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CHILD DEVELOPMENT: VULNERABILITY AND RESILIENCE

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ABSTRACT

Many of the challenges facing children now are a function of the changing times, including increases in urbanization, political violence, changing family forms, and, in some areas, decreased supplies of adequate food. This paper reviews the evolving nature of these risks. In addition, the paper analyzes the development of formal and informal strategies to ameliorate the vulnerability and promote the resilience of young children to these risks. The paper identifies four stages in the research process regarding risks for children: (1) identification of the risk; (2) clarification of etiology and consequences; (3) recognition of resilience among some individuals; and (4) definition of factors in resilience and implications for intervention.

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CHILD DEVELOPMENT: VULNERABILITY AND RESILIENCE*

1. INTRODUCTION

Many of the challenges facing children now are a function of the changing times, including increases in urbanization, political violence, changing family forms, and, in some areas, decreased supplies of adequate food. This review focuses particularly on those changes in which children are the victims and that induce new or continuing threats for them, rather than on problems such as child disability or mental illness. The outcome variables of interest in this paper are dimensions of children's psychosocial development, including cognitive development, psychological adjustment, and aggression, whereas a companion paper focuses on physical aspects of children's development (Caldwell 1996). There is an extensive literature in psychology that deals with the assessment of children's psychosocial development.

The risks that are hurdles in the process of development of a young child begin from conception and carry on into later life. To address all of these would be impossible; thus, in order to do justice to the issues at hand, we have chosen those risks that, in our view, are important in a child's psychosocial development, are relevant to developing countries, and have been examined in the literature. This paper will provide a discussion of the concepts of risk and resilience, and second, will apply these concepts to the analysis of three examples of risk faced by children today: (1) nutritional threats, as they relate to psychosocial outcomes (e.g., malnutrition due to a

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decline in breast-feeding); (2) family dynamics and types of family forms (e.g., child fostering and nontraditional families); and (3) experiences of violence (domestic or political). In each case, the same four questions will be addressed:

- What are the consequences of the risk factor for children?
- What are the etiologies and conditions of risk?
- Are there any children who seem to cope with the risk factor successfully and what are some of the protective factors? and
- What strategies could be developed to help support these children based on these protective factors?

VULNERABILITY, RISK, AND RESILIENCE

Risk factors are individual or environmental hazards that increase children's vulnerability to negative developmental outcomes (Kostelny and Garbarino 1994). These risk factors come into play when "the interaction between the child and the environment produces stresses that result in new limitations or difficulties, new threats to homeostasis and to integration, new obstacles to learning, increased difficulties in mastering anxiety, or negative expectancies" (Murphy and Moriarty 1976). Ecological theory suggests that there are several levels of interaction that are important to distinguish in understanding risk factors (Bronfenbrenner 1993). The first is between the child and his/her immediate family, and the second is between the various social systems in the child's environment that give meaning and significance to the child's experience, such as schools or community events. This level becomes increasingly significant as a child passes into the school-aged years. A third level of social system is represented by the larger forces, such as government, cultural values, or legal systems that define the climate of the child's environment.

The emergence of the study of resilience in the last two decades represents a novel approach to the understanding of how children develop when confronted with difficult circumstances. Many researchers focus on risk factors and the etiology of problems in children and youth such as alcohol and drug abuse, psychopathology, delinquency, early childbearing, and violent behavior (Dryfoos 1990). This research has documented a "pathology of disadvantage" (Zimmerman and Arunkumar 1994). Risks include individual-level characteristics such as intrauterine growth retardation, low birth weight, cocaine exposure in utero, or physical disability; household-level factors such as family poverty and marital disruption; and community-level factors such as living in a high-crime neighborhood, going to an inadequate school, or living in a community that has suffered from political violence. Although the analyses of risk initially examined these factors as static events, eventually more sophisticated analyses suggested that risk was a process, for example, the total number of risk factors a child was exposed to, or the length of time of risk exposure, that was more important than a single severe exposure (Sameroff et al. 1993).

More recently, it has been noted that in spite of difficult circumstances (risks), some children manage to grow and apparently prosper, whereas others in similar situations seem to follow the path originally described by vulnerability research. Even if half of the children raised by a teen mother become teen mothers themselves, the others do not, and important lessons can be learned from examining the group that managed to overcome the risk (Furstenberg, Brooks-Gunn, and Morgan 1987). How can these variations in life trajectories be explained? Researchers such as Werner (1993), Rutter (1985), and Garmezy (1991) have begun to investigate why some children manage to come through situations of multiple risks apparently unscathed by the experience. Thus the focus of investigation changes from those who have problems to those who have succeeded in some way.

This approach has advantages not only for understanding processes that might lead to interventions, but also to assist helpers who are working with individuals in high risk situations. These helpers may, through expecting negative outcomes, unwittingly become part of the problem. This approach may also help the individual in a high-risk situation understand that a negative outcome is not inevitable. An adolescent having her first child, and deciding to keep it, may need to understand that NOT ALL who are in her situation will have negative life trajectories.

The response of the individual to risk has been described in terms of vulnerability and resilience. Vulnerability has been defined as the individual's predisposition "to develop varied forms of psychopathology or behavioral ineffectiveness" or "susceptibility to negative developmental outcomes that can occur under high-risk conditions" (Zimmerman and Arunkumar 1994). This susceptibility has been attributed in part to genetic or temperamental factors (Rutter 1985). On the other hand, resilience is the opposite; it is the individual's predisposition to resist the potential negative consequences of the risk and develop adequately.

Individual characteristics, such as "locus of control" (a term commonly used in psychology), intelligence, or ego development, might serve as a protective function for children raised in risky circumstances (Luthar 1991; Luthar and Zigler 1991). For example, Luthar (1991) examined the relationship of stress and competence among adolescents in the United States facing risks of inner-city violence and poverty. Adolescents under high stress who managed to be rated as assertive and responsible (competent) by peers and teachers, and therefore "resilient," had a greater sense of control over their environments than teens in a high-stress environment who were rated as less competent. Rutter (1987) also suggested that resilient children differed on individual characteristics such as sense of self-efficacy and well-developed social problem-solving skills.

Factors in the environment may also ameliorate or diminish the potential negative effects of the risks (Luthar 1991; Wills, Vaccaro, and McNamara 1992). For example, Werner and Smith (1992), in their longitudinal study of children who grew up with poverty and families experiencing discord and instability, found that those who developed into healthy adults had experienced a close relationship with at least one caregiver who provided unrestricted positive attention. Presence of some form of significant support by a valued person appears quite consistently as a protective factor.

Some literature has used the term "invincible" or "invulnerable" interchangeably with resilience to describe these apparently successful children (Werner and Smith 1989; Cowen and Work 1988). However, this term suggests that there has been no cost to the child of the exposure to risk, as if the child were unscathed by the risk factors. Some work suggested that children labeled as "resilient," who appeared healthy or competent despite experiences of risk, were using internalizing strategies to cope with risk, and these children were more likely to experience anxiety or depression (Luthar 1991; Farber and Egeland 1987; Parker et al. 1990).

Much more attention has been paid to individual-level factors and family-level factors than protective factors at the community level, such as schools, health clinics, workplaces for young people, or community groups, although it is the latter that may be more amenable to intervention. Also, the causality of the relationship is not unidirectional, even in longitudinal studies. What are the factors that result in a child's having a higher sense of control? The individual's locus of control is probably determined in part by factors outside the child, such as the type of neighborhood the child lives in, but also by the patterns of interaction that have developed around the child as a function of the child's initial characteristics. More careful attention needs to be paid to the multiple causal links.

WHY INVEST IN RESILIENCE RESEARCH AND PROGRAMS?

“Resilience” thus refers to the concept that even in situations of multiple risks to an individual’s development, there are certain qualities within the individual or his/her environment that allow him/her to deal with these risks and thrive in spite of them.

Though resilience may be due to genetic or temperamental qualities of the individual, it is also a function of learned dispositions of an individual and of environmental factors. Therefore, the investigation and strengthening of the external influences that may bring about resilience could yield far-reaching benefits in terms of the development of human capital. This may, in turn, lead to a positive cycle of increasing resilience, which could thus have an intergenerational effect.

Two strategies for investment stem from this discussion: first, searching for better indicators to identify characteristics of individuals or environments that serve a protective function (a resilience focus); and second, investing in early childhood as a way of preventing risks from having as great an effect (a preventative approach). These two strategies differ in their timing and purpose, with the first approach being one of identification of resilience in situations of risk; and the second, one of trying to mitigate the effects of existing risks by equipping children to deal with them. An example of the resilience focus is the shift away from studying the risk factors for malnutrition to examining the factors that could actually reduce the likelihood of malnutrition in conditions of poverty (Zeitlin, Ghassemi, and Mansour 1990; Shekar, Habicht, and Latham 1992 [on “positive deviance”]). An example of the preventative approach is the investment in preschool education in order to improve performance in primary and secondary education. For example, an investment of US\$1.00 in the U.S. Perry Preschool Program, initiated in 1962, has yielded US\$7.16 in savings, because of lower welfare expenditure and higher productivity (Schweinhart et al. 1993). The World Bank has also recognized the importance of this approach and is advocating an increased investment in early childhood and an emphasis on child development along

with interventions targeted towards health and nutrition (Young 1995). The economic payoffs of either of these strategies could be improved growth and development, which has long-term effects on productivity (Steckel 1995). Kennedy and Garcia (1994) have also found a relationship between nutritional status of men, measured by body mass index and height, and household incomes.

