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FCND DISCUSSION PAPER NO. 28

**DEVELOPING A RESEARCH AND ACTION AGENDA FOR
EXAMINING URBANIZATION AND CAREGIVING:
EXAMPLES FROM SOUTHERN AND EASTERN AFRICA**

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ABSTRACT

The UNICEF-expanded model for nutrition is used to analyze the circumstances of care in urban environments. The model postulates that there are six major types of care behaviors: feeding and breast-feeding, food preparation and handling, hygiene behavior, psychosocial care, care for women, and home health practices. These behaviors require the resources of education and knowledge of the caregivers, the physical and mental health of caregivers, autonomy in decisionmaking, time availability, and the social support of the family and community in order to ensure adequate care for the child. This paper describes each of these constraints, and two of the behaviors (feeding and health care utilization) in urban and rural areas. Data from Demographic and Health Surveys (DHS) in eight countries in Eastern and Southern Africa were used to illustrate how existing data can be used to examine care, and what research questions remain to be addressed to understand care in the urban setting.

A number of differences favor the urban environment over the rural environment: in general, child malnutrition is less (though this may not be true in poor urban areas), maternal education levels are higher, and knowledge of health care practices is greater. On the other hand, breast-feeding seems to be less frequent and of shorter duration. It is argued that care may be even more important in urban rather than rural settings for child health and survival in low-income neighborhoods. Caution is needed when comparing urban and rural areas, however, because there are often enormous care, health, and nutrition differences between poor-income and middle-to-high-income areas of cities. Through the application of the expanded UNICEF model, a research agenda was developed.

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1. INTRODUCTION

Urbanization is increasing rapidly in all parts of the developing world, more rapidly than in industrialized countries. By the year 2025, almost 85 percent of Latin Americans will live in cities, as will over one-half of all Africans and Asians. Sixty-six percent of the world's urban population now lives in developing countries, and this will increase to 80 percent by the year 2025 (United Nations 1995a). Much of the urban population lives in poverty. The conditions of urban poverty, and the switch from a subsistence to a monetized economy, change the conditions of care for children in dramatic ways, which may be negative. Given that behaviors of caregiving, along with food security and availability of health services, are known to play a significant role in the nutritional status of children (UNICEF 1990), the effects of urbanization on caregiving are a major concern. Urban street and abandoned children attest to the breakdown of family care for at least some families.

Several hypotheses could be proposed for either positive or negative effects of the urban environment on caregiving and child nutritional status. The city is often perceived by rural people as an escape from the grinding poverty of rural areas. On the positive side, one might hypothesize that access to health, sanitation, and educational services would be better, knowledge and education of caregivers would be higher, women's employment opportunities and therefore their autonomy and status within the family might be higher, and better quality food could be purchased in urban than rural areas. Families may be smaller, possibly allowing more attention per child. Men's roles may also change, as the decline in other caregivers leads them to increase their own role in child care.

On the other hand, the urban environment may have negative effects on the quality of care that children receive. Time constraints of the mother may be much greater, if the

need for her to earn an income increases, or if her employment requires less flexible time commitments, and smaller families and more schooling for older siblings result in fewer alternate caregivers being available. Urbanization may reduce traditionally supportive practices, such as exclusive breast-feeding and a 45-day postpartum rest period. Family forms may change (e.g., increase in female-headed households, decline in the authority of parent over child), resulting in different and possibly less adequate forms of economic and social support. In addition, urban dwellers in developing countries confront some of the same health hazards as those who live in industrialized nations: contaminated air, soils, and water, and poor diets, caused by poor eating and exercise habits, both of which combine to increase incidence of nontransmissible diseases, such as lung cancer and heart disease (Adeoyin and Watts 1989; PAHO 1988; World Bank 1988).

The child's need for care may be greater in urban than in rural areas. The environment may be less secure from both health and crime risks, and there may be much less of a community to support child-rearing. The setting of care may differ from the more spacious home compounds of rural life; urban care may occur in streets and alleys. Therefore, children may require more supervision through older ages than in the rural areas. The importance of nutrition and cognitive development for the child's school success and eventual employment may be greater in urban than in rural areas, because schooling will probably have a larger impact on eventual wage-earning in the urban areas (see Pollitt et al. 1993). Thus, there may be a benefit for greater parental investment in health and cognitive stimulation of children in urban than rural areas.

As people move from rural to urban areas, major changes occur in the availability of and need for child care. However, we have little information on risk factors for care in an impoverished urban environment, on coping strategies that could ameliorate the putative negative effects, or on possible positive effects of urbanization on care, such as increased information regarding child care. In order to move toward appropriate programs to reduce malnutrition, a better understanding of the caregiving situation is needed.

This paper has three purposes: (1) to underline the importance of an intraurban as well as a rural/urban distinction in evaluating conditions for care; (2) to provide a framework based on the UNICEF-expanded model of care (Engle, with Lhotska and Armstrong 1997) for understanding the role of care amid urban poverty for child health and nutritional status; and (3) to illustrate how existing data can be used to make some inferences about care as it relates to nutrition in urban areas.

Since this paper was initially prepared for the Eastern and Southern Africa region,¹ Demographic and Health Surveys (DHS) data available from nine of these countries² were used as examples.

When nutrition and health in cities are discussed, to provide context and a basis for comparison, the figures in urban areas are often immediately compared to those in rural areas. Although this can be useful, the use of citywide averages can mask significant problems of urban malnutrition and illness.

URBAN/RURAL DIFFERENCES IN CHILDREN'S HEALTH AND NUTRITIONAL STATUS

The Global Situation

Most urban/rural comparisons of nutrition, measured by caloric consumption, prevalence of child malnutrition, or infant mortality, suggest that, on average, rural conditions are somewhat worse than urban conditions (e.g., von Braun et al. 1993). For countries with accessible data, von Braun et al. (1993) find that the low height-for-age (HAZ) and low weight-for-age (WAZ) are less common in urban areas than in rural areas, although the prevalence of low weight-for-height (WHZ) is often higher in cities.

¹ An earlier version of this paper was presented at the Regional Conference of UNICEF's Network on Household Food Security and Nutrition in Eastern and Southern Africa, April 19-22, 1996.

² One year of data is available for Tanzania, Kenya, Namibia, Malawi, Zambia, Rwanda, Madagascar, and Burundi, and two years (1988 and 1994) for Zimbabwe.

Atkinson (1992) compared urban and rural nutritional status in 14 selected countries in Africa, Latin America, and Asia. Her results are more mixed than those of von Braun et al. (1993); 7 of the 14 studies reviewed showed the prevalence of malnutrition to be greater in urban areas than in rural areas.

Gilbert and Gugler (1992) summarized data from 24 Demographic and Health Survey country studies (Institute for Resource Development, 1986-1989) on infant mortality and child deaths. The infant mortality rate was higher in urban areas in 4 of these countries, roughly the same in 2, and higher in rural areas in the remaining 18. The child death rate (likelihood of death between first and fifth birthday) was lower than the infant mortality rate (IMR) (likelihood of death before the first birthday), but both IMR and child death rates were higher in rural areas in all but three of the countries (Botswana, Trinidad and Tobago, and the Dominican Republic are the exceptions to the generalization that urban populations have lower rates of both infant and child death).

Situation in Eastern and Southern Africa

The DHS data from nine countries in Southern and Eastern Africa were consistent with the global picture; the prevalence of low height-for-age and low weight-for-age³ was higher in rural areas than urban areas in all countries. Low weight-for-height Z-score was equally or more prevalent in the urban areas for five countries, and less prevalent in four (Table 1). In Tanzania, low weight-for-height Z-score was higher in Dar es Salaam than in rural areas, but lower in other urban areas.

³ Of children whose Z-scores were below -2 standard deviations from the median of the reference population for weight-for-age and height-for-age.

Table 1 Demographic and health survey data: Prevalence of malnutrition, Eastern and Southern Africa

Country	Year	Age Group (months)	Weight-for-Age (Percent Below -2 Standard Deviation)		Height-for-Age (Percent Below -2 Standard Deviation)		Weight-for-Height (Percent Below -2 Standard Deviation)	
			Urban (Sample Size) ^a	Rural (Sample Size) ^a	Urban	Rural	Urban	Rural
Zimbabwe	1994	0-35	12.5 (518)	16.6 (1,495)	17.6	22.8	6.1	5.3
Tanzania ^b	1991/92	< 60	19.6 27.4 (277) (965)	29.2 (4,701)	28.5 44.8	48.1	6.8 4.4	5.6
Burundi	1987	3-36	20.2 (59)	38.9 (1,870)	27.1	48.8	6.5	5.6
Namibia	1992	< 60	17.8 (736)	29.8 (1,694)	21.8	31.3	6.6	9.5
Kenya	1993	< 60	12.8 (536)	23.5 (4,216)	21.5	34.2	5.2	6.0
Malawi	1992	< 60	15.4 (345)	28.6 (2,890)	35.0	50.3	2.6	5.8
Zambia	1992	< 60	20.8 (2,305)	29.0 (2,594)	32.5	46.0	5.4	5.0
Madagascar	1992	< 60	33.4 (583)	40.0 (3,642)	44.0	52.3	3.2	5.0
Rwanda	1989	< 60	18.1 (209)	29.7 (4,154)	14.4	21.4	3.7	3.8

Source: Demographic and Health Survey reports for these countries.

