteristics of abusive and non-nurturing parents. That is, abusive and non-nurturing parents tend to be unaware of and have difficulty meeting children's needs; to endorse corporal punishment as opposed to alternative methods of discipline; to view children as objects for adult gratification; and to exert power over, rather than encourage independence in, children (Bavolek 1984). For each item, respondents indicate agreement on a five-point Likert scale from "strongly agree" to "strongly disagree." Raw scores for each subscale were converted into sten scores for comparison to norm tables, with cut-points to indicate risk status.

Bavolek and Keene (1999) reported strong support for the factor structure of the AAPI-2, based on factor analyses from a diverse population of 1,427 mothers. Known-group comparisons also demonstrated that the five constructs of the AAPI-2 significantly discriminated between abusive and non-abusive parents. Coefficient alphas for the subscales with diverse samples of clients from 53 social service agencies in 23 states ranged from 0.86 to 0.96, demonstrating excellent reliability (Bavolek and Keene 1999). In addition, Bavolek reports that sampling considerations in the establishment of the AAPI-2 norms included "geographic region, urban and rural settings, ethnic group, sex, socioeconomic status and age" (1984, 45).

"Parenting stress" reflects parents' attitudes toward their children, toward themselves as parents, and toward interactions with their children, and has important influences on parenting behavior and dysfunctional parenting, including child abuse potential (Crouch and Behl 2001; Rodriguez and Green 1997). Moreover, research shows that high levels of parenting stress can be related to insecure child attachment (Hadadian and Merbler 1996).

We measured parenting stress with the child and parent subscales of the Parenting Stress Index—Short Form (PSI-SF) (Abidin 1995), a 36-item measure of parenting stress based on the original, 120-item self-report questionnaire (PSI). Our previous work (Combs-Orme, Cain, and Wilson 2004) demonstrated high levels of parenting stress in the entire VIPS sample.

The PSI-SF measures three types of parenting stress, as described by Abidin (1995). "Parenting role" stress relates to parents' assessments of the parenting role, including sense of competence, restrictions imposed by the demands of parenthood on other aspects of life, conflict with the other parent, lack of social support, and depression. Parenting stresses also may be related to parents' attributions of their children as especially "difficult" or hard to manage. Finally, parent-child dysfunctional interaction stress focuses on perceptions that children are not meeting their parents' expectations and that the parent-child interaction is unsatisfying.

The PSI-SF is standardized for use with parents of children from 1 month to 12 years old. Items have five response categories from "Strongly Agree" to "Strongly Disagree" concerning child-related ("My child gets upset easily over the smallest thing") and parent-related ("I feel trapped by my responsibilities as a parent") stresses. Coefficient alpha has been reported from 0.70 to 0.84 for the subscales (Abidin 1995). Construct validity is supported by theoretically meaningful correlations between PSI scores and other constructs such as child adjustment. Studies show higher (more stressed) PSI-SF scores among neglectful, drug-addicted, maladjusted, and abusive parents (Abidin 1995; Ethier, Lacharite, and Couture 1995). With reference to ethnic and economic diversity, Hutcheson and Black (1996) found that as a measure for low-income African-American mothers of infants, the PSI-SF had acceptable levels of internal consistency and stability over 6 months, and high concurrent validity with mothers reporting consistent levels of stress across subscales. As prescribed by the author of the PSI-SF (Abidin 1995), scale scores above the 85th percentile of the norms indicate clinically significant parenting stress.

Behavior: mother–infant interaction was measured using the 45-item Infant–Toddler version of the Home Observation for Measurement of the Environment (IT-HOME) that provides data based on observations and interviews (Mundfrom, Bradley, and Whiteside 1993). We used subscales related to mothers' responsiveness to, acceptance of, and involvement with their infants.

Caldwell and Bradley (1984) reported alphas of 0.89 for the total IT-HOME score and 0.44–0.77 for the subscales. Bradley's (1994) review of 25 years of research with the IT-HOME demonstrated moderate correlations between IT-HOME scores in early life and later cognitive and language development as well as social competence. This review also showed consistent correlations between IT-HOME scores and indicators of child maltreatment. Additionally, Bradley et al. (1989) and Bradley, Mundfrom et al. (1994) assert that the IT-HOME is valid for use with economically disadvantaged and African-American families. Figure 1 shows the percentages of infants whose mothers scored in the "at-risk" range according to the authors' criteria.