Some of the studies reported here also examine the negative effects of poor nutrition on cognitive development, and factors which ameliorate these effects. For example, cognitive development, and subsequent mental functioning, measured using test scores, have been shown to be important determinants of future wages (Hanushek 1986, 1152; Murnane, Willett, and Levy 1993, cited in Currie and Thomas 1995). Another economic payoff of focusing on resilience could be to allow for the planning of programs based on the identification of factors of resilience; and thus to lessen the loss to productivity of lowered cognitive development among high-risk children, and to reduce the cost to society of people who cannot support themselves adequately because of lowered abilities.

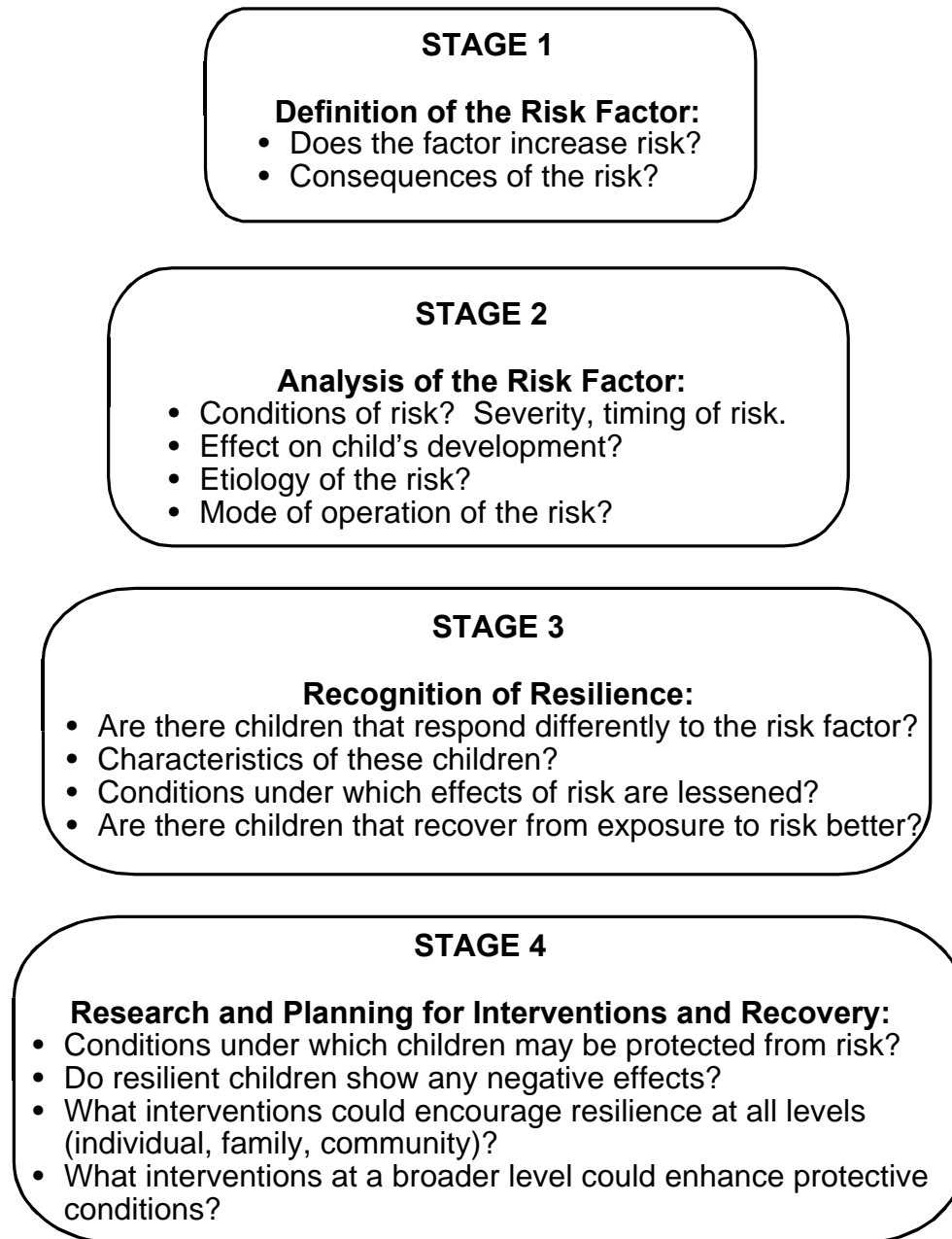
Finally, the cost to the individual and to society of poorer psychosocial development should be included. Family dysfunction and political violence, the two other topics of this paper, have been shown to have negative effects on adult productivity through increases in incidence of depression, emotional disorders, and loss of opportunities for increased occupational development. Understanding how these risks could be prevented, or their effects ameliorated, could have significant long-term economic consequences for a society. For example, exposure to violence in childhood results in increased aggressiveness (e.g., Eron and Huesman 1986), leading not only to costs for the individual, but to society in terms of increased crime rates, adjudication and incarceration costs, and difficulties seeking nonviolent compromises to problems. Costs include losses to education as teachers take time away from instruction to deal with discipline problems, losses in the judicial system as personal

and family disputes begin to clog the court system (Merry 1990), and losses to subsequent generations due to inadequate parenting. The key point here, therefore, is that research is needed to identify the existence of strengthening factors within individuals and communities in order to be able to plan programs to assist more vulnerable individuals and communities to develop these qualities.

Stages in Resilience Research

From the research on risks to children growing up in poverty, one can identify various stages in the research process. Four separate stages can be identified; these are described in Figure 1. First, the risk factor is identified and established as a cause for concern. For example, recent evidence suggests that prenatal exposure to cocaine is a risk factor for children's later development (Hawley and Disney 1992; Mayes 1994). The second stage is an analysis of the causes and consequences of the risk, such as the assessment of the stage or extent of exposure to cocaine that might have negative effects on brain development.

Figure 1 Stages in the definition and analysis of risk



Stage 3 emerges when it is recognized that not all children respond in the same way to the same threat, and that not all are equally negatively impacted. In the example of studying the risks of cocaine exposure, researchers might recognize that some children exposed to cocaine in utero seem to function well, and they would look for possible protective factors. This stage has been reached with problems that have been the subject of intensive research for quite a while, such as the risk of poverty for adolescent competence. Finally, the application of research on protective factors should be incorporated into intervention programs that begin to capitalize on the research on protective factors. In the cocaine example, treatment programs for the families of cocaine abusers would use these protective factors to design an appropriate intervention.

At each stage, there should be attention given to the three levels of analysis: the individual, the immediate environment of the family, and the larger community and institutions for an exploration of risk factors and protective factors.

2. NUTRITIONAL RISKS

One of the major risks facing children, particularly in developing countries, is malnutrition. About 3 percent of children worldwide are severely malnourished (UN ACC/SCN 1992) and in 1990, 34 percent of children under five years of age in developing countries suffer from mild to moderate malnutrition, or are underweight (UN ACC/SCN 1992). In South Asia, fully 60 percent of children are undernourished. Other nutritional deficiencies with functional consequences are iron deficiency and iodine deficiency.

STAGE 1 RESEARCH

Numerous studies have identified the risks of malnutrition for children's development. Many years ago, the linkage of severe protein-energy malnutrition with

later cognitive deficits was identified (Pollitt and Thomson 1977; Jelliffe 1965; Galler and Ramsey 1985). To the list of risk factors have been added iodine deficiencies, associated with cretinism, hearing loss, and, in adults, loss of work potential (Hetzel 1988; Clugston et al. 1987); and iron deficiencies and anemia, associated with lower levels of cognitive development in numerous studies (Lozoff, Jimenez, and Wolf 1991; Engle et al. 1996). Currently, investigations are underway to understand the risks associated with other micronutrients such as zinc deficiencies and riboflavin deficiencies.

STAGE 2 RESEARCH: UNDERSTANDING THE RISKS

Much has been learned about the causes and consequences of protein-energy malnutrition and iodine and iron deficiencies for cognitive development. Research includes the effects of insults at various time periods, and severity or dose-response effects, and some of the mechanisms through which malnutrition may function as a risk factor. However, relatively few studies have looked for protective factors (Stage 3) or interventions (Stage 4). Research that informed by the search for positive deviants (Zeitlin, Ghassemi, and Mansour 1990) is a slightly different approach to the identification of protective factors (Stage 3).

A number of studies have investigated the difference in the kinds of caregiver attention received by a malnourished child who may be irritable or lethargic. This child will probably be given less attention than one who is energetic and happy, as noted by Chavez et al. (1987). These studies illustrate that a child's malnutrition is a risk factor for less adequate caregiving behaviors in addition to its biological risk.

Maternal caregiving behavior may be influenced by the nutritional or growth status of infants as young as 3 to 6 months. Arya (1989), for example, compared mothers' behavior toward low birth weight (<2.5 kilograms) and high birth weight (>3.5 kilograms) Indian village children observed systematically over an eight-hour

period. Findings indicated that the smaller babies received less show of affection, smiling, talking to, and stimulation (though more feeding) than the larger infants. In a study of infants from semi-rural Egyptian households, Rahmanifar et al. (1993) reported that infant weight at 6 months was positively related ($r=0.53$) to the number of vocalizations received from caregivers, but not to the amount of physical contact, the identity or proximity of a caregiver, or caregiver responses to infant vocalization or distress. Finally, mothers of six-month-old Kenyan infants of relatively lower weight and length were reported to be held and fed more frequently (LeVine 1989).