Note: Classified as malnourished if the Z-score is -2 Standard Deviation from the median of the reference population, which is based on the U.S. National Child Health Survey.

^a The sample size is the same for all three measures of nutritional status.

^b The first set of figures under the category of "urban" is for Dar es Salaam, and the second set is for other urban areas.

In sum, the pattern for Eastern and Southern African countries is consistent with the global picture: low height-for-age and weight-for-age Z-scores are less frequent in urban areas, but weight-for-height Z-scores are similar.

DIFFERENCES WITHIN URBAN AREAS

Heterogeneity among urban populations has been noted frequently (Popkin and Bisgrove 1988). The urban poor are characterized by low income and employment, lack of access to basic services, and often by residential insecurity (Immink et al. 1996). They are particularly vulnerable to changes in food prices and provision of services, receive fewer services than the average urban resident, and face unique time and resource constraints (Popkin and Bisgrove 1988).

Bradley et al. (1992) find that the urban poor have a lower life expectancy at birth, a higher infant mortality rate (IMR), and worse nutritional status than higher income urban dwellers and some rural populations. In the late 1970s in Manila, the IMR for the whole city was 76 per 1,000, while in Tondo, a squatter settlement, the IMR was 210 per 1,000 (Basta 1977). In Pelotas, Brazil, the perinatal mortality (child death during childbirth) rate in families with less than one minimum salary per capita was 45 per 1,000, but in families with more than 10 minimum salaries per capita, it was only 13 per 1,000, which approaches developed-country averages (Victora et al. 1986 cited in Harpham and Stephens 1991).

Infants and young children in slums and squatter settlements die from the same infectious diseases as their rural counterparts—measles, diarrhea, malaria, and acute respiratory infections (Adeoyin and Watts 1989; PAHO 1988; World Bank 1988; all in Harpham and Stephens 1991). Child (postneonatal) mortality predominates over infant (neonatal) deaths. Poor urban populations thus suffer the "worst of both worlds." They experience the health problems of impoverished populations as well as those of industrialized countries (Harpham and Stephens 1991).

Differences between the wealthy and the poor in urban populations may be greater than differences between the urban and rural poor. If an urban family is wealthy, child care needs can be met through hiring assistance; however, if the family is poor, the caregiving situation may be quite different. Levels of care, health, and nutrition also vary among and within cities. Not all urban areas are the same; a large urban capital may be quite different from middle-sized cities (Satterthwaite 1995; Amis and Rakodi 1994).

Researchers have proposed several new approaches for examining intraurban differences. Schell, Smith, and Bilsborough (1993) suggest that we view cities as complex and highly variable, with wide variations among economic levels and among cities. One research agenda is to find definitions of urban “features” that can be used to categorize urban environments across a variety of urban settings (Schell, Smith, and Bilsborough 1993). Current investigations tend to use location-specific data, or to use family- and individual-level variables to describe features of an urban community.

A second approach stresses the identification of coping strategies among the urban poor. Many families continue to rely on contacts with rural areas, on systems of fostering children to maintain links, and on extensive networks of reciprocity in the urban environment (Maxwell 1995).

In sum, much work needs to be done to understand the complexities of the urban environment, particularly the environment of the urban poor, and to find strategies for defining and categorizing the most important variables of care that influence outcomes for children.

2. A CONCEPTUAL MODEL OF NUTRITION INCORPORATING CARE

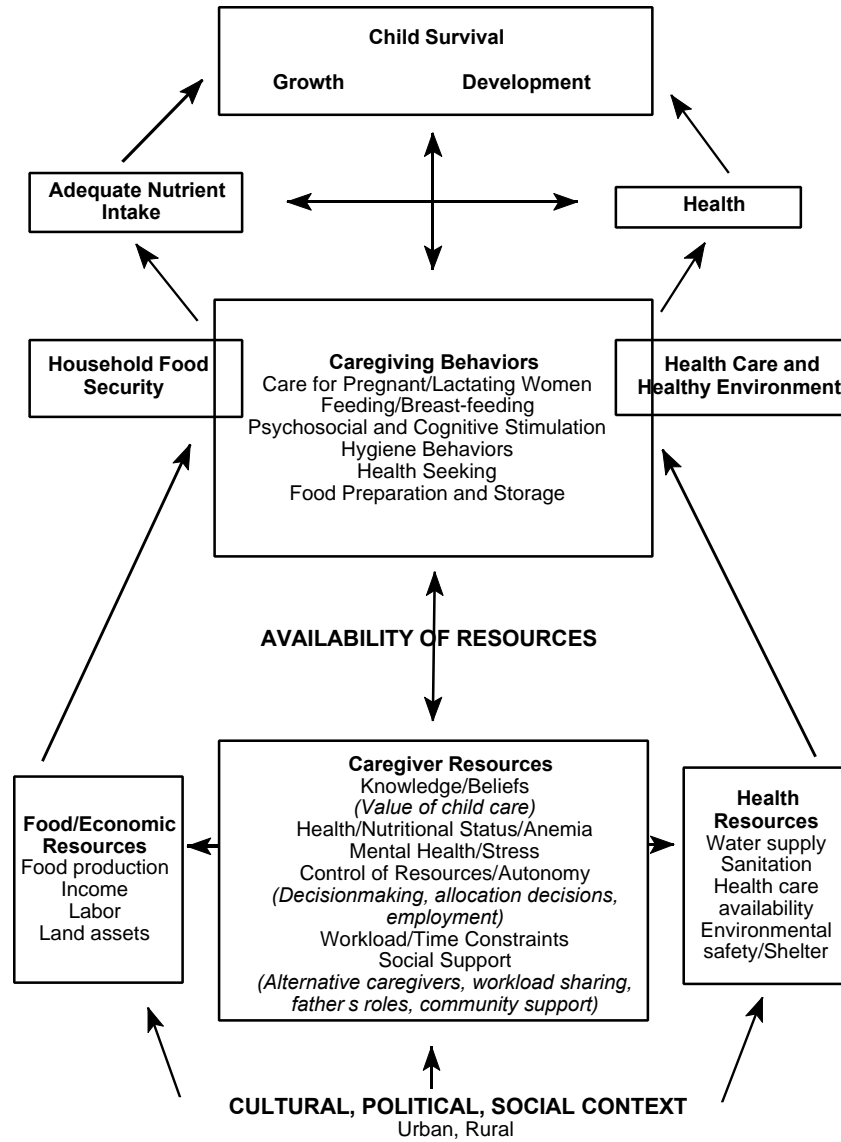
The expanded UNICEF model of care (UNICEF 1990; Engle, with Lhotska and Armstrong 1997) can shed light on some of the reasons for these intraurban differences, to evaluate the effects of urbanization and urban poverty on caregiving, and to indicate areas of needed research. According to the framework, child survival, growth, and development are affected directly by nutrient intake and health, which are influenced by

the underlying factors of household food security, health care services and the healthiness of the environment, and care. "Care" refers to all of the behaviors performed by caregivers that result in nutrient intake, health, and the cognitive and psychosocial development of the child. These behaviors, performed by caregivers, can be grouped into the major categories of (1) care for women, such as providing appropriate rest time or increased food intake during pregnancy; (2) breast-feeding and feeding of young children, such as offering a child second helpings, or encouraging an anorexic child to eat more; (3) psychosocial stimulation of children and support for their development; (4) food preparation and food storage behaviors; (5) hygiene behaviors, such as hand washing and waste disposal; and (6) care for children during illness, including diagnosis of illness and health-seeking behaviors.

The performance of these behaviors requires enough resources for caregiving, or an absence of constraints to caregiving, so that the caregiver can put knowledge or expertise into practice. It is essential to recognize that many interventions to improve child health and nutritional status rely on someone's behavior; a child has to be taken to a health clinic for growth monitoring to be effective, a new complementary food has to be prepared and fed to a child in order for it to be effective, etc. The time costs of these interventions are often not recognized, although these costs may be quite high (Leslie 1989) and are often added to women's already full days (McGuire and Popkin 1989; 1990a; 1990b).

Resources for care include the caregiver's education and beliefs, the caregiver's health and nutritional status, the caregiver's mental health and self-confidence, her autonomy and decisionmaking in the home, her workload or time constraints, and finally, the social support available to her for alternate caregiving and support. The UNICEF model that includes these factors is shown in Figure 1. The knowledge,

Figure 1 The extended model of care



beliefs, and education represent the core capacity of the caregiver to provide appropriate care. Health and nutritional status, mental health, and autonomy represent individual-level factors that facilitate the translation of capacity to behavior, and time availability and social support are family- and community-level variables that facilitate this translation.