Finally, mothers reported on several aspects of the infants' interactions with their fathers, including the amount of time spent together, types of caretaking performed by fathers, and expressions of affection. Figure 2 shows these comparisons. Comparisons on pertinent items between poor and non-poor non-residential fathers are not shown due to the small number of non-poor non-residential fathers.

Activities and interaction with others. Some content areas were introduced using a "tell me about your infant's day" format. For example, one section asked whether infants had specific bedtimes, bathtimes, and mealtimes. These questions were introduced with a reference to "your typical day." Less frequent events, such as trips to restaurants or shopping malls, were documented by asking how many times per week the infant "gets out of the house" and then completing a checklist of places.

Health and safety: mothers reported on infants' well-child care and immunizations; number and timing of both were compared to American Academy of Pediatrics recommendations (2000). Mothers also reported on safety issues, such as use of car restraints, exposure of infants to cigarette smoke at home and in other places, and the

presence of guns in the home; as well as the presence in the home of a number of safety resources, such as first aid kits, fire extinguishers, and Syrup of Ipecac. Finally, we collected data from mothers about nutritional issues, including breastfeeding and introduction of both complementary and junk foods.

Routine, structure, and stability: in the process of discussing the infant's routine during a typical day, we assessed whether infants went to bed and woke up at regular times and whether they had regular nap- and mealtimes. We also collected data on residential moves and changes in household composition since birth.

Experiences: finally, one set of questions assessed infants' trips to stimulating places in the community, including homes of friends and family, shopping, worship services, restaurants, libraries, parks, and playgrounds. Mothers also reported whether anyone had read or sung to their infants on the previous day.

Results

The following section illustrates the lives of poor and non-poor infants with the help of graphs. The graphs combine specific aspects of each domain, with the solid line representing the experiences of poor infants and the dashed line representing the experiences of their non-poor counterparts. We call the reader's attention in particular to the consistency with which poor infants were disadvantaged within and across domains.

Tests of statistical significance were not conducted for three reasons. First, the focus in this study was on the accumulation of stress and the consistent differences between poor and non-poor infants. From this vantage point, statistical significance is not of interest. Second, the large number of comparisons that would be conducted would be likely to result in some significant findings by chance alone, producing a Type One error. Finally, many tests could not have been conducted due to empty cells.

Parenting

Figure 1 presents the proportion of infants whose mothers scored in the "at-risk" range on parenting attitudes, knowledge, and observed behavior, and it illustrates the consistent disadvantage of poor infants. It is notable that although the amount of difference between poor and non-poor mothers' parenting varies, in no case do the two lines cross.

Figure 2 illustrates infants' interactions with their residential fathers. On the one hand, poor infants were much less likely to live with their fathers (33.8 percent of poor vs. 91.5 percent of non-poor infants), and their parents were less likely to be married (10.8 percent vs. 78.7 percent, Table 1). On the other hand, poor infants' residential fathers appeared to interact with them somewhat more consistently, although not a great deal more, except on the affection variables. As Figure 2 shows, the fathers of both poor and non-poor infants provided little caretaking.