Several recent studies of mild-to-moderate undernutrition and toddler development in Egypt and Kenya also suggest that specific caregiver behaviors relating to cognitive development are influenced, to some extent, by the children's nutritional status, as indexed by dietary intake. Based on extensive and detailed home observations of toddlers' rearing experiences with mothers or other caregivers over a period of 15 months, Sigman et al. (1989) found that Kenyan village children with reduced food intake tended to be more frequently held, carried, or given physical care (consistent with earlier findings from Chavez, Martinez, and Yachine (1975); these factors also tended to be negatively associated with behavioral development. However, food intake was unrelated to the child being touched, talked to, or provided with social interaction (behaviors that enhance behavioral development). Wachs et al. (1992), utilizing similar observations of Egyptian toddlers, found modest relationships between toddlers' dietary intake and specific caregiver behaviors, primarily for girls. Caregiver behavior varied as a function of both nutritional status of the child and culture; in Kenya, it was associated with increased holding and attention, which was not observed in Egypt (1992). Other studies have also shown an increased holding of more malnourished children (Munroe and Munroe 1984). A large amount of holding, particularly for children beyond the first year, may be a risk factor for cognitive development (Sigman et al. 1989).

STAGE 3 RESEARCH

In the nutrition literature, Zeitlin, Ghassemi, and Mansour (1990) introduced the concept of positive deviance as a strategy for examining strengths rather than problems. This model differs in subtle ways from the psychological model of resilience. Rather than examining characteristics in children that were related to resilience, this model focuses on household-level behaviors that might be associated with higher levels of nutritional status within a given level of income. In other words, within a homogeneously poor community, some children will grow adequately while others do not. The positive deviance research asks what factors might be associated with these differences, and specifically targets caregiver behaviors as well as resource issues. A number of factors have been identified that are associated with improved nutrition, ranging from the well-known, such as maternal education, to more specific factors, such as encouragement of infant feeding (Zeitlin, Johnson, and Houser 1996) or feeding children more frequently in cleaner, protected places (Guldan et al. 1993). These behaviors seem to represent a commitment to a more labor-intensive form of child care (Guldan et al. 1993). Factors associated with positive growth have been found to be different from those associated with growth failure (Shekar, Habicht, and Latham 1992).

In the Egyptian Nutrition CRSP study, the amount of vocalization by parents toward relatively undernourished young children appeared to be a protective factor for their cognitive development (Kirksey et al. 1992). In other words, children who were undernourished, but exposed to relatively high levels of parent vocalization, scored as well on cognitive tests as children who were better nourished.

STAGE 4 RESEARCH

A few experimental studies have identified interventions that appear to protect or buffer children from the negative effects of undernutrition. One example is a

longitudinal study of children hospitalized for malnutrition in Jamaica (Grantham-McGregor, Schofield, and Powell 1987). Using a case-control design, children hospitalized for an episode of severe malnutrition were compared with a group hospitalized for a nonnutritional reason on cognitive development. After leaving the hospital, half of the malnourished children were enrolled in a home visiting program for three years that taught the mothers how to interact and play with their young children. Children given the home visiting program did not differ from nonmalnourished subjects after three years. Positive effects on mental development in the previously malnourished but home visited group were still seen at a 14-year follow-up (Grantham-McGregor et al. 1994). It appeared that the home visiting program functioned as a protective factor or buffer for the malnutrition.

Zeskind and Ramey (1978) also found that psychosocial intervention could function as a protective factor for early malnutrition. They placed low SES American infants in an intensive eight-hour-per-day child care program, and located controls who stayed home with their mothers. Half of each group were fetally malnourished (low Ponderal index). There were no differences in maternal involvement or in the 24-month test performance between fetally malnourished and normal children in the day care treatment group, but the fetally malnourished children who were cared for at home had significantly lower test scores than normal controls and the experimental children.

A quasi-experimental design to test the effects of early supplemental feeding on children's cognitive development examined the protective effects of improved nutrition on the risks of low cognitive development associated with poverty (Pollitt et al. 1993). Four villages in a rural Spanish-speaking area were selected for the study. A single independent variable was manipulated by offering different food supplements at a central feeding station in each village. Two villages were given Atole, a high-protein, high energy supplement, and two received Fresco, a low-energy

supplement with no protein. Children were tested from ages 6 months through 7 years in the initial phases of the study (1969 through 1977). The intervention continued for eight years, and all children born into the four villages during that period were enrolled and were encouraged to ingest the supplement offered in their villages. Pregnant women were also encouraged to attend. Ten years after the termination of the intervention, the subjects were tested again to determine whether long-term effects of the supplement could be seen in cognitive development.

During the early period of the intervention, children in the Atole group scored significantly higher on the motor score at 24 months, and on the general factor score (based on the first factor from the verbal and performance items from the battery of preschool tests) during some of the preschool years. In particular, children in the lowest SES groups showed the most significant effects of the Atole. In the follow-up, similar differences were found; adolescents who had received the Atole treatment scored significantly higher than those residing in the Fresco villages, controlling for possible confounding factors of SES, age, and school attendance patterns. These effects were seen for tests of academic achievement, general knowledge, and numeracy. As in the preschool period, a significant SES x Treatment interaction was found for many measures. These interactions suggested that in the Fresco group, expected associations between SES and test scores were found, whereas these associations were not seen in the Atole group. The Atole supplement appeared to have a *protective* function for the adolescents; those living in poorer circumstances were less likely to show the negative effects of environmental deprivation if they had received the nutritional supplementation in utero and during the first two years of life. In this case, the protective factor was increased nutritional ingestion.

In the first two studies, the protective effect observed on child cognitive development was due to an intervention to improve maternal stimulation of children. The mechanism of this effect was not clear, since no obvious changes in maternal

behavior were observed. However, in general, it appears that vocalization and cognitive stimulation are highly related to child cognitive development, and thus the increased input could ameliorate the children's lower energy level (see Engle and Ricciuti 1996).

In the study by Pollitt et al. (1993), the authors speculate that the increased nutritional input altered the physical growth and motor development of the child, which, in turn, enhanced the caregiving that the child received rather than having a direct effect on brain growth. For example, the child's energy level may have improved through the nutritional supplementation, and this increased energy level or motoric development may have influenced the kinds of interactions that the child could evoke. This line of reasoning suggests that in some cultures, parents are more likely to respond to child initiation than to initiate interactions themselves. "Infants and children evoke from others responses that are correlated with their own bio-behavioral characteristics " (Pollitt et al. 1993). Further, children tend to seek environments that are consistent with these bio-behavioral characteristics. With reference to the Longitudinal Study, this theoretical perspective could account for the greater effect of the early supplementation on psycho-educational development at older ages. Children in the control villages were smaller, and slower in motor development overall than those in the supplemented villages. Thus the children who were given the supplement may have been more able to stimulate caregiving, and to select environments for themselves (such as school) that were more challenging than those without the supplement.

SUMMARY

Investigations of protein-energy malnutrition and iron deficiency have provided a strong background for understanding risk factors (Stages 1 and 2), and there are initiatives to explore other micronutrient deficiencies for evidence of risk. However,

there has been relatively less attention paid to resilience processes or buffering factors (Stage 3 research), particularly those following a severe insult such as an episode of severe protein-energy malnutrition or an episode of anemia. We do not know, for example, how many children actually function well despite episodes of this sort. The positive deviance approach uses the "strength" focus to redress some of this lack; the concern is with adaptive caregiver behaviors. As this model is extended to include characteristics of the individual, and of the larger community in explaining resilience, the field will move forward. Much remains to be done in the area of defining protective characteristics and adapting them to possible interventions (Stage 4 research and planning).

3. FAMILY DYNAMICS, FAMILY FORMS, AND RISK AND RESILIENCE

This section assesses the role of women's family relationships both with men and with other women and how these affect children's risk or resilience to infection, malnutrition and psychological adjustment. Between- and within-gender relations may facilitate or impede women's access to material resources for health, such as cash and food, and nonmaterial resources, such as time, information, and "perceived self-efficacy" (Bandura 1984). Second, it will illustrate that children with high levels of intra-family poverty or conflict can be buffered against excessive risk by external resources from the wider society. Third, the consequences of nontraditional family structures for children's health and well-being will be addressed. Nontraditional family structures discussed here are child-fostering and female-headed households. The extensive literature on the effects of divorce on children is not included here.

Data presented in this section illustrate that emic and etic perceptions of risk and resilience may be very different—what outsiders perceive to be risky or neglectful parental behavior may seem to many parents to be appropriate, adaptive, and

beneficial. Monod-Cassidy (1987) notes that development agents and local communities may emphasize different priorities, or have different “world-views.” Outsiders may place greater value on the relative well-being of an individual child, whereas parents may protect the wider family group. Resilience may also be seen through differing perspectives. In some developing societies, spiritual and supernatural entities may be perceived to provide more effective protection against threats to child health than individual parental behavior or family circumstances.

These data will also illustrate the importance of examining intrahousehold processes in risk and resilience. Recent literature has criticized conventional neoclassical economic theory that assumes that a household operates as a cohesive, cooperative unit whose head and members make altruistic decisions for the common benefit of the unit. Rather, there may be severe inequalities within households; a more appropriate model may be a bargaining household in which members formally contend and exchange to gain their individual ends through “cooperative conflict” (Dwyer and Bruce 1988).

STAGES 1 AND 2 RESEARCH

In many patriarchal societies, women have no direct access to land or to male labor and must request these from their husbands or from other males in the household. Children’s risk and resilience may thus be a function of societal and family views about gender that curtail a mother’s independence and autonomy to make decisions about her children, particularly if it involves her seeking resources outside the home. For example, Balk (1994) notes that in Bangladesh, women stated that it was primarily their husbands who made decisions concerning their sick children and that nearly one-third of women disapproved of deciding independently to get treatment for a sick child. Thus, risk aversion may not be seen by women as being their responsibility or prerogative.

Not only may men and women have different priorities and bargaining power within the household, but, also, power differences between women may have a direct effect on child health and nutritional status. Intrafamily female relationships may be governed by hierarchical factors associated with age and life-cycle status—such as a mother-in-law/daughter-in-law relationship. Relative variations in status over the life-cycle and in different sets of household circumstances may be associated with children's potential susceptibility to disease and malnutrition and determine their mothers' health treatment-seeking behavior. A woman at the beginning of her reproductive career may have lower status and access to family resources for child health, such as food, cash, or medicine than a woman at the end of her reproductive life span. Thus, changes in women's ability to minimize their children's risk of illness and malnutrition may occur over their life time and should not be considered as a static variable.