Throughout this paper, the term "caregiver" is used rather than "mother." Most of the time, the caregiver is the mother, but other females in the household also provide care. In virtually every culture, women are the primary providers of food, as well as the primary caregivers for children. As the classic paper by Weisner and Gallimore (1977) illustrated, in many cultures, siblings (primarily females) begin to be major caregivers when charges are beyond one or two years of age. Women's time in direct child care can decline precipitously as a child moves from breast-feeding and infancy status to walking, during the second year of life (Baksh et al. 1994; Cassidy 1987), although women may continue to supervise the care. When infants are ill, older female siblings may increase time in child care (Pitt and Rosenzweig 1990). Men also provide some care, tending to assist with holding and carrying rather than other aspects of child care (Engle and Breaux 1994). In Nepal, 25 percent of care for children 0-5 years was provided by adult males (Paolisso and Regmi 1995). In Pakistan, men traditionally shop for food and are more likely to carry and hold infants in public than are women (Jahn and Aslam 1995). Thus it is necessary to broaden the focus beyond the mother in order to include all resources for care, whether provided by siblings, older relatives, fathers, or institutions such as child care centers.

In this paper, care behaviors and care resources in urban areas are viewed through the framework of the UNICEF extended model (see Figure 1). The six resources (education and beliefs, physical health and nutritional status, mental health, control of resources, workload and time constraints, and social support) are discussed first, followed by two of the six behaviors (breast-feeding and seeking health care). For each resource, the paper discusses the linkages with child nutrition, data available about urban/rural

differences or intraurban differences in the resource from the literature, and findings from the DHS data. Gaps in knowledge are identified as part of a research agenda.

3. CARE RESOURCES AND CONSTRAINTS

EDUCATION AND BELIEFS

The effect of maternal education on child health has been consistently positive in most developing countries (Caldwell 1979; Wolfe and Behrman 1982; Cleland and van Ginneken 1988), but whether the effect of education is through improved child care practices (i.e., improved child care skills, better utilization of health care facilities, etc.) or through an augmented maternal income (because of the availability of higher paid work by educated mothers), or both, is open to debate. The quality of care by educated mothers has been shown to be more child-centered (Richman, Miller, and LeVine 1992; Guldan et al. 1993; Joshi 1994; and LeVine et al. 1991).

However, exceptions to this general positive finding are a few studies suggesting that maternal education does not have a positive effect among the higher socioeconomic status (SES) families (Bairagi 1980; Doan 1988). Reed, Habicht, and Niameogo (1996) find a negative effect of maternal education in Benin on child nutrition (weight-for-age) with higher levels of education (more than four years of schooling). The authors speculate that this could be the effect of increased maternal participation in market activities outside the home, when no adequate substitute care is available. In a similar vein, DaVanzo (1984) proposes that higher education may affect the opportunity cost of child care for the mother and therefore reduce the time spent in child care. Thus the positive effects of education on child health may be reduced if the woman's labor force participation reduces her care, and there is not an adequate substitute available. It may well be that the availability of alternate caregivers and the SES of the family are important determinants of how maternal education affects child health.

Situation in Eastern and Southern Africa: Women's Education

Table 2 summarizes the educational attainment of women aged 15-49 years in the nine countries. In all cases, educational attainment of urban women was substantially greater than that of rural women. Fewer urban women had never attended school, and more urban women had secondary education than did rural women. Data for Zimbabwe showed that more urban women had attended some school in 1994 than in 1988 (a 17-percent decrease in proportion of women with no education), whereas rural women were *less* likely to have some education (a 12-percent *increase* in the proportion of women with no schooling). However, urban women were more likely to stop with primary school in 1994 than in 1988 (an 11-percent decrease in women with post-primary school education). Rural women did not differ in the likelihood of finishing primary school, but were less likely to attend secondary school in 1994 than earlier (a 20-percent decrease).

In sum, although the pattern of increased education in urban areas was generally found, data from Zimbabwe suggest declines in the highest level of educational attainment in both areas in the past six years.

PHYSICAL HEALTH AND NUTRITIONAL STATUS

Iron-deficiency anemia is widespread among women in developing countries, with the highest rates in South Asia (over 60 percent), using a cutoff of blood levels of hemoglobin below 12 grams per deciliter. Data indicate that these rates have increased in South Asia and Sub-Saharan Africa over the past decade. Stunting and low body

Table 2 Demographic and health survey data: Education of women by highest level of education attained (ages 15-49 years)

Country	Year	<u>Sample size</u>		<u>No education</u>		<u>Primary education</u>		<u>Secondary school</u>		<u>Higher secondary</u>	
		Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Zimbabwe	1988	1,407	2,794	6.4	17.0	42.6	62.6	51.0	20.4	n.a.	n.a.
	1994	3,067	8,729	5.3	19.1	49.0	63.6	43.0	16.2	2.6	0.5
Tanzania ^a	1991/92	585	6,706	18.7	38.3	15.2 ^b	20.8 ^b	56.7 ^c	38.9	9.5	2.2
		1,686		20.3		18.4 ^b		50.6 ^c		10.7	
Burundi	1987	115	3,814	29.4	82.3	40.2	16.7	30.3	1.0	n.a.	n.a.
Kenya	1993	2,108	14,207	13.5	29.1	31.8 ^b	46.8 ^b	21.1 ^c	14.4 ^c	32.8	8.7
Namibia	1992	2,077	3,344	8.8	18.0	23.4 ^b	48.7 ^b	10.9 ^c	8.4 ^c	56.9	24.8
Malawi	1992	594	4,255	22.7	50.6	17.6 ^b	25.6 ^b	38.8 ^c	21.8 ^c	20.9	2.1
Zambia	1992	3,636	3,424	7.0	26.5	55.2	64.5	34.9	8.6	2.9	0.5
Rwanda	1989	676	12,201	24.7	43.6	52.8	52.0	21.3	3.4	1.1	1.0
Madagascar	1992	1,253	5,007	6.1	23.0	31.1	59.5	34.1	13.5	28.6	4.0

Source: Demographic and Health Survey reports for these countries.

^a The first set of figures under the category of "urban" is for Dar es Salaam, and the second set is for other urban areas.

^b Refers to some primary education.

^c Refers to completion of primary education.

n.a. = Not assessed.

mass index (BMI) are also common in developing countries. Low BMI⁴ has been found in 40 percent of women in samples from South and Southeast Asia, and 20 percent in Sub-Saharan Africa (ACC/SCN 1992).

The linkages between these indicators of nutritional status and caregiving have rarely been studied; Winkvist (1995) is one of the first authors to examine this linkage in detail. Two main pathways can be posited, the first a direct link between nutritional status and caregiving capacity and behaviors through maternal energy levels; the second, an indirect link whereby the biological consequences of nutrition for the pregnant and lactating woman could affect child characteristics, both physical and behavioral, which would, in turn, affect caregiving behaviors (see Engle, Menon, and Haddad [1996] for a detailed analysis of the pathways). Research on the direct linkage is very limited, and most findings reported in the literature are from the Nutrition Collaborative Research Support Program (CRSP) projects conducted in Kenya (Neumann, Bwibo, and Sigman 1992) and Egypt (Kirksey et al. 1992). Maternal nutrient deficiencies, particularly of iron and vitamin B-6, were found to be associated with less active caregiving. Evidence for the indirect linkage, i.e., the effect of maternal nutrition on infant behavior through a biological effect on the infant, has also been reported from the nutrition CRSPs. The findings indicate that maternal weight and dietary factors were more strongly associated with some infant behavioral variables than with sociocultural factors.

Surprisingly little data exist comparing urban and rural women's nutrient intakes, including micronutrients (Popkin and Bisgrove 1988), let alone the effects of these on caregiving behaviors. Maternal morbidity, reproductive status, parity, and exposure to violence could also have significant implications for caregiving (see Engle, Menon, and Haddad 1996) and need to be studied in the urban context. Finally, health risks due to occupational conditions and to domestic violence may be greater in the urban areas; these two variables deserve specific attention both for the women themselves and for the

⁴ Low BMI is an indicator of energy deficiency among low-income pregnant women. ACC/SCN (1992) defines low BMI as BMI <20. DHS surveys use a cutoff of <18.5.

consequences for their children. In Heise, Pitanguy, and Germain's (1994) review of 34 studies on domestic violence, only two reported urban/rural differences. In a Mexican sample, urban rates were higher (57 percent of urban women reported abuse compared to 44 percent of rural women), whereas in Papua New Guinea, rural rates were higher (67 percent of rural women, 57 percent of urban low-income women, and 62 percent of urban elite women reported violence). These figures suggest that we should not rely on initial assumptions about differences in the prevalence of violence within homes.

Situation in Southern and Eastern Africa: Maternal Health

Data from demographic and health surveys on maternal BMI indicate that, on average, a larger proportion of rural women have a body mass index below 18.5 than do urban women in all the countries for which this data was available (Table 3).

MENTAL HEALTH, STRESS, AND SELF-CONFIDENCE

In the United States, maternal depression has been found to be associated with poor caregiving and lower achievement for children (e.g., Rutter 1990). This issue is summarized in much more detail in Engle and Ricciuti (1995). Despite reports of high levels of stress and depression among women in developing countries (e.g., Chakraborty 1990), studies linking these psychological factors with child caregiving have not been conducted. The level of confidence of the caregiver is often cited as a critical factor for complementary feeding, particularly for anorexic children, but this relationship has not been tested systematically outside of developed countries. Program experience suggests that it plays a major role (Gibbons and Griffith 1984).