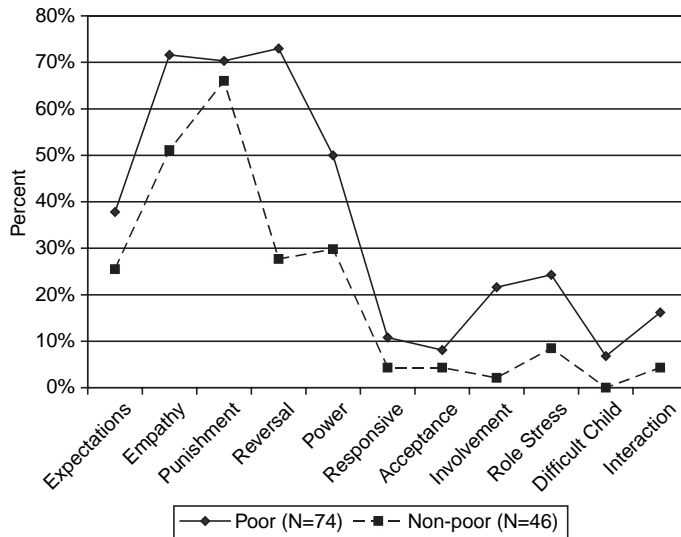


FIGURE 1

Parenting. Percentages of infants whose mothers scored above the clinical cut-point on: Expectations = AAPI-2 Developmental Expectations; Empathy = AAPI-2 Empathy; Punishment = AAPI-2 Corporal Punishment; Reversal = AAPI-2 Role Reversal; Power = AAPI-2 Power/Independence; Responsiveness = IT-HOME Responsiveness; Acceptance = IT-HOME Acceptance; Involvement = IT-HOME Involvement; Role Stress = PSI Parenting Role Stress; Difficult Child = PSI Difficult Child Stress; Interaction = PSI Dysfunctional Interaction Stress

The Home Environment

Figure 3 demonstrates aspects of the infants' homes related specifically to type of housing, condition of the exterior structure, and characteristics of the block and neighborhood, whereas Figure 4 depicts comparisons of Census variables. The median household income in 1999 for non-poor block group residents was \$43,125, compared to \$22,557 for the poor block group residents. The lower median income is illustrated in the greater proportions of public assistance recipients and unemployed persons. Moreover, poor infants' neighbors were less likely to be educated, to live in their own homes, and to have telephones.

Figure 5 illustrates a variety of home resources and conditions. Again, the differences consistently show **fewer resources and less amiable conditions for poor infants**, though they were more extreme for some variables than for others.

Health and Safety

In Figure 6 we see greater proportions of poor infants whose health care is not in compliance with pediatric recommendations, who were never breastfed, and who are exposed to tobacco smoke. We also see higher proportions who began complementary

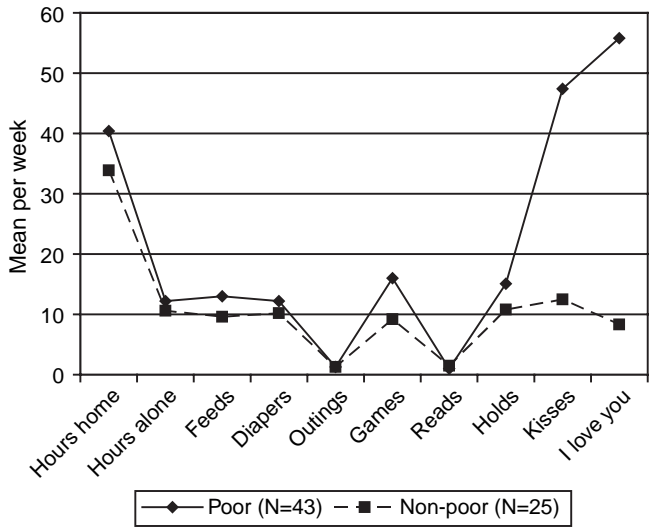


FIGURE 2

Interaction with residential father: weekly means. Figures are for infants living with their fathers (33.8 percent of poor and 91.5 percent of non-poor infants). The graph shows the mean number of hours fathers spend home with the family and alone with/responsible for the infants; and the mean number of times per week fathers feed and diaper the infants; take the infants out alone; play games with, read to, hold, kiss, and say “I love you” to the infants

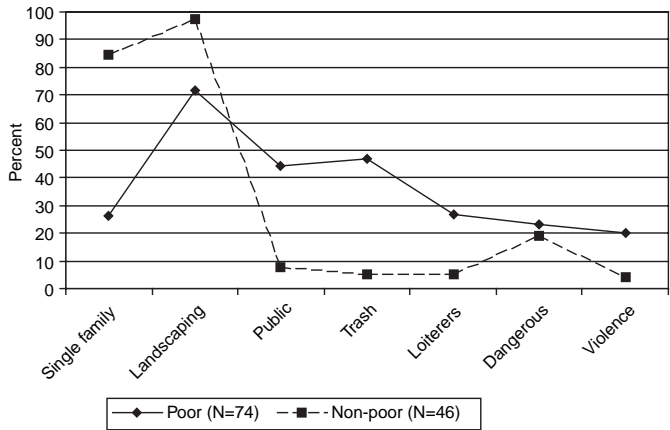


FIGURE 3

The environment: physical structure and block. Percentage of infants whose homes are single-family dwellings; have at least one bush or tree in proximity to the home; are apartments or duplexes in public housing; have visible trash outside the home, adult loiterers on the block, or dangerous objects or substances (e.g., paint, chemicals) in front of home