In the developed and developing world, family structure and dynamics have been shown to influence children's susceptibility to malnutrition, infection, abuse, and to determine their educational achievement. For example, children of mothers in "weaker" household bargaining positions who are, by nature of their inferior status, allowed only limited access to cash, time, and knowledge for health may exhibit poorer nutritional and health outcomes than those of other higher status women in the same family. In Jordan, children of women who were daughters-in-law in hierarchical households exhibited poorer nutritional status than children of women with higher autonomy in less hierarchical households. These effects persisted even when controlling for age, education, and household size and composition (Doan and Bisharat 1990). Among the Malian Fulani, Castle (1992; 1993) found that children of women who were of daughter-in-law status were more likely to be malnourished than those of women who lived in more egalitarian households where hierarchies between women were less significant. Some of the most malnourished children in the Fulani

sample belonged to low status women (such as junior daughters-in-law) in high-income households, indicating that it may not be the level of household wealth that determines a mother's resources for child health; rather the mother's *access* to household wealth appeared to be a more decisive factor in influencing her children's health and nutritional outcomes.

In Africa and elsewhere, polygynous marriage differentially empowers different wives of the same man, usually enhancing the status of the first wife and limiting the social, political, and economic authority of junior wives. However, evidence from Africa generally indicates that children of monogamous or polygynous wives exhibit little differences in health status. probably because, in much of the continent, "women and children tend to provide much of their own food with relatively low contribution from the father" (Desai 1991). The larger size of polygynous households may put children at risk of infection from specific diseases such as measles. In Guinea-Bissau, Aaby et al. (1983) found children in polygynous households to be more susceptible to measles infection and attribute this to the higher number of children and possible crowding that contributes to transmission of the illness.

In West Africa, where fostering is widespread, children may be taken in by vulnerable individuals such as the elderly or childless to provide them with company or labor, or fostered out to gain a formal or Koranic education or training in certain skills. Perhaps guided by Western models of child-rearing, which emphasize the perceived benefits of primarily parental care, many authors believe that foster children are likely to be at a greater risk of maltreatment and to exhibit poorer nutritional and health outcomes than parentally raised children. For example, demographers Lloyd and Desai suggest that "fostered children may be disadvantaged, particularly if they are fostered very young" (1991, 5). In Nigeria, Oni (1995) found that health treatments were delayed for foster children in comparison to biological children and

that foster parents were found to be less sensitive to foster children's illnesses, which they often suspected were used to avoid household chores.

Data on the nutritional outcomes of fostered and nonfostered children in Africa are largely inconclusive and often based on indirect estimates of fostering prevalence or on hospital data with associated selection biases. In Sierra Leone, Bledsoe, Ewbank, and Isiugo-Abanihe (1988) found, among hospital admissions, that although fostered children under six years of age (particularly girls) were more likely to be malnourished, older children did not experience similar nutritional risks. In another hospital study, Excler, Nicolas, and Monjon (1985) found, in Togo, that fostered children exhibited poorer nutritional outcomes than those under the care of their biological parents. However, in a community-based study in Swaziland, researchers found no difference in the nutritional outcomes of fostered and nonfostered children. They comment pertinently that it is possible that "fostered children represent a selected group of children whose parents felt that they were healthy enough to tolerate the experience" (Sudre et al. 1990). Thus, the possible built-in resilience of foster children (perhaps due to the biological mothers' better nutritional decisions and breast-feeding or weaning practices while the child remained with her) accounts for their being chosen to be sent away to be reared elsewhere. By contrast, those exhibiting frequent infections or malnutrition are more likely to remain under maternal care. Among the pastoral Turkana of Kenya, Shell-Duncan (1994) found no difference in either anthropometric indicators or in reported morbidity among fostered and nonfostered children.

Research with the Malian Fulani community indicated that fostering per se had no effect on children's nutritional status and that, in many cases, fostered children exhibited better nutritional outcomes than their nonfostered counterparts (Castle 1992; 1995). The reasons for the child's transfer did, however, appear to be linked to anthropometric indicators. Children fostered out under forced circumstances due, for

example, to the death, divorce, or migration of their biological mothers were more likely to be malnourished than those who were actively requested by their foster parents to provide them with company or labor. Children requested by elderly or childless foster mothers were often highly valued and appreciated, as they were more likely to be the only child in the household and thus not in competition for household resources (Castle 1995). In short, the fact that the practice does not seem to have detrimental effects on children's well-being and may even endow them with positive advantages indicates that Western and non-Western perceptions and interpretations of risk may be different.

Fostering should be viewed in relationship to the normative patterns of child rearing of nonfostered children. Even children who remain under the care of their biological mothers receive high amounts of surrogate and sibling care. Among the Malian Fulani, nonfostered, weaned children under five years of age were in the presence of "their biological mothers (defined according to specific operational criteria) for only about 25 percent of their day. The rest of the time they spent with their older sisters, peers, or other members of the extended family or community" (Castle 1992). Similarly, nonmaternal child rearing and high amounts of surrogate care are common in the developing world and in minority communities in the developed world and have important implications for patterns of risk and resilience (Gordon 1987; Page 1989; Sandven and Resnick 1990). Thus the maternal-child dyad may not be the prime unit of child welfare and children's risk and resilience may be a function of the characteristics and practices of surrogate carers or foster parents rather than the biological parents.

STAGE 3 RESEARCH: FACTORS ASSOCIATED WITH RESILIENCE

Children's family circumstances shape their ability to exhibit resilience in the face of excessive physiological and psychological risk. Research has focused upon

how within-family relations act to buffer children against environmental stresses and how the interaction of the family with the wider community may endow a child with additional support or resources he or she needs to survive, and to grow and develop appropriately.

Family dynamics include not only intrafamily processes, but also relations with extrafamily forces and community organizations, such as NGOs. Interactions between and outside the household furnish mothers with the resources they need for child care and health. For example, poor children “may be buffered from extreme economic and material hardship (such as hunger and homelessness) by their parents’ involvement in networks of credit and exchange that go beyond the biological family or immediate household providing them with a form of emergency insurance against low parental wages” (Geronimus 1992). Support that protects children against social or economic vulnerability may also be found in local community institutions as well as within the immediate family. In Jamaica, Kerr, Bagues, and Kerr (1978) found that mothers of adequately nourished children had mutually supportive associations with churches, neighborhoods, and extended families and that “these were effective in overcoming environmental hardships” (1978, 782). Mothers of malnourished children were more likely to be isolated, had never been able to depart from close family supervision, and were involved in relationships with their extended family members that were fraught with dependency and ambivalence. Similarly, Myntti (1993) describes, in Yemen, the interaction of chronic economic problems, social isolation, and a mother’s inability to cope—the psychological dimension—that determines risks to children at the level of the family. However, “disorganized mothers may be saved by strong social support and sufficient financial resources. Conversely, the problems of a psychologically fragile mother are sure to be exacerbated by the stresses of poverty and isolation” (Myntti 1993).

Extrafamily Relations

Women in weak household bargaining positions either with men or other women may not only lack the social and financial support but also the confidence and “perceived self-efficacy” to gain and apply health information. However, disadvantageous family circumstances may be mitigated by external contacts and activities that serve to increase a woman’s social support and her self-esteem. For example, in West Africa, women frequently engage in large-scale market trading involving bargaining, the manipulation of goods and individuals, forward planning, saving and investing—all skills that they can apply within their homes to enhance their child care practices. Further research could tease apart the exact relationships between these activities and the enhancement of psychosocial skills that can ultimately be used to improve women’s bargaining power within the household. Research does indicate that, in general, children of mothers who work outside the home exhibit better nutritional outcomes (Engle and Pedersen 1989; Engle 1991; Engle 1993). However, these effects may not simply be due to women’s greater income and status in the household as a wage-earner, but also because psychosocial skills gained from the external environment can be applied within the domestic domain to gain resources for children and increase their resilience in the face of widespread malnutrition.

The practice of child fostering in West Africa is governed by a desire to forge and strengthen social relationships between extended families and lineages. As such, children are used to cement kinships ties and create current or future economic opportunities or obligations between the child's biological and foster kin, which benefit one or both parties in the short-term and/or long-term (Goody 1982; Bledsoe 1990).

Nontraditional Family Settings

Risks to child health are typically thought to be associated with “nontraditional” family structures, such as female-headed households or with nonmaternal, child-rearing strategies. However, increasingly, evidence indicates that children living in nonnuclear family situations can indeed develop and thrive as well as, if not better than, children in the same community who live with both biological parents. Female-headed and maintained households with children are generally poorer, although there is considerable variation in these differences, depending on the social and economic context of the female heads; in many cases, they are quite heterogeneous and children in female-headed households are not always more poorly nourished than those in male-headed households (Quisumbing, Haddad, and Peña 1995).

Research in some cultures suggests that, in fact, female heads of household tend to have more “child-centered” priorities that enhance the well-being of their children. In the Dominican Republic, for example, Johnson and Rogers (1993) found that children in female-headed households tended to be taller and heavier than comparable children from two-parent families. In Jamaica, Louat, Grosh, and van der Gaag (1993) found that female heads of household spent more on meat, vegetables, and dairy products than male heads and concluded that “child welfare outcomes of children in female headships showed no deleterious effects due to gender of the head.” Engle (1995) found that children in female-headed households were better nourished than those in intact families in urban Guatemala. On the other hand, in a low-income, urban setting in Nicaragua, fathers' income has a positive effect that disappeared when controlling for house quality and mother's education.

