
Nutrition of Infants And Young Children In Uganda

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 UGANDA

Findings from the 1989 Uganda DHS Survey

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Introduction

Undernutrition¹ is one of the most important health and welfare problems among infants and young children in Uganda. 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 food 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 Uganda data presented here are from the 1989 Uganda Demographic and Health Survey (UDHS), a nationally representative survey conducted by the Ministry of Health with technical assistance from Macro International Inc. The data presented for other sub-Saharan countries are from Demographic and Health Surveys (DHS) 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 Age 3 to 36 Months, Uganda

In Uganda:

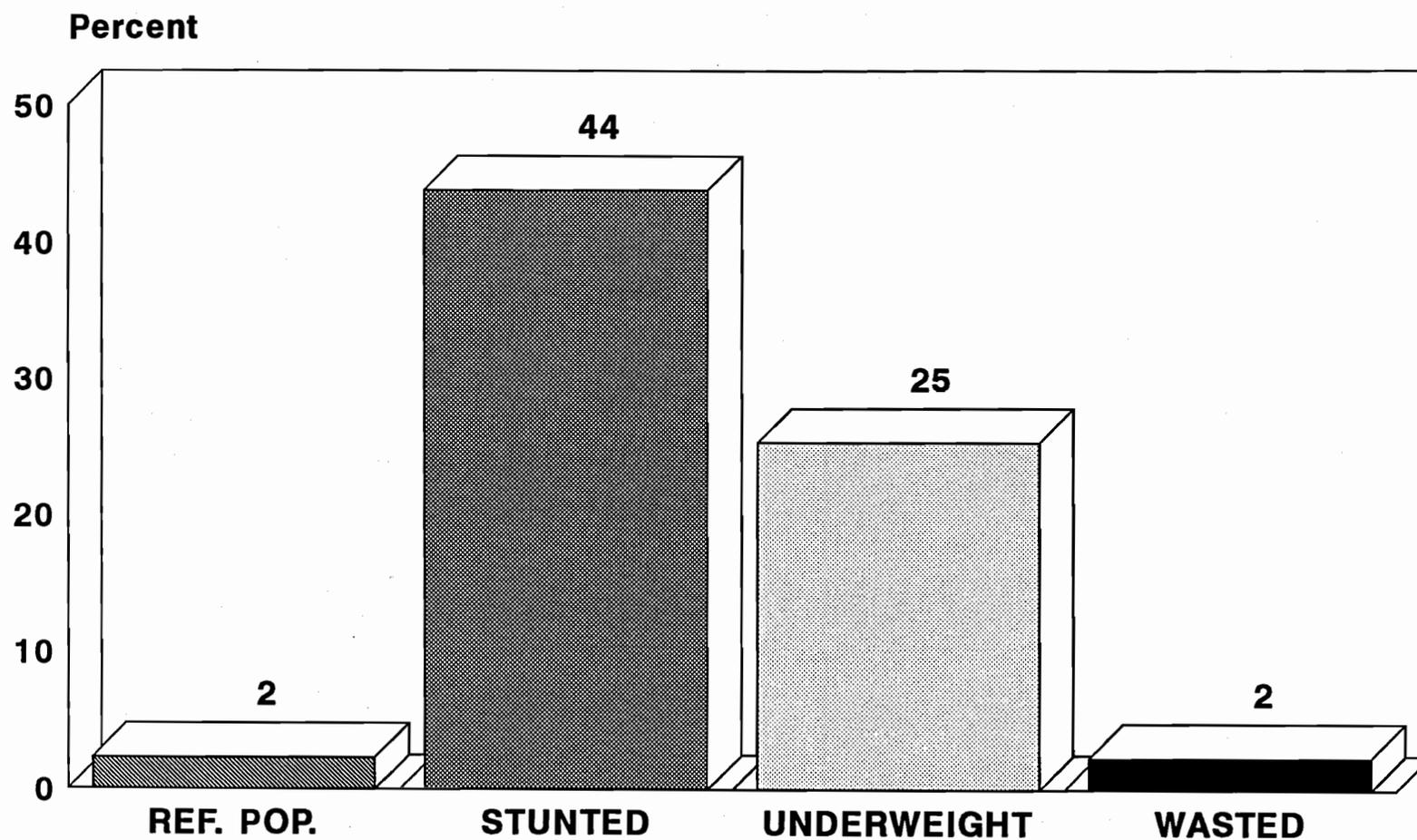
- **Nearly one in two children age 3 to 36 months is chronically undernourished.** In other words, they are too short for their age or *stunted*.¹ The proportion of children who are stunted is about **19 times** the level expected in a healthy, well-nourished population.
- **One in four children is *underweight*² for his or her age.** This is about **11 times** the level of a healthy, well-nourished population.
- **Acute undernutrition, manifested by *wasting*³,** results in a child being too thin for his or her height and is about 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 reference population. Chronic undernutrition is the result of an inadequate intake of food over a period of time and may 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 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 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 Age 3 to 36 Months, Uganda



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

UDHS 1989

Undernutrition among Children Age 3 to 36 Months in Uganda and other sub-Saharan Countries, DHS 1986-1991

