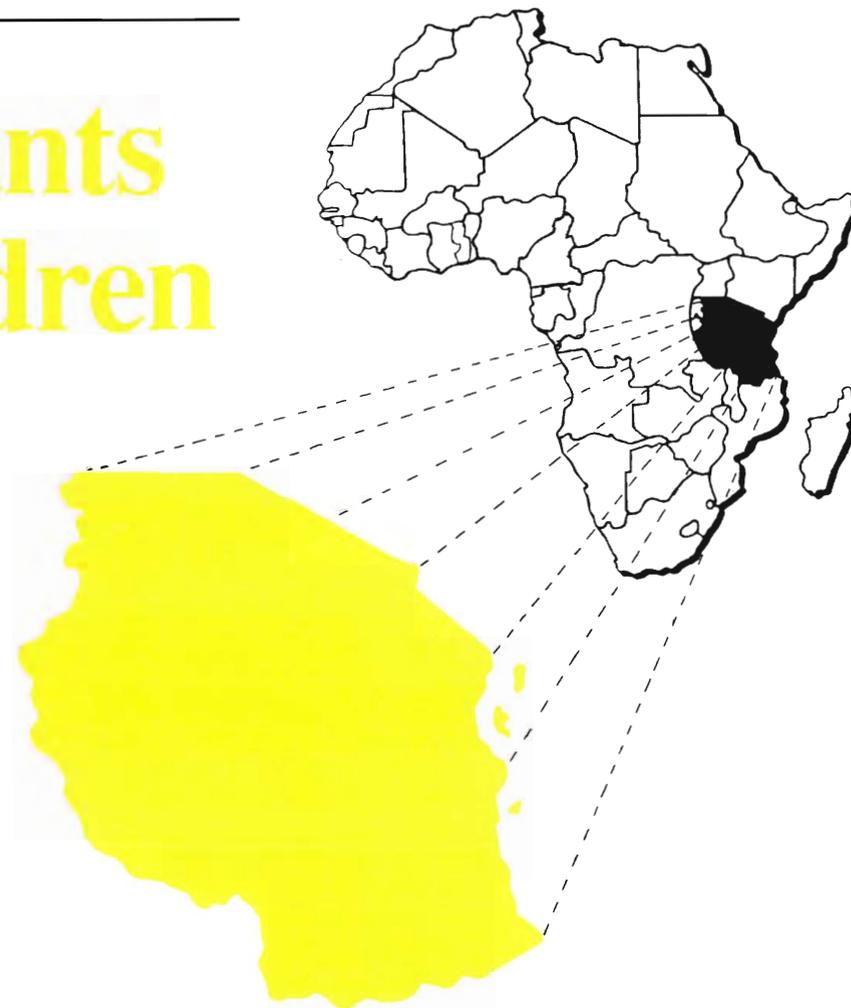

Nutrition of Infants And Young Children In Tanzania

AFRICA NUTRITION CHARTBOOKS



U.S. Agency for International Development
AFR/ARTS and R&D/N



Macro International Inc.



Food Security and Nutrition Monitoring Project

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NUTRITION OF INFANTS AND YOUNG CHILDREN IN TANZANIA

Findings from the 1991/1992 Tanzania DHS Survey

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Introduction

Undernutrition¹ is one of the most important health and welfare problems among infants and young children in Tanzania. 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 Tanzanian data presented here are from the 1991/1992 Tanzania Demographic and Health Survey (TDHS), a nationally representative survey conducted by the Bureau of Statistics, President's Office, Planning Commission, Dar es Salaam, 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, Tanzania

In Tanzania:

- **More than two in five children under 5 years are chronically undernourished.** In other words, they are too short for their age or *stunted*.¹ The proportion of children stunted is about **19 times** the level expected in a healthy, well-nourished population.
- **Nearly one in three children is *underweight*² for their age.** This is **13 times** the level in a healthy, well-nourished population.
- **One in 17 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.

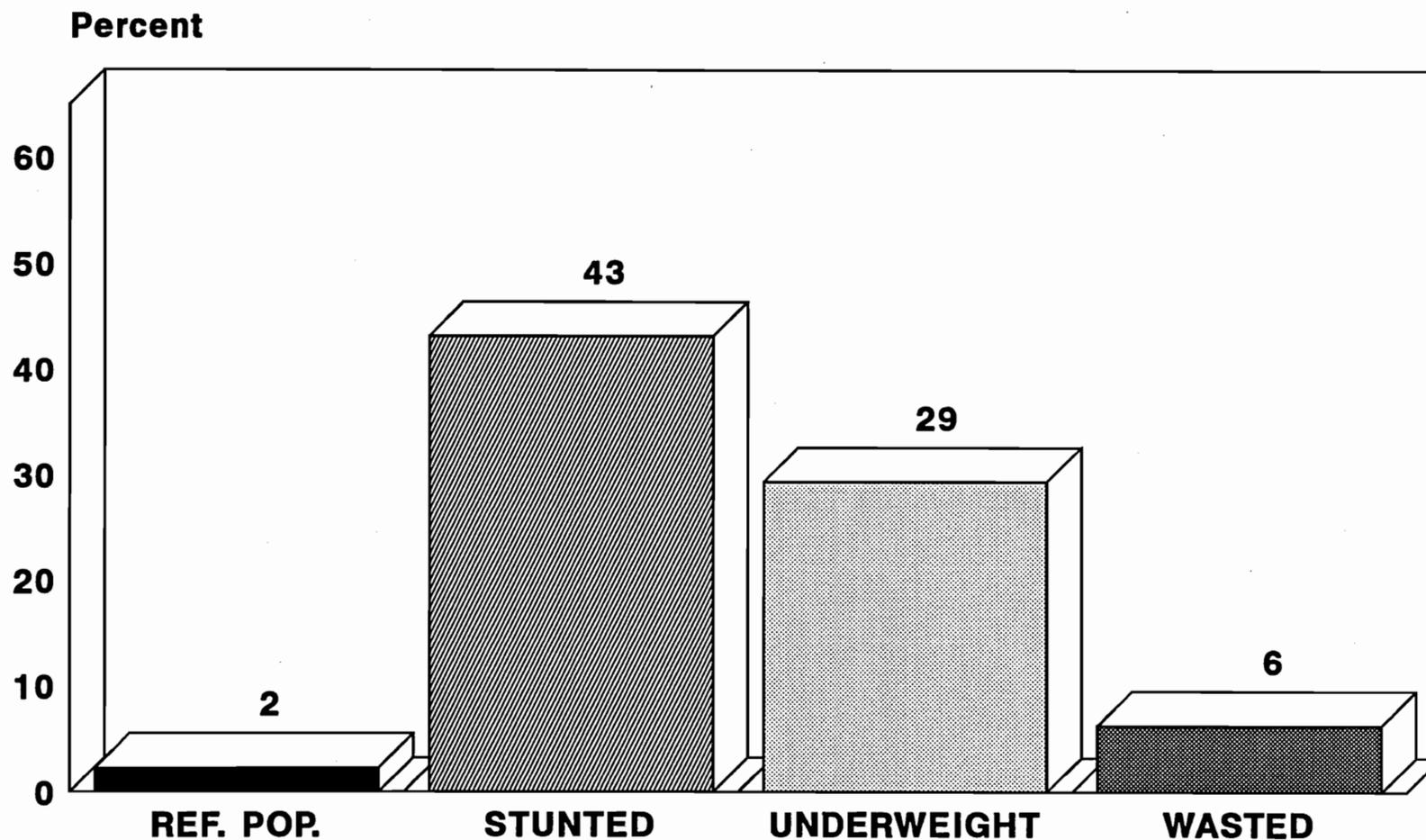
¹ A *stunted* child has a height-for-age Z-score that is below -2 SD based on the NCHS/CDC/WHO international reference population. Chronic undernutrition is the result of an inadequate intake of food over a period of time and could also be affected by chronic illness.