Data from Latin America and Africa seem to reflect these different patterns. Desai (1991) compared the association of mothers' and fathers' incomes with child nutritional status in three Latin American and three West African countries, using data

from the Demographic and Health Surveys (DHS). In the three Latin American countries, children of single mothers were more likely to be malnourished than those in relationships, but when socioeconomic status was controlled for, the difference disappeared. Children born to mothers in consensual unions were more undernourished than those born in formal marriages, even controlling for socioeconomic factors. The difference was particularly marked in the urban areas.

On the other hand, in West Africa, there was little impact of the mother's marital status on the child's nutritional status (Desai 1991). Whether or not the father had more than one wife was not associated with the child's nutritional status. In several cultures, children in single parent, female-headed households appear to be advantaged compared to those where both parents are present. In Kenya and Malawi, despite lower incomes, a smaller percentage of children in female-headed households are more malnourished than in male-headed households (Kennedy and Peters 1992). In Botswana, children in female-headed households received more education than children in male-headed households (Kossoudji and Mueller 1983; Bruce and Lloyd 1996). Analysis of the effects of female-headed households on children have begun to distinguish between de jure female-headed households (a woman is in charge) and de facto female-headed households, in which the child's father is nonresident, but is sending remittances. One study comparing these groups in Kenya and Ghana suggested that the effects of these two statuses differed by country (Kennedy and Haddad 1994). Similar distinctions regarding men's roles in the household might be useful.

STAGE 4 EXAMPLES: RELATIONSHIPS WITH NGOS

Family structure and dynamics may influence the participation of women in nongovernmental organization programs. For example, women who are constantly involved in child care and food preparation may not have the time, inclination, or,

more importantly, permission from household members to whom they are obligated to profit from NGO interventions. In addition, the effect of participation in NGO programs designed to improve women's status is often misunderstood and self-selection of program participants may be ignored (Findley, Laugharn, and Gueye 1995).

The interaction of poverty and household structure may serve to impede women at risk from benefitting from NGO resources deemed to service the "poorest of the poor." In rural Mali, a Grameen Bank was set up in a Fulani village and required women participants to organize themselves into groups of five. Repayment was based on peer pressure and the whole group was held responsible for one member's defaulting. It was noticed that the very poorest women of the village (who were often divorced or female heads of household) were deliberately excluded by other, wealthier women. When incomplete groups were approached to include these women, their members refused to cooperate, claiming that the participation of such women, who could barely guarantee each minimal payment, would jeopardize the other members' security. Thus, those impoverished women in most need of the loans were deliberately excluded by other participants and lacked the social and political authority in their communities to insist on participation. This example makes us aware of how difficult it is to target and reach "the poorest of the poor" (Castle, personal communication).

Participation in an NGO program may ultimately have positive consequences for family structure and relations. As noted earlier, the independent control of cash by women increases their status with other family members and may change their access to resources for child health. A loan program organized by the Bangladesh Rural Advancement Committee (BRAC) required participants to have certain views about their families and risks to child health in order to participate. One tenet of the pledge that each member is required to adhere to is, "We shall fight against polygamy and

injustices to our wives and all women"; another requires them to promise that "we shall not keep our food uncovered and will wash our hands and face before we take a meal" (Lovell 1992). Thus, ideas about family justice and equity are an integral component of requirements for program participation and access to credit.

SUMMARY

Family dynamics present one of the greatest risks for children's health and development. However, as noted previously, sources of support both within the household and from extrafamily sources can provide important buffering roles. This section reminds us that what may appear to be a risk in one cultural context may not be in another, and that we must examine the specific within-household relationships to understand these risk factors. Second, although there is evidence that nongovernmental agencies may increase chances for child health and development, we must carefully examine claims that they are helping the poorest of the poor.

4. EFFECTS OF VIOLENCE ON CHILDREN

Children are far more likely to be victims of violence than are adults, although this fact is often not recognized. Using statistics derived from U.S. databases, Finkelhor and Dzuiba-Leatherman (1994) have documented the frequency of various forms of victimization that American children are exposed to (see Figure 2). By far the most common type of victimization is assault by a sibling, which tends to go unrecognized, whereas tremendous attention is paid to the more dramatic, but less frequent, cases of sexual abuse. The authors suggest that this focus ignores the concerns of children themselves. A recent survey of 2,000 children aged 10 to 16 revealed that three times as many were concerned about the likelihood of being assaulted by peers than were concerned about sexual abuse (Finkelhor and Dzuiba-Leatherman 1996). A second area in which the victimization of children is

underestimated is in domestic violence research, which tends to focus on spousal abuse, although, in fact, abuse of children by parents is four times more likely than abuse of a spouse (Finkelhor and Dzuiba-Leatherman 1994).

STAGE 1 RESEARCH

In many situations around the world, children are exposed to violence as a function of the larger forces in society, which present significant risks for their healthy development, but for which we have no good statistics. Exposure occurs in community violence such as in urban U.S. inner cities; in chronic political violence such as in Palestine, Northern Ireland, or Rwanda; and in combinations of political and community violence, such as in South Africa. Even when children are not direct witnesses or victims of violence, they may suffer the consequences of violence through dislocation, refugee status, and impairment of their family's ability to provide supportive care and the community's ability to support a healthy development through its institutions (Cairns 1994). Unfortunately, some of the most egregious examples of violence toward children never enter the literature, but become part of the anecdotal record. For example, there are anecdotal reports from Mozambique of young boys being required to kill their families and destroy their households by militia members, who then recruited them as fighters. The more urgent the need, the less we may know about some of these situations.

Some Stage 1 analyses have indicated that exposure to the violence of war or to violence within a community are associated with psychological disorders and behavior problems (Garbarino et al. 1992; Garbarino, Kostelny, and Grady 1993; Macksoud 1992). These reactions included extreme anxiety, phobic reactions, aggressiveness, withdrawal, and enuresis (Punamaki 1987). Children in high-crime areas of Chicago have shown behaviors indicating regression to earlier developmental periods, such as excessive clinging, crying, thumb-sucking, and loss of bowel and bladder control (Garbarino et al. 1992).

Figure 2 Typology of child victimization

Note: Abd = abduction, Psych Maltmt = psychological maltreatment, Phys = physical, Pun = punishment, Sib = sibling.

Source: Finkelhor and Dziuba-Leatherman 1994.

STAGE 2 RESEARCH

The reactions to exposure to violence appear to increase with increasing durations of exposure among children living in Beirut (Macksoud 1992) and in the United States (Bell 1991); children do not appear to be inured by repeated exposure (a Stage 2 analysis). Other studies report the effects of exposure and modeling on the outcome of child aggressiveness (Chimienti, Nasr, and Khalifeh 1989), although the nature of this aggressiveness may vary by community (Fry 1988). Young children (age 5) exposed to high levels of community violence in South African black towns were observed to be more aggressive than those less exposed to violence (Liddell et al. 1994). The most predictive factors were the level of violence in the community and the children's exposure to men and older boys. The type of aggressiveness did not differ between high- and low-violence communities, nor were there aggressive acts with men and older boys; rather, the authors speculate that the older boys and men serve as models for aggressiveness. The authors are concerned about the long-term impact of increased aggressiveness in childhood for later abilities to reason and search for cooperative solutions to political problems (Chikane 1986).

Tremendous concern about the level of violence in U.S. inner cities has led to a search for risk and protective factors associated with adolescents' violent actions (Koop and Leeper 1992). One study of black inner-city adolescents found that self-reported use of violence was associated with exposure to violence in the community, with experiences of victimization, with the degree of conflict within the family, and with the severity of corporal punishment used within the family (DuRant et al. 1994). On the other hand, there were no correlations of violence with family structure or socioeconomic status. The authors argue that their results support the idea that violence is culturally transmitted within the family and community. These results are consistent with those from South Africa (Liddell et al. 1994).

STAGE 3 ANALYSES

Not all children exposed to violence have similar responses; there are some protective factors that have been identified. A number of studies suggest that young children are more vulnerable to the effects of violence than older children and adolescents (Eth and Pynoos 1985; Groves et al. 1993). It has been hypothesized that one of the reasons for greater vulnerability to violence is a lack of understanding of the social context of the violence (Kostelny and Garbarino 1994). Rutter (1983) found that children hospitalized between 6 months of age and 4 years were more likely to have negative outcomes than those hospitalized prior to 6 months or after 4 years of age. Davidson and Smith (1990) reported that among children receiving psychiatric care, those who had experienced an initial trauma prior to age 11 were three times as likely to develop psychiatric symptoms than those who had experienced the trauma during adolescence. Thus, age is a particularly critical individual-level protective factor.

As in many other studies, the environmental factor most significant for buffering the negative effects of stress is the presence of at least one stable emotional relationship with a parent or a reference person who can provide a supportive climate for constructive coping with conflict (Losel and Bliesener 1990). A second factor identified as protective for adolescents is the existence of an ideological commitment relating to their exposure to violence (Kostelny and Garbarino 1994; Murphy and Moriarty 1976). Kostelny and Garbarino (1994) interviewed 40 parents of Palestinian children and adolescents who were exposed to violence in the Intifada in the late 1980s. Results suggested that young children were more negatively affected than were adolescents, and that for the latter group, participation in demonstrations and strength of their nationalistic beliefs, or *sumud*—a determined struggle to persist—were very important for their resilience. However, in the months following the interviews, as the violence continued, the authors noted “a growing sense of

depression, futility, and desperation among the Palestinians” (Kostelny and Garbarino 1994, 609). The protective effects of strong ideology may not be able to be sustained, particularly among adolescents, for an extended period of time. It is also noteworthy that despite the dangers the children had been exposed to, less than half of the mothers interviewed reported that their children had changed in personality or behavior; other protective factors remain to be unearthed.

