
Nutrition of Infants And Young Children In Kenya

AFRICA NUTRITION CHARTBOOKS



U.S. Agency for International Development
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Macro International Inc.



Food Security and Nutrition Monitoring Project

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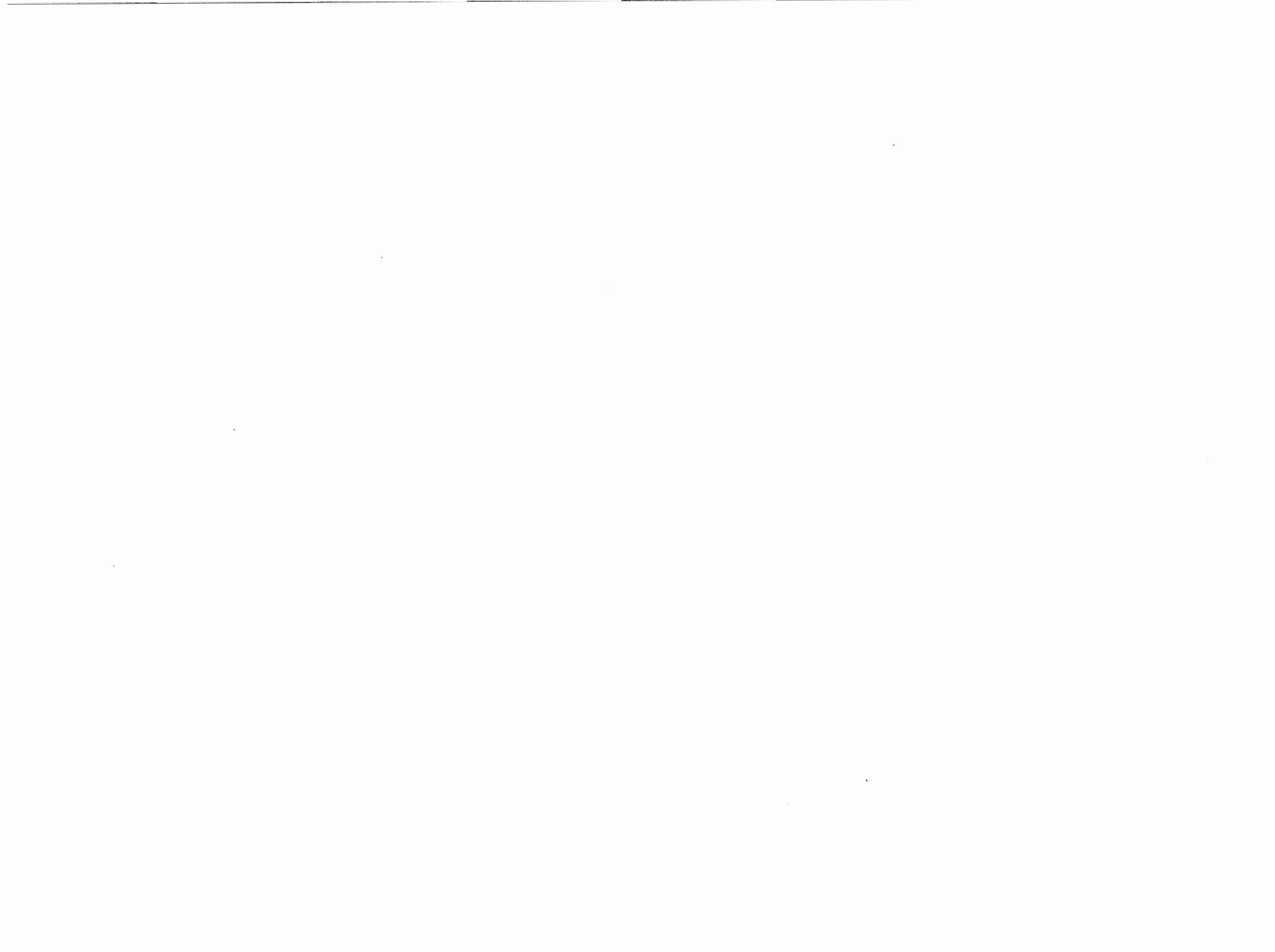
NUTRITION OF INFANTS AND YOUNG CHILDREN IN KENYA

Findings from the 1993 Kenya DHS Survey

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Introduction

Undernutrition¹ is one of the most important health and welfare problems among infants and young children in Kenya. It is a result of both inadequate intake of food and poor environmental sanitation. An inadequate intake of food is a consequence of improper feeding practices and/or insufficient food at the household level. Improper feeding practices include both the quality and quantity of foods offered to young children as well as the timing of their introduction. Poor sanitation puts young children at risk of increased illness, in particular diarrhoeal disease, which adversely affects a child's nutritional status. Both inadequate food intake and poor environmental sanitation reflect underlying social and economic conditions.

Undernutrition has significant health and economic consequences. The most serious of these is the increased risk of dying. Other outcomes include increased risk of illness and a lower level of cognitive development, which results in lower educational attainment. In adulthood, the accumulated effect of long-term undernutrition can be a reduction in worker productivity and increased absenteeism in the workplace, both of which may reduce individual and national lifetime earning potential. Furthermore, undernutrition can result in adverse pregnancy outcomes.

The Kenya data presented here are from the 1993 Kenya Demographic and Health Survey (KDHS), a nationally representative survey conducted by the National Council for Population and Development, Nairobi, with technical assistance from Macro International Inc. The data presented for other sub-Saharan African countries are from Demographic and Health Surveys carried out in those countries.

¹ The technical definitions for *undernutrition* as defined by the National Center for Health Statistics (NCHS), the Centers for Disease Control (CDC), and the World Health Organization (WHO) are presented in the Appendix.

Undernutrition among Children under 5 Years, Kenya

In Kenya:

- **One in three children under 5 years is chronically undernourished.** In other words, they are too short for their age or *stunted*.¹ The proportion of children stunted is about **14 times** the level expected in a healthy, well-nourished population.
- **About one in four children is *underweight***² for his or her age. This is **10 times** the level in a healthy, well-nourished population.
- **One in 16 children suffers from acute undernutrition.** This is manifested by the child being too thin for his or her height or *wasted*.³ The proportion of children who are wasted is **3 times** the level expected in a healthy, well-nourished population.

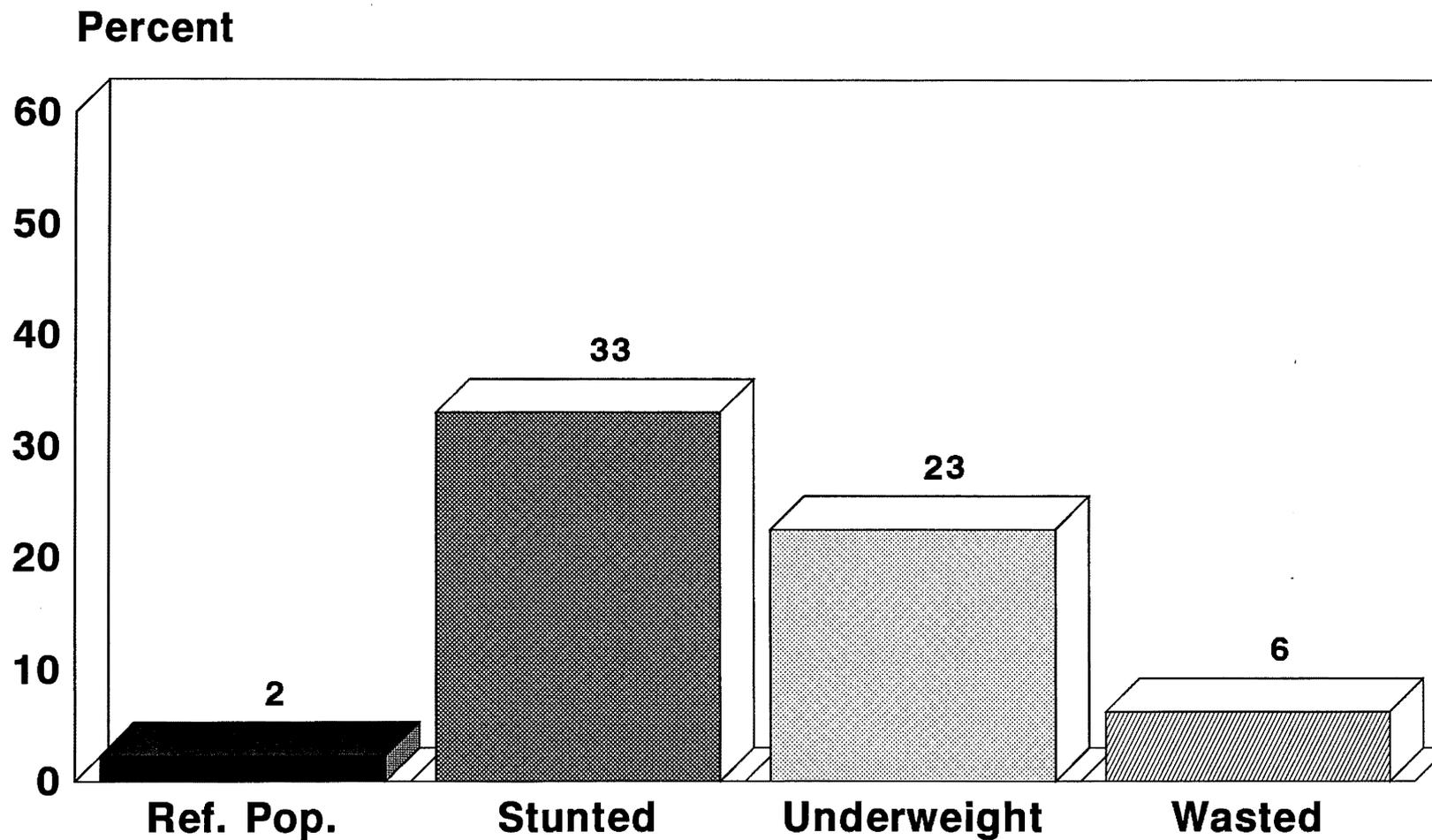
¹ A *stunted* child has a height-for-age Z-score that is below -2 SD based on the NCHS/CDC/WHO international reference population. Chronic undernutrition is the result of an inadequate intake of food over a period of time and could also be affected by chronic illness.