Table 3 Demographic and health survey data on women with BMI below 18.5, Southern and Eastern Africa

Country	Year	Percentage of Women with BMI < 18.5			
		Urban	Sample Size	Rural	Sample Size
Zimbabwe	1994	2.3	478	6.0	1,321
Tanzania ^a	1991/92	5.8 6.3	230 765	10.7	3,189
Namibia	1992	8.7	790	17.0	1,329
Kenya	1993	4.2	441	10.8	2,701
Malawi	1992	7.1	260	10.1	1,941
Zambia	1992	8.3	1,647	12.2	1,769

Source: Institute for Resource Development/Macro International, various countries, various years.

^a The first set of figures under the category of "urban" is for Dar es Salaam, and the second is for other urban areas.

It is generally believed that the urban environment, particularly urban poverty, will negatively affect women's mental health. Using data from Calcutta, Chakraborty (1990) reported the highest levels of clinical depression and anxiety among urban poor women who had no control over any resources. The only group in his sample who did not exhibit depression and anxiety were employed young women who were not married. Similarly, in a study of urban slums in Bangladesh, it was reported anecdotally that some women were extremely socially isolated, and were often so depressed that they were unable to care for their children properly (Immink 1994).

Using a unique set of data from two points of time in Khartoum, Sudan, before urbanization (1965) and after rapid urbanization (1980), Rahim and Cederblad (1984; 1986) and Cederblad and Rahim (1986) were able to examine the effects of urbanization on the physical and mental health of school-aged children, the unseen caregivers. In general, behavioral problems were greater for elder siblings, particularly boys, in poor families, and they were significantly greater in the 1980 cohort (after urbanization) than in the 1965 cohort (before urbanization), although still below problem levels reported in European countries. The authors attribute the behavior problems to the increased insecurity of urban income, particularly for wage laborers (versus small business owners), to their disconnection with home, and to the increased social stratification in the cities—the increased disparities between rich and poor. These influences serve to undermine the community traditions of interdependence, cooperation, and cohesiveness. These attitudes were reflected in parents as well: 23 percent of fathers and 40 percent of mothers reported being anxious or depressed. In other words, although there were protective factors in the nature of the community created in the urban area, in general, stresses were greater than in the rural areas.

No information relevant to these critical issues was asked in the DHS from the nine countries.

CONTROL OF RESOURCES/AUTONOMY

A number of studies have suggested that women's autonomy and decisionmaking power in the household has significant benefits for children's nutritional status. For example, mothers are more likely to allocate resources under their control to children than are fathers (Johnson and Rogers 1993 in the Dominican Republic; Engle 1991, 1993 in Guatemala; Haddad 1992 in Kenya). Also, children living in female-headed households sometimes grew better than might have been expected based on family income, because intrahousehold distribution practices favored children more in these households than in households headed by men (e.g., Onyango, Tucker, and Eisemon 1994; Kennedy and Peters 1992).

However, in many societies, mothers do not have the authority to make decisions regarding the care and feeding of their young children. These decisions may be made by the child's father or, in many cases, by a mother-in-law or older female in the husband's family. Doan and Bisharat (1990) found that the most significant factor associated with child nutritional status was the degree of autonomy of the mother within the household in Jordan, even controlling for the woman's age, education, and household size. Castle (1995) found that some of the most malnourished children in her Malian sample belonged to low-status women in high-income households. She suggests that it may not be the level of household wealth that determines a mother's resources for child health, but the mother's access to these resources (Engle, Castle, and Menon 1996).

Urban residence may affect women's autonomy and control of resources through their increased likelihood to be income earners in nonagricultural work, often associated with increased authority in the home. On the other hand, traditional domains of control for rural women may be undermined by an urban environment in which there is much less of a role in child rearing (fewer children, less likely to be at home), possibly a lower role in agricultural production and food processing, and, for some women, a reduction in life opportunities (Greenfield 1981). It is possible that the qualities that women bring to the

urban environment, including energy, health, education, and ability, will make a bigger difference in their lives' course than these qualities did in the rural environment. For example, Johnston (1993) found that in Guatemala City, the mother's intelligence had a significant effect on her child's level of intelligence *only* if she had more than four years of school; if she had less, her IQ was unrelated to that of her child. Although there is not a rural equivalent presented, the results could mean that with more education, the mother's IQ was more likely to be able to increase her life opportunities and those of her children than if she were less educated. The new class of the urban poorest may be those with the least human capital to develop.

Situation in Eastern and Southern Africa

Only the Zimbabwe DHS asked a question relevant to this area. Women were asked who made decisions about the use of their earnings. Urban women reported more control: 66 percent of urban women and 48.7 percent of rural women reported that they made their own decisions about use of their earnings, with only 5.7 percent urban and 7.7 percent rural women reporting that their husbands/partners made the decisions. More rural women (36 percent) reported making joint decisions with their husbands about use of resources than did urban women (23 percent).

In sum, both the DHS data and other findings suggest that women in urban areas may have a greater role in decisionmaking, but more data are needed to understand the explanatory factors.

WORKLOAD AND TIME CONSTRAINTS

Women's alternate time commitments have been recognized as one of the most important constraints to care (McGuire and Popkin 1990b). These time commitments include household production, particularly time- and labor-intensive tasks such as water carrying and fuelwood gathering, and economic activities, including agricultural work,

informal labor, and formal labor market activities. Data on time use indicate that women continue to spend more time than men in all work activities, and that in three Asian countries, women spend significantly more time than men in these household production activities (United Nations 1995b).

Wage income is important for children's welfare, with no negative effects of maternal work for earnings seen on child nutritional status for formal workers or those with reasonable incomes (Blau, Guilkey, and Popkin 1996; Vial, Muchnik, and Mardones 1989; Engle 1991), but poorer child anthropometric status is seen for women poorly paid or in the informal sector, often requiring long hours of work for little pay and little security of income (LaMontagne, Engle, and Zeitlin 1996; Powell and Grantham-McGregor 1985). A critical factor for maternal employment is the availability of good-quality alternate child care support.

Women's involvement in economic activities in the developing countries varies widely by region, from a high of 56-58 percent in eastern and central Asia, to 53-54 percent in Sub-Saharan Africa and southeastern Asia, 50 percent in the Caribbean and Oceania, but 30 percent in Latin America and western Asia, and 21 percent in northern Africa. Over the past two decades, men's economic activity rates have declined, whereas women's have increased substantially in all regions except Sub-Saharan Africa and eastern Asia, where they were already high (United Nations 1995b).

The percent of women reported as working is higher for rural than urban women in all parts of the world, except for Latin America, but most of the rural work tends to be agricultural, part-time or seasonal, and often requires relatively few hours per day (United Nations 1995b). Mothers of children under 7 years in Guatemala who reported doing agricultural work were working, on average, only an hour a day (Engle 1989); rural Philippine women with children under 5 years, working on their own farm, reported working three to four hours per day (Engle and Bhattarai 1996).

In urban areas, work may have characteristics for women that make it more incompatible with child care than work in rural areas. Although many aspire to formal-

sector employment, a large number of women work in the informal sector, often at very low wage levels and for very long and uncertain hours (Merrick 1976, cited in Popkin and Bisgrove 1988). “Urban poor men and women are concentrated in this sector, but women disproportionately so, and they are often household heads” (Popkin and Bisgrove 1988, 12). An additional time cost in the urban area is transportation, which may be expensive, time-consuming, crowded, and possibly dangerous. Under these conditions, mothers are unlikely to take children to work.

Situation in Eastern and Southern Africa

The only country to report information about women’s employment by urban/rural residence was Zimbabwe. Rural and urban women are equally likely to report employment (56 percent urban, 54 percent urban) (Zimbabwe [Central Statistical Office]/Macro International Inc.), but rural women are more likely to be agricultural workers (58 percent versus 5 percent), and are less likely to have worked for more than five days a week in the past year (34 percent urban, 14 percent rural).

SOCIAL SUPPORT, FAMILY COMPOSITION, AND ALTERNATE CAREGIVERS

Family Composition

In general, children profit when both parents have income. Although there are cases of female-headed households providing better care for children than families with both parents present, these tend to occur in situations in which men provide relatively little support (e.g., Kennedy and Peters 1992). Thus, the trend toward more female-headed households, more women in the labor force, and more older family members requiring care raises concerns for the increased burden on the primary caregivers—women (Bruce et al. 1995). Although men should become more involved with child care as women increase their time in the labor force, this change has been

slow, with men still providing far less than an equal share of time in household chores and child care (United Nations 1995b).

Fathers may provide a particularly important source of emotional support and information to the caregiver. There is some evidence that when fathers contribute a higher percentage of their incomes to family food budgets, children are better nourished (Engle 1993; 1995). Fathers' opinions about child caregiving can have significant effects on decisions about infant feeding, particularly breast-feeding (Littman, Medendorp, and Goldfarb 1994; Bryant 1982; Scrimshaw et al. 1987). Yet little is known about fathers' beliefs and attitudes and the possibility of increasing their involvement in nutrition intervention programs.