DuRant et al. (1994) also found that having a higher sense of purpose in life, often related to religious orientation, was associated with less use of violence among black inner-city adolescents. Adolescents most able to withstand the influences of exposure to violence and to resist becoming violent were those with both a higher sense of purpose, a belief that they would survive beyond age 25, and little depression.

STAGE 4 RESEARCH

Some efforts have been made to ameliorate the effects of political violence on children. A number of these are summarized in Farias Campero and Miranda Redondo (1994) for refugee children in Central America. Saenz (1995) describes a seven-year effort to work with indigenous Guatemalan children who are living in refugee camps in Chiapas, Mexico, awaiting a return to Guatemala. She identifies strengths in the community that help the process of adaptation, such as good community organization, but does not deal specifically with the concept of resilience. One technique developed by the Committee of Help for the Refugees (CDF) is to teach children from the camps to be teachers of the other children themselves. Thus, a group of 40 children work for three days on materials that they then take back to their respective camps. The style of teaching is small discussion groups, and the topics include the flight from Guatemala, ideas about the return to Guatemala, help in listening and in resolving problems, alcoholism and the family, and ethnic history of

the Mayan peoples (the refugee Guatemalans). The work has not been evaluated systematically, although the authors feel that they have reached hundreds of children through the direct training and the multiplier effect on other children.

Toner (1994) describes an intervention of bringing together Protestant and Catholic children from Northern Ireland for summer programs in the United States, so that children from each group could get to know a child of the other religion. The basis for this intervention is the social psychological finding that personal contact between relative equals in cooperative situations decreases negative stereotyping (Amir 1969). To date, the evaluations have indicated only marginal success in changing attitudes of children after these sessions.

A third intervention model of specific training is illustrated by a two-year intervention with disruptive 7 year olds in the Montreal school district (McCord et al. 1994). Children rated as most disruptive by their teachers were divided into experimental (E) and control (C) groups. The E group was given a two-year educational program designed to combine new learning for the child with new learning for the parents about social skills, conflict resolution, and problem-solving. Although there were no differences between groups when the program terminated, by the seventh year (five years after the program), the E children were showing less aggressive behavior and were doing significantly better in school.

Researchers concerned with violence in inner cities of the United States have recommended preventative efforts such as the teaching of skills to resolve conflict nonviolently in the schools (Cotten et al. 1994). DuRant et al. (1994) recommend that for violence prevention, information alone will not be sufficient, as it has not done so in the battle against AIDS. Rather, a program of violence prevention needs two parts: first, information combined with resources, such as programs to teach nonviolent conflict resolution, to provide social support for younger adolescents; and second, a concerted effort to change the community risk factors for violence, specifically

violence in the home, community, and media, and to reduce the experiences of youth with victimization.

SUMMARY

The extent of children's exposure to violence, either within the household or in the community, is probably underestimated significantly. The eventual cost of this exposure can be calculated not only in the poorer psychological health of the victim, and loss of productivity, but also in the enormous costs associated with increased rates of aggressive behavior in adults and a lessened ability to resolve conflicts nonviolently.

Risk factors include individual-level exposure to violence in the community, conflict and corporal punishment in the home, and experiences of victimization. Factors associated with resilience include a later age of experiencing the violence and more understanding of the reasons for the violence, the existence of at least one stable and supportive relationship, and a belief in a higher purpose.

Recommendations for interventions to reduce the negative effect of violence include group support and therapeutic revisiting of the experience, training in skills to resolve conflicts nonviolently, and face-to-face contact with adversaries in an equal and supportive context. However, the successes have been limited. A much more effective strategy may be to attempt to reduce the extent of exposure to violence of children in the first place. This review has not even touched on other sources of violence, such as television and media portrayals of conflict, and the failure of these programs to depict negative consequences of violence. The long-term costs of ignoring these issues will be enormous.

5. CONCLUSIONS

A number of gaps in knowledge are revealed through applying the four-stage model of research to these sample problems. First, with respect to a few risks, all of the issues have been addressed completely; perhaps the most developed area has been in the exposure of children to the risks of inner-city violence and poverty. Yet in this work, we are still without specific suggestions of interventions in Stage 4, particularly those which involve the level of community or broader social network. Second, many new risk factors are being identified that are a result of changing family forms, such as homelessness or street children, new environmental risks, such as exposure to lead and dioxins, and new risks that emerge from the problems of contemporary society, such as orphanhood due to AIDS. Work on risk and resilience is needed in each area. A third gap in knowledge is evidence from the large number of areas of conflict and vulnerability in the developing world. Work on the effects of political violence has been limited to the Middle East, Northern Ireland, and South Africa, and we have much less published literature on the effects of political violence in many other parts of the world.

The lack of greater attention to Stage 4 analyses, the development of strategies to ameliorate some of the negative effects of risks on children, raises the possibility that the focus will stop at Stage 3, the description of resilience processes. For some reason, changes in institutions that affect children, such as schools and health care clinics, to support children exposed to risk have not been nearly as well studied as factors in the child or the immediate family (Kostelny and Garbarino 1994). One could, however, envision a school that allows children time for small group discussions, a connection with a caring older person, and topics that address the concerns children have regarding the risk they are experiencing.

The concept of resilience is appealing, but many questions about resilience remain unanswered. Are risk and protective factors simply the opposites of each

other, or do they operate in different ways? Can a factor associated with resilience in one domain (e.g., the positive effects of locus of control on school competence) also be effective in other domains? How do these resilient processes change over time; is there a time limit beyond which a particular coping strategy can no longer be effective, as in the work of Kostelny and Garbarino (1994) in Palestine? Are the processes in the resistance to stress the same as those involved in good recovery from trauma? And finally, can our interest in resilience blind us to the risks children face? Dawes, Tredous, and Feinstein (1989) worry that the past emphasis on children's vulnerability will be replaced with an overemphasis on children's resilience. "Resilience could become as *fashionable* as the earlier *damage* thesis, leading us to underestimate the very real instances of psychological distress that occur in contexts of violence." Studies such as those of Luthar (1991) serve to remind us that the costs of resilience to children may be much greater than they appear.

REFERENCES

- Aaby, P., J. Bukh, I. M. Lisse, and A. Smits. 1983. Measles mortality, state of nutrition, and family structure: A community study from Guinea. *Journal of Infectious Diseases* 147 (4): 693.
- Amir, Y. 1969. Contact hypothesis in ethnic relations. *Psychological Bulletin* 71: 319-342.
- Arya, S. 1989. Infant nutrition and mother-child dyad. *Indian Journal of Clinical Psychology* 16: 34-40.
- Balk, D. 1994. Individual and community aspects of women's status and fertility in Bangladesh. *Population Studies* 48 (1): 21-45.
- Bandura, A. 1984. Exercise of personal agency through the self-efficacy mechanism. In *Self-efficacy: Thought control of action*, ed. R. Schwarzer. Washington, D.C.: Hemisphere Publishing Company.
- Bell, C. 1991. Traumatic stress and children in danger. *Journal of Health Care for the Poor and Underserved* 2: 175-188.
- Bledsoe, C. H. 1990. The politics of child fosterage and the social management of fertility among the Mende of Sierra Leone. In *Births and power: Social change and the politics of reproduction*, ed. W. P. Handwerker. Boulder, Colo., U.S.A.: Westview Press.
- Bledsoe, C. H., D. C. Ewbank, and U. C. Isiugo-Abanihe. 1988. The effect of child fostering on feeding practices and access to health services in rural Sierra Leone. *Social Science and Medicine* 27 (6): 627.
- Bronfenbrenner, U. 1993. Ecological system theory. In *Specific environments: Thinking in contexts*, ed. R. Wozniak and K. Fisher. Hillsdale, N.Y., U.S.A.: Erlbaum.
- Bruce, J., and C. B. Lloyd. 1996. Finding the ties that bind: Beyond headship and household. In *Intrahousehold resource allocation in developing countries: Methods, models, and policy*, ed. L. Haddad, J. Hoddinott, and H. Alderman.

- Baltimore, Md., U.S.A.: Johns Hopkins University Press for the International Food Policy Research Institute, forthcoming.
- Cairns, E. 1994. Children and political violence: An overview. *International Journal of Behavioral Development* 17 (4): 669-674.
- Caldwell, P. 1996. Child development: Vulnerability and resilience in adversity in the European past and in the contemporary Third World. *Social Science and Medicine*. Forthcoming.
- Castle, S. E. 1992. Intrahousehold variation in child care and illness management in rural Mali. Ph.D. diss., Centre for Population Studies, London School of Hygiene and Tropical Medicine, London.
- Castle, S. E. 1993. Intrahousehold differentials in women's status: Household function and focus and determinants of children's illness management and care in rural Mali. *Health Transition Review* 3: 137.
- Castle, S. E. 1995. Child fostering and children's nutritional outcomes in rural Mali: The role of female status in directing child transfers. *Social Science and Medicine* 40 (5): 679-693.
- Castle, S. E. 1996. Personal communication.
- Chavez, A., H. Martinez, and T. Yachine. 1975. Nutrition, behavioral development, and mother-child interaction in young rural children. *Federation Proceedings* 34: 1574.
- Chavez, A., H. Martinez, L. H. Allen, and G. Pelto. 1987. The collaborative research and support program on food intake and human function: Mexico project. Final report submitted to the United States Agency for International Development, November 15, 1987, Washington, D.C. Mimeo.
- Chikane, R. 1986. The effects of township unrest on children. In *Growing up in a divided society: The context of childhood in South Africa*, ed. S. Burman and P. Reynolds. Johannesburg: Raven Press.