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, Tanzania



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 Tanzania and other sub-Saharan Countries, DHS 1986-1992

Among the sub-Saharan countries surveyed:

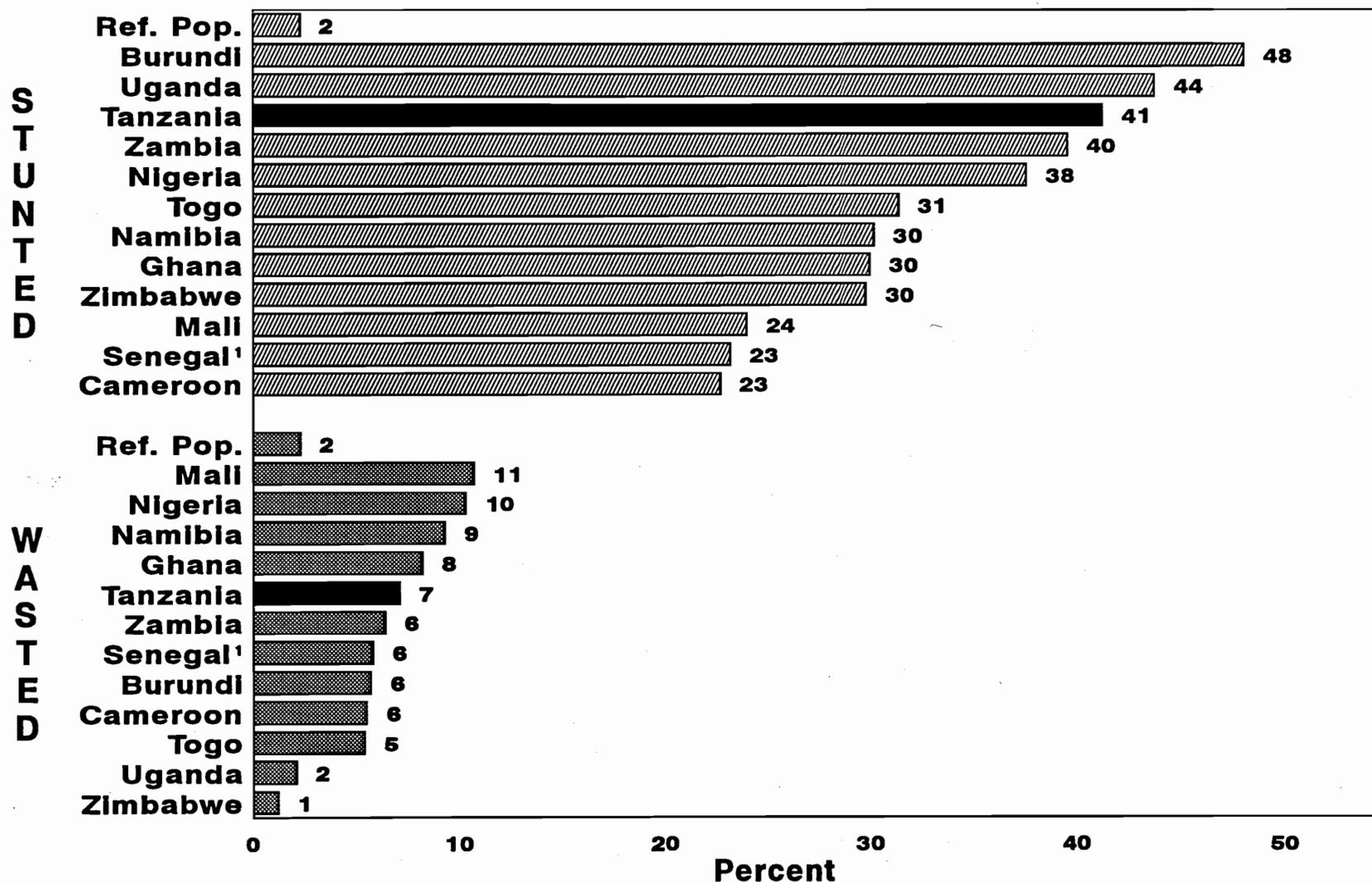
- **Tanzania has the third highest proportion of children who are stunted. Higher levels of stunting are found only in Burundi and Uganda.**
- **At three times the level of a well-nourished population, acute undernutrition in Tanzania is similar to the level found in many other sub-Saharan countries.²**

¹ Unlike Tanzania, 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 1992, which could affect the comparability of the results.

Figure 2

Undernutrition among Children Age 3 to 36 Months in Tanzania and other sub-Saharan Countries, DHS 1986-1992



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

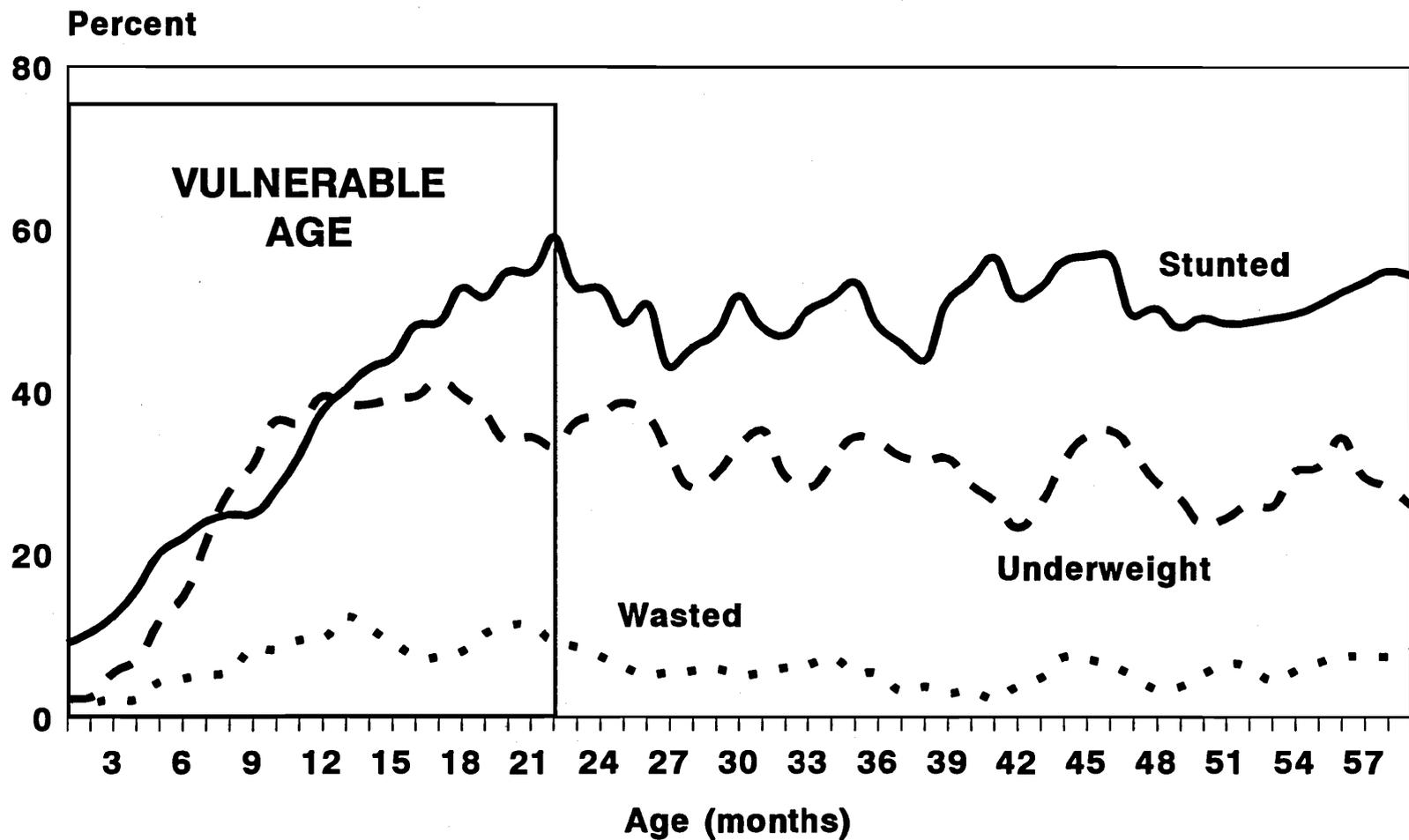
¹ Infants and children age 6 to 36 months

Undernutrition by Age, Tanzania

In Tanzania, the time between 1 and 22 months of age is the vulnerable age:

- **Stunting**, indicating chronic malnutrition, begins early in life and increases until 22 months of age when it affects more than **one in two** children.
- The proportion of children **underweight** increases to over **four in ten** by the age of 12 months.
- **Wasting**, indicating acute malnutrition, peaks between 12 and 15 months of age and again at 20 months when it affects more than **one in eight** children.