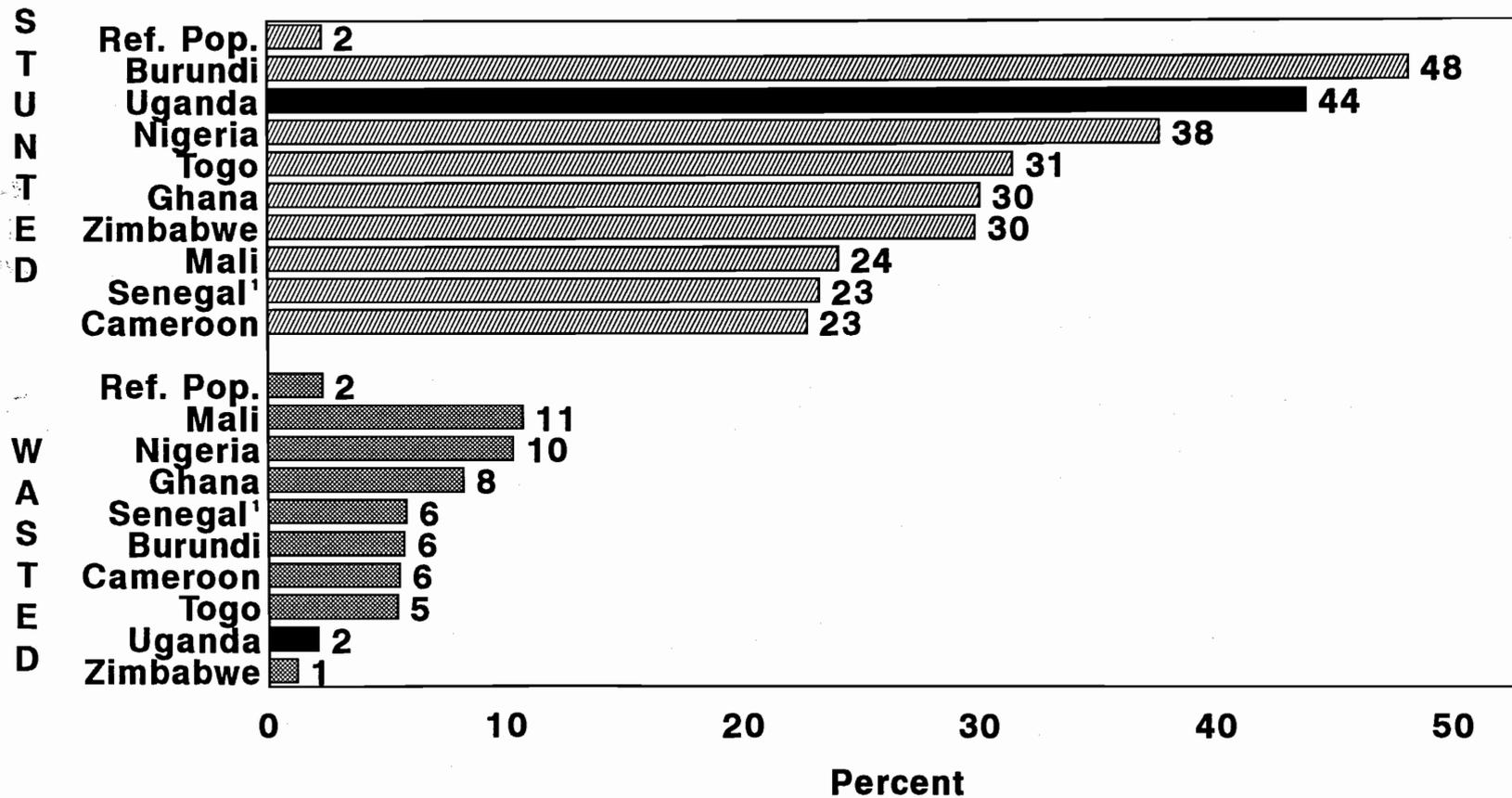
Among the sub-Saharan countries surveyed:

- **Uganda has the second highest proportion of children who are stunted.** The level of chronic undernutrition in Uganda is exceeded only by that in Burundi, which has endured prolonged periods of instability and restricted access to health care and food.
- **The level of acute undernutrition in Uganda is the second lowest of the countries surveyed.¹**
- **Where children endure prolonged periods of undernourishment, the body adjusts by reducing growth in height while maintaining weight in relation to height. This accounts for the high level of stunting but low level of wasting found in Uganda.**

¹ It is important to note that these data come from surveys carried out in different seasons between 1986 and 1991, which could affect the comparability of the results.

Figure 2

Undernutrition among Children Age 3 to 36 Months in Uganda and other sub-Saharan Countries, DHS 1986-1991



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

¹ Infants and children age 6 to 36 months.

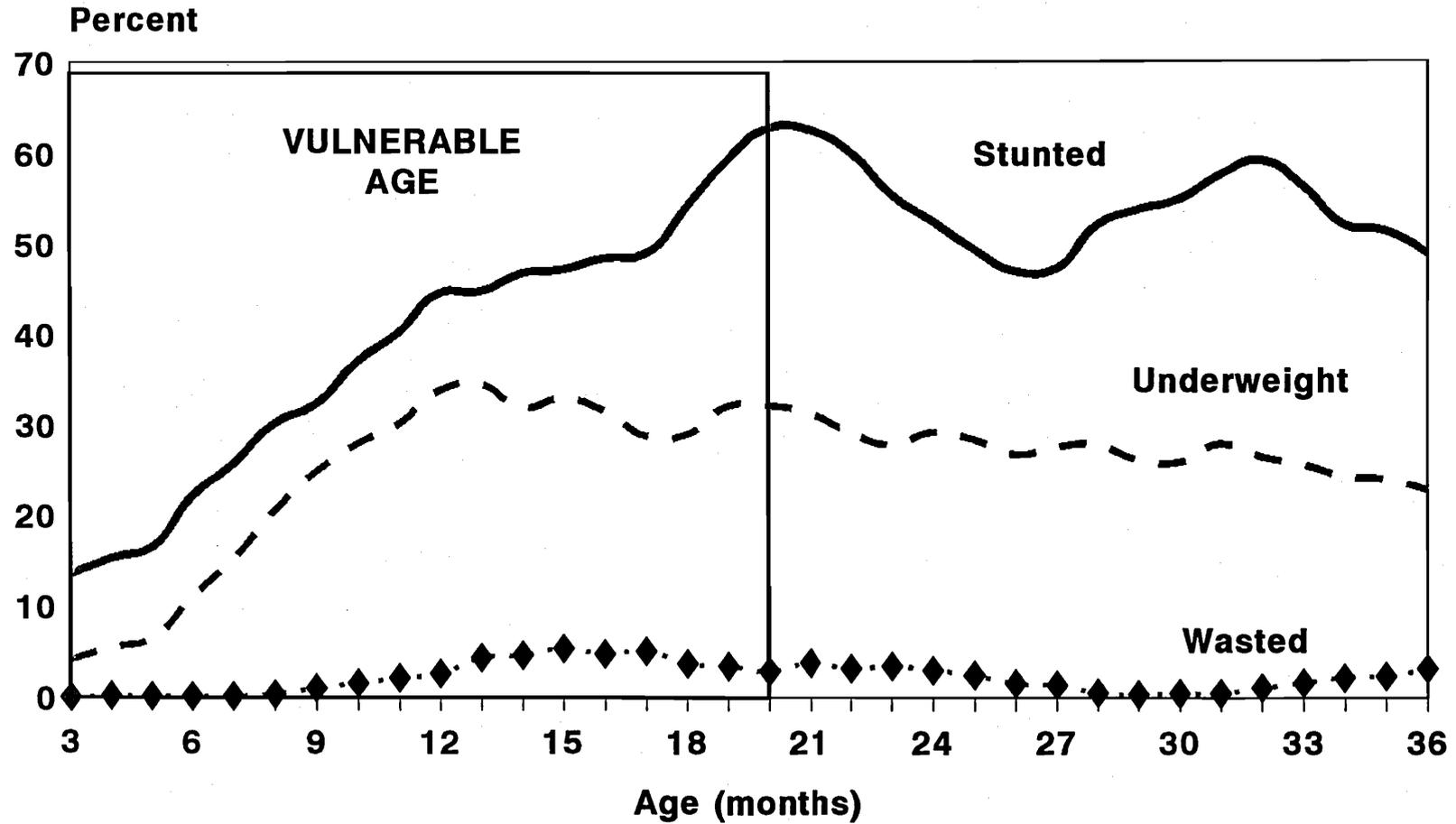
Undernutrition by Age, Uganda

In Uganda, the time between birth and 20 months of age is the vulnerable age:

- **Stunting**, indicating chronic undernutrition, begins very early in life and increases until, by 18 months of age, it affects more than **one in two** children.
- The proportion of children **underweight** increases to over **three in ten** by age 12 months.
- **Wasting**, indicating acute malnutrition, peaks between 15 and 17 months and affects **one in twenty** children.