² An *underweight* child has a weight-for-age Z-score that is below -2 SD based on the NCHS/CDC/WHO international reference population. This condition can result from either chronic or acute undernutrition.

³ A *wasted* child has a weight-for-height Z-score that is below -2 SD based on the NCHS/CDC/WHO international reference population. Acute undernutrition is the result of a recent failure to receive adequate nutrition and may be affected by acute illness, in particular diarrhoea.

Figure 1

Undernutrition among Children under 5 Years, Kenya



Note: Stunted reflects chronic undernutrition; wasted reflects acute undernutrition; underweight reflects either chronic or acute undernutrition.

Undernutrition among Children Age 3 to 36 Months¹ in Kenya and other sub-Saharan Countries, DHS 1986-1993

Among the sub-Saharan countries surveyed:

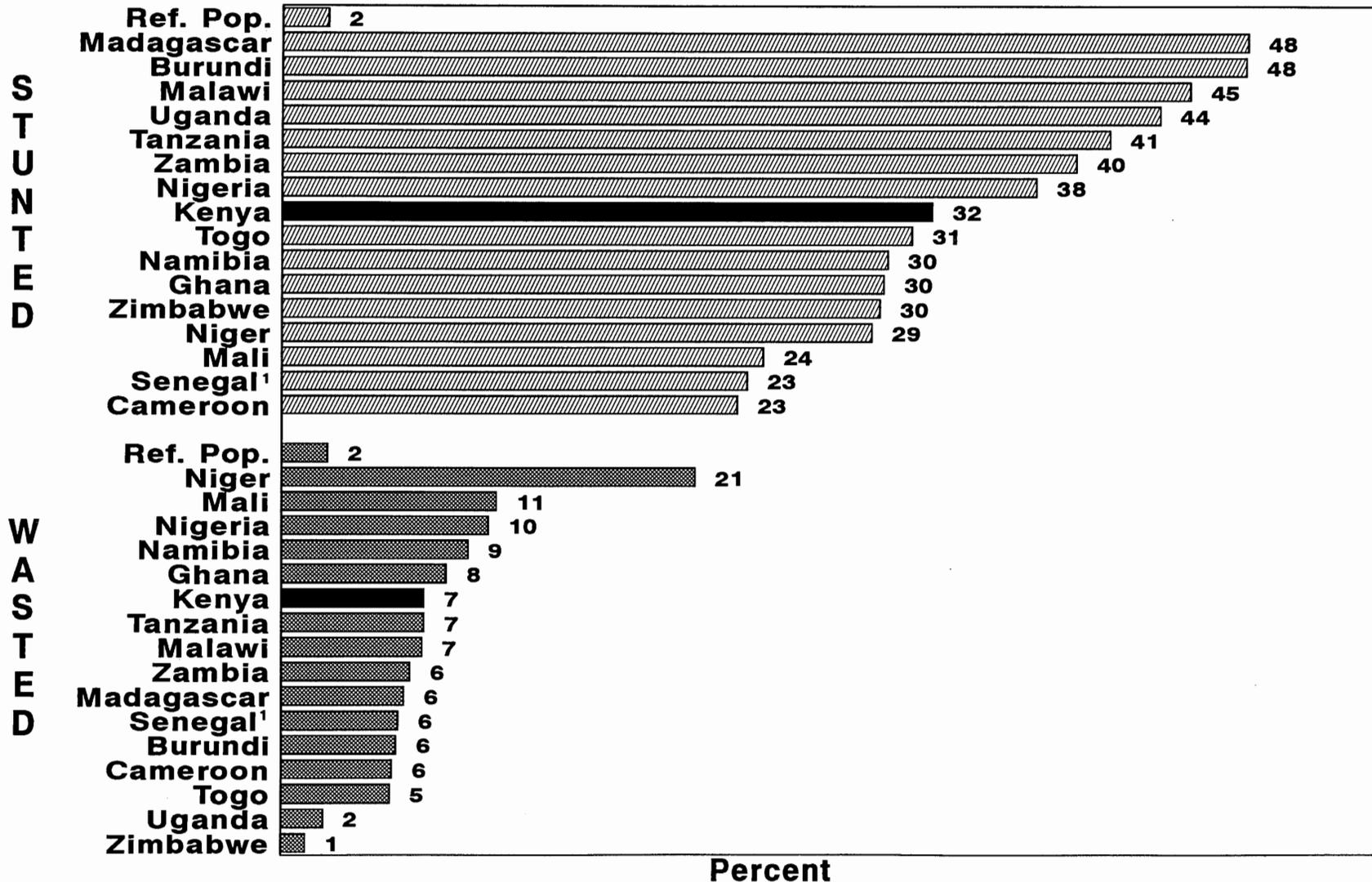
- **Kenya is in the middle of the countries in the proportion of children who are stunted. However, Kenya has the lowest level of stunting among the East African countries surveyed.**
- **At over three times the level in a well-nourished population, acute undernutrition in Kenya is similar to the level found in many other sub-Saharan countries.²**

¹ Unlike Kenya, in some countries data were collected only for children age 3 to 36 months. For comparative purposes data for this age range are presented.

² It is important to note that these data come from surveys carried out in different seasons between 1986 and 1993, which could affect the comparability of the results.

Figure 2

Undernutrition among Children Age 3 to 36 Months in Kenya and other sub-Saharan Countries, DHS 1986-1993



Note: Stunted reflects chronic undernutrition; wasted reflects acute undernutrition.

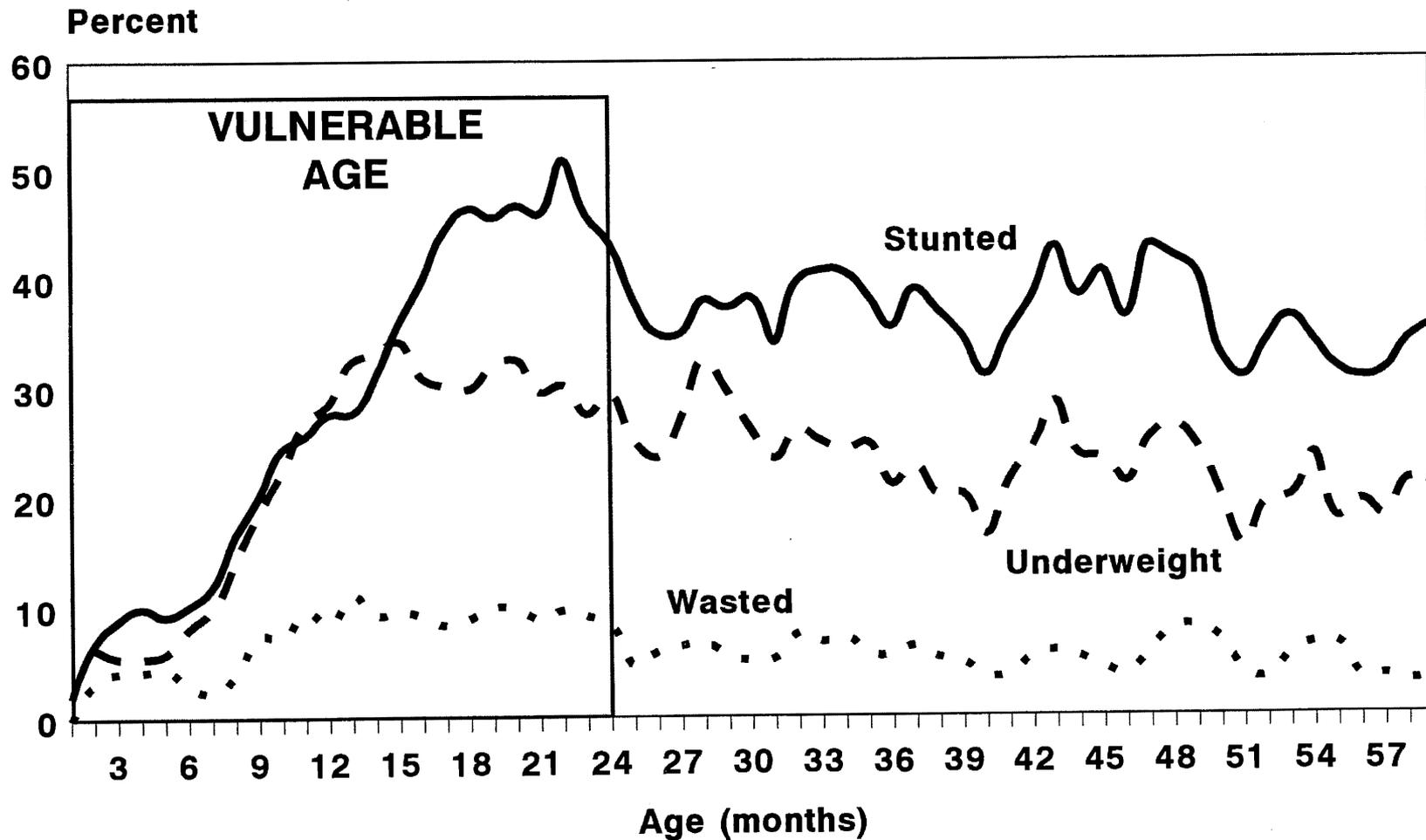
¹ Infants and children age 6 to 36 months

Undernutrition by Age, Kenya

In Kenya, the time between 1 and 24 months of age is the vulnerable age:

- **Stunting**, indicating chronic malnutrition, begins early in life and increases until 18 months of age when it affects nearly **one in two** children.
- The proportion of children **underweight** increases to over **one in three** by the age of 12 months.
- **Wasting**, indicating acute malnutrition, increases rapidly between 6 and 12 months of age and stays high through 24 months of age; between the ages of 12 and 24 months about **one in ten** children is affected.