Figure 3 Undernutrition by Age, Tanzania



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

TDHS 1992

Feeding Practices for Infants under 4 Months, Tanzania

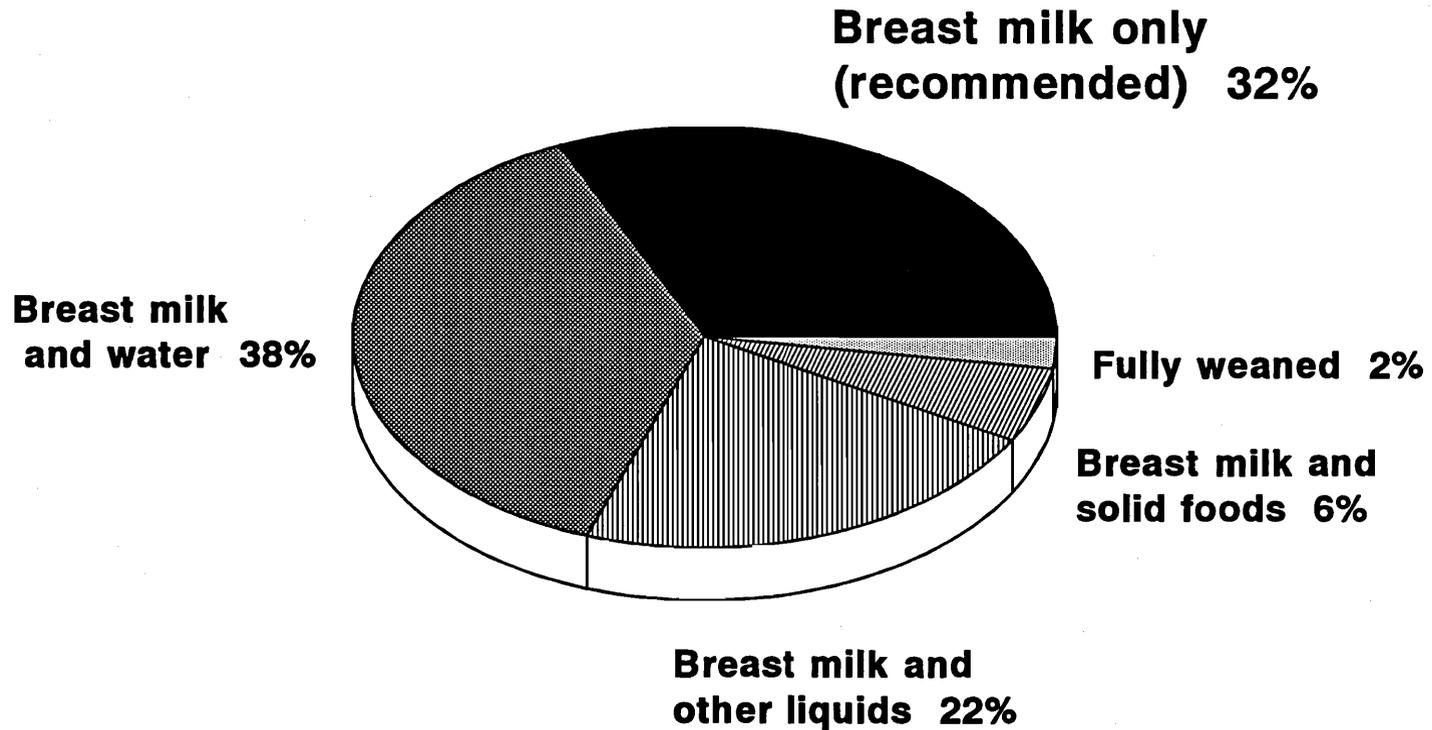
Feeding patterns, as well as diarrhoeal disease, are important determinants of undernutrition.¹ The World Health Organization (WHO) recommends that all infants be exclusively breastfed from birth to 4 to 6 months of age. In other words they should be fed only breast milk.

In Tanzania, 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.

- **Only one in three Tanzanian children under the age of 4 months is exclusively breastfed, as recommended by WHO.**
- **Nearly three 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, Tanzania



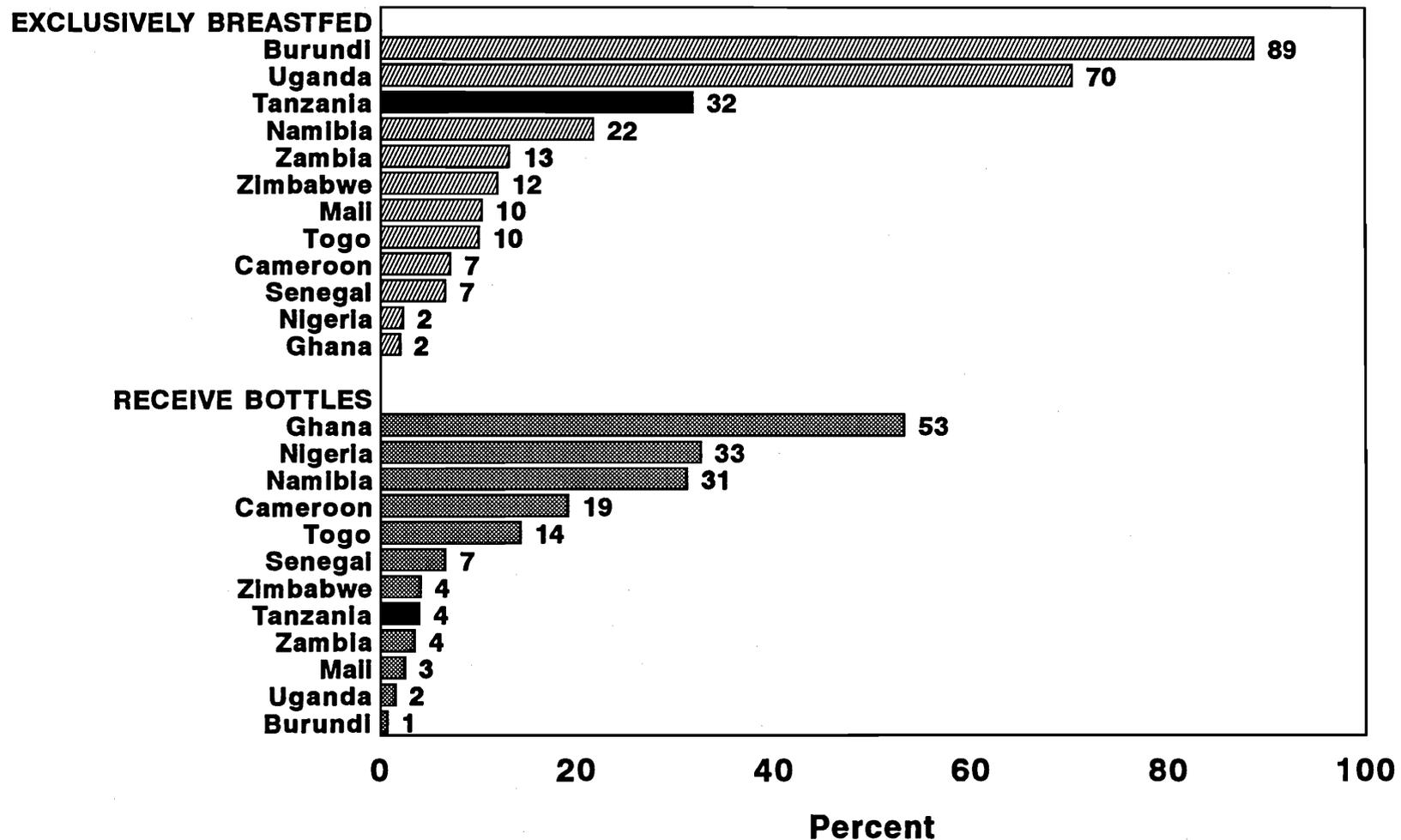
Note: WHO recommends that all infants be breastfed exclusively until they are 4 to 6 months old.