Figure 3

Undernutrition by Age, Uganda



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

Feeding Practices for Infants under 4 Months, Uganda

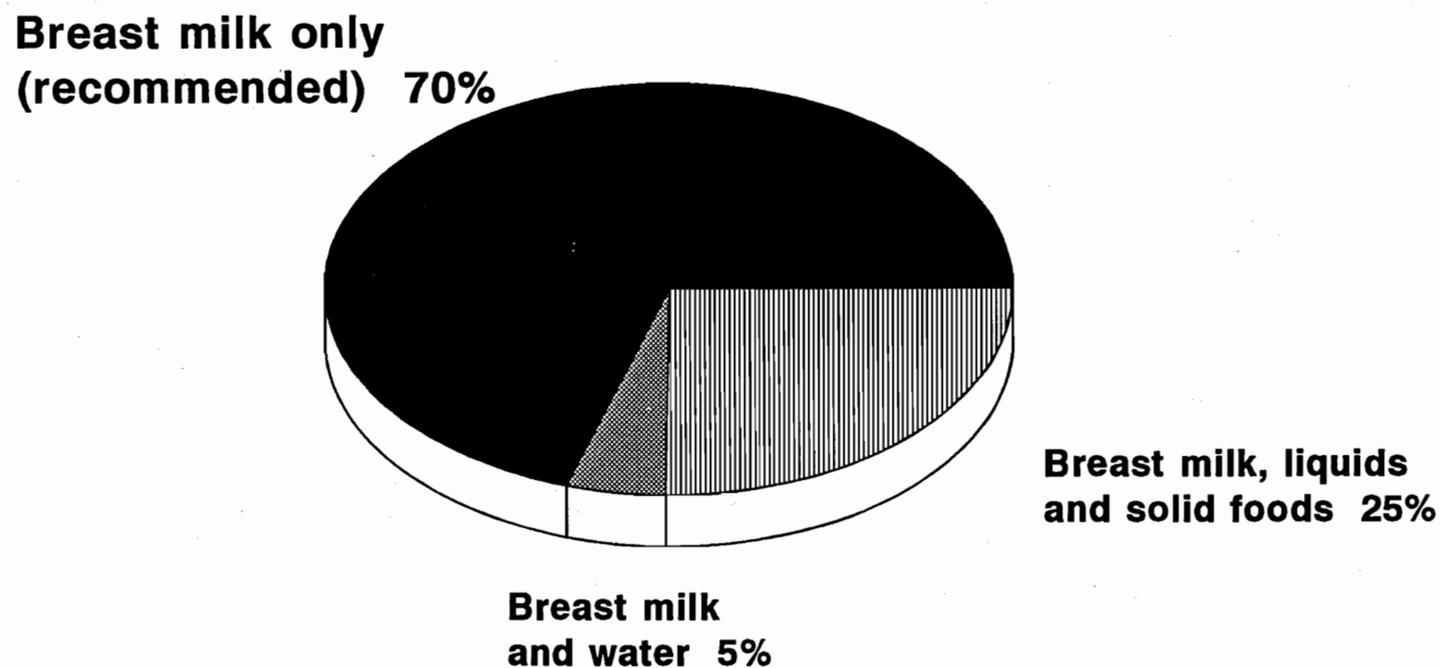
Feeding patterns, in addition to diarrhoeal disease, are important determinants of undernutrition.¹ The World Health Organization (WHO) recommends that all infants be exclusively breastfed from birth to 4 to 6 months of age. In other words they should be fed only breast milk.

In Uganda, the introduction of liquids, such as water, sugared water, juice, artificial 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.

- **Seven in ten** Ugandan children under the age of 4 months are **exclusively breastfed**, as recommended by WHO.
- **One-quarter** of the infants under 4 months are given some form of supplemental feeding, **contrary to recommendations**.
- To a large extent, the failure of 30 percent to exclusively breastfeed for the first 4 to 6 months of life accounts for the rapid increase in undernutrition among young infants.

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

Figure 4 Feeding Practices for Infants under 4 Months, Uganda



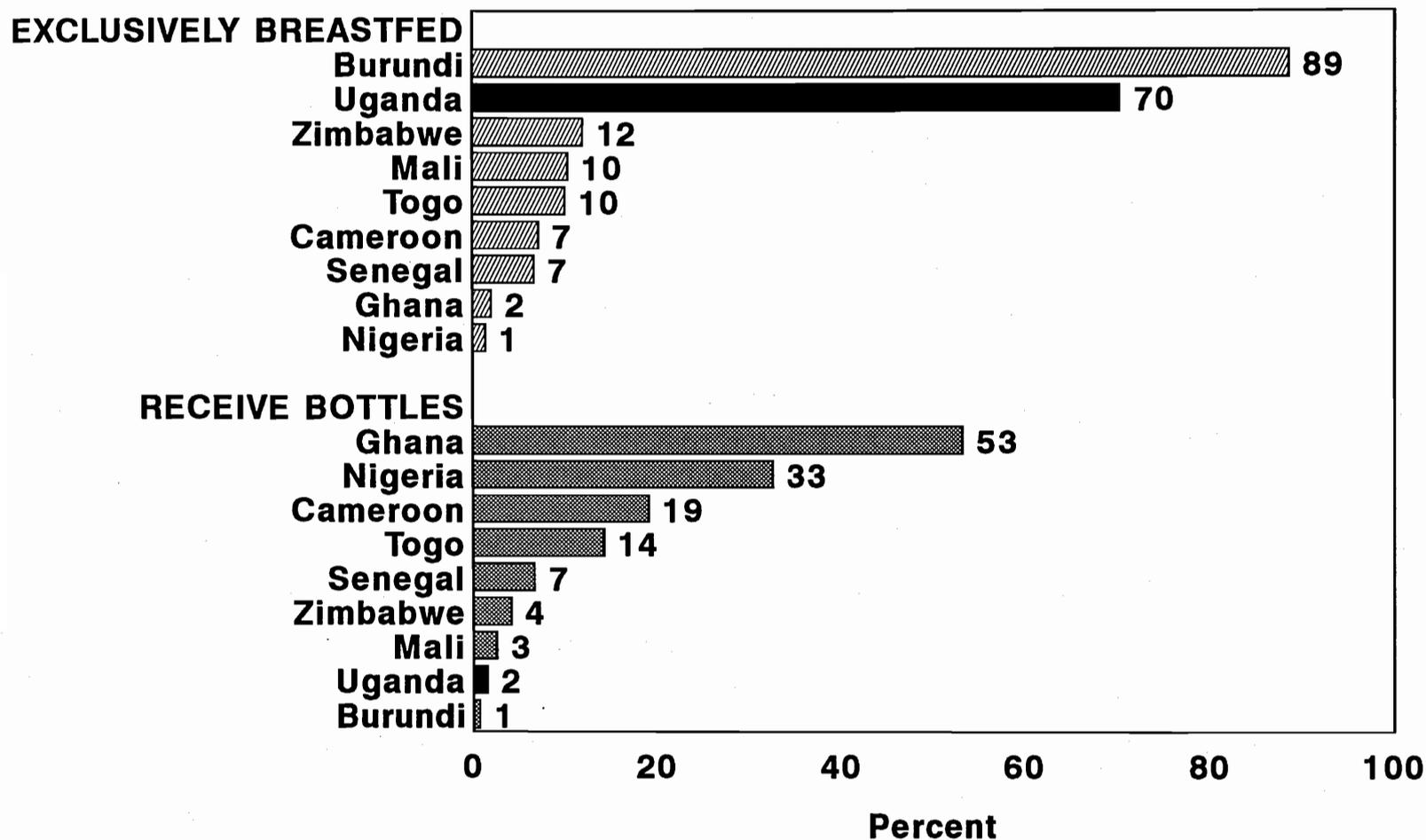
Note: WHO recommends that all infants be breastfed exclusively until they are 4 to 6 months old.