Figure 3 Undernutrition by Age, Kenya



Note: Stunted reflects chronic undernutrition; wasted reflects acute undernutrition; underweight reflects either chronic or acute undernutrition.

KDHS 1993

Feeding Practices for Infants under 4 Months, Kenya

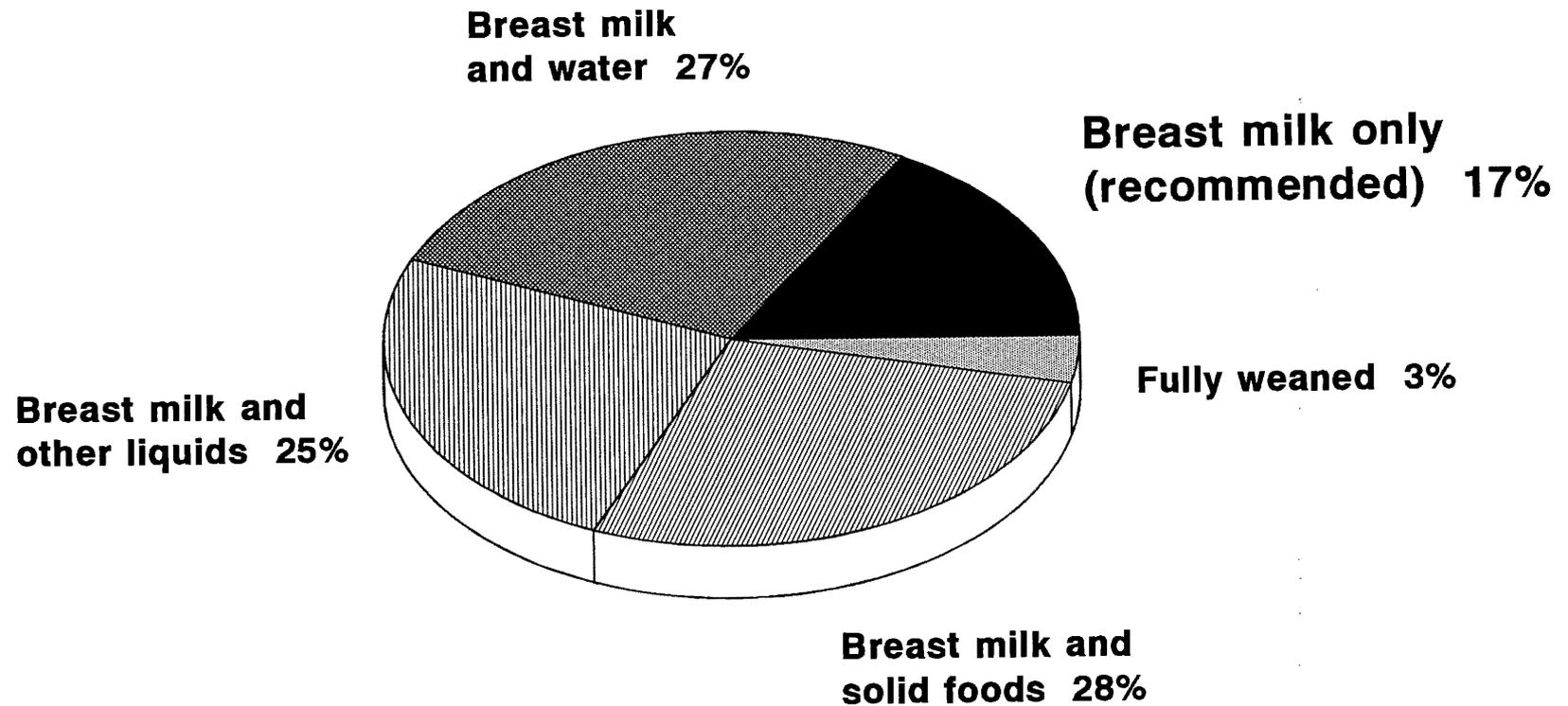
Feeding patterns, as well as diarrhoeal disease, are important determinants of undernutrition.¹ The World Health Organization (WHO) recommends that all infants be exclusively breastfed from birth to 4 to 6 months of age. In other words they should be fed only breast milk.

In Kenya, the introduction of liquids, such as water, sugared water, teas, commercial formulae, and solid foods takes place far too early in life. This practice has a deleterious effect on nutritional status for a number of reasons. First, the liquids and solid foods offered are nutritionally inferior to breast milk. Second, the intake of liquids and solid foods results in lower breast milk intake which, in turn, reduces the mother's supply of milk because breast milk production is determined, in part, by both the frequency and intensity of suckling. Third, feeding young infants liquids and solid foods increases their exposure to pathogens and consequently puts them at greater risk of diarrhoeal disease.

- **Fewer than one in five** Kenyan children under the age of 4 months is **exclusively breastfed**, as recommended by WHO.
- Nearly **six in ten** infants under 4 months are given some form of supplemental feeding, **contrary to recommendations**.
- To a large extent, the failure to exclusively breastfeed for the first 4 to 6 months of life accounts for the rapid increase in undernutrition among young infants.

¹ Information on feeding practices is based on the 24 hours preceding the survey.

Figure 4
Feeding Practices for Infants under 4 Months, Kenya



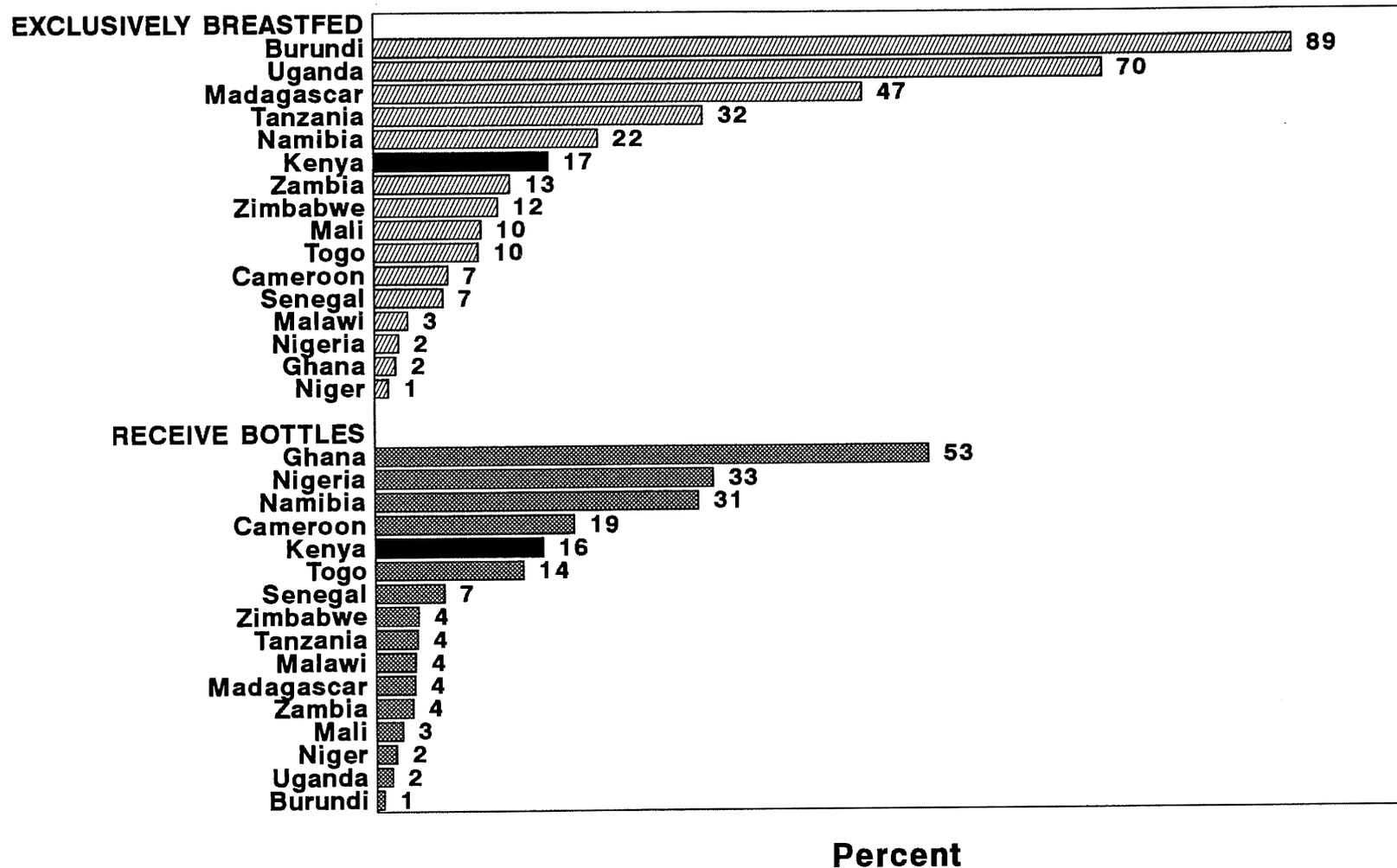
Note: WHO recommends that all infants be breastfed exclusively until they are 4 to 6 months old.