- Chimienti, G., J. A. Nasr, and I. Khalifeh. 1989. Children's reactions to war-related stress: Affective symptoms and behavior problems. *Social Psychiatry and Psychiatric Epidemiology* 24: 282-287.
- Clugston, G., E. Dulberg, C. Pandav, and R. Tilden. 1987. Iodine deficiency disorders in southeast Asia. In *The Prevention and control of iodine deficiency disorders*, ed. B. Hetzel, J. Dunn, and J. Stanbury. Amsterdam: Elsevier.
- Cotten, N. U., J. Resnick, D. C. Browne, S. L. Martin, D. R. McCarraher, and J. Woods. 1994. Aggression and fighting behavior among African-American adolescents: Individual and family factors. *American Journal of Public Health* 84: 618-622.
- Cowen, E. L., and W. C. Work. 1988. Resilient children, psychological wellness, and primary prevention. *American Journal of Community Psychology* 16: 591-607.
- Currie, J., and D. Thomas. 1995. Does Head Start make a difference? *American Economic Review* 85 (3): 341-364.
- Davidson, J., and R. Smith. 1990. Traumatic experiences in psychiatric outpatients. *Journal of Traumatic Stress Studies* 3 (3): 459-475.
- Dawes, Q., C. Tredoux, and A. Feinstein. 1989. Political violence in South Africa: Some effects on children of the violent destruction of their community. *International Journal of Mental Health* 18 (2): 16-43.
- Desai, S. 1991. *Children at risk: The role of family structure in Latin America and West Africa*. Population Council Working Paper No. 28. New York: Population Council.
- Doan, R. M., and L. Bisharat. 1990. Female autonomy and child nutritional status: The extended family residential unit in Amman, Jordan. *Social Science and Medicine* 31 (7): 783-789.
- Dryfoos, J. G. 1990. *Adolescents at risk*. New York: Oxford University Press.

- DuRant, R. H., C. Cadenhead, R. A. Pendergrast, G. Slavens, and C. W. Linder. 1994. Factors associated with the use of violence among urban black adolescents. *American Journal of Public Health* 84: 612-617.
- Dwyer, D., and J. Bruce. 1988. *A home divided: Women and income in the Third World*. Stanford, Calif., U.S.A.: Stanford University Press.
- Engle, P. L. 1991. Maternal work and child-care strategies in peri-urban Guatemala: Nutritional effects. *Child Development* 62 (5): 954-965.
- Engle, P. L. 1993. Influences of mother's and father's income on children's nutritional status in Guatemala. *Social Science and Medicine* 37 (11): 1303-1312.
- Engle, P. L. 1995. Mother's money, fathers' money, and parental commitment: Guatemala and Nicaragua. In *Engendering wealth and well-being*, ed. R. Blumberg, C. A. Rakowski, I. Tinker, and M. Monteon. Boulder, Colo., U.S.A.: Westview Press.
- Engle, P. L., and M. Pedersen. 1989. Maternal work for earnings and children's nutritional status in urban Guatemala. *Ecology of Food and Nutrition* 22 (3): 211-223.
- Engle, P. L., and H. Ricciuti. 1996. Psycho-social aspects of care and nutrition. *Food and Nutrition Bulletin Supplement*, forthcoming.
- Engle, P. L., K. Gorman, R. Martorell, and E. Pollitt. 1993. Food supplementation and infant and preschool psychological development. *Food and Nutrition Bulletin* 14 (3): 201-220.
- Engle, P. L., T. VasDias, J. De Quan, S. Abal-Romero, J. Bulux, N. Solomons, and K. Dewey. 1996. Effects of discontinuing coffee intake on cognitive development of Guatemalan toddlers: A randomized intervention trial. Federation of American Societies for Experimental Biology, Rockville, Md., U.S.A.

- Eron, L., and L. R. Huesman, eds. 1986. *Television and the aggressive child: A cross-national comparison*. Hillsdale, N.J., U.S.A.: Erlbaum Associates.
- Eth, S., and R. Pynoos, eds. 1985. *Post-Traumatic Stress disorder in children*. Washington, D.C.: American Psychiatric Press.
- Excler, J. L., E. Nicolas, and M. Monjon. 1985. La malnutrition proteino-energetique en milieu urbain Africain (Togo). Facteurs etiologiques du kwashiorkor et du marasme-kwashiorkor. *Médecine Tropicale* 45 (2): 155-161.
- Farber, E. A., and B. Egeland. 1987. Invulnerability among abused and neglected children. In *The invulnerable child*, ed. E. G. Anthony and B. J. Cohler. New York: Guilford.
- Farias Campero, P. J., and R. Miranda Redondo, eds. 1994. *Experiencias del refugio centroamericano: Perspectivas de salud mental y psicosocial*. San Cristobal de las Casas, Chiapas, Mexico: Centro de Investigaciones en Salud de Comitán.
- Findley, S., P. Laugharn, and M. Gueye. 1995. Does health transition research improve health? *Health Transition Review* 5: 238.
- Finkelhor, D., and J. Dziuba-Leatherman. 1994. Victimization of children. *American Psychologist* 49 (3): 173-183.
- Finkelhor, D., and J. Dziuba-Leatherman. 1996. Victimization prevention programs: A national survey of children's exposure and reactions. *Child Abuse and Neglect*, forthcoming.
- Fry, D. 1988. Intercommunity differences in aggression among Zapotec children. *Child Development* 59: 1008-1019.
- Furstenberg, F. F., J. Brooks-Gunn, and S. P. Morgan. 1987. *Adolescent mothers in later life*. New York: Cambridge.
- Galler, J. R., and F. Ramsey. 1985. The influence of early malnutrition on subsequent behavioral development: VI. The role of the microenvironment of the household. *Nutrition and Behavior* 2: 161-173.

- Garbarino, J., K. Kostelny, and J. Grady. 1993. Children in dangerous environments: Child maltreatment in the context of community violence. In *Child abuse, child development, and social polity*, ed. D. Cicchetti and S. Toth. Norwood, N.J., U.S.A.: Ablex.
- Garbarino, J., N. Dubrow, K. Kostelny, and C. Pardo. 1992. *Children in danger: Coping with the consequences of community violence*. San Francisco, Calif., U.S.A.: Jossey-Bass.
- Garnezy, N. 1991. Resilience and vulnerability to adverse developmental outcomes associated with poverty. *American Behavioral Scientist* 34: 416-430.
- Geronimus, A. 1992. Clashes of common sense: On the previous child care experience of teenage mothers-to-be. *Human Organization* 51 (4): 318-329.
- Goody, E. 1982. *Parenthood and social reproduction*. Cambridge: Cambridge University Press.
- Gordon, S. W. 1987. I go to 'Tanties': The economic significance of child-shifting in Antigua, West Indies. *Journal of Comparative Family Studies* XVIII: 427-443.
- Grantham-McGregor, S. M., W. Schofield, and C. Powell. 1987. Development of severely malnourished children who received psychosocial stimulation: Six-year follow-up. *Pediatrics* 79 (2): 247-254.
- Grantham-McGregor, S., C. Powell, S. Walker, S. Chang, and P. Fletcher. 1994. The long-term follow-up of severely malnourished children who participated in an intervention program. *Child Development* 65 (2): 428-439.
- Groves, B., B. Zuckerman, S. Marans, and D. Cohen. 1993. Silent victims: Children who witness violence. *Journal of the American Medical Association* 269: 262-264.
- Guldan, G. S., M. F. Zeitlin, A. S. Beiser, C. M. Super, S. N. Gershoff, and S. Datta. 1993. Maternal education and child feeding practices in rural Bangladesh. *Social Science and Medicine* 36 (7): 925-935.

- Hanushek, E. 1986. The economics of schooling: Production and efficiency in public schools. *Journal of Economic Literature* 24 (3): 1141-1177.
- Hawley, T. L., and E. R. Disney. 1992. Crack's children: The consequences of maternal cocaine abuse. *Social Policy Report, Society for Research in Child Development* 6 (4): 1-22.
- Hetzel, B. S. 1988. *The prevention and control of iodine deficiency disorders*. ACC/SCN State of the Art Series. Nutrition Policy Discussion Paper 3. Geneva: United Nations Administrative Committee on Coordination—Sub-Committee on Nutrition.
- Jelliffe, D. B. 1965. Effect of malnutrition on behavioral and social development. In *Proceedings of the Western Hemisphere Nutrition Congress*. Chicago, Ill., U.S.A.: American Medical Association.
- Johnson, F. C., and B. L. Rogers. 1993. Children's nutritional status in female-headed households in the Dominican Republic. *Social Science and Medicine* 37 (11): 1293-1301.
- Kennedy, E., and M. Garcia. 1994. Body mass index and economic productivity. *European Journal of Clinical Nutrition* 48 (3, Supplement): S45 - S53.
- Kennedy, E., and L. Haddad. 1994. Are preschoolers from female-headed households less malnourished? A comparative analysis of results from Ghana and Kenya. *Journal of Developmental Economics* 30 (3): 680-695.
- Kennedy, E., and P. Peters. 1992. Influence of gender of head of household on food security, health, and nutrition. *World Development* 20 (8): 1077-1085.
- Kerr, M., J. Bagues, and D. Kerr. 1978. Psychosocial functioning of mothers of malnourished children. *Pediatrics* 62 (5): 778.
- Kirksey, A., G. G. Harrison, O. M. Galal, G. P. McCabe, T. D. Wachs, and A. Rahmanifar. 1992. The human costs of moderate malnutrition in an Egyptian village. Final report submitted to the United States Agency for International Development, July 1992, Washington, D.C. Mimeo.