Infants under 4 Months Who Are Exclusively Breastfed and Those Who Receive Supplemental Bottles, in Uganda and other sub-Saharan Countries, DHS 1986-1991

The lack of exclusive breastfeeding and the too early introduction of liquids and solid foods increase the risk of diarrhoeal disease, a highly important cause of mortality in Africa.

- **Among the surveyed sub-Saharan countries, Uganda and Burundi have the greatest number of mothers of infants under four months who follow the recommended practice of exclusive breastfeeding.**
- **Bottle feeding, a non-recommended practice, is rarely used by Ugandan mothers of infants under four months. Only Burundi has a lower rate of bottle use among the countries surveyed.**

Figure 5
Infants under 4 Months Who Are Exclusively Breastfed
and Those Who receive Supplemental Bottles,¹ in Uganda and
other sub-Saharan Countries, DHS 1986-1991



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

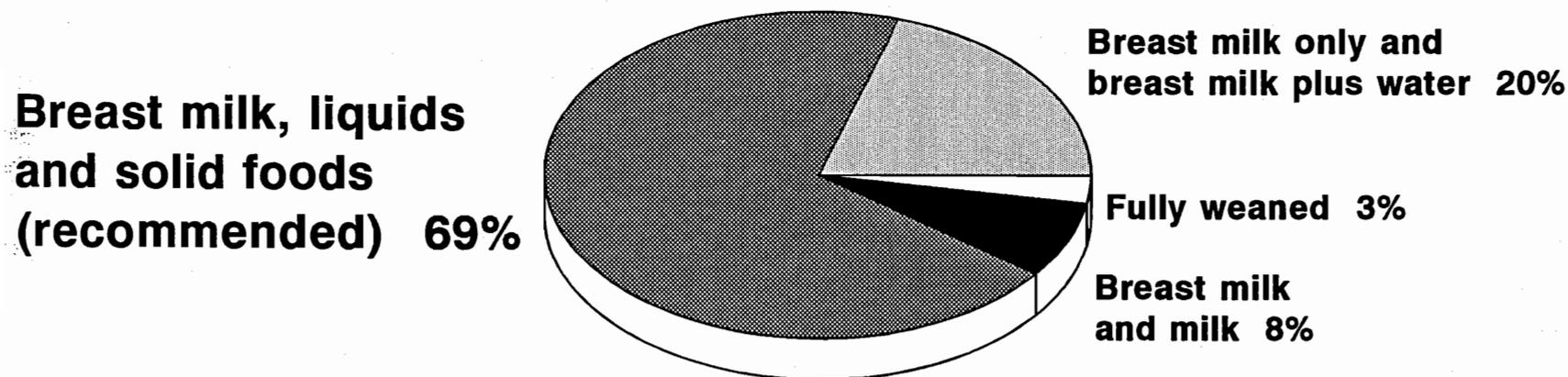
¹Information on feeding practices is based on the 24 hours preceding the survey.

Feeding Practices for Infants Age 6 to 9 Months, Uganda

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.

- **Just over two-thirds of Ugandan infants age 6 to 9 months are fed solid food in addition to breast milk. In other words, only about two-thirds of the infants between the ages of 6 and 9 months are fed according to the recommended practice.**
- **Twenty percent of infants age 6 to 9 months are still fully breastfed, less than 10 percent are fed only milk in addition to breast milk, and less than 5 percent are fully weaned from the breast.**