Infants under 4 Months Who Are Exclusively Breastfed and those Who Receive Supplemental Bottles, in Tanzania and other sub-Saharan Countries, DHS 1986-1992

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 few mothers of infants under 4 months follow the recommended practice of exclusive breastfeeding. Although **Tanzania has the third highest proportion of infants who are exclusively breastfed**, two thirds of the infants are fed inappropriately. In contrast, almost all infants are exclusively breastfed in Burundi.
- **Bottle feeding, a non-recommended practice, is used by very few Tanzanian mothers for infants under 4 months.**

Figure 5
Infants under 4 Months Who Are Exclusively Breastfed and Those Who Receive Supplemental Bottles¹, in Tanzania and other sub-Saharan Countries, DHS 1986-1992



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

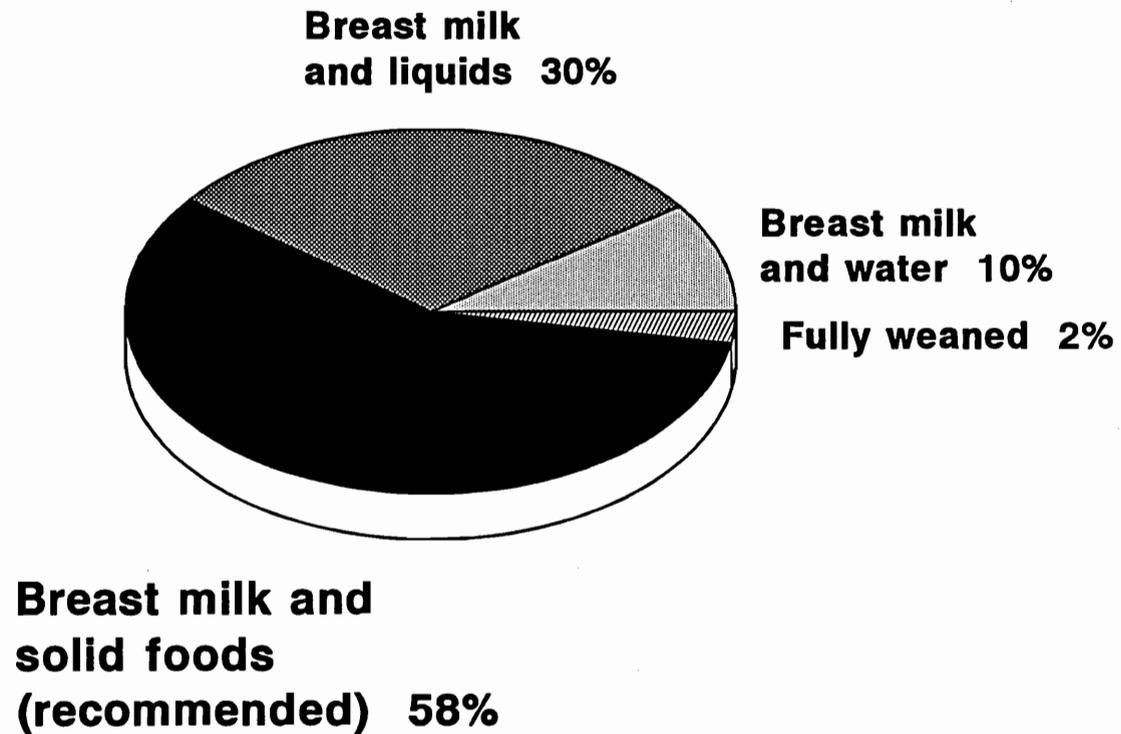
¹Information on feeding practices is based on the 24 hours preceding the survey.

Feeding Practices for Infants Age 6 to 9 Months, Tanzania

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 six out of 10 Tanzanian infants age 6 to 9 months are fed solid food in addition to breast milk. In other words, only sixty percent of the infants between the ages of 6 and 9 months are fed according to the recommended practice.**
- **Ten percent of infants age 6 to 9 months are still fully breastfed; 30 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, Tanzania



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

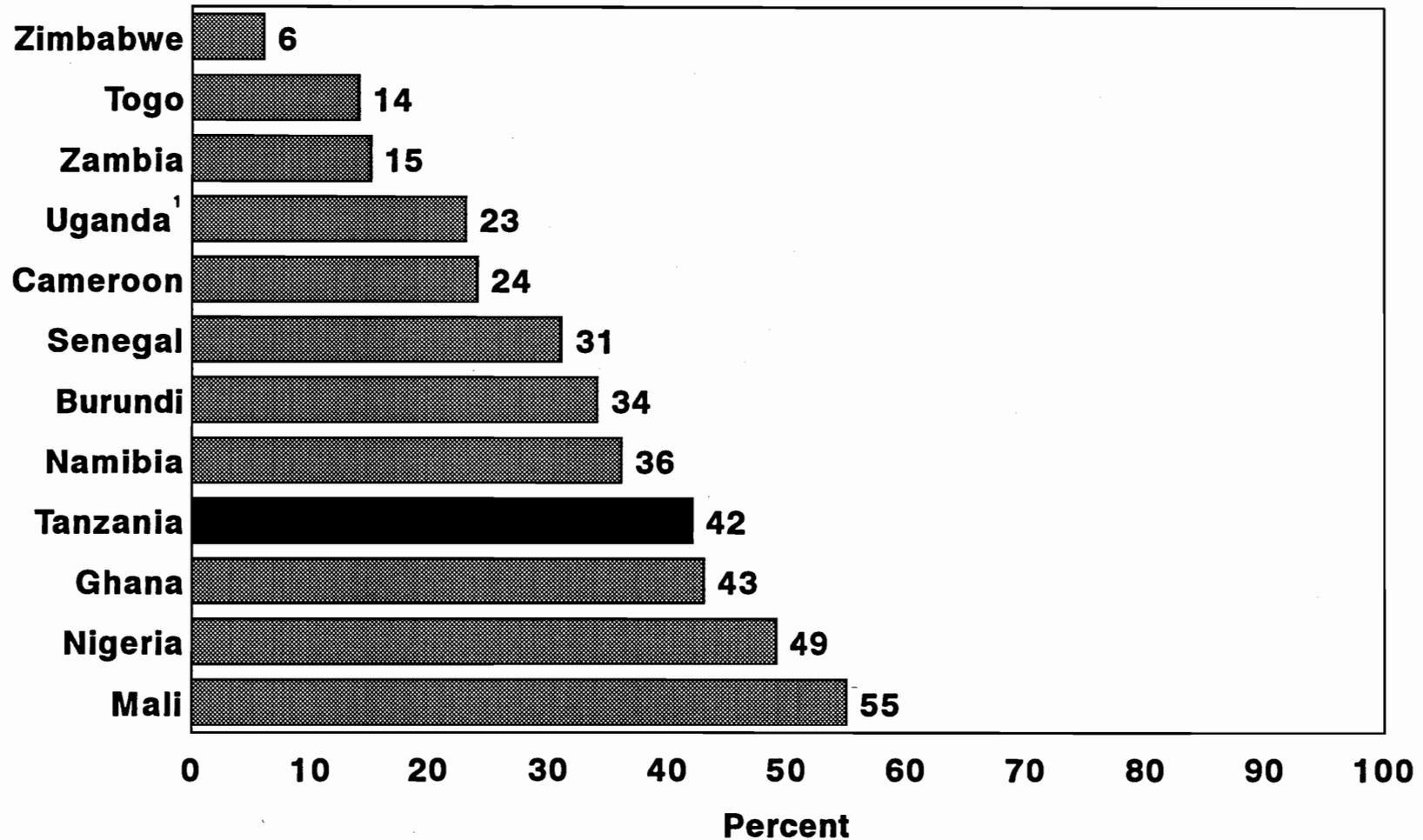
TDHS 1992

Infants 6 to 9 Months Not Receiving Food in Addition to Breast Milk in Tanzania and other sub-Saharan Countries, DHS 1986-1992

- **In Tanzania over 40 percent of the infants age 6 to 9 months are not fed according to the World Health Organization recommendations. This is the fourth highest 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 Tanzania and other sub-Saharan Countries, DHS 1986-1992



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

¹Includes liquids.