- Koop, E., and B. Leeper. 1992. Violence: A national emergency. *American Journal of Public Health*
- Kossoudji, S., and E. Mueller. 1983. The economic and demographic status of female-headed households in rural Botswana. *Economic Development and Cultural Change* 31 (4): 831-859.
- Kostelny, K., and J. Garbarino. 1994. Coping with the consequences of living in danger: The case of Palestinian children and youth. *International Journal of Behavioral Development* 17 (4): 595-611.
- LeVine, R. A. 1989. *Omwana: Infants and parents in a Kenya community*. Cambridge: Cambridge University Press.
- Liddell, C., J. Kvalsvig, P. Qotyana, and A. Shabala. 1994. Community violence and young South African children's involvement in aggression. *International Journal of Behavioral Development* 17 (4): 613-628.
- Lloyd, C., and S. Desai. 1991. *Children's living arrangements in developing countries*. Population Council Working Paper No. 31. New York: Population Council.
- Losel, R., and T. Bliesener. 1990. Resilience in adolescence: A study on the generalizability of protective factors. In *Health hazards in adolescence*, ed. K. Kurrelmann and F. Losel. New York: Walter de Gruyter.
- Louat, F., M. E. Grosh, and J. van der Gaag. 1993. *Welfare implications of female headship in Jamaican households*. World Bank Technical Report XI. Washington, D.C.: World Bank.
- Lovell, C. H. 1992. *Breaking the cycle of poverty*. West Hartford, Conn., U.S.A.: Kumarian Press.
- Lozoff, B., E. Jimenez, and A. Wolf. 1991. Long-term developmental outcome of infants with iron deficiency. *New England Journal of Medicine* 325 (10): 687-694.

- Luthar, S. 1991. Vulnerability and resilience: A study of high-risk adolescents. *Child Development* 62: 600-616.
- Luthar, S. S., and E. Zigler. 1991. Vulnerability and competence—A review of research on resilience in childhood. *American Journal of Orthopsychiatry* 61: 6-22.
- Macksoud, M. 1992. Assessing war trauma in children: A case study of Lebanese children. *Journal of Refugee Studies* 5: 1-15.
- Mayes, L. C. 1994. Neurobiology of prenatal cocaine exposure effect on developing monoamine systems. *Infant Mental Health Journal* 15 (2): 121-133.
- McCord, J., R. E. Tremblay, F. Vitaro, and L. Desmarais-Gervais. 1994. Boys' disruptive behaviour, school adjustment, and delinquency: The Montreal Prevention Experiment. *International Journal of Behavioral Development* 17 (4): 739-752.
- Merry, S. 1990. *Getting justice or getting even*. Chicago, Ill., U.S.A.: University of Chicago Press.
- Monod-Cassidy, C. 1987. World-view conflict and toddler malnutrition: Change agent dilemmas. In *Child survival*, ed. N. Scheper-Hughes. Dordrecht, the Netherlands: D. Reidel.
- Munroe, R. H., and R. L. Munroe. 1984. Infant experience and childhood cognition: A longitudinal study among the Logoli of Kenya. *Ethos* 12 (4): 291-306.
- Murnane, R, J. Willett, and F. Levy. 1993. The growing importance of cognitive skills in wage determination. Harvard University, Cambridge, Mass., U.S.A. Mimeo.
- Murphy, L., and A. Moriarty. 1976. *Vulnerability, coping and growth from infancy to adolescence*. New Haven, Conn., U.S.A.: Yale University Press.
- Myntti, C. 1993. Social determinants of child health in Yemen. *Social Science and Medicine* 37 (2): 233.

- Oni, J. 1995. Fostered children's perceptions of their health care and illness treatment in Ekiti Yoruba households, Nigeria. *Health Transition Review* 5: 21-34.
- Page, H. 1989. Child rearing vs. childbearing: Co-residence of mother and child in Sub-Saharan Africa. In *Reproduction and social organization in Sub-Saharan Africa*, ed. R. J. Lesthaeghe. Berkeley, Calif., U.S.A.: University of California Press.
- Parker, G. R., E. L. Cowen, W. C. Work, and P. A. Wyman. 1990. Test correlates of stress resilience among urban school children. Manuscript submitted for publication.
- Pollitt, E., and C. Thomson. 1977. Protein-calorie malnutrition and behavior: A view from psychology. In *Nutrition and the brain*, Vol. 2, ed. R. J. Wurtman and J. J. Wurtman. New York: Raven.
- Pollitt, E., K. S. Gorman, P. L. Engle, R. Martorell, and J. Rivera. 1993. Early supplementary feeding and cognition. *Monographs of the Society for Research in Child Development* 58 (7): 1-99.
- Punamaki, R. 1987. Psychological stress responses of Palestinian mothers and their children in conditions of military occupation and political violence. *The Quarterly Newsletter of the Laboratory of Comparative Human Cognition* 2: 76-84.
- Quisumbing, A., L. Haddad, and C. Peña. 1995. Gender and poverty in 10 developing countries. Food Consumption and Nutrition Division Discussion Paper 9. International Food Policy Research Institute, Washington, D.C. Mimeo.
- Rahmanifar, A., A. Kirksey, T. Wachs, G. P. McCabe, Z. Bishry, O. M. Galal, G. G. Harrison, and N. W. Jerome. 1993. Diet during lactation associated with infant behavior and caregiver-infant interaction in a semi-rural Egyptian village. *Journal of Nutrition* 123 (21): 164-175.

- Rutter, M. 1983. Stress, coping, and development: Some issues and some questions. In *Stress, coping, and development in children*, ed. N. Garmezy and M. Rutter. New York: McGraw-Hill.
- Rutter, M. 1985. Resilience in the face of adversity: Protective factors and resistance to psychiatric disorder. *British Journal of Psychiatry* 147: 598-661.
- Rutter, M. 1987. Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry* 57: 316-331.
- Saenz, I. 1995. Algunas alternativas para apoyar la identidad y desarrollo de los niños Guatemaltecos refugiados en Mexico. Paper presented at the Society for Research in Child Development Meetings, Indianapolis, Ind., U.S.A.
- Sameroff, A. J., R. Seifer, A. Baldwin, and C. Baldwin. 1993. Stability of intelligence from preschool to adolescence: The influence of social and family risk factors. *Child Development* 64: 80-97.
- Sandven, K., and M. Resnick. 1990. Informal adoption among black adolescent mothers. *American Journal of Orthopsychiatry* 60: 210-224.
- Schweinhart, L. J. et al. 1993. *Significant benefits: The High/Scope Perry Preschool Study through age 27*. Monograph. Ypsilanti, Mich., U.S.A.: High/Scope Press.
- Shekar, M., J. P. Habicht, and M. C. Latham. 1992. Use of positive-negative deviant analyses to improve programme targeting and services: Example from the Tamil Nadu integrated nutrition project. *International Journal of Epidemiology* 21 (4): 707-713.
- Shell-Duncan, B. 1994. Child fostering among nomadic Turkana pastoralists: Demographic and health consequences. In *African pastoralist systems: An integrated approach*, ed. E. Fratkin, K. Galvin, and E. Roth. Boulder, Colo., U.S.A.: Lynne Reiner Publishers.

- Sigman, M., C. Neumann, M. Baksh, N. Bwibo, and M. A. McDonald. 1989. Relationship between nutrition and development in Kenyan toddlers. *Journal of Pediatrics* 115 (3): 357-364
- Steckel, R. H. 1995. Stature and the standard of living. *Journal of Economic Literature* xxiii (December): 1903-1940.
- Sudre, P., M. Serdula, N. Binkin, N. Staeling, and M. Kramer. 1990. Child fostering, health and nutritional status: The experience of Swaziland. *Ecology of Food and Nutrition* 24 (3): 181-188.
- Toner, I. J. 1994. Children of "the troubles" in Northern Ireland: Perspectives and intervention. *International Journal of Behavioral Development* 17 (4): 629-647.
- UN ACC/SCN (United Nations Administrative Committee on Coordination—Sub-Committee on Nutrition). 1992. *The global assessment of nutrition*. Geneva.
- Wachs, T. D., M. Sigman, S. Bishry, W. Moussa, N. Jerome, C. Neumann, N. Bwibo, and M. A. McDonald. 1992. Child caregiver patterns in two cultures in relation to nutritional intake. *International Journal of Behavioral Development* 15: 1-18.
- Werner, E. E. 1993. Risk, resilience and recovery: Perspectives from the Kauai Longitudinal Study. *Development and Psychopathology* 5: 503-515.
- Werner, E. E., and R. S. Smith. 1989. *Vulnerable but invincible: A longitudinal study of resilient children and youth*. New York: Adams-Bannister-Cox.
- Werner, E. E., and R. S. Smith. 1992. *Overcoming the odds: High risk children from birth to adulthood*. Ithaca, N.Y., U.S.A.: Cornell University Press.
- Wills, T. A., D. Vaccaro, and G. McNamara. 1992. The role of life events, family support, and competence in adolescent substance abuse: A test of vulnerability and protective factors. *American Journal of Community Psychology* 20 (3): 349-374.

- Young, M. E. 1995. *Investing in young children*. World Bank Discussion Paper No. 275. Washington, D.C.: World Bank.
- Zeitlin, M., H. Ghassemi, and M. Mansour. 1990. *Positive deviance in child nutrition*. Tokyo: The United Nations University.
- Zeitlin, M. F., F. C. Johnson, and R. F. Houser. 1996. Active feeding behaviors and nutritional status of 8-22 month old low-income children in Cuernavaca, Mexico. *Early Human Development*, submitted.
- Zeskind, P. S., and C. T. Ramey. 1978. Fetal malnutrition: An experimental study of its consequences on infant development in two caregiving environments. *Child Development* 49: 1155-1162.
- Zimmerman, M. A., and R. Arunkumar. 1994. Resiliency research: Implications for schools and policy. *Social Policy Report* 8 (4): 1-17.