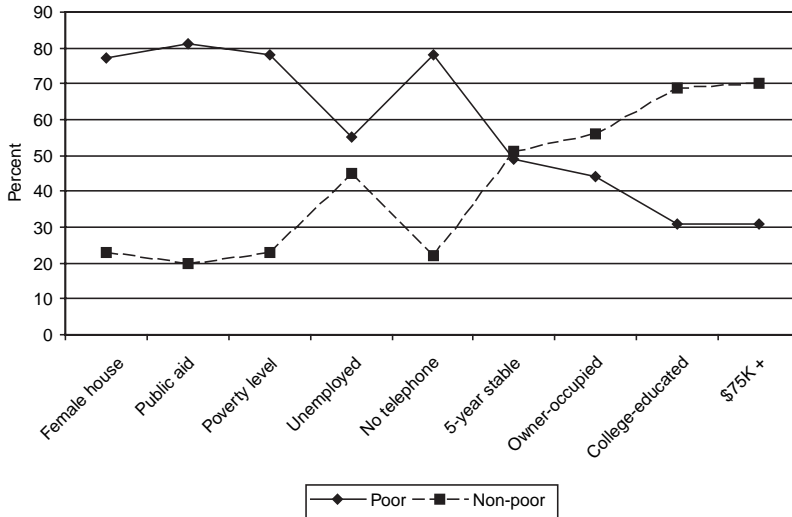


FIGURE 4

Disadvantage and relative affluence (data from Census of 2000). Figures indicate the percent of female-headed households with children and no father-figure, the percent of total households receiving public assistance, the percent of households with poverty-level incomes in 1999, the percent unemployed in 1999, the number of households with no telephone service, the number of households with over five years residential stability, the number of owner-occupied housing units, the number of college-educated residents, and the household incomes greater than \$75,000 in the block group census neighborhood

food earlier than is recommended and who consume typical junk food. Similarly, in Figure 7 we see higher proportions of poor infants living in homes without first aid kits, fire extinguishers, and Syrup of Ipecac, and whose mothers indicate that they do not know how to do cardiopulmonary resuscitation. Only in one area (the presence of guns in the home) were non-poor infants disadvantaged, possibly because poor families were less able to afford guns.

Stability, Structure, and Predictability

Figure 8 shows that although differences between poor and non-poor infants were not large, with one exception, poor infants' lives were reported by their mothers to be less stable. Higher proportions of poor infants made multiple household moves, experienced changes in household composition (including their fathers' moving in or out), and, with the exception of meals, had less frequently scheduled routines.

Experiences in the Community

As Figure 9 shows, poor and non-poor infants had similarly low reported levels of experiences in the community. Nonetheless, non-poor infants appeared to visit a greater

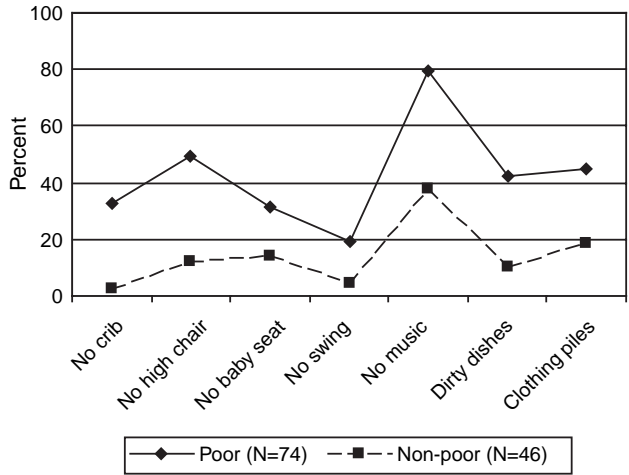


FIGURE 5
 The environment: home resources and conditions. Figures indicate the proportion of infants whose homes lack cribs, high chairs, baby seats, swings, musical instruments or stereos; and the percentage of homes where interviewers observed dirty dishes on counters or other surfaces and piles of clothing on the floor or the furniture