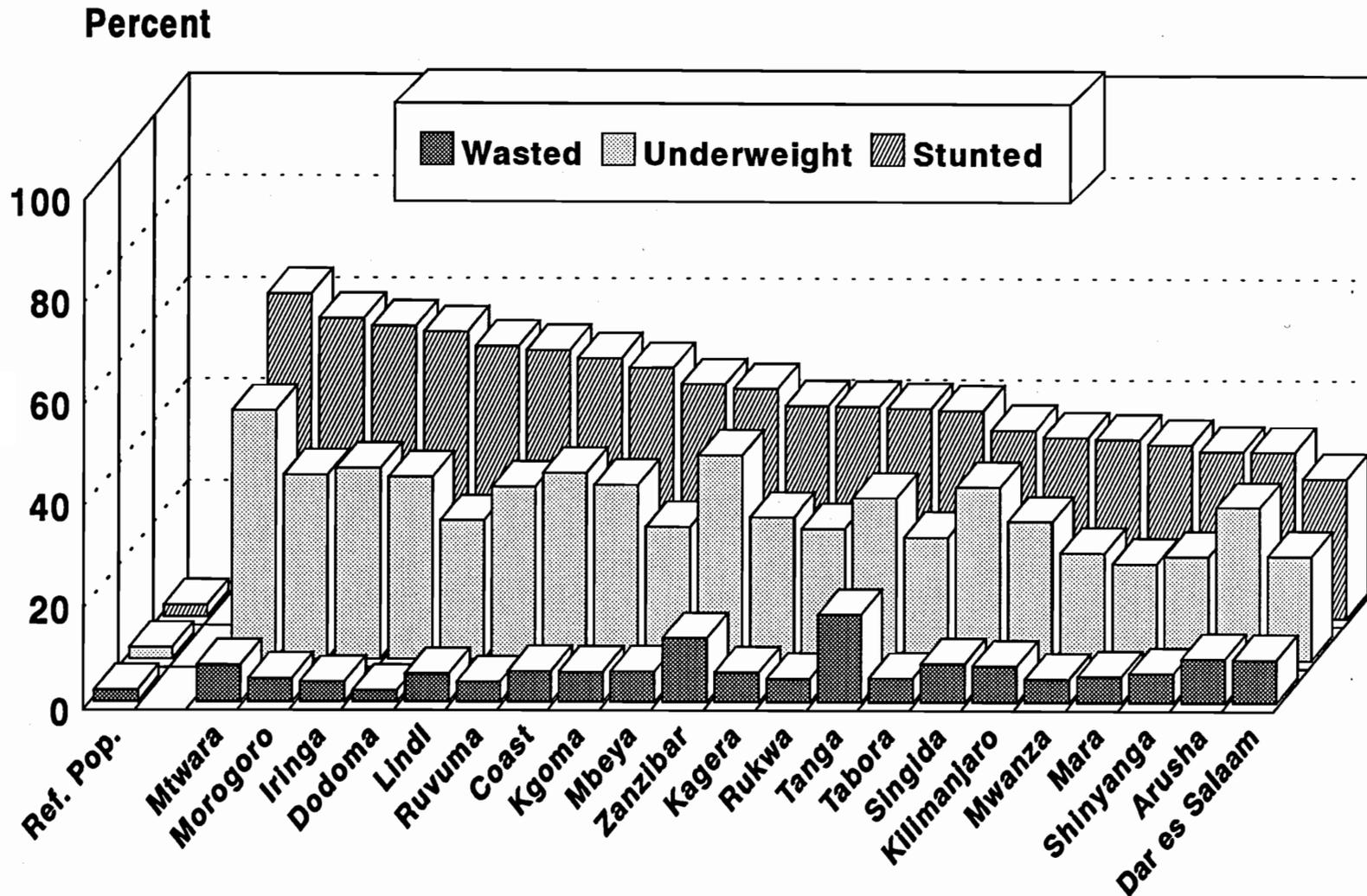
Undernutrition among Children under 5 Years by Region, Tanzania

In Tanzania:

- **More than one in two children in Mtwara, Morogoro, Iringa, Dodoma, Lindi, Ruvuma, and Coast regions is stunted. Stunting is lowest in Dar es Salaam, where about one in four children is stunted.**
- **Underweight is prevalent in all areas of Tanzania, but much more so in Mtwara region and Zanzibar.**
- **Wasting is higher in Tanga region and Zanzibar than in the other regions.**

Figure 8

Undernutrition among Children under 5 Years by Region, Tanzania



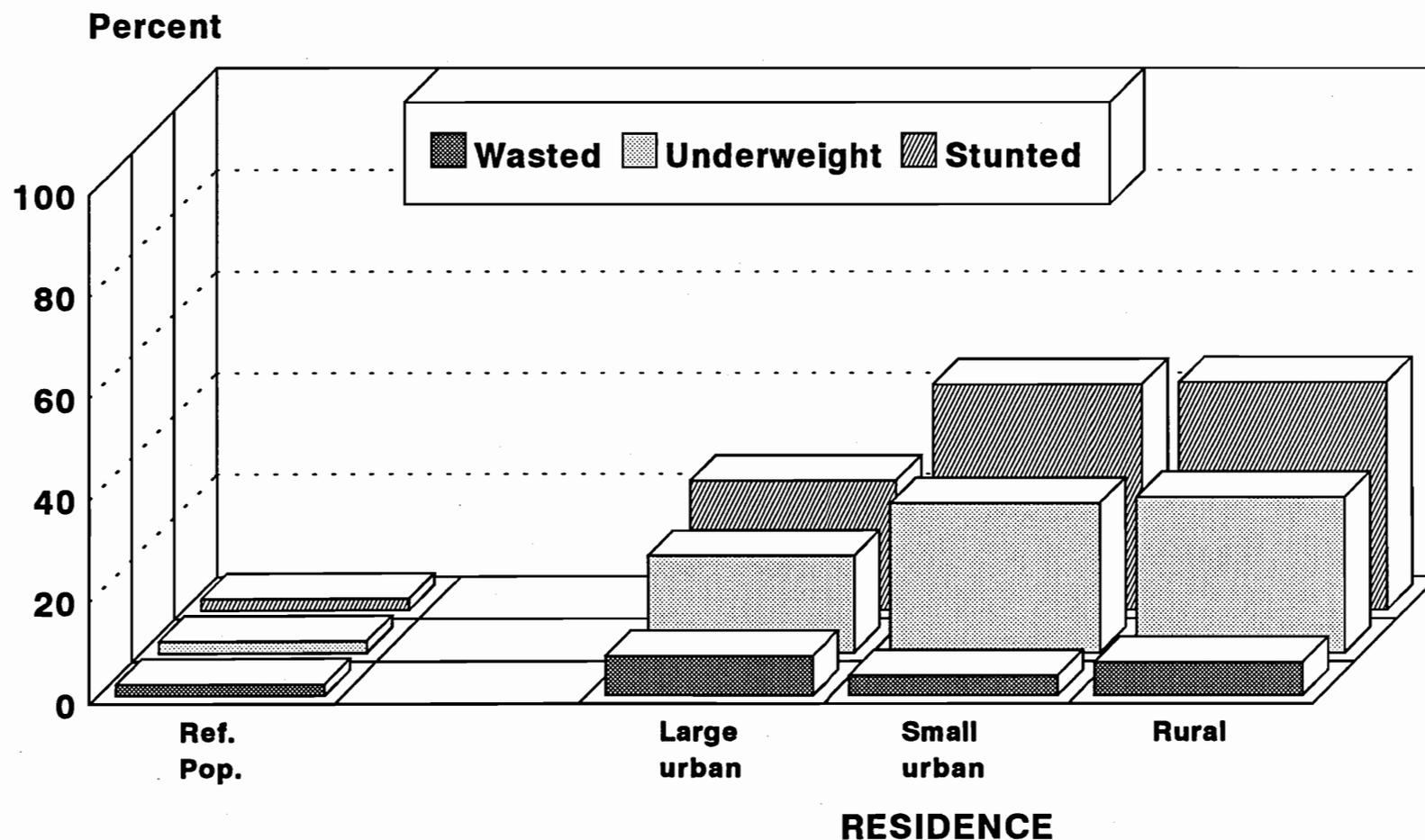
Note: Stunted reflects chronic undernutrition; wasted reflects acute undernutrition; underweight reflects either chronic or acute undernutrition.

