

This chapter focuses on the nutritional status of children and women. The chapter first considers information from the ZDHS on infant and young child feeding practices. Results are also presented for both women and children on the diversity of foods consumed during the 24-hour period before the survey, anaemia prevalence, micronutrient intake and supplementation, and on the anthropometric assessment of nutritional status. In addition to the findings for women and children, the chapter also presents information on anaemia prevalence among men.

11.1 BREASTFEEDING

ZDHS data can be used to evaluate infant feeding practices, including breastfeeding duration, introduction of complementary weaning foods, and use of feeding bottles. The pattern of infant feeding has important influences on both the child and the mother. Feeding practices are the principal determinants of a child's nutritional status. Poor nutritional status in young children exposes them to greater risks of morbidity. Biologically, breastfeeding also suppresses the mother's return to the fertile status and has an effect on both the length of the birth interval and the level of fertility. These effects are influenced by both the duration and frequency of breastfeeding and by the age at which the child receives foods and liquids to complement breast milk.

11.1.1 Breastfeeding Initiation

Early breastfeeding practices determine the successful establishment and duration of breastfeeding. Moreover, during the first three days after delivery, colostrum, an important source of nutrition and protection to the newborn, is produced and should be given to the newborn while awaiting the letdown of regular breast milk. Thus, it is recommended that children be put to the breast immediately or within one hour after birth and that prelacteal feeding, i.e., feeding newborns anything other than breast milk before breast milk is regularly given, be discouraged.

The Ministry of Health and Child Welfare promotes rooming-in of all new babies in maternity hospitals and breastfeeding within the first hour of birth to foster bonding and protect children from harsh external environments. Table 11.1 shows that 98 percent of children under five years of age were breastfed at some point in their life. Virtually all babies initiate breastfeeding within one day of birth (93 percent), and 69 percent of babies are breastfed during the initial hour after birth. The proportions breastfed within one hour of birth are higher among babies delivered in health facilities than those born at home. The likelihood that a baby will be breastfed within one hour of birth is greater in urban than rural areas and varies markedly by province, ranging from 56 percent in Mashonaland Central to 89 percent in Mashonaland East. The proportion of babies who begin breastfeeding within one hour of birth also increases with the wealth quintile.

The practice of giving prelacteal feeds limits the frequency of suckling by the infant and exposes the baby to the risk of infection. Table 11.1 shows that most infants are not given prelacteal feeds. Overall, around one in ten newborns receive prelacteal feeds, with the practice being most common in Matabeland South and Mashonaland Central (16 percent each).

Table 11.1 Initial breastfeeding

Percentage of children born in the five years preceding the survey who were ever breastfed, and among children ever breastfed, percentage who started breastfeeding within one hour and within one day of birth and percentage who received a prelacteal feed, by background characteristics, Zimbabwe 2005-2006

Background characteristic	Among children under five:		Among last-born children ever breastfed:			
	Percentage ever breastfed	Number of children	Percentage who started breastfeeding within 1 hour of birth	Percentage who started breastfeeding within 1 day of birth ¹	Percentage who received a prelacteal feed ²	Number of children
Sex						
Male	98.2	2,668	70.3	93.6	9.3	2,074
Female	98.1	2,563	68.1	93.2	9.9	1,967
Assistance at delivery						
Health professional ³	98.1	3,583	73.2	94.3	8.3	2,827
Traditional birth attendant	98.2	1,434	60.7	92.5	13.2	1,056
Other	100.0	90	62.1	84.0	7.4	67
No one	97.2	113	46.0	81.4	11.9	85
Place of delivery						
Health facility	98.1	3,551	73.2	94.3	8.2	2,804
At home	98.2	1,627	61.4	91.6	12.9	1,198
Other	(96.8)	44	(25.8)	(90.5)	(10.7)	34
Residence						
Urban	97.6	1,513	74.7	94.7	7.0	1,258
Rural	98.3	3,718	66.7	92.8	10.8	2,783
Province						
Manicaland	98.2	679	65.2	91.6	12.5	492
Mashonaland Central	99.1	585	55.6	92.2	15.9	453
Mashonaland East	98.4	387	88.5	98.7	6.9	315
Mashonaland West	97.7	519	66.2	95.1	9.8	407
Matabeleland North	98.4	340	72.5	92.6	12.3	260
Matabeleland South	99.0	243	61.1	92.0	16.4	183
Midlands	97.9	774	61.5	88.4	10.1	577
Masvingo	98.4	790	75.2	96.0	5.0	602
Harare	97.3	666	73.8	94.5	5.9	550
Bulawayo	96.8	248	80.7	94.8	5.2	202
Mother's education						
No education	96.4	213	67.5	95.4	12.8	163
Primary	98.4	1,922	67.0	92.5	10.1	1,430
Secondary	98.0	2,972	70.8	93.9	9.2	2,342
More than secondary	99.4	124	68.2	93.0	7.7	105
Wealth quintile						
Lowest	98.5	1,296	63.7	91.4	10.9	925
Second	98.6	1,093	67.3	93.6	10.9	816
Middle	97.9	911	67.2	94.3	10.8	701
Fourth	97.2	1,091	72.3	93.2	7.6	886
Highest	98.2	839	76.9	95.3	7.8	713
Total	98.1	5,231	69.2	93.4	9.6	4,041

Note: Table is based on all births whether the children are living or dead at the time of interview. Total includes 5 cases for which information is missing on assistance at delivery and place of delivery. Figures in parentheses are based on 25-49 unweighted cases.

¹ Includes children who started breastfeeding within one hour of birth

² Children given something other than breast milk during the first three days of life before the mother started breastfeeding regularly

³ Doctor and nurse/midwife

11.1.2 Breastfeeding Status by the Child's Age

Breast milk contains all