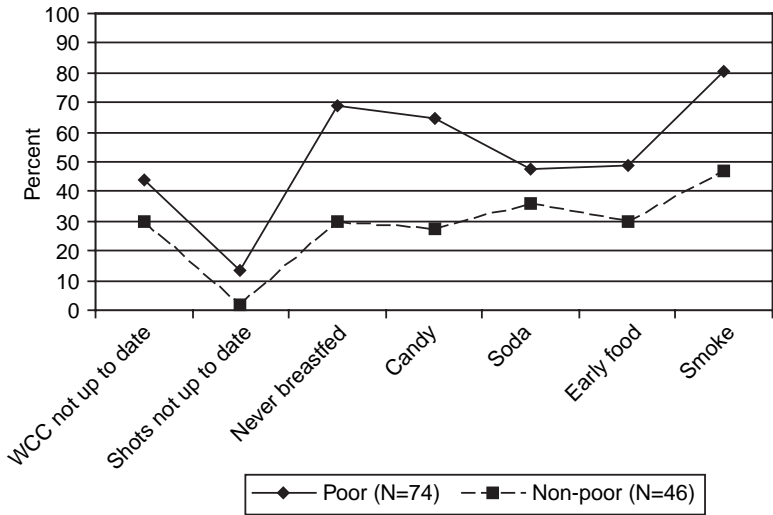


FIGURE 6
 Health. Percentage of infants whose well-child care (WCC) and immunizations are not compliant with American Academy of Pediatrics (2000) standards, who were never breastfed for any period of time, who have been introduced to candy and soda, and who were fed complementary food before 4 months

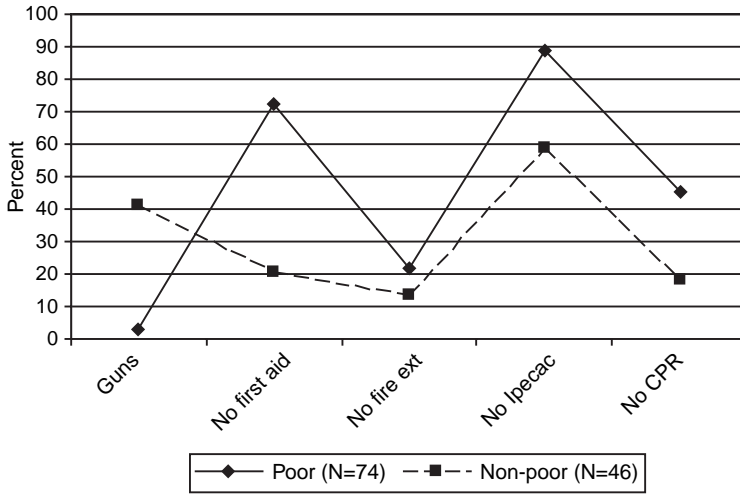


FIGURE 7 Safety. Percentage of infants whose homes contain firearms; whose homes do not contain first aid kits, fire extinguishers, and Syrup of Ipecac; and whose mothers report that they do not know how to administer cardiopulmonary resuscitation (CPR)

variety of places in the community. Also, non-poor mothers reported that someone read to (48.9 percent) and sang to (89.4 percent) their infants, compared to only 32.4 percent and 75.3 percent of poor infants, respectively (data not shown).