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



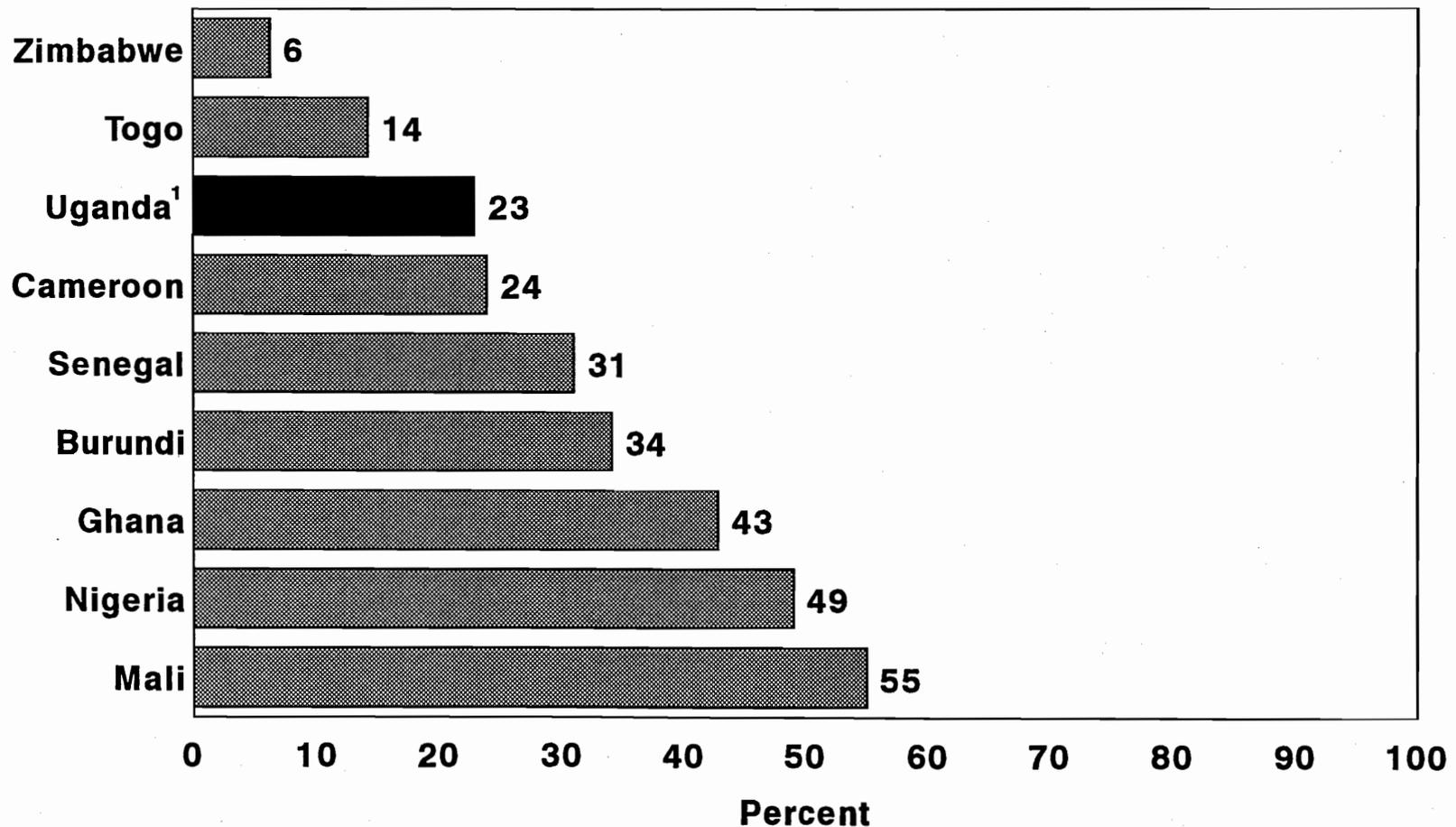
Note: WHO recommends that by the age of 6 months all infants should receive solid foods in addition to breast milk.

Infants 6 to 9 Months Not Receiving Food¹ in Addition to Breast Milk in Uganda and other sub-Saharan Countries, DHS 1986-1991

- **In Uganda one-quarter of the infants age 6 to 9 months are not fed complementary food and liquids.** Because in Uganda it is not possible to separate complementary liquids from complementary solids, it is difficult to compare the data with the World Health Organization recommendations. Nevertheless, Uganda appears to fall in the middle range of the countries surveyed in terms of the proportion of infants that receive both breast milk and solid foods.

¹ Although the Uganda survey asked specifically about milk it did not differentiate between other liquids and solids. For this reason data are presented for liquids and solids combined.

Figure 7
Infants 6 to 9 Months Not Receiving
Food in Addition to Breast Milk in Uganda
and other sub-Saharan Countries, DHS 1986-1991



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

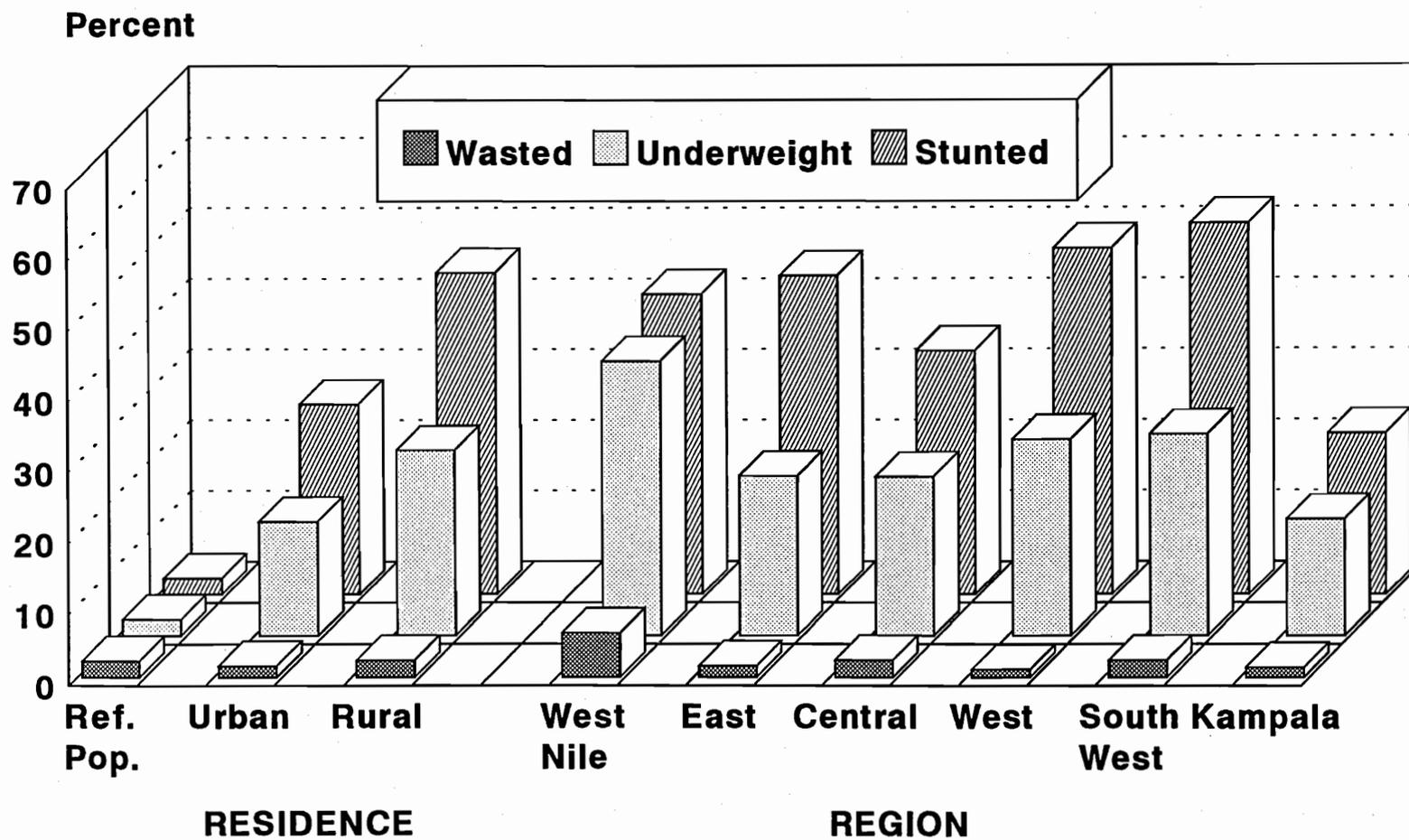
¹Includes liquids.