Infants under 4 Months Who Are Exclusively Breastfed and those Who Receive Supplemental Bottles, in Kenya and other sub-Saharan Countries, DHS 1986-1993

Not breastfeeding exclusively and introducing liquids and solid foods prematurely both increase the risk of diarrhoeal disease, a highly important cause of mortality in Africa.

- **In the sub-Saharan countries surveyed, including Kenya, few mothers of infants under 4 months follow the recommended practice of exclusive breastfeeding. In contrast, almost all infants are exclusively breastfed in Rwanda and Burundi.**
- **Bottle feeding, a non-recommended practice, is used by one in six Kenyan mothers of infants under 4 months.**

Figure 5
Infants under 4 Months Who Are Exclusively Breastfed and Those Who Receive Supplemental Bottles,¹ in Kenya and other sub-Saharan Countries, DHS 1986-1993



Note: WHO recommends that all infants should receive nothing but breast milk until 4 to 6 months of age.

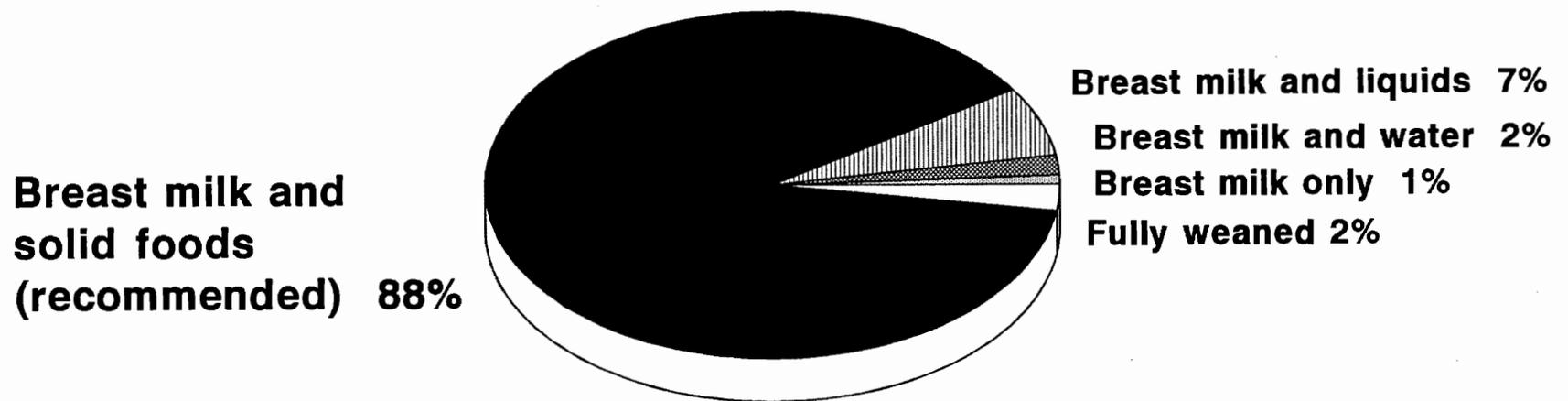
¹Information on feeding practices is based on the 24 hours preceding the survey.

Feeding Practices for Infants Age 6 to 9 Months, Kenya

The World Health Organization also recommends that solid foods be introduced to infants between the ages of 4 to 6 months because breast milk, on its own, is no longer sufficient to maintain optimal child growth. Thus, all infants over 6 months of age should be receiving solid foods along with breast milk.

- **Nearly nine out of ten Kenyan infants age 6 to 9 months are fed solid food** in addition to breast milk. In other words, only about **one in ten of the infants between the ages of 6 and 9 months is not fed according to the recommended practice.**
- **Three percent** of infants age 6 to 9 months are either **exclusively or fully breastfed**; 7 percent are fed liquids in addition to breast milk; and 2 percent are fully weaned from the breast.

Figure 6
Feeding Practices for Infants Age 6 to 9 Months, Kenya

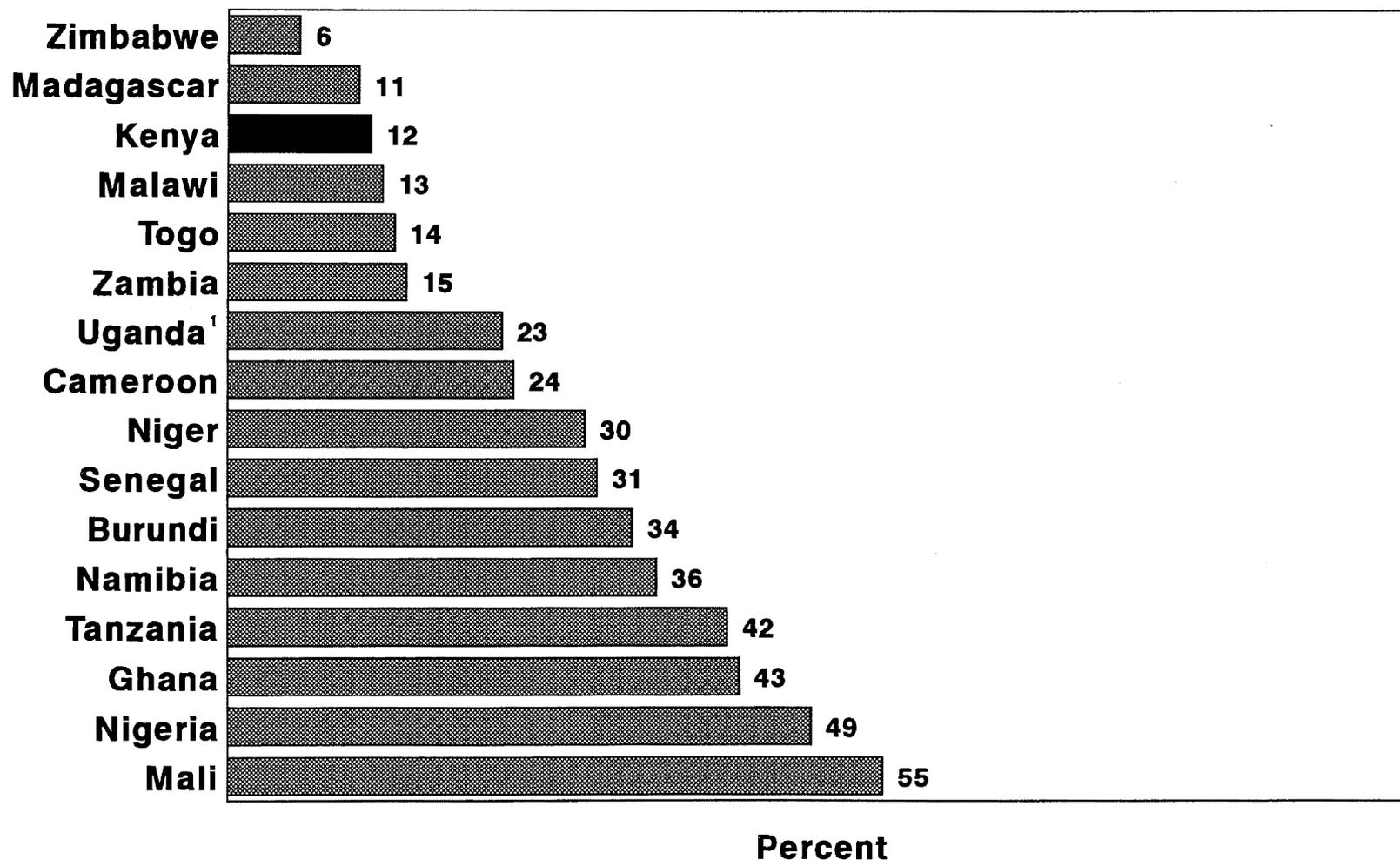


Note: WHO recommends that by the age of 6 months all infants should receive solid foods in addition to breast milk.

Infants 6 to 9 Months Not Receiving Food in Addition to Breast Milk in Kenya and other sub-Saharan Countries, DHS 1986-1993

- **In Kenya just over 10 percent of the infants age 6 to 9 months are not fed according to the World Health Organization recommendations. This is the second lowest proportion of infants that receive neither breast milk nor solid foods among the sub-Saharan countries for which DHS data are available.**

Figure 7
Infants 6 to 9 Months not Receiving
Food in Addition to Breast Milk in Kenya
and other sub-Saharan Countries, DHS 1986-1993



Note: WHO recommends that by the age of 6 months all infants should receive solid foods in addition to breast milk.

¹Includes liquids.

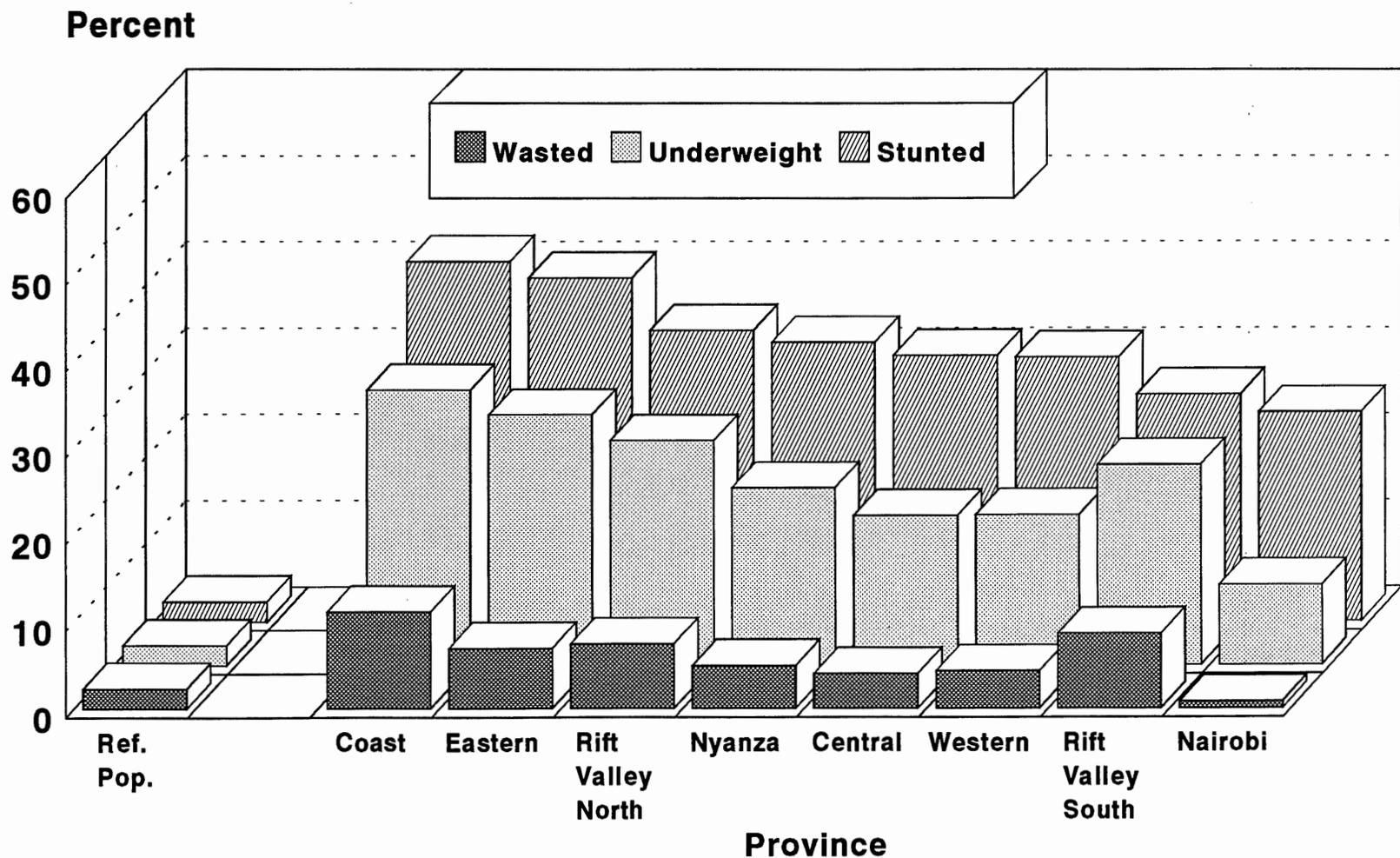
Undernutrition among Children under 5 Years by Province, Kenya

In Kenya:

- **About two in five children in the Coast and Eastern provinces are stunted.** Stunting is lowest in Nairobi and the southern part of the Rift Valley province, where one in four children is stunted.
- **Underweight** is prevalent in all areas of Kenya, but more so in the **Coast and Eastern provinces.**
- **Wasting is higher in the Coast and southern part of the Rift Valley provinces** than in the other provinces.

Figure 8

Undernutrition among Children under 5 Years by Province, Kenya



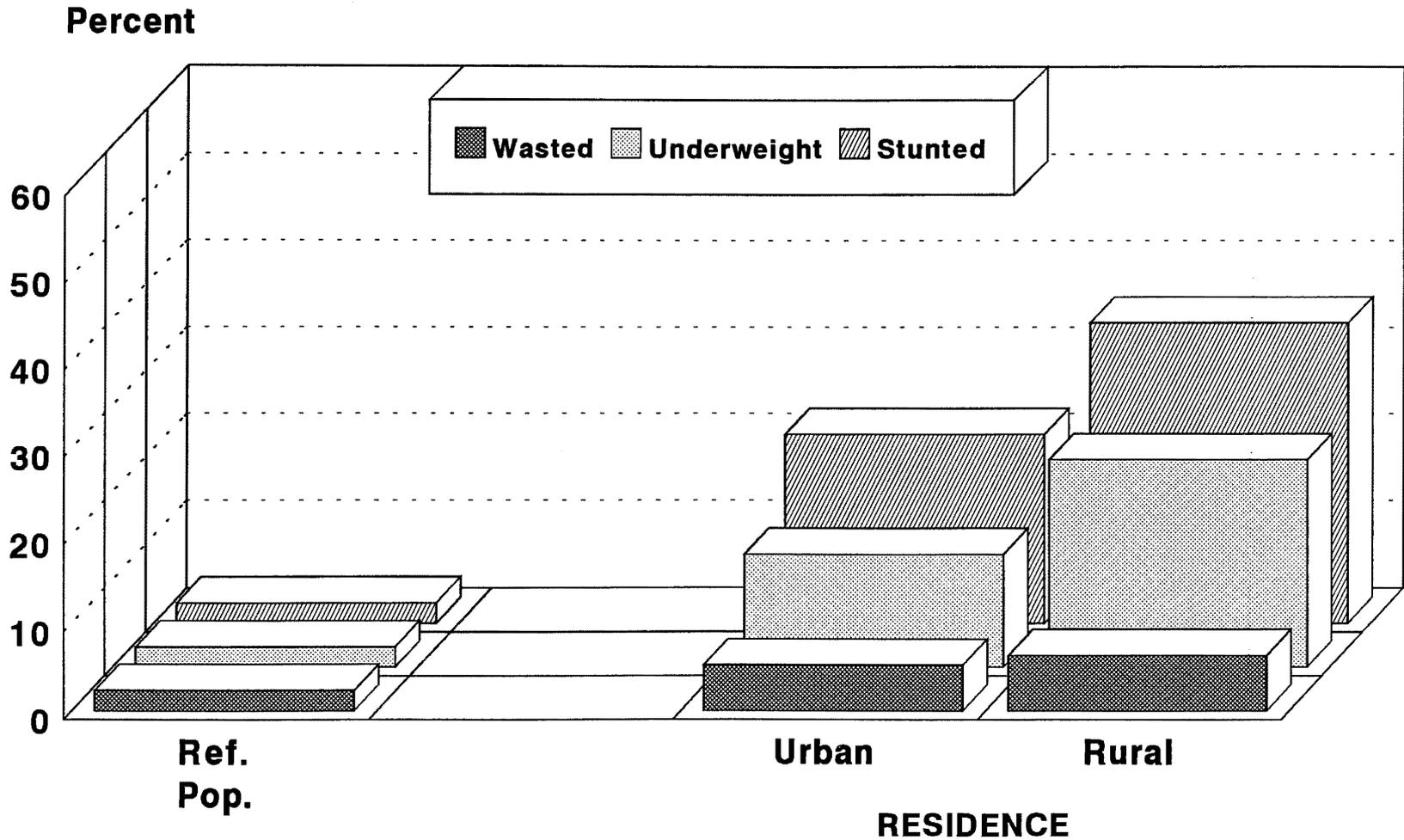
Note: Stunted reflects chronic undernutrition; wasted reflects acute undernutrition; underweight reflects either chronic or acute undernutrition.

Undernutrition among Children under 5 Years by Residence, Kenya

In Kenya:

- **Stunting is higher in rural areas, where about 80 percent of the Kenyan population lives.**
- **Underweight is also more prevalent in rural areas.**
- **The levels of wasting are similar in both residential areas.**

Figure 9 Undernutrition among Children under 5 Years by Residence, Kenya



Note: Stunted reflects chronic undernutrition; wasted reflects acute undernutrition; underweight reflects either chronic or acute undernutrition.

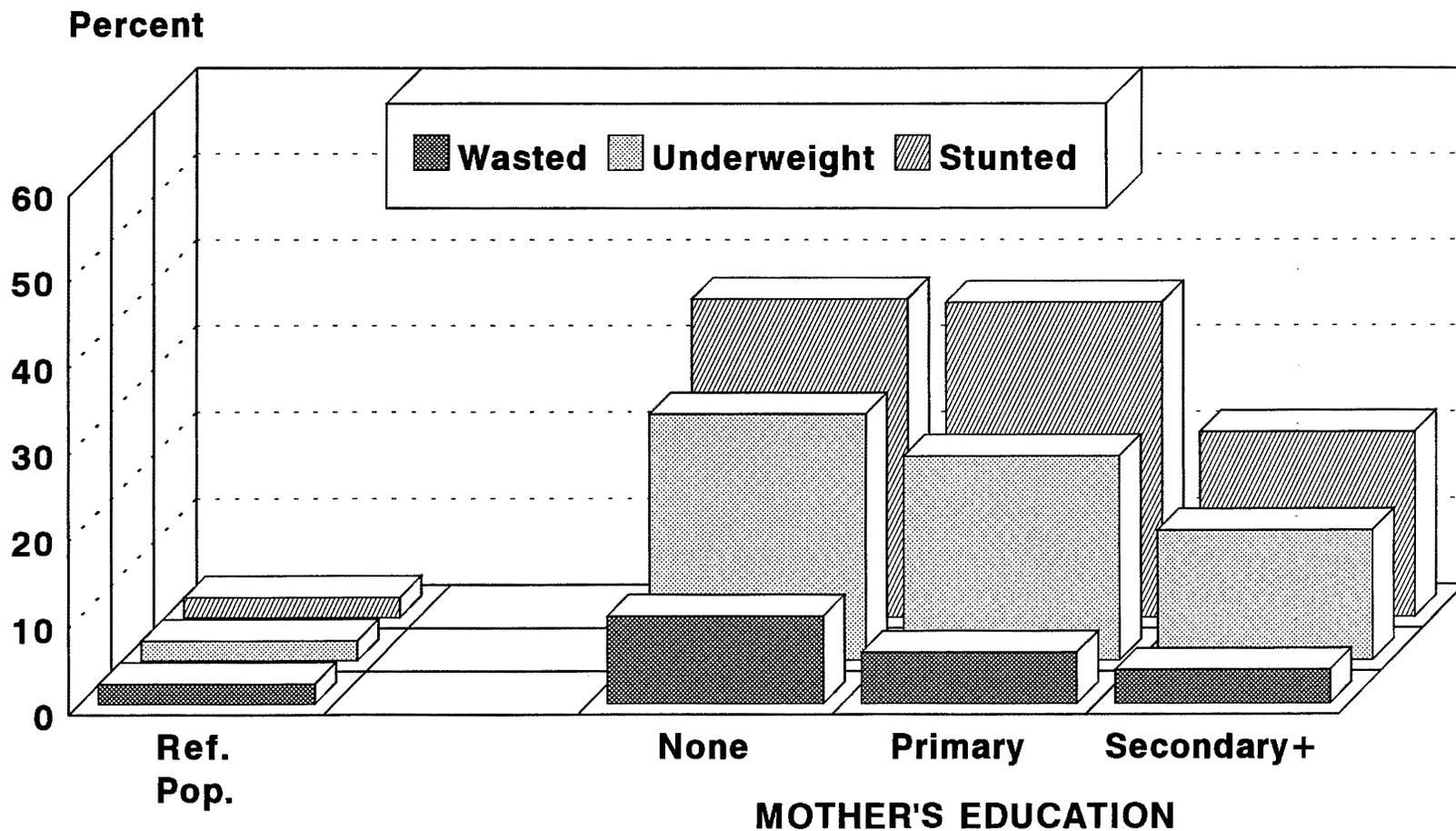
Undernutrition among Children under 5 Years by Mother's Education, Kenya

Maternal education is related to both a knowledge of good child-care practices and household wealth. One in five Kenyan mothers has never attended school but there are regional differences. Over 40 percent of mothers in the Coast regions have never been to school, whereas less than 10 percent of mothers in the Nairobi and Central regions have not been to school.

- **More than one in three children of mothers with no education or only primary education is stunted whereas about one in five children of mothers with secondary or higher education is stunted.**
- **Underweight is almost twice as prevalent among children of mothers with no education than it is among children whose mothers have attended secondary school or higher education.**
- **Wasting is also highest among children of mothers who have no education.**

Although undernutrition is higher among children of less educated mothers, it is high even among the children of educated women, suggesting that traditional infant and child feeding practices are inadequate for good nutrition and may have serious adverse effects on children's growth.

Figure 10
Undernutrition among Children under 5 Years by
Mother's Education, Kenya



Note: Stunted reflects chronic undernutrition; wasted reflects acute undernutrition; underweight reflects either chronic or acute undernutrition.

KDHS 1993

Undernutrition among Children under 5 Years by Source of Water, Kenya

The source of water is representative of both household wealth and environmental sanitation. Poor households are more likely to obtain water from a river/lake. Where water is not readily available, food hygiene is often inadequate thus increasing the risk of food contamination, which can result in increased risk of diarrhoeal disease and undernutrition.

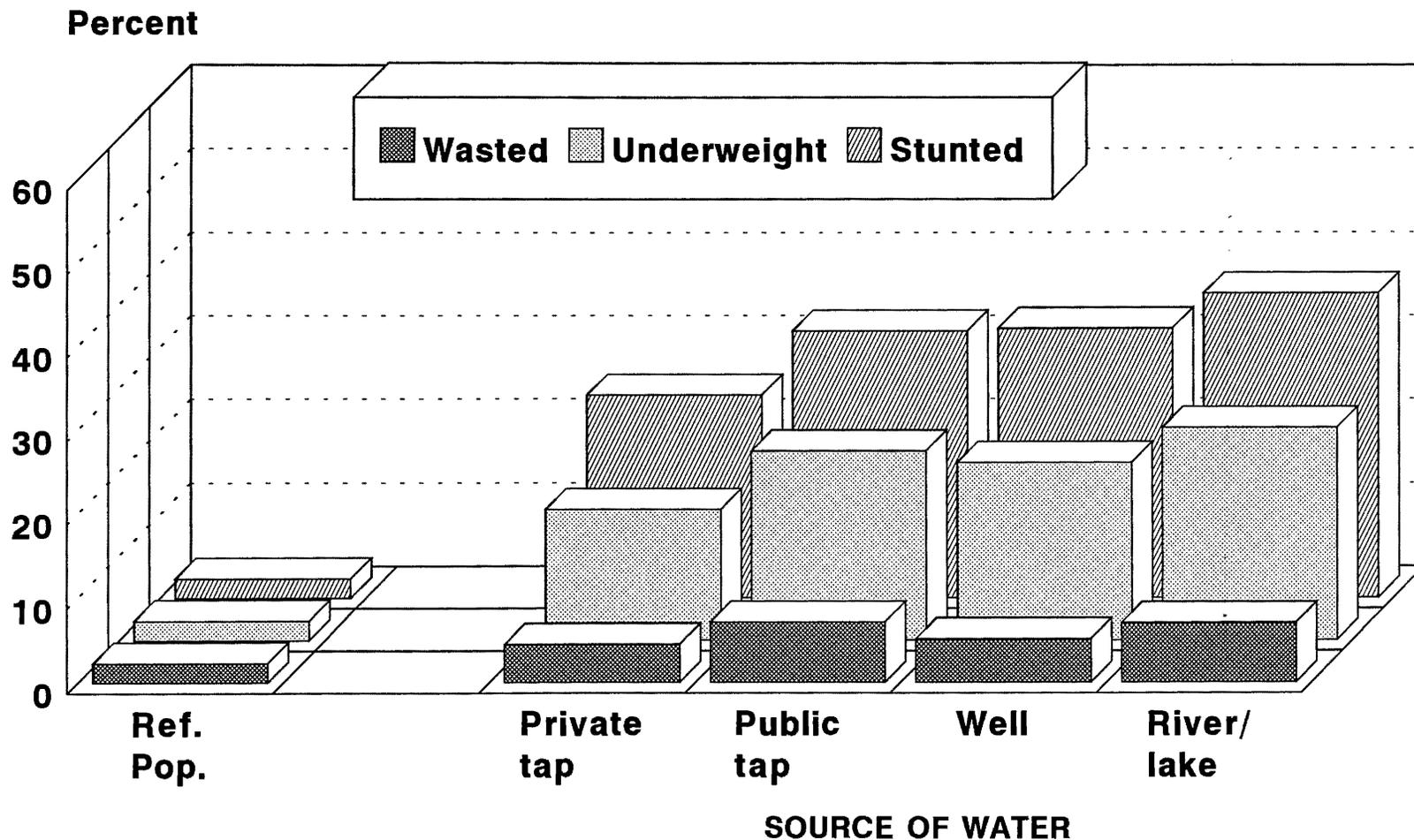
- **Just under one-half of Kenyan households obtain water from a river/lake, about 25 percent use a well, 14 percent use a public tap, and 14 percent have water piped to their home.**

Infants and children from households that do not have ready access to tap water are at greater risk of being undernourished than those from households with this amenity. This reflects not only the association between environmental sanitation (and thus the risk of diarrhoeal disease) and nutritional status, but also household wealth. Wealth determines a household's food supply and the ability to have better access to tap water. Although easy access to tap water may be associated with a reduced risk of a child being undernourished, it does not ensure that a child will be well-nourished.

- **Even among households using tap water, one in four children is too short for his or her age.**
- **About one in six children from households with a private supply of water is underweight. Wasting, however, is not associated with the source of water.**

Figure 11

Undernutrition among Children under 5 Years by Source of Water, Kenya



Note: Stunted reflects chronic undernutrition; wasted reflects acute undernutrition; underweight reflects either chronic or acute undernutrition.

Undernutrition among Children under 5 Years by Type of Toilet, Kenya

The type of toilet is also representative of both household wealth and environmental sanitation. Poor households are less likely to have toilet facilities. Poor sanitation results in an increased number of insects (particularly flies) thus increasing the risk of food contamination thereby increasing the risk of diarrhoeal disease, which can result in undernutrition.

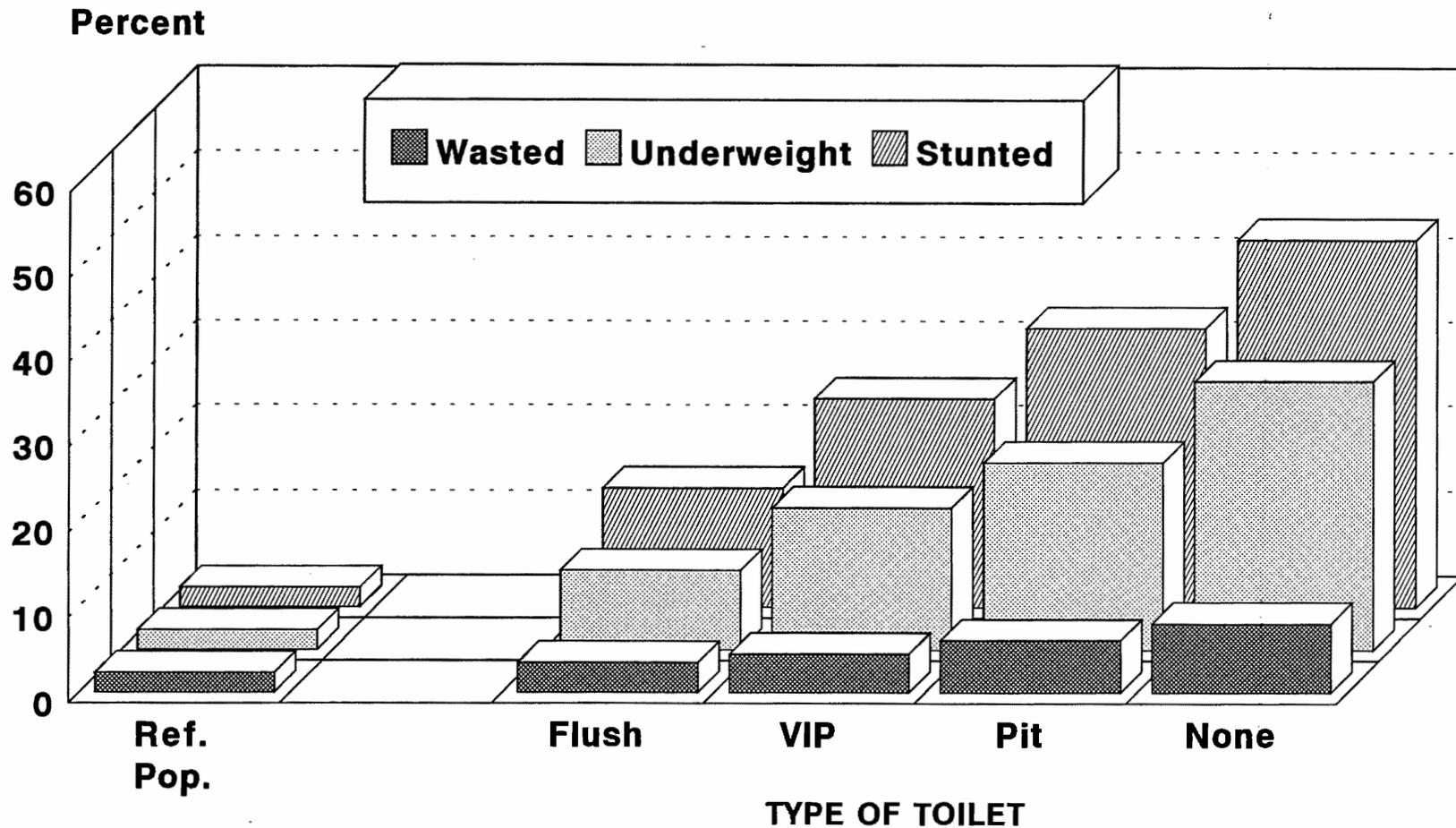
- **About one-fifth of households in Kenya have no toilet facilities, and among those with toilet facilities most own a traditional pit latrine.**

Infants and children from households that do not have ready access to a flush toilet are at greater risk of being undernourished than those from households with this amenity. As with source of water, this reflects not only the association between environmental sanitation and nutritional status, but also household wealth. While easy access to a flush toilet may be associated with a reduced risk of a child being undernourished, it does not ensure that a child will be well-nourished.

- **Even among households having a flush toilet one in seven children is stunted.**
- **Nearly one in ten children from households with a flush toilet is underweight.**
- **Children from households that do not have any toilet facilities are over two times more likely to be wasted than children from households with a flush toilet.**

Figure 12

Undernutrition among Children under 5 Years by Type of Toilet, Kenya



Note: Stunted reflects chronic undernutrition; wasted reflects acute undernutrition; underweight reflects either chronic or acute undernutrition.

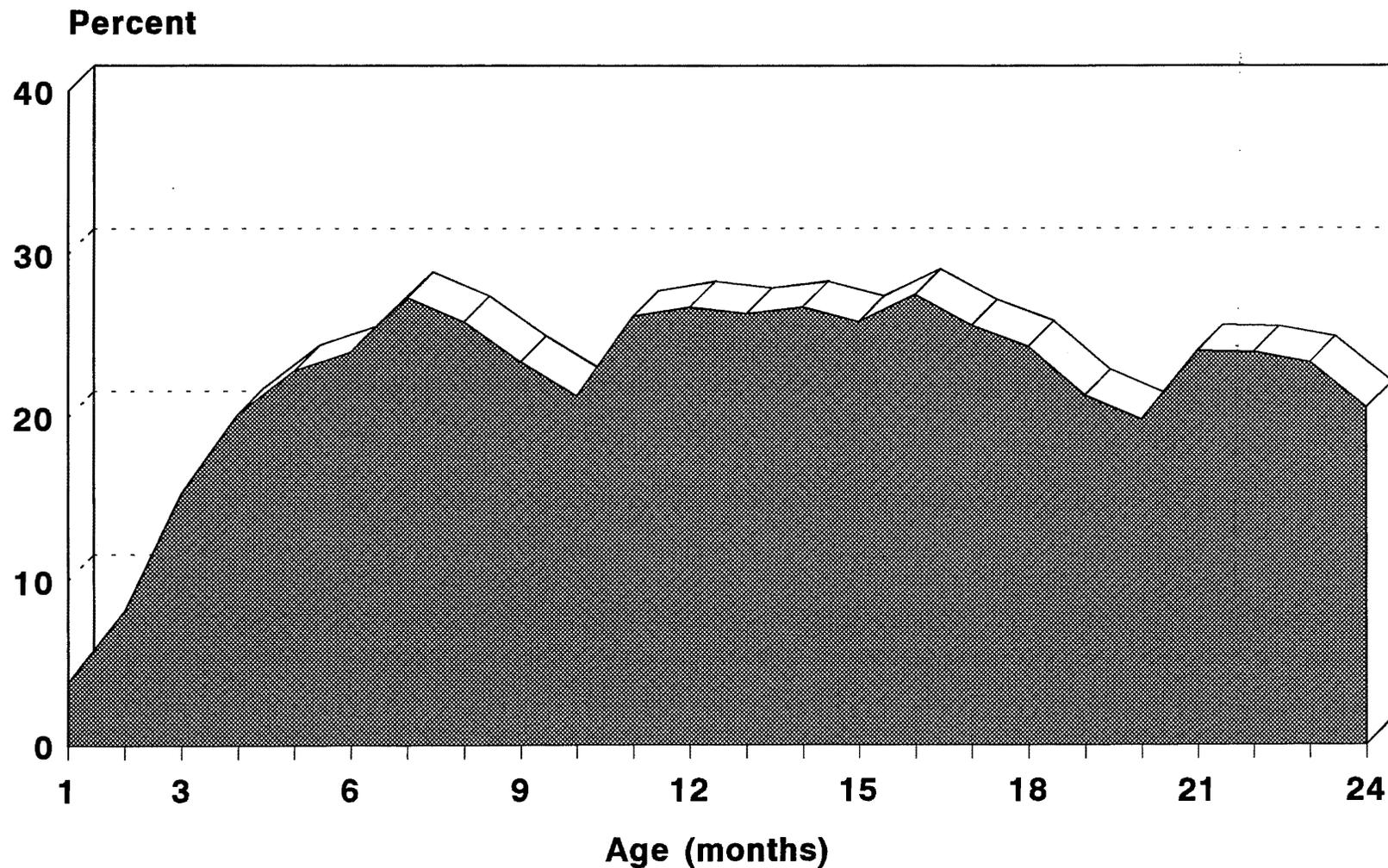
Age-related Pattern of Diarrhoea among Children Age 1 to 24 Months, Kenya

In Kenya:

- **The prevalence of diarrhoea increases rapidly and dramatically among infants under 6 months of age before levelling off, and then declining slightly after the age of 18 months.**
- **The age-related pattern of diarrhoeal disease is not dissimilar to that for acute undernutrition. This is not surprising given that diarrhoea is a major determinant of acute undernutrition.**

The age-related pattern of diarrhoea reflects the increased risk of pathogen contamination associated with the early introduction of water, other liquids, and solid foods. In addition, once young children begin to crawl and move around, they tend to put objects into their mouths, increasing the risk of pathogen contamination.

Figure 13
Age-related Pattern of Diarrhoea among
Children Age 1 to 24 Months, Kenya



Prevalence of Diarrhoea, Fever, and Cough among Children Age 1 to 24 Months¹ in Kenya and other sub-Saharan Countries, DHS 1986-1993

- **Nearly one in four Kenyan children under 24 months had diarrhoea** in the two weeks preceding the survey. This is the second lowest proportion of children with diarrhoea among the countries surveyed.

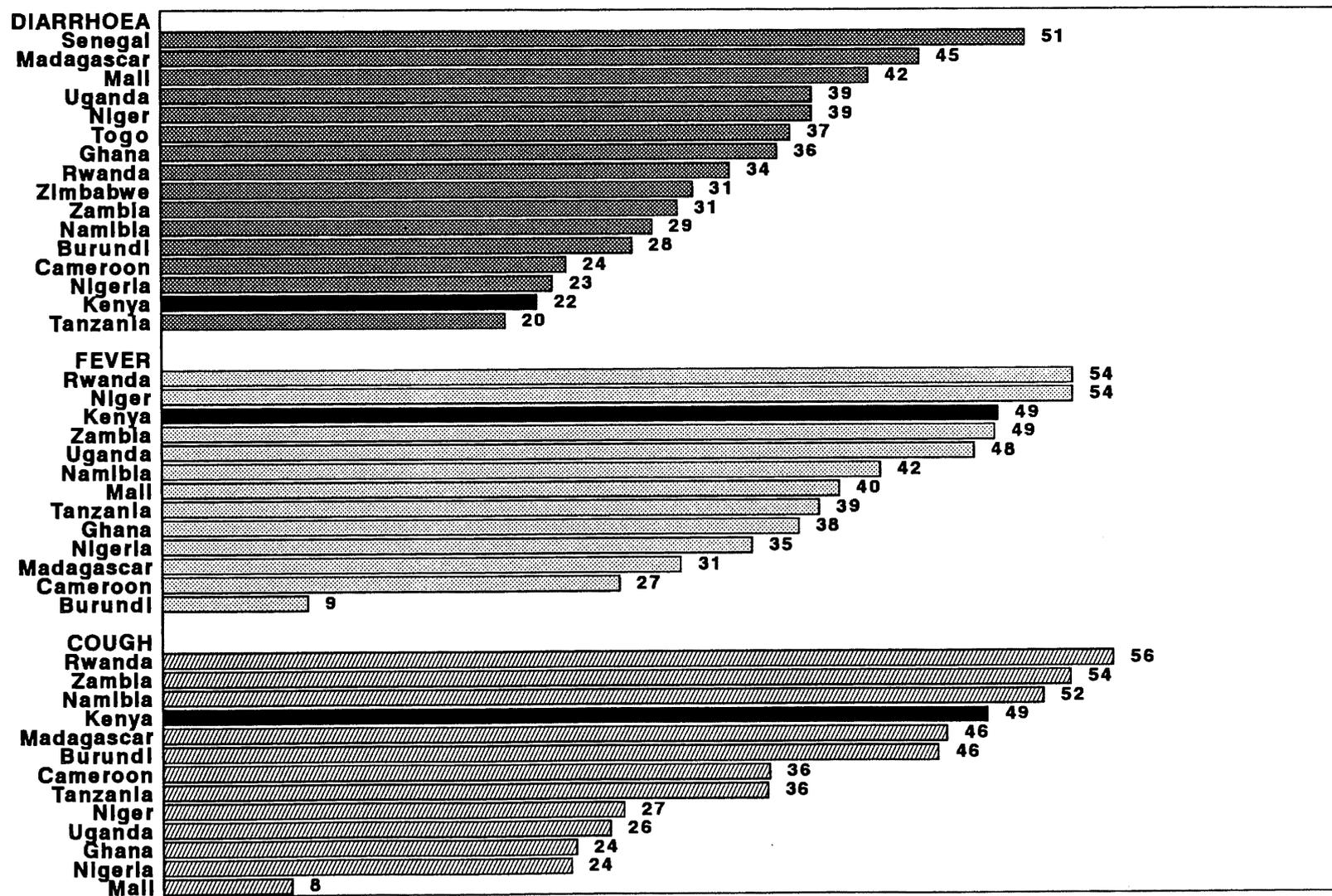
It must be borne in mind that a mother's perception of diarrhoea may differ by country and this could influence these findings.

- **About one in two Kenyan children were reported to have had fever** in the preceding two weeks. This is the second highest proportion of the countries surveyed.
- **About one in two Kenyan children was also reported to have had a cough or rapid breathing** in the preceding two weeks. Again, this is in the high range of the countries surveyed.

There are seasonal patterns in the prevalence of diarrhoea, fever, and respiratory illness which must be taken into account when comparing the results of the various surveys.

¹ Data are presented only for children under 2 years because this age group is the most vulnerable to diarrhoeal disease.

Figure 14
Prevalence of Diarrhoea, Fever, and Cough among
Children Age 1 to 24 Months in Kenya and other
Sub-Saharan Countries, DHS 1986-1993

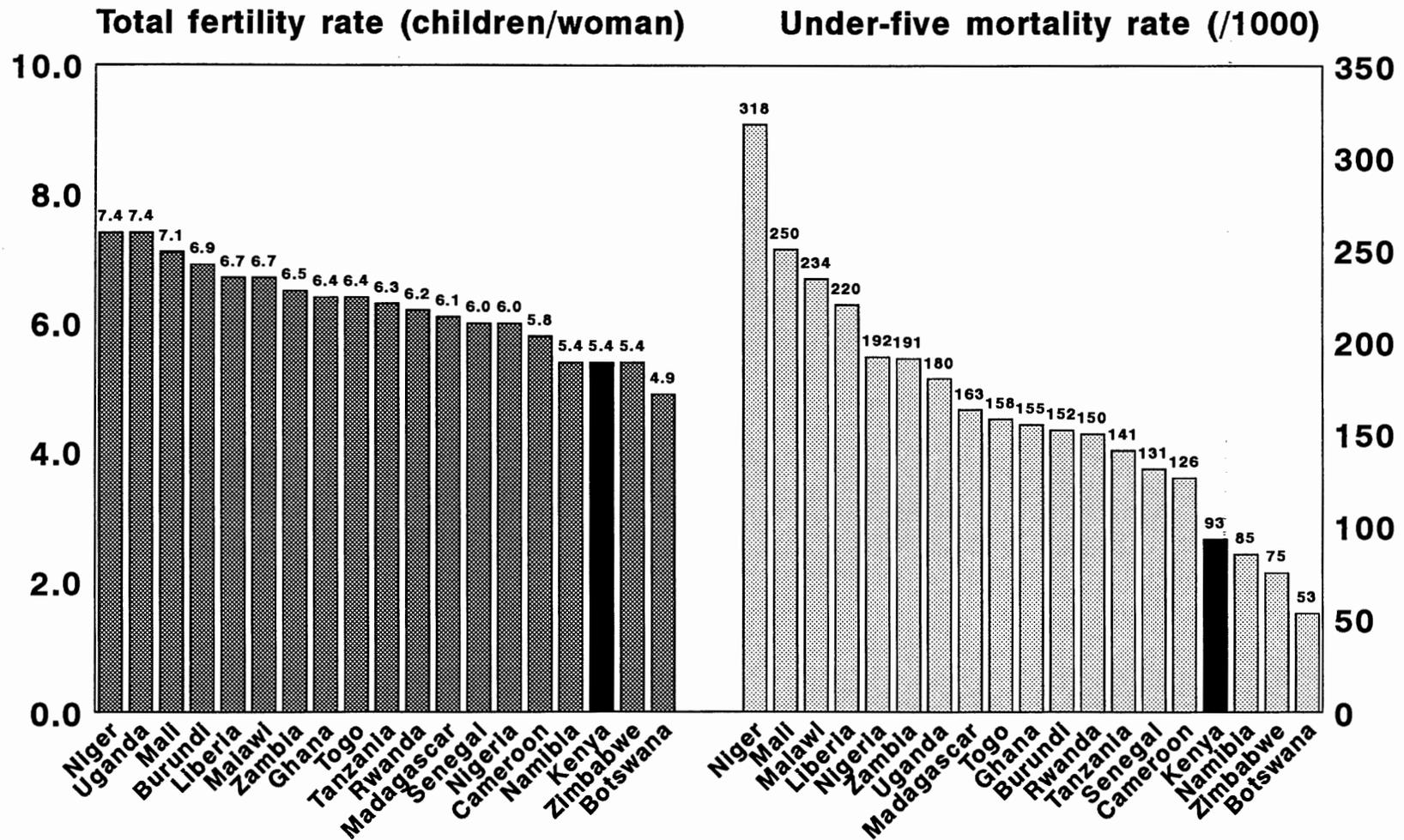


Percent

Fertility and Under-five Mortality in Kenya and other sub-Saharan Countries, DHS 1986-1993

- **The rate of childbearing in Kenya is high but falling. At current levels, Kenyan women have an average of 5.4 children by the end of their childbearing years (total fertility rate for women age 15 to 49 years), which is lower than the value for many other sub-Saharan countries surveyed.**
- **About one in ten Kenyan children die before their fifth birthday. Kenya has an under-five mortality rate of 93 deaths per 1000 births, which is in the low range for the countries surveyed. Under-five mortality has not declined between 1989 and 1993.**

Figure 15
Fertility and Under-five Mortality in Kenya
and other sub-Saharan Countries, DHS 1986-1993



Appendix

The Nutrition Standard Distribution

The assessment of nutritional status is based on the concept that in a well-nourished population the distributions of children's height and weight, for a given age, will approximate a normal distribution. This means that about 68 percent of children will have a weight within 1 standard deviation of the mean for children of that age or height, and a height within 1 standard deviation of the mean for children of that age. About 14 percent of children will be between 1 and 2 standard deviations above the mean; these are considered relatively tall or overweight for their age or fat for their height. Another 14 percent will be between 1 and 2 standard deviations below the mean; these are considered relatively short or underweight for their age or thin for their height. Of the remainder, 2 percent will be very tall or very overweight for their age or very fat for their height, and 2 percent will be very short (stunted) or very underweight for their age or very thin (wasted) for their height, i.e., these categories are more than 2 standard deviations above or below the mean.

For comparative purposes nutritional status has been determined using the International Reference Population defined by the United States National Center for Health Statistics and the Centers for Disease Control and recommended by the World Health Organization.