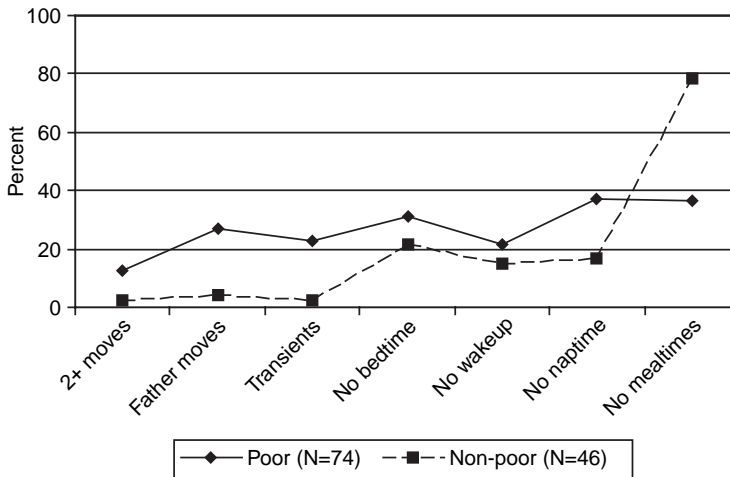


FIGURE 8 Stability, structure, and predictability. Percentage of infants who have made more than one residential move since birth; whose fathers have either left or moved into the home; whose households have included one or more transients; who have no bedtimes, rising times, nap times, and mealtimes

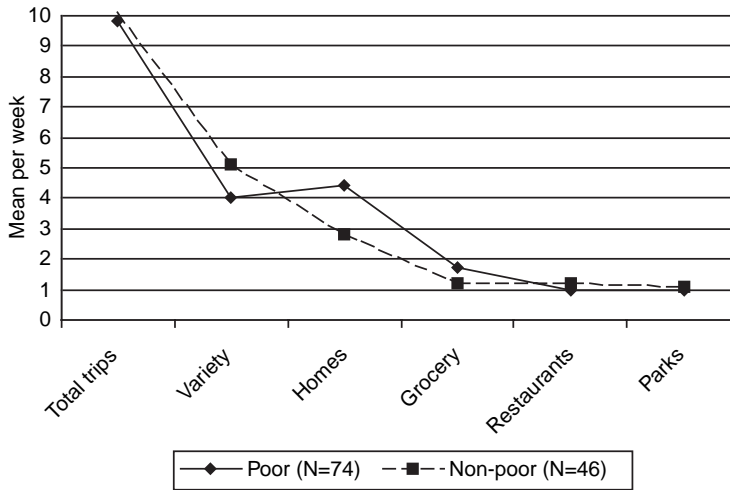


FIGURE 9

Experiences in the community: mean weekly trips. Figures indicate the total trips out of the house; number of different places visited; visits to homes of friends or family; trips to the grocery store, restaurants, and parks and playgrounds

Discussion and Implications

If we are to understand infants' lives, we must begin where they are—in the home. The great majority of an infant's first year of life is spent at home: sleeping, eating, and having physical care needs met, in the company of siblings and parents, who perform extensive daily caretaking activities (see Schulze et al. 2002). Occasional forays into the neighborhood and broader community, and interactions with those outside the small circle of family and friends, become more frequent and more important with time. At no other time in life is the immediate environment a more powerful influence on an individual.

It is in this context that we observed poor infants' "poverty biographies" (Garrett, Ng'andu, and Ferron 1994). As a group, they lived with fewer resources and amenities than the non-poor infants, in homes and neighborhoods that were less organized and congenial and more dangerous than those of more advantaged infants. Their neighbors also had fewer resources and therefore had less to share with the children in the neighborhood. Their homes were less pleasant and stimulating and more frequently lacking resources taken for granted by middle-class families. Their daily routines were less predictable and the household composition and place of residence shifted more frequently.

Disorderliness and unpredictability inhibit early learning of language (Wachs 2000) and self-regulation and behavioral control (Bradley 2002). Studies indicate the developmental, mental health, and achievement advantages of a clean, well-organized home (Eliot 1999), and of a predictable and stable environment (Cicchetti, Toth, and Bush 1988) that

contains toys, music, and other stimulating resources (Bradley 1995; Honig 1995). In order to avoid over-reliance on one particular aspect of the environment, such as cleanliness, we selected a variety of environment quality indicators.

While some may question whether infants are aware of their environments, research has demonstrated short-term effects of daily stress, such as changes in blood pressure (Evans and English 2002; Hambrick-Dixon 2002). The long-lasting effects of noise, crowding, and the lack of organization and social support found in poor neighborhoods (Brooks-Gunn and Duncan 1997; Ceballo and McLoyd 2002; Lupien et al. 2001; Wandersman and Nation 1998) can be documented early. Kohen et al. (2002) found lower levels of social competency in pre-schoolers living in poor neighborhoods.