Undernutrition among Children Age 3 to 36 Months by Residence and Region, Uganda

In Uganda:

- **Stunting occurs among almost one in two children age 3 to 36 months in rural areas, where 90 percent of the Ugandan population lives.**
- **One in four urban children is stunted.**
- **About one in two children in the West Nile, East, West, and South West regions is stunted versus one in three in the Central region and one in four in Kampala.**
- **Wasting and underweight are prevalent in all areas of Uganda, but more so in the West Nile region and rural areas.**

Figure 8
Undernutrition among Children Age 3 to 36 Months by Residence and Region, Uganda



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

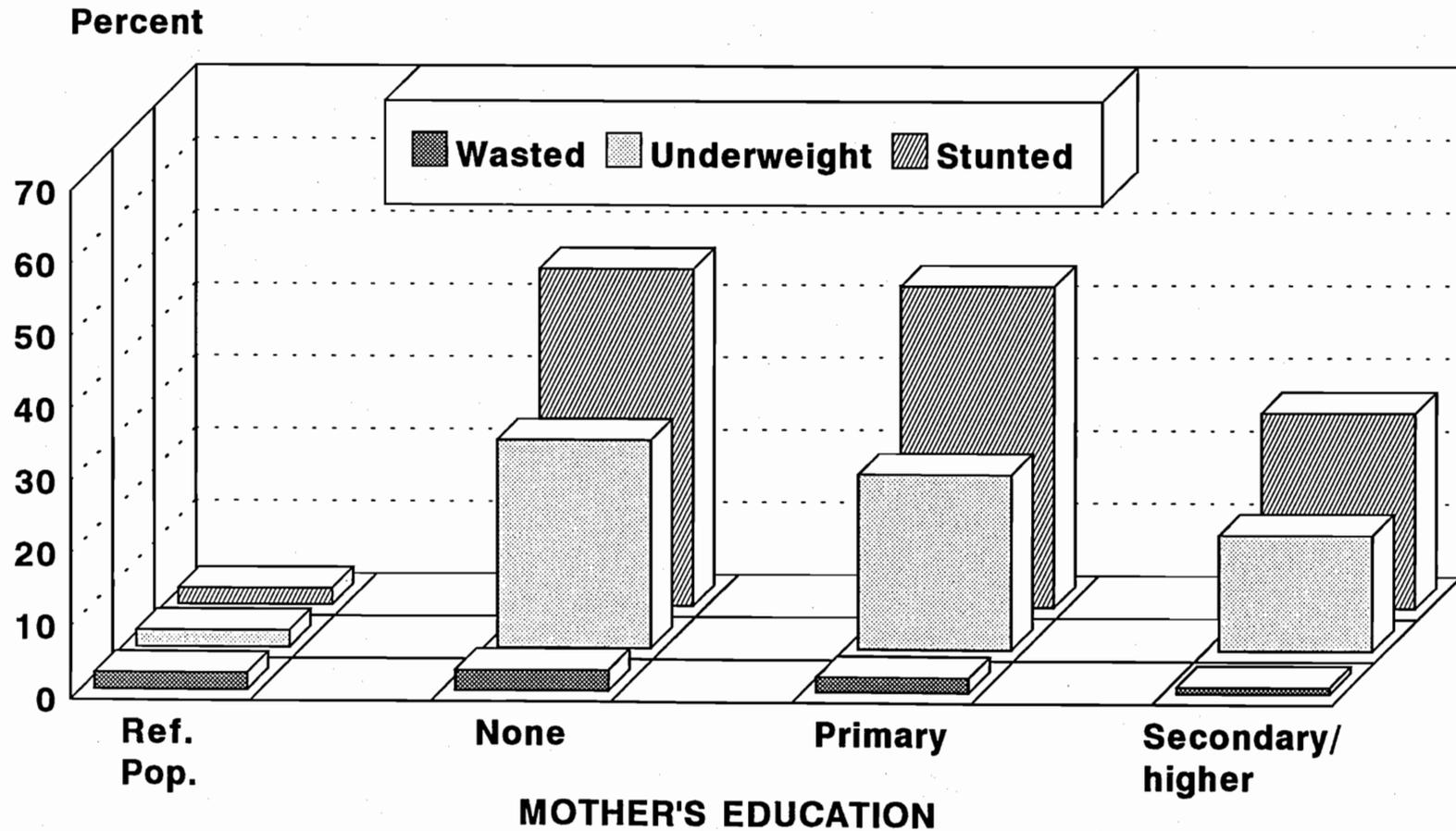
Undernutrition among Children Age 3 to 36 Months by Mother's Education, Uganda

Maternal education is related to both a knowledge of good child-care practices and household wealth. Nearly 40 percent of Ugandan mothers have never attended school but there are large regional variations. Over 60 percent of mothers in the West Nile region and about 50 percent in the South West region have never been to school, whereas between 20 and 40 percent of mothers in the remaining regions have never been to school.

- **Undernutrition is considerably higher among children of mothers with no education or only primary education than among children of mothers with secondary or higher education.**
- **One in four children of mothers with secondary or higher education is stunted, whereas almost one in two children of mothers with no education is stunted.**

Undernutrition 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 9
Undernutrition among Children Age 3 to 36 Months by
Mother's Education, Uganda



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

UDHS 1989

Undernutrition among Children Age 3 to 36 Months by Source of Water and Type of Toilet, Uganda

The source of water and type of toilet owned are representative of both household wealth and environmental sanitation. Poor households are more likely to obtain water from open-air sources or wells, and are less likely to have toilet facilities. Where water is not readily available, food hygiene is often inadequate. Furthermore, poor sanitation results in an increased number of insects (particularly flies), thus increasing the risk of food contamination. Both of the above increase the risk of diarrhoeal disease, which can result in undernutrition.

- **About 35 percent of Ugandan households obtain water from rivers or other open-air sources, over 60 percent use a community water supply (well or public pipe), and less than 5 percent have water piped to their homes.**
- **One in seven households has no toilet facilities, eight out of ten have pit latrines, and less than one in twenty has a flush toilet.**

Infants and children from households that have neither a private water supply nor a flush toilet are at greater risk of being undernourished than those from households with these amenities. 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 the household food supply and the ability to have a private water supply and flush toilet. Although the availability of a private water supply or a flush toilet may be associated with a reduced risk of a child being undernourished, they do not ensure that a child will be well nourished.