Since a major source of social support is the family, changes in family structure as a function of urbanization need to be understood. Although, in general, family sizes decline with urbanization, Birdsall and McGreevey (1983) report that the urban poor have much larger families than other urban residents, and have family sizes more similar to those of the rural poor (cited in Popkin and Bisgrove 1988). Although there is a general belief that the percent of female-headed households or unpartnered mothers is higher in urban than rural areas, both because of higher rates of separation in urban areas and the migration of unpartnered women to urban areas to find work and possibly escape social censure (Popkin and Bisgrove 1988), data are not widely available on this point. A recent publication on family structures did not disaggregate the data by rural/urban residence (Bruce et al. 1995).

With urbanization, new roles are presented to fathers; in several urban settings, evidence suggests that men are increasing their roles in child care and developing new expectations for these behaviors, although changes are still small (Engle and Breaux 1994).

Alternate Caregivers

Siblings and adult females are important sources of alternate care in most societies. Qualities of the alternate caregiver, which are necessary for good child care, are rarely investigated. The only variable that has been mentioned in the literature is the age of the caregiver. Some studies suggest that care by a pre-teen caregiver is associated with lower nutritional status of a child under 2 years old, controlling for mother's education and socioeconomic status (Engle 1991; LaMontagne, Engle, and Zeitlin 1996).

Little data exist on the availability of older siblings as caregivers in an urban setting. However, with increased school attendance in urban areas, their availability is likely to be limited. Engle (1991) reported that 70 percent of a sample of 300 women in an urban area of Guatemala felt that their mother would be the ideal alternate caregiver, but only 14 percent actually used their mother as an alternate child caregiver. In a comparison of urban and rural mothers, Engle (1989) found that rural mothers (excluding agricultural workers) continued to report taking care of their children "all day," whereas urban mothers were significantly less likely to report all-day child care as their work hours increased; work was less compatible with child care. In Managua, Nicaragua, 80 mothers of children 12-18 months of age were interviewed. Fifty-six percent were workers: of the workers, 80 percent worked away from home at least some of the time (LaMontagne, Engle, and Zeitlin 1996) and 69 percent worked for four hours or more per day. Their child care strategies were generally adequate; of the workers, 49 percent left their children with another adult, 18 percent took the child to work with them, and 7 percent left the child with a caregiver less than 13 years of age. In the latter two groups, children's nutritional well-being was somewhat impaired, although, overall, children of working mothers had better weight/length than those whose mothers did not work (LaMontagne, Engle, and Zeitlin 1996). Studies are needed that describe the child care environment for urban poor women. In Cebu, the Philippines, Doan and Popkin (1993) report that though there was more child care available in the urban areas because of a

larger number of extended families, there was also an increased likelihood of working for wages and longer working hours in urban areas.

The number of children left without any form of child care is difficult to ascertain. Anecdotal stories of children left alone, locked in the house for safety, are frequently heard, but systematic data are hard to come by. Although a large number of families in urban areas do manage to adapt and function, the increasing number of street children suggests that either through the push from the family, or the pull from the streets, there is a significant deficit in the child care situation.

Institutional day care is sometimes seen as the solution to the problem of urban child care (e.g., Young 1995). Traditional institutional care tends to be very expensive and, in most places, coverage is quite low (e.g. Engle, Garcia de Sanchez, and Suarez 1988 in Guatemala; deSouza and Grein Santos 1993 in Brazil). Further, care may be needed for children under 3 years, and this group is the most difficult to serve. Care is more likely to be available for 4- and 5-year-old children. However, there are a number of experimental attempts to provide family-based or community-based care, and some have been able to provide care for the youngest children (see Leonard and Landers 1992). The quality of these programs depends enormously on the quality of the support provided to the personnel (Young 1995). There are also examples of community organizations that have played roles in increasing child feeding when mothers were unable to do so. In Nairobi, the African Housing Fund (AHF) aims to help the poorest. The AHF has responded to the requests of four women's groups in the slums of Nairobi to be trained both in income-generation activities (e.g., making roofing tiles) and in developing a day care center for their children. The program has been in operation for several years and addresses a significant need felt by the women, both for work and for child care. The program relies on mother's clubs, who build their own centers with funds that are partially subsidized loans from AHF and partly profits from their businesses (Bernard van Leer Foundation *Newsletter* 1993, 4). DeSouza and Santos (1993) describe a model child care

program in Curitiba, Brazil, that attempted to upgrade a child care program by asking university students to help train the child care workers.

In India, the child care services still cover relatively few urban children, even though women are increasingly feeling the need to earn income (Khullar 1991). The quality of existing programs tended to be quite low, and workers are poorly paid. An observer in Delhi noted, "it is a common sight to see a five-year-old taking care of three smaller siblings, the youngest an infant of six months. Occasionally, children get hurt, mislaid, lost, or drowned" (Khullar 1991). In order to be successful, nutrition programs need to be community-based and very responsive to women's needs.

The role of governing agencies, regulations, and the policy environment can be very influential in improving the capacity of the family to provide care, as Immink (1994) suggests. Because administrators are often negatively disposed toward urban poverty, regulations may make daily activities more difficult than necessary, and basic services are likely to be minimal. Safety net programs may exist for food, but safety nets for care are more difficult to institute.

Community Structure

Finally, the structure of the community changes in a poor urban settlement, and this resource for care may not be as strong as in rural areas. However, residents may develop new networks, or may recreate rural networks in the city in order to adapt to new situations. For example, Rahim and Cederblad (1986) identified strategies that urban residents of Khartoum used to cope with urban stresses: (1) clustering with other migrants into mini-villages within the urban area; (2) making frequent visits to their home villages; (3) receiving frequent visitors from the home village; and (4) creating an urban clan that incorporates many of the aspects of the home village, including mutual support. In other words, although the urban area has unique challenges, it is essential to view the urban resident within the context of the support systems he or she may construct, and to see adaptive strategies as a feature of urbanization. Creating an environment in which

families can adapt their caregiving to the changing circumstances of the urban environment requires understanding the coping strategies of families. The investigation of successful systems of coping might provide some suggestions for community development projects.

Community structure, or the absence of it, varies tremendously within and between urban areas. Understanding local organization is essential to the success of programs, but little is known about the strategies urban residents use to develop a sense of connection. This is an area that needs further research.

Situation in Eastern and Southern Africa: Family Composition

Contrary to the patterns previously described, the percent of female-headed households (with the exception of Madagascar) is about the same or lower in urban areas than in rural areas in Eastern and Southern Africa (Table 4). The questionnaires did not distinguish between de jure and de facto headship, which has implications for food allocation and caregiving behaviors (Onyango, Tucker, and Eisemon 1994). In Zimbabwe, Kenya, Namibia, Rwanda, and Madagascar, urban family sizes are smaller than rural ones, but these differences are not seen in Tanzania, Malawi, or Zambia. The percent of families with at least one foster child (a child below age 15 not living with either parent) is high in both urban and rural families, with the exception of Rwanda. In four of these countries, there are more families with foster children in rural areas, while in the other countries, the number of foster children is higher in urban areas.

Table 4 Household structure: Headship and family size

Country	Year	Household Headship						Family Structure					
		Male Headship			Female Headship			Mean Family Size			Percent of Families with Foster Children ^a		
		Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
Zimbabwe	1994	81.4	18.6	67.3	18.6	39.4	32.7	3.8	5.1	4.7	10.8	27.5	22.1
Tanzania	1991/92	82.9 ^b 81.5 ^c	83.0	75.5	17.1 18.5	17.0	24.5	5.5 5.3	4.4	4.9	23.2 22.8	16.7	23.3
Kenya	1993	78.5	64.7	67.3	21.5	35.3	32.7	3.4	5.1	4.8	10.8	18.9	17.4
Namibia	1992	68.8	69.3	69.1	31.2	30.6	30.8	4.9	6.6	6.0	20.3	46.4	37.0
Malawi	1992	87.4	73.9	75.4	12.6	26.1	24.6	4.8	4.4	4.5	24.0	19.2	19.8
Zambia	1992	86.9	81.3	83.8	13.1	18.7	16.2	6.0	5.3	5.6	26.0	23.3	24.5
Rwanda	1992	80.6	79.1	79.2	19.4	20.8	20.8	4.6	5.0	5.0	2.5	1.8	1.8
Madagascar	1992	73.5	79.2	78.3	26.5	20.8	21.7	5.0	5.2	5.2	17.4	19.6	19.2

Source: Demographic and health survey reports for these countries.

^a Foster children are those children below the age of 15 who are not living with either of their parents.

^b The first set of figures in the data for urban Tanzania is for Dar es Salaam.

^c The second set of figures in the data for urban Tanzania is for other urban areas.

Child Care for Working Mothers

Only the Zimbabwe survey collected data on the child care strategies of working mothers with a child under 6 years old. Table 5 shows that 42 percent of urban-employed women and 57 percent of rural-employed women had a child below the age of 6 years. In urban areas, the working mother was primary caregiver in 40 percent of the cases, while 54 percent of rural working mothers were primary caregivers. Female siblings were more common caregivers in rural (11 percent) than in urban (4 percent) households, whereas relatives other than husbands/partners or siblings were more common caregivers in urban (25 percent) than rural (16 percent) homes. Husbands/ partners were rarely caregivers (1.4 percent urban, 1 percent rural), although male siblings were caregivers in 5 percent of the rural families, but less than 1 percent of urban homes. Over 20 percent of urban homes used hired help versus less than 3 percent of rural homes.