Likewise, the health advantages of good nutrition and health care, safety-proofing the home, and safety practices, such as the use of car seats, are demonstrated in statistics showing consistently better health in non-poor children (Miller and Korenman 1994; see Combs-Orme et al. 2003). The poor infants in our sample not only had less optimal health care, but were eating less nutritiously and living in homes that were not as safe as the homes of their non-poor counterparts.

Of course, research shows that warm, nurturing parenting may provide resilience for children against environmental disadvantage (Bradley, Whiteside et al. 1994), and that millions of poor families buffer their children daily from the stress of poverty, but our sample of extremely poor infants were experiencing consistently less nurturing parenting from their mothers, who were less informed and had more dysfunctional attitudes toward parenting. Overall, we found these mothers to be consistently less cognitively prepared to parent their newborns. It is not surprising, given this lack of preparation, that during follow-up interviews the poor mothers were experiencing considerable parenting stress. And, as was the case with the Brooks-Gunn, Klebanov, and Liaw (1995) sample, we consistently observed less positive interactions between these poor mothers and their infants.

While our results suggest that residential fathers might compensate for some of the parenting disadvantages of poor infants by being more affectionate and participating more in their care than the fathers of non-poor infants, poor infants less often lived with those fathers. Indeed, the single-parent family structure more often experienced by poor infants is an important cause of their poverty (Morgan and Kickham 2001).

It is important to remember that we were unable to measure the full range of daily disadvantages experienced by this sample of extremely poor infants. For example, poor children experience greater exposure to toxic chemicals (see Rogge and Combs-Orme 2003). We also were not able to measure the structural integrity of homes—one-third of the poor live in housing that is structurally inadequate (Newman 2000), placing poor children at a higher risk of injury. Moreover, over 80 percent of homes built before 1978 may have lead-based paint that can cause irreversible brain damage in children (Centers for Disease Control and Prevention n.d.). A full accounting of the daily insults inflicted by poverty would be impossible to document in one manuscript.

What does this picture of the daily lives of extremely poor infants add to our knowledge of child poverty? While older children can tell us about how being poor affects

their lives, we must make inferences about how poverty is experienced by infants. Those inferences lie in basic, but important issues like having a high chair, flowers in the front yard, and a regular naptime. These findings suggest that in the first few months of their lives, on virtually every dimension, poor infants' surroundings and experiences provide less access to resources and conditions that teach, nourish, and enrich the lives of the children.

While interpretation of the findings of this study may be limited by the lack of random sampling and the over-representation of extreme disadvantage relative to the general population, it is also important to recognize that millions of American children live in deep poverty—39 percent of those who are poor or 6.5 percent of all children. We focus here not on how representative the sample is of the general population, nor on the statistical significance of comparisons between individual variables, but rather on the stark consistency of the differences—starting in the first weeks of life—between the daily lives of non-poor infants and those who live in deep poverty.

Moreover, because of the short time frame of this study—the first 6–12 months of life—we were unable to look at the effects of persistent poverty. The disadvantages suffered by these infants will only be compounded by the persistence of extreme poverty.

Conclusion

Research indicates that macro-level variables, such as socioeconomic status, influence child outcomes. But, what we are only beginning to study and understand are how micro-level variables found within every income and social level individually and collectively influence child well-being and outcomes. Recent research suggests that the cumulative effect of variables may be more important to child outcomes than individual influences (Hooper et al. 1998; Sameroff et al. 1987). In this study, we examined the micro-level variables of poor families and compared them to the micro-level variables of non-poor families. It is apparent that at every point the poor families experience more disadvantaged micro-level influences. The cumulative effect of these influences may be the real agent of disadvantage. Thus, improving the micro-level influences that are most modifiable—mother–infant interactions, perceptions of self as a parent, appropriate developmental expectations, empathy, education about immunization schedules, breastfeeding, the appropriate introduction of foods, the provision of safety equipment in the home, and the importance of daily routines—may lessen the cumulative risk, and may provide these disadvantaged infants some avenues toward resilience.

Improving poor children's lives cannot wait until they start school, the point when their disadvantages are often first identified. Prevention and intervention must go beyond Head Start, parenting education classes, and welfare "reform" programs designed to teach mothers to be good role models. Prevention and intervention must start early, from the day of birth, and it must target multiple, daily, and cumulative disadvantages.

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