- **Even among households using a community water supply, more than four in ten children are too short for their age as are four in ten children from households with a pit latrine.**
- **One in four children from households using a community water supply is underweight as is one in four children from households with a pit latrine.**

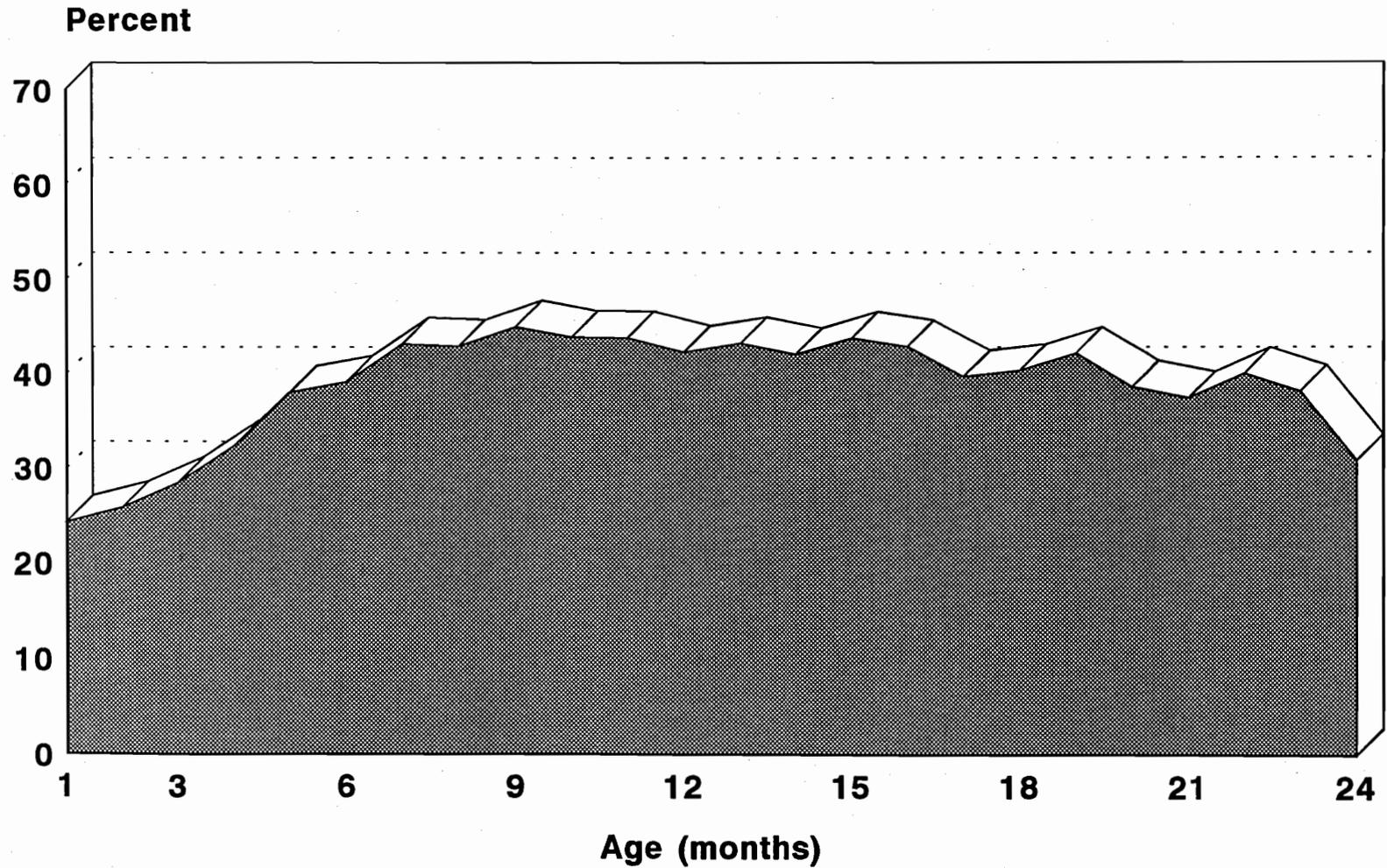
Age-related Pattern of Diarrhoea among Children Age 1 to 24 Months, Uganda

In Uganda:

- **The prevalence of diarrhoea is already high among young infants and increases rapidly and dramatically among infants under 6 months of age. The level of diarrhoea remains high among children 6 to 15 months of age after which it begins to decline.**
- **The age-related pattern of diarrhoeal disease is similar to that for undernutrition. This is not surprising given that diarrhoea is a major determinant of 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 11
Age-related Pattern of Diarrhoea among
Children Age 1 to 24 Months, Uganda



UDHS 1989

Prevalence of Diarrhoea, Fever, and Cough among Children Age 1 to 24 Months¹ in Uganda and other sub-Saharan Countries, DHS 1986-1991

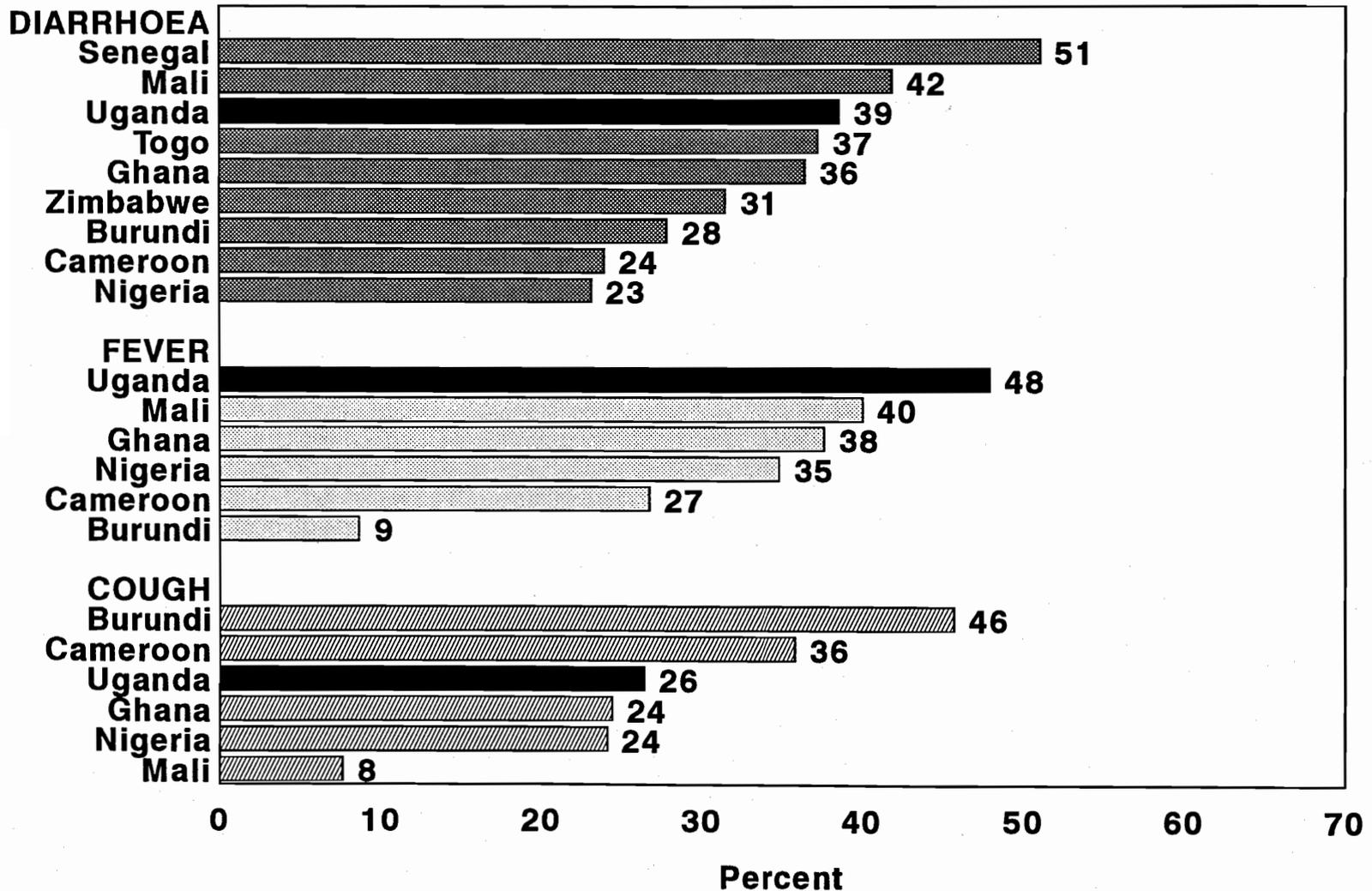
- **More than one in three Ugandan children under 24 months had diarrhoea in the two weeks preceding the survey; this level is one of the highest among the sub-Saharan countries surveyed.**
- **Nearly one in two Ugandan children was reported to have had fever in the preceding four weeks. This is the highest level found in the countries surveyed.**
- **About one in four Ugandan children was reported to have had a cough or rapid breathing, in the preceding four weeks. This is comparable to the level for Ghana and Nigeria, considerably higher than that for Mali, and lower than that for Burundi and Cameroon.**