Undernutrition among Children under 5 Years by Residence, Tanzania

In Tanzania:

- **Stunting occurs among two in five children under five years in small urban areas and in rural areas, where 80 percent of the Tanzanian population lives, whereas one in four children living in large urban areas is stunted.**
- **Three in ten children living in small urban and in rural areas is underweight, versus two in ten in urban areas.**
- **Wasting affects one in fourteen children living in large urban areas and in rural areas. This is higher than in small urban areas, where about one in twenty-five children is wasted.**

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



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

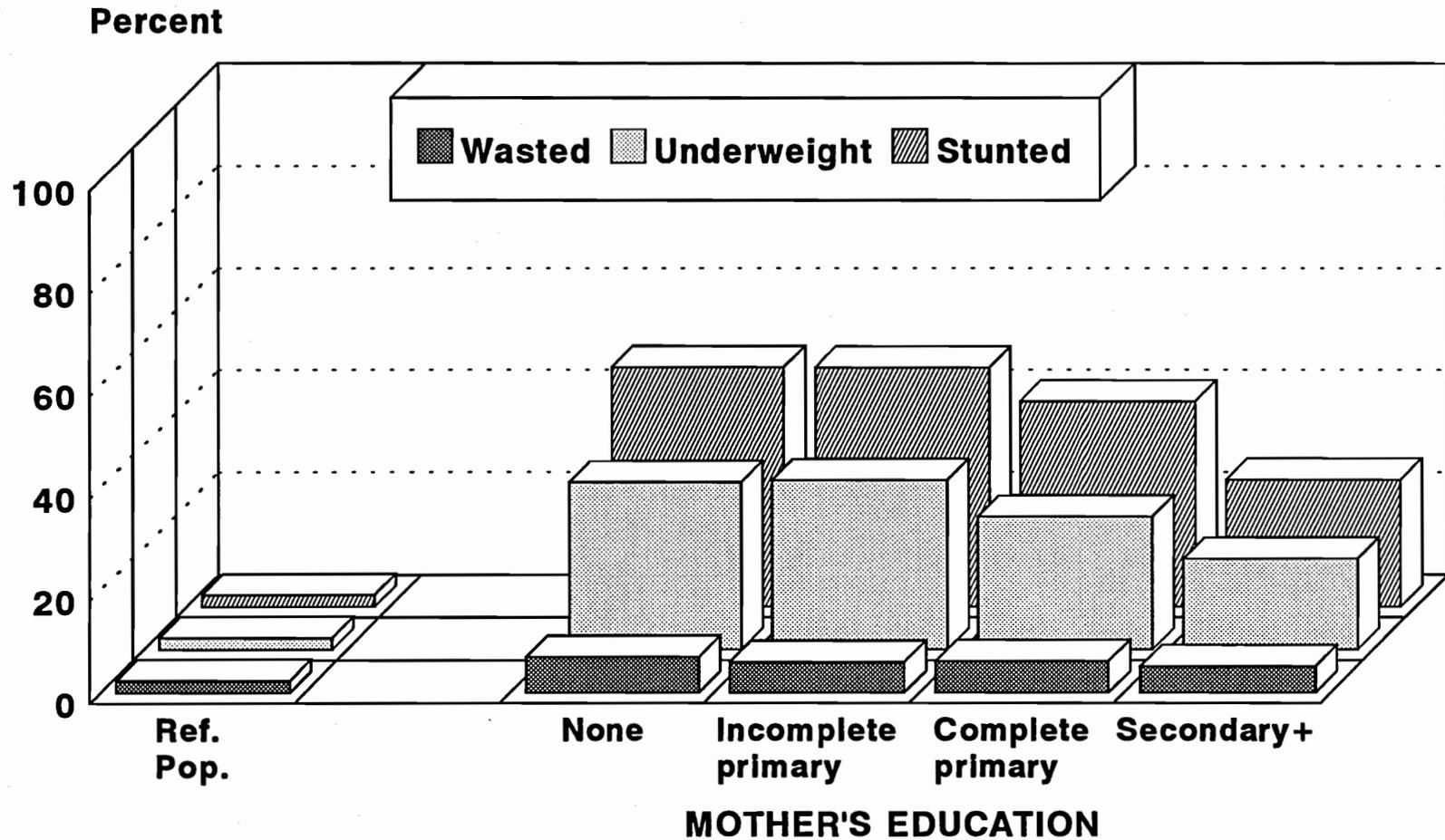
Undernutrition among Children under 5 Years by Mother's Education, Tanzania

Maternal education is related to both a knowledge of good child-care practices and household wealth. One in three Tanzanian mothers has never attended school but there are regional differences. Over 45 percent of mothers in the Coast, Iringa, Tabora, Rukwa, and Shinyanga regions and Zanzibar have never been to school, whereas more than 80 percent of mothers in the Kilimajaro, Dar es Salaam and Ruvuma regions have been to school.

- **Nearly one in two children of mothers with no education or incomplete primary education is stunted whereas one in four children of mothers with secondary or higher education is stunted.**
- **Underweight is twice as high among children of mothers with no education or incomplete primary education than it is among children whose mothers have attended secondary school or higher education.**

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



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

Undernutrition among Children under 5 Years by Source of Water and Availability of Toilet, Tanzania

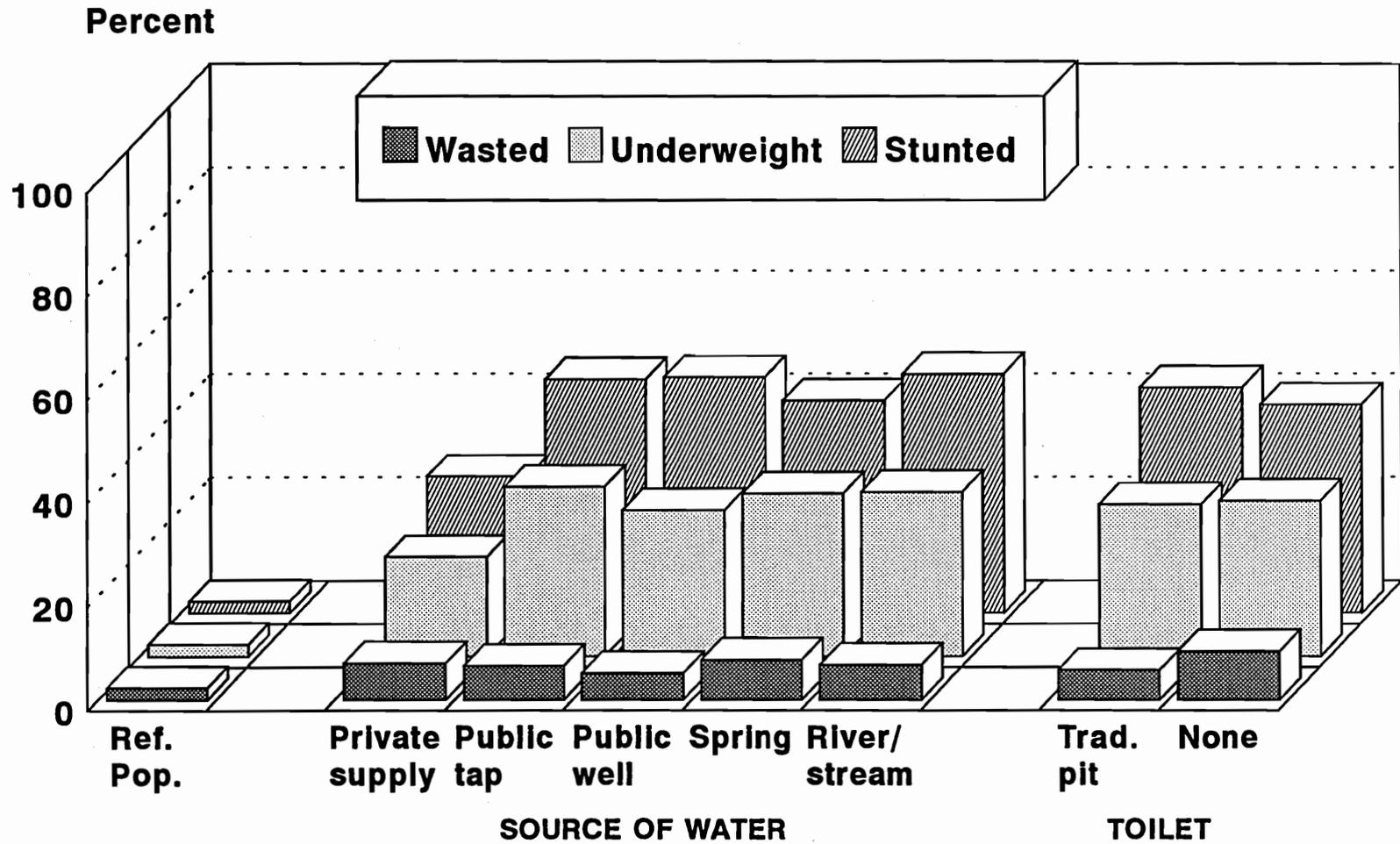
The source of water and type of toilet are representative of both household wealth and environmental sanitation. Poor households are more likely to obtain water from open-air sources or wells, and are less likely to have toilet facilities. Where water is not readily available, food hygiene is often inadequate. 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.

- **One-half of Tanzanian households obtain water from a public tap or well, 13 percent have a private well or water piped to their home, 30 percent use open-air sources of water, and the remainder use a spring.**
- **Over eighty percent of households have a traditional pit latrine, about 15 percent of households have no toilet facilities, and only one percent have a flush toilet.**

Infants and children from households that have neither a private water supply nor a 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 a household's food supply and the ability to have a private water supply and toilet. Although the availability of a private water supply or a 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 with a private supply of water, one in four children is too short for his or her age as are two in ten children from households with a traditional pit latrine.**
- **One in five children from households with a private supply of water is underweight. Similarly children from households that do not have any toilet facilities are more likely to be wasted.**

Figure 11
Undernutrition among Children under 5 Years
by Source of Water and Type of Toilet, Tanzania



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

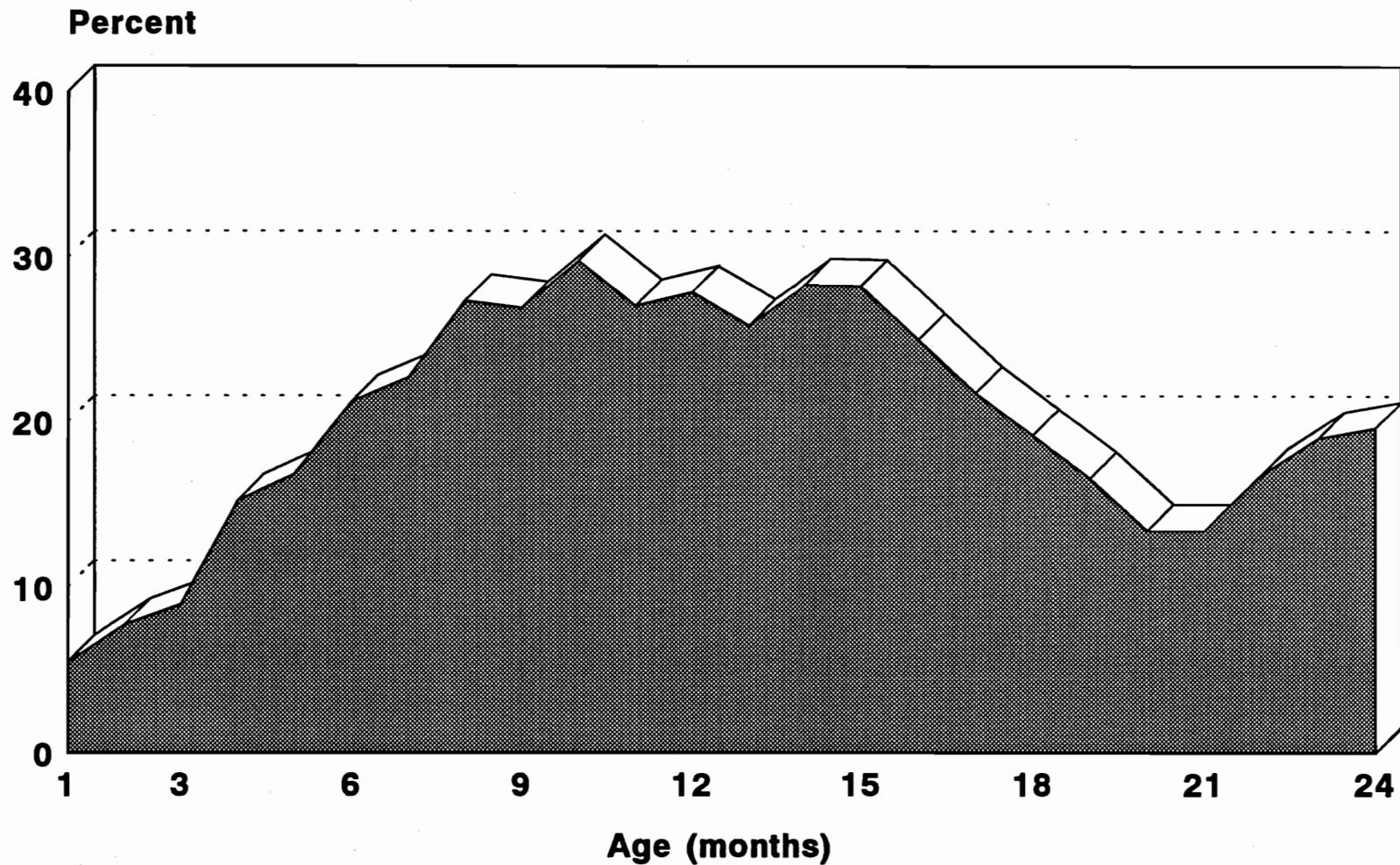
Age-related Pattern of Diarrhoea among Children Age 1 to 24 Months, Tanzania

In Tanzania:

- **The prevalence of diarrhoea increases rapidly and dramatically among infants under 9 months of age before levelling off, and then declining.**
- **The age-related pattern of diarrhoeal disease is similar 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 12
Age-related Pattern of Diarrhoea among
Children Age 1 to 24 Months, Tanzania



Prevalence of Diarrhoea, Fever, and Cough among Children Age 1 to 24 Months¹ in Tanzania and Other sub-Saharan Countries, DHS 1986-1992

- **One in five Tanzanian children under 24 months had diarrhoea in the two weeks preceding the survey. This is the lowest proportion of children with diarrhoea among the countries surveyed.**

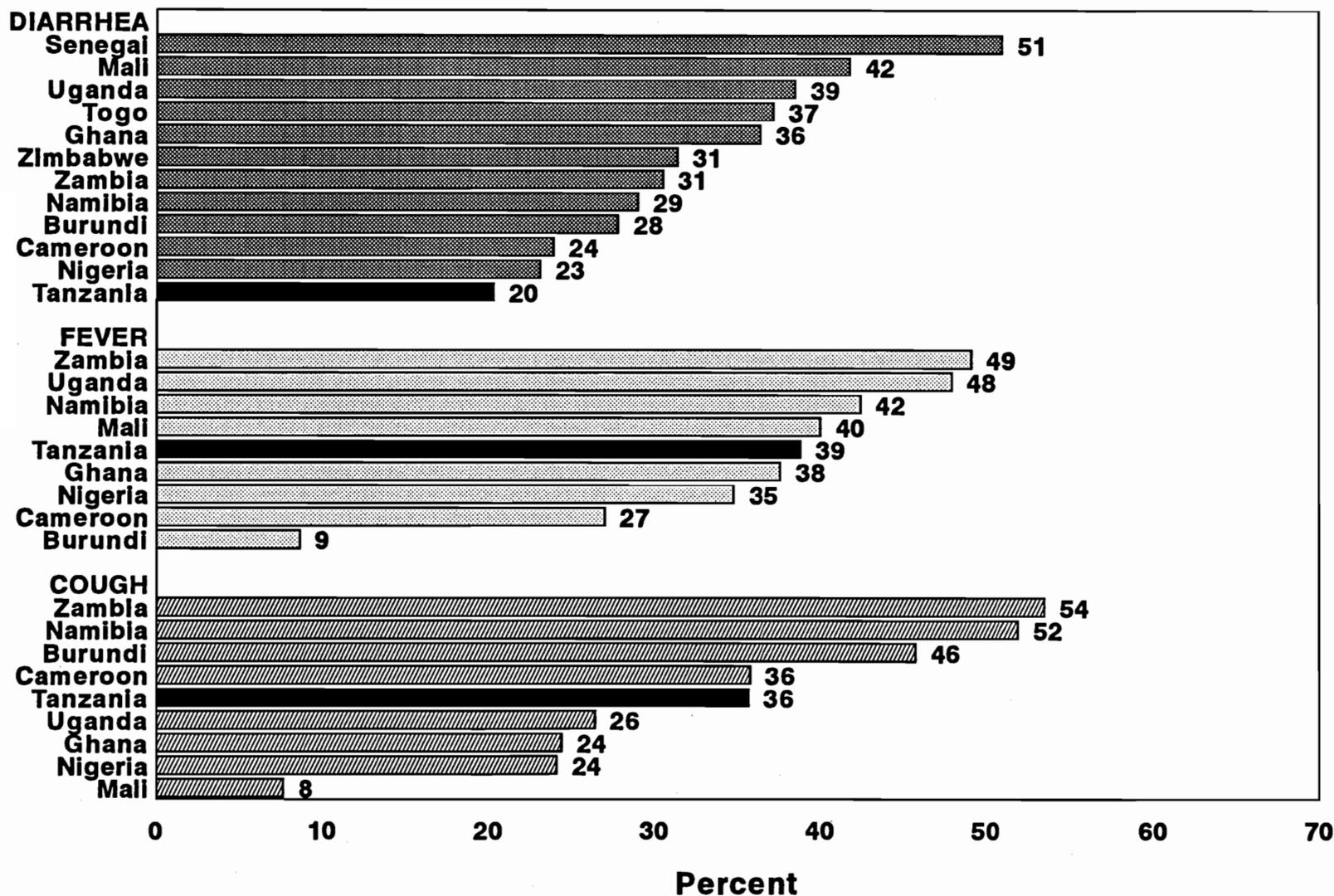
It must be borne in mind that a mother's perception of diarrhoea may differ by country and this could influence these findings.

- **Nearly two in five Tanzanian children were reported to have had fever in the preceding two weeks. This is in the middle range of the countries surveyed.**
- **More than one in three Tanzanian children was reported to have had a cough or rapid breathing in the preceding two weeks. Again, this is in the middle 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.

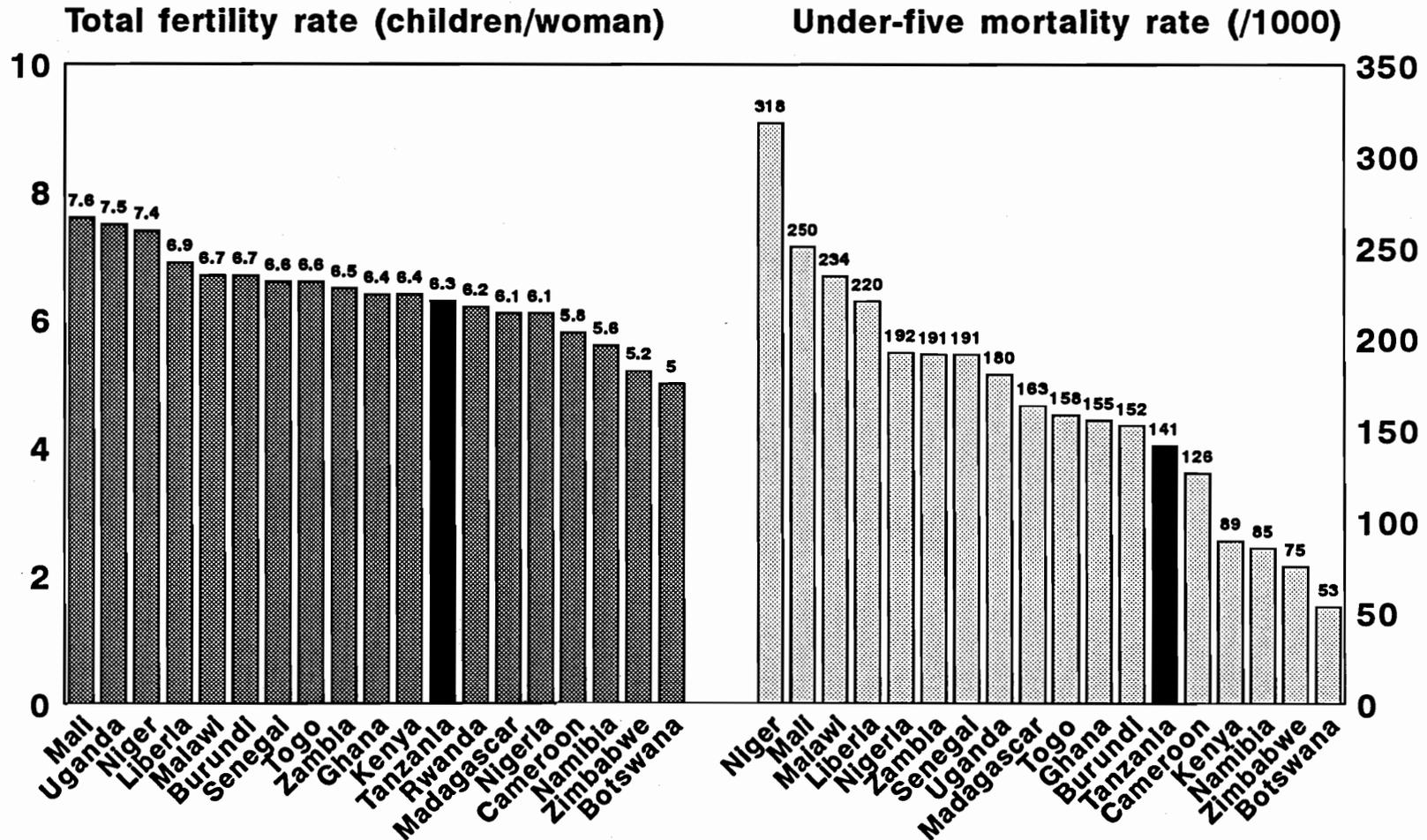
Figure 13
Prevalence of Diarrhoea, Fever, and Cough among
Children Age 1 to 24 Months in Tanzania and
other sub-Saharan Countries, DHS 1986-1992



Fertility and Under-five Mortality in Tanzania and other sub-Saharan Countries, DHS 1986-1992

- **The rate of childbearing in Tanzania is very high. At current levels, Tanzanian women have an average of 6.3 children by the end of their childbearing years (total fertility rate for women age 15 to 49 years), which is similar to the value for many other sub-Saharan countries surveyed.**
- **About one in seven Tanzanian children die before their fifth birthday. Tanzania has an under-five mortality rate of 141 deaths per 1000 births, which is in the middle range for the countries surveyed. It is likely that the relatively high mortality rate in Tanzania is related to the high levels of chronic undernutrition.**

Figure 14
Fertility and Under-five Mortality in Tanzania
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.