Agricultural workers were more likely to be primary caregivers of their children (59 percent) than nonagricultural workers (43 percent). Agricultural workers relied on sibling caretakers (17 percent), male and female, more than nonagricultural workers, who relied on other relatives (24 percent) and hired help (14 percent).

In sum, urban families tend to be smaller than rural families both globally and in our case study area. However, in the East/South Africa region, differences in urban/rural rates of female headship were not consistent. More data are needed to understand patterns of alternate child care and community organization. In Zimbabwe, the mother was still the primary caretaker, even when she worked, although the percentage was smaller for working urban than rural women. If the mother did not care for the child, an adult relative or hired helper was most likely to do so. The use of hired help was much more common in the city than in rural areas.

Table 5 Child care while working, Zimbabwe

	Urban (n=1,067)	Rural (n=2,046)	No Education (n=365)	Primary Education (n=1,554)	Secondary Education (n=1,193)	Agricultural Worker (n=1,237)	Non- Agricultural (n=1,873)
Percent of employed women with child < 6 years old	41.9	56.7	56.5	53.8	47.4	59.3	42.7
Caretaker							
Respondent	40.3	54.2	55.7	54.6	42.1	59.3	42.7
Husband/partner	1.4	1.0	0.8	1.4	0.8	0.6	1.6
Other relative	24.6	16.3	8.2	17.6	23.9	12.8	23.6
Hired help	20.0	2.8	1.7	1.8	18.3	0.7	13.5
Other female child	4.1	11.2	16.3	10.8	4.2	10.6	8.1
Other male child	0.6	5.2	5.4	5.0	0.9	6.0	2.2

Source: Adapted from Demographic and Health Survey 1994 (Zimbabwe).

4. SPECIFIC CARE BEHAVIORS

BREAST-FEEDING BEHAVIORS

Breast-feeding is an example of a caregiving activity that combines food security, healthy environment, and care (Engle 1992, 19). Almost without exception, breast milk is considered to be the best food for newborns and infants, and, in general, the longer and more consistently a mother can nurse her child during the first six months, the better-off the child will be in terms of nutrition, morbidity, and mortality in developing countries (Armstrong 1995). In a study conducted on infants in Yemen, breast-feeding was found

to be the most reliable predictor of the nutritional state of newborns and infants up to 6 months old (David, David, and el Lozy 1983, as cited in Schürch and Favre 1985, 17).

Urban Trends

In a report of trends in breast-feeding in different regions of the world, Popkin and Bisgrove (1988) present convincing evidence that both prevalence and duration of breast-feeding have declined in urban areas. However, more recently, declines were seen in rural as well as in urban areas in Taiwan, Panama, Thailand, and Malaysia (Notzon 1984, cited in Popkin and Bisgrove 1988). Areas with breast-feeding declines in rural as well as urban areas have experienced a faster rate of modernization (Popkin and Bisgrove 1988). Atkinson (1992) notes that urban populations are less inclined towards breast-feeding and more inclined towards earlier weaning, both of which lead to earlier growth faltering in urban areas. But data are available from only a limited number of studies.

Education and Breast-Feeding

Existing data on the effect of maternal education on breast-feeding practices are conflicting. Mothers with lowest and highest levels of education are seen to engage in long-term breast-feeding in Israel (Ever-Hadani et al. 1994; Mansbach, Greenbaum, and Sulkes 1991). In Brazil, however, maternal educational levels were strongly correlated with earlier *termination* of breast-feeding (Giugliani et al. 1992). DaVanzo and Starbird (1991) have reported that in Malaysia, there is a negative relationship between level of education and breast-feeding duration.

Breast-Milk Substitutes

Other influences in urban areas that may contribute to breast-feeding decisions are the increased promotion and availability of infant formula, and maternal delivery in private hospitals (Stewart et al. 1991). In urban Cebu, the Philippines, the promotion of formula-feeding through the distribution of free samples of formula did not affect the

initiation of breast-feeding, but it reduced the duration of breast-feeding among those who received the samples (Adair, Popkin, and Guilkey 1993). The effects of marketing of breast-milk substitutes on breast-feeding decisions and duration seem to be influenced by the educational level of the mother: the presence of marketing activities predicts a switch from breast-feeding to formula feeding for educated mothers and a switch from breast-feeding to feeding other commercial breast-milk substitutes for uneducated mothers (Guilkey and Stewart 1995).

Employment and Breast-Feeding

Urbanization brings with it increased maternal education and increased maternal employment, and therefore, a possible decrease in available time for breast-feeding. These sociodemographic factors cluster together and exert a larger and combined effect on breast-feeding, e.g., women with higher education are more likely to work outside the home, may have higher incomes, and therefore may be able to hire outside help (Adair, Popkin, and Guilkey 1993), with the result that they breast-feed less. Doan and Popkin (1993) find that work in the modern wage sector is often incompatible with breast-feeding. In a study of urban women in Guatemala, formal work was also associated with a shorter duration of breast-feeding, although informal workers had durations as long as nonworkers (Engle and Pedersen 1989).

Urban mothers are likely to wean their children earlier than rural mothers (Uwaegbute and Nnanyelugo 1987), possibly owing to their workload and time constraints. However, the negative effects of the urban environment on breast-feeding are not always a function of employment. Muñoz and Ulate (1988) found that despite favorable breast-feeding conditions such as a high frequency of initiation, a high feeding frequency, nonuse of infant formula, and time availability, mothers in urban Costa Rica weaned their infants early (3 months or earlier); reasons given include beliefs that breast-feeding was a personal sacrifice in terms of time and mobility and a problem in maintaining their "body image," but not employment. In urban Honduras, nonworking

women asked to exclusively breast-feed up to 6 months perceived that breast-feeding was much more time-consuming than feeding supplementary foods, although a 12-hour observation of behavior revealed that the times were identical (Cohen et al. 1995). A risk factor for early complementary feeding is the social norm provided by “modern” women. In a study of infant-feeding practices in slums in four metropolitan cities in India (Nutrition Foundation of India 1984), mothers fed their infants commercial infant foods because they saw richer women doing it; however, the slum mothers were overdiluting the formula and feeding it in inadequate measures, a finding similar to that of Subbulakshmi and Udipi (1990) in Bombay, India.

It is possible that the potential costs to a child's health and nutritional status of not being breast-fed, or being breast-fed for a shorter duration, may be compensated for by the additional income generated by the mother who is working (Atkinson 1992, 14), and the ability to purchase higher quality foods for her child. For example, in the Guatemalan study (Engle and Pedersen 1989), women working in the formal sector breast-fed for a shorter time, but their children did not differ from nonworkers in nutritional status. Informal workers had the longest duration of breast-feeding, but were more likely to have malnourished children. A study in Honduras showed that mixed feeding (both breast-feeding and bottle-feeding) was the norm for both working and nonworking women, and there did not seem to be any significant differences, either in the overall health or nutritional status, between breast-fed and mixed-fed babies (O'Gara 1989, 124).

What seems to be clear from several studies is that work-related variables, such as flexibility, number of hours, types of environment, and levels of stress, are more predictive of breast-feeding and child care practices than an employed/nonemployed dichotomy (Uyanga 1980, as cited in Schürch and Favre 1985, 152). However, the urban environment, apart from employment, also seems to increase risks of shortened breast-feeding.

Situation in Eastern and Southern Africa: Breast-feeding. In our sampled countries, the median duration of breast-feeding (any, exclusive, and full breast-feeding) in urban areas is lower or about equal to that in rural areas in all the countries for which data are presented (see Table 6). In Zimbabwe, the duration of full breast-feeding is slightly higher in urban areas. The daily frequency of breast-feeding under-6-month-olds is higher in rural areas than in urban areas, except in Dar es Salaam, Tanzania, and Rwanda. Breast-feeding is almost universal in the sampled countries, with at least 92 percent of the children having been ever breast-fed in both urban and rural areas in all countries. The percentage of children breast-fed within one day of birth varied among countries and between rural and urban areas. In Zimbabwe and Tanzania, the percentages were about the same, while in Rwanda, the percentage was lower in the rural area. In all of the other countries, the percentage in rural areas was higher. These trends seem to be in agreement with those reported by Bisgrove and Popkin (1988) for breast-feeding in the African region; urban/rural differences tend to be quite small.

Complementary feeding. Only in Zimbabwe were data collected on the percentage of children under 36 months of age who received specific types of foods in the week before the interview. These data are presented in text form only. Urban children received a larger variety of foods, such as other milks, meat, poultry, eggs, porridge, fish, fruits, and vegetables than rural children (Zimbabwe DHS 1995, 132).

Table 6 Breast-feeding duration, frequency, and initiation

Country	Year	Median Duration of Breast-Feeding (Months)								Frequency		Initial Breast-Feeding					
		Any Breast-Feeding		Exclusive Breast-Feeding		Full Breast-Feeding (Breast Milk + Water)		Sample Size (Children Under 3 Years)		Under 6 Months-Percent Breast-Feeding 6+ times in Last 24 hours ^a		Percent Infants Ever Breast-fed		Percent Breast-fed Within 1 Day		Sample Size (< 6 Months)	
		Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Zimbabwe	1994	17.6	19.2	0.5	0.5	1.3	0.7	617	1,747	90.6	94.8	98.7	98.7	90.2	91.0	89	296
Tanzania ^b	1991/92	20.1 21.3	21.7	0.4 1.0	0.7	0.6 1.6	2.5	229 854	3,898	96.4 87.7	94.1	95.6 97.4	97.7	80.9 83.6	81.1	44 120	660
Kenya	1993	19.6	21.5	0.5	0.5	0.5	0.7	472	3,169	76.9	86.9	97.2	97.0	79.7	84.3	62	459
Namibia	1992	12.9	18.5	0.5	0.5	0.7	2.6	799	1,695	71.6	86.4	91.8	96.4	71.5	84.5	127	291
Malawi	1992	19.6	21.4	0.4	0.4	0.7	1.3	322	2,532	90.4	93.0	95.8	97.0	85.8	90.3	53	455
Zambia	1992	18.2	19.0	0.5	0.4	2.2	2.6	1,912	2,149	88.7	96.1	97.4	97.6	83.8	89.8	327	335
Rwanda	1992	27.2	27.9	4.3	5.4	4.4	5.6	170	3,237	94.2	88.6	96.2	97.3	59.0	47.3	30	522
Madagascar	1992	16.2	19.6	0.6	1.2	0.9	1.8	447	3,070	83.1	91.2	95.9	97.4	36.4	46.3	78	517
Burundi	No data on infant feeding																

Source: Demographic and health survey reports for these countries.

^a Figures in parentheses indicate sample sizes.

^b The first set of figures represents data for Dar es Salaam; the second set of figures are for other urban areas.

The Zimbabwe DHS data shows that the median duration of exclusive breast-feeding was only 0.5 months in rural as well as in urban areas. By the age of one month in both cases, 20 percent of the infants were already receiving porridge, and by the age of 2-3 months, 51.1 percent were fed porridge and 33.4 percent were given other liquids.

In sum, the data from Eastern and Southern Africa are consistent with the global picture in showing declines in duration of breast-feeding with urbanization, but these differences are much smaller than in other parts of the world. However, the initiation of breast-feeding appears to be independent of rural/urban status. The significant difference in quality of complementary foods in the DHS observed in Zimbabwe suggests an important advantage of urbanization. However, these data should be examined for the urban poor alone.

HEALTH CARE UTILIZATION

Using health care facilities to treat sick children or for timely immunizations is an important caregiving behavior; there are a number of determinants of these behaviors. Some of these are price (transportation, money cost, cost of substitute health care facilities, etc.); time allocation to use the facility (i.e., opportunity cost⁵ of using the facilities available, waiting time); income; health needs of the population or individual and their perception of these needs; household size and composition; and the educational level of decisionmakers in the household (see Akin, Guilkey, and Popkin 1985 for a detailed description). Each of these determinants will differ in urban areas, especially the number of health care facilities, the distance to the facility, the monetary cost of using the health care facility, the level of parental education, and the opportunity cost of time needed to use the health care facility. Whereas the number of health care facilities may be greater in urban areas, and the distance to them may be less than in rural areas, the

⁵ *Opportunity cost* is an economic concept that treats the true cost of a good or service as the cost of the other goods or services that must be given up in order to purchase or use it (Akin, Guilkey, and Popkin 1985, 103).

opportunity cost of the time needed to use the facility could be higher, especially if the mother (or primary caregiver) is working. Doan and Popkin (1993) find that in the Philippines, urban mothers are more likely to work for wages and work longer hours than rural mothers.

It is possible that in some cases, the characteristics of the "urban" caregiver are not very different from those of the rural caregiver in terms of individual factors such as education, level of employment, type of employment, and possibly health. It is the urban environment, i.e., the type, availability, relative cost, etc., of the health care services, that might affect the health care utilization behaviors of the caregiver, more than the individual characteristics; a well-educated mother, whether living in a rural or an urban area, could still be expected to exhibit more child-centered and labor-intensive child care behaviors. Better-educated women are observed to utilize available health care and community service facilities more effectively than women with no education (Joshi 1994; Caldwell 1986; Barrera 1990). The combined effect of the interaction of maternal education and community services (schools, infrastructure, and health establishments) on child height demonstrates the likely role of education in the utilization of these services (Thomas, Strauss, and Henriques 1991).

Data from Côte d'Ivoire and Peru show that health care availability and utilization are greater in the urban areas, and the type and quality of available health care facilities are also better in urban areas (Gertler and van der Gaag 1990, 23–44). However, this greater availability and utilization may not hold for the urban poor. The availability of preventive health care facilities may be a significant problem, even if urban caregivers are better equipped to use health care facilities. The distribution of available health care within urban areas is hardly equitable for slum and shantytown dwellers (Rossi-Espagnet 1987), and slums are often located in the worst and most inaccessible areas of a city, which only compounds the problem. Urban slum-dwellers probably need Primary Health Care (PHC) programs, but cities tend to have a larger concentration of curative facilities available. The urban poor may have lower levels of education than the middle-income

urban person, and thus less knowledge and awareness about how to use health care facilities; fewer resources, which make the relative cost of using health care greater; and more need for women to be employed, which increases the opportunity cost of time needed to use health care facilities. Popkin and Bisgrove (1988) report that though the immunization coverage in urban areas is higher than in rural areas, it is very low among the urban poor in Africa and Asia.

Situation in Southern and Eastern Africa

The available data (see Table 7) indicate that the prevalence of diarrhea among infants and children in the two weeks preceding the interview was lower in the urban areas than in the rural areas in all countries except Burundi and in urban areas of Tanzania other than Dar es Salaam. The percentage of children taken to a health care provider to treat their diarrhea is consistently higher in urban areas in all countries, except for Zimbabwe. The use of oral rehydration therapy (ORT) to treat diarrhea was also higher in urban areas in all the countries surveyed except Namibia, Rwanda, and in Dar es Salaam, Tanzania. The percentage of children who were not treated for their diarrhea was higher in rural than in urban areas with the exception of Namibia.

Knowledge of the use of ORT and the appropriate feeding behavior during diarrhea (increased liquids and increased feeding) and health-seeking behaviors were asked in both of the DHS surveys for Zimbabwe. Knowledge of ORT was nearly 100 percent for urban and rural mothers in both years. The use of ORT was higher in urban areas both in 1988 and in 1994 and has increased over time. However, the percentage of children taken to a health care provider (PHC, private clinic, or hospital) dropped from 1988 to 1994, both in urban and rural areas, with the percent change greater in urban areas. What is probably most significant is that the percent of mothers who did not follow any treatment for the child's diarrhea has decreased dramatically from 1988 (15 percent) to 1994 (5 percent), particularly in urban areas. Since they are less likely to use health care providers, these numbers may mean that women are using home-based remedies.

Table 7 Demographic and health survey data: Prevalence and treatment of diarrhea

Country	Prevalence of Diarrhea in Preceding Two Weeks ^a				Treatment of Diarrhea								
	Urban	Rural	Sample Size		Percent Taken to a Health Care Provider		Oral Rehydration Therapy		No Treatment		Sample Size		
			Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	
	(Percent)												
Zimbabwe	17.9	25.5	585	1,636	26.7	30.5	83.5 ^c	78.5 ^c	4.8	11.0	105	416	
Tanzania ^b	12.0	12.6	322	5,517	62.1	55.9	73.6 ^d	75.8 ^d	11.8	13.3	39	693	
	15.9		1,110		71.9		80.2 ^d		8.6		176		
Burundi	20.7	17.3	112	3,343	54.6	37.5	67.0 ^e	36.5 ^e	18.6	34.1	23	577	
Kenya	11.9	14.2	720	4,827	52.5	39.4	40.4 ^f	30.5 ^f	12.5	17.9	86	693	
Namibia	13.5	24.1	1,174	2,388	71.4	67.1	62.4 ^d	66.5 ^d	20.8	17.0	159	575	
Malawi	19.3	22.3	422	3,308	49.3	45.0	74.8 ^g	61.9 ^g	8.1	16.1	82	737	
Zambia	20.0	25.3	2,514	2,815	61.9	49.5	73.3 ^g	56.9 ^g	7.8	19.2	502	713	
Rwanda	21.6	21.8	242	4,752	29.1	22.5	41.2 ^h	47.3 ^h	23.0	27.5	52	1,037	
Madagascar	11.1	12.6	660	4,295	42.1	34.1	45.9 ^h	27.2 ^h	73	543	

Source: Demographic and health survey reports for these countries.

... = No data available.

^a Figures are for children under 5 years of age, except for Zimbabwe, where figures are for children under 3 years of age.

^b The first set of figures represents data for Dar es Salaam; the second set of figures are for other urban areas.

^c Therapy consisted of use of sugar-salt-water solutions *or* recommended home fluids.

^d Therapy consisted of use of oral rehydration solution packets *and* recommended home fluids.

^e Therapy consisted of use of oral rehydration solutions *and* sugar-salt-water solutions.

^f Therapy consisted of use of oral rehydration solution packets *only*.

^g Therapy consisted of use of *either* oral rehydration solution packets *or* home solutions.

^h Therapy consisted of use of oral salt rehydration solutions *and* home preparation solutions.

In sum, these data are consistent with the expected pattern of increased health care knowledge and utilization in urban areas.

5. COMBINING CARE RESOURCES AND CARE BEHAVIORS: USING THE MATRIX

When care behaviors are viewed in terms of the resources available to the caregiver, and constraints to care in urban areas, a matrix can be constructed to pinpoint areas of particular concern. Figure 2 illustrates the use of this matrix with hypothetical data from an urban area. For example, for health care utilization, the major care constraints are time available to the caregiver and educational levels of the caregiver, in addition to the health infrastructure itself. It is possible that maternal workload and flexibility of work could determine whether she has the opportunity to take the child to a hospital or primary health care center. This problem would be greatest for women working at fixed-time jobs who cannot call on other family members to take the child to the health care center. Poor urban workers might lose a substantial portion of their wages if they took time off from their jobs to take children to health care centers. On the other hand, with higher levels of education and more awareness of health care services in urban areas, parents would be more willing to incur the higher opportunity cost of using them.

Filling in the boxes of the matrix requires collecting data from the local area, including qualitative information, and evaluating the consequences of each. Priorities for action may then be decided not only depending on which are the most pressing problems, but also by identifying those that are more amenable to policy interventions and regulatory changes. Ideally, one would be able to identify particular boxes as the most important and most feasible for policy actions.

Figure 2 Matrix of caregiving behaviors and resources and constraints to care: A hypothetical example

Resource for Care/ Constraints to Care	Caring Behaviors					
	Care for Women	Breast-Feeding	Feeding and Complementary Feeding	Food Preparation and Food Hygiene	Psychosocial Care	Care During Illness and Health-Seeking
Education and beliefs	Lack of association with traditional sources of help may reduce positive traditional pregnancy and postpartum practices (-) <u>Increased use of prenatal care (+)</u>	Lack of association with traditional sources of help may reduce positive breast-feeding practices (-)	Higher levels of education associated with early weaning (-) <u>Greater variety of foods given to child, more hygienic feeding methods (+)</u>	<u>Better informed on food hygiene (+)</u>	<u>Child care practices may be more labor-intensive and child-centered (+)</u> Less time may be spent with child (-)	<u>Better informed on how to use health services, therefore better utilization (+)</u> Opportunity cost of time needed to use health care may be high (-)
Physical health of caregiver	<u>Better health may be associated with improved nutrition prenatally and better pregnancy outcome (+)</u> Poor health in overcrowded slums may be detrimental to pregnancy outcome (-)	<u>Better nutrient status associated with improved milk quality (+)</u>	<u>Less sickness of mother leads to better complementary feeding (+)</u>		Nutritional status of mother may affect interaction with child (+ or -)	
Mental health	Social isolation associated with depression (-)	Perhaps less breast-feeding associated with social isolation (-)	Lack of confidence undermines ability to feed actively (-)		Depression or stress may inhibit ability to play and stimulate child (-)	
Workload of women	May work prior to birth, and immediately after (-) <u>May have fewer children, so less child care burden (+)</u>	Higher workload in urban area prevents exclusive breast-feeding	Lack of time for feeding (-) <u>Better complementary foods available (+)</u>	Lack of time leads to different kinds of foods (-) <u>Pre-prepared foods and street foods reduce food preparation time (+)</u>	Less time for care by mother (-) <u>Possible early child development resources (+)</u>	Less time to take child to health clinic (-) <u>Health clinics more available and of better quality (+)</u>
Autonomy and resource control	<u>More resource control associated with higher priority for prenatal care (+)</u>		<u>May be more able to direct food to child (+)</u> More places for income to go other than for food (-)			
Social support and community support	<u>Improved birthing practices (+)</u> Less support in nuclear families, e.g., less support from mothers-in-law (-)	More hospital births; offered prelacteal feeds, formula (-)	Fewer alternate caregivers (-)			

Source: Adapted from Engle and Huffman (1996).

6. CONCLUSIONS

CARE IN EASTERN AND SOUTHERN AFRICA

The data from DHS surveys in Eastern and Southern Africa generally confirm more global generalizations about nutrition among urban children. Stunting is less common among urban than rural children. The prevalence of wasting among rural and urban children is similar, although the levels tend to be relatively small (less than 6 percent in most cases). These countrywide figures, however, do not say much about the significance of *intraurban* differences. Studies that have specifically identified the urban poor have found them significantly worse-off than wealthier urban groups. Comparisons that show differences between megacities and smaller urban areas also suggest that causal factors affecting malnutrition, health, and care may differ between the two.

The data also do not provide much insight into what may be among the most important factors affecting child health and malnutrition in urban areas: care. Among the six care resources and constraints identified in the conceptual model, DHS surveys contained significant information on only three (level of education, physical health and nutrition, and family composition). The surveys showed that educational levels of women tend to be higher in urban than in rural areas, but they are still at extraordinarily low levels. Although Namibian women aged 15 to 49 have attained the highest levels in the group of countries studied, 32 percent of them still have no or only some primary education. In Burundi, almost 70 percent of women fall in this category. Efforts to improve women's educational attainment should be an integral part of overall strategies to improve child health and nutrition.

Overall, women's health as measured by BMI seems relatively good in the region, although the surveys lacked essential information on micronutrient status. Low BMI (less than 18.5) was generally less prevalent in urban than in rural areas, but the level tended to be relatively low, at less than 10 percent of the sample.

The data on family composition reveal that a general statement that household size is consistently smaller in urban than rural areas cannot be made. And, in a somewhat surprising finding, the percent of female heads of household is actually about the same or lower in urban than in rural areas. Data on child care for employed mothers were available only for Zimbabwe, but they show that in urban areas, even when working, mothers remain the primary caregiver. Urban mothers tend to rely much more extensively on other relatives or hired help than employed rural mothers, who turn to other children or relatives for assistance.

Data on breast-feeding and on treatment of diarrhea provide two examples of specific caring behaviors in an urban environment. The data confirm that the median duration of breast-feeding is less in urban than in rural areas, though usually not by much, and, in any case, the levels of mothers who ever breast-feed is quite high (over 90 percent in every sampled country). The prevalence of diarrhea is about the same or somewhat lower in urban than in rural areas, although urban caregivers are more likely to take the child to a health care provider for treatment, except in Zimbabwe. Still, the variation in the percentages of those who do so are great, ranging from 26 percent in Zimbabwe to over 70 percent in Namibia and urban areas other than Dar es Salaam in Tanzania. In general, urban caregivers treat diarrhea with ORT more often than rural caregivers.

Statistics on mental health, women's employment, and autonomy in decisionmaking and control over household resources were not consistently available from the surveys. The effects of stress, domestic violence, and crime on care have not been examined, nor have the effects of poor physical and mental health. Data on these factors should be collected in future studies in order to provide a more complete picture of care and caring behaviors and their effects on urban health and nutrition.

A RESEARCH AND ACTION AGENDA

The UNICEF-expanded framework on care can be used to evaluate care constraints and care resources in urban areas. The matrix of care resources and care behaviors helps

to pinpoint where the critical constraints and potential solutions regarding care may be. For example, the data indicate that, generally, women head well over 10 percent of all urban households. It is likely that these women are juggling the responsibilities of earning an income for the household and of taking care of the children. If further consultation shows that finding adequate child care is a problem, actions to develop child care networks either at work or in the community could be promoted. Other, broader, actions could include the development of low-cost, fortified, easily stored complementary foods; health and sanitation infrastructure to reduce illnesses and ease the burden of caregiving; or workplace legislation or community action that increases the opportunities for breast-feeding and maternity leave.

Used in combination with existing data, the matrix has also helped to identify where additional research is needed to inform actions. As suggested by findings of large differences in malnutrition *within* urban areas, research to examine the reasons for these differences should be a primary focus of investigation. Differences in causes also imply that solutions will have to differ as well. Much more information about local needs and resources will therefore be needed to facilitate appropriate responses by local community groups or governments to improve care for nutrition.

This study demonstrates that, although care and caring behaviors are critical for good child nutrition in urban areas, knowledge about the nature, interactions, and effects of these behaviors is lacking. Priority areas for research identified in this study are knowledge of the caregiving systems used by the urban poor, particularly when faced with child and maternal illness; the development of markers or "features" to accurately distinguish levels of poverty, living conditions, and caregiving needs of the urban poor; the effects of physical and psychological stress on caregiving behaviors of the urban poor, especially women; the assessment of working conditions for women, and the development of strategies that facilitate the combination of child care and employment and encourage the identification of resources within the household and community to assist in child care; understanding adaptation and coping strategies of urban families,

especially "resilient" families who successfully manage child care even when faced with a difficult urban environment; and evaluation of strategies used by outside agencies to provide assistance to communities in the improvement of caring behaviors and child nutrition. Additional research is also needed on the role education plays in improving care for children and on the pathways through which it works, whether through increasing income, knowledge, or other factors. This exercise has shown that useful information about care resources and behaviors can be obtained using existing data. Even greater benefit will come from further study and increased application by local and national authorities of the conceptual framework highlighted here to the identification of constraints to care and to the development and promotion of sustainable efforts that work to overcome these constraints.

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