It must be borne in mind that a mother's perception of diarrhoea may differ by country and this could influence these findings. Furthermore, there are seasonal patterns in the prevalence of diarrhoea, fever, and respiratory illness and also inter-country differences which must be taken into account when comparing the results of the various Demographic and Health Surveys.

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

Figure 12

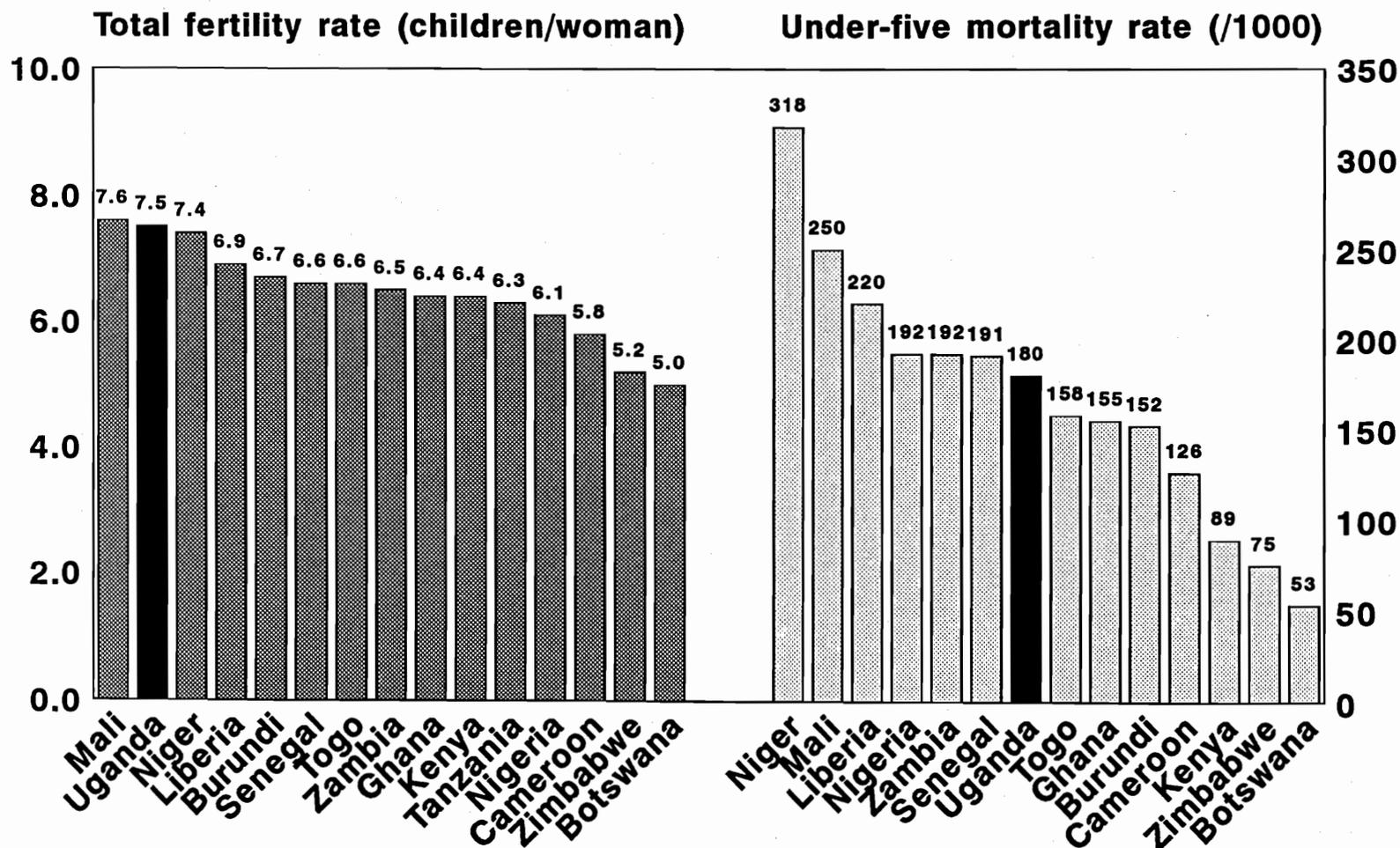
Prevalence of Diarrhoea, Fever, and Cough among Children Age 1 to 24 Months in Uganda and other sub-Saharan Countries, DHS 1986-1991



Fertility and Child Mortality in Uganda and other sub-Saharan Countries, DHS 1986-1992

- **The rate of childbearing in Uganda is very high. At current levels, Ugandan women have an average of 7.5 children by the end of their childbearing years (total fertility rate for women age 15 to 49 years), which is second only to that of Mali.**
- **Almost one in five Ugandan children die before their fifth birthday. Uganda has a very high under-five mortality rate of 180 deaths per 1000 births. It is likely that the very high mortality rate in Uganda is related to the high levels of undernutrition in that country.**

Figure 13
Fertility and Child Mortality in Uganda and
other sub-Saharan Countries, DHS 1986-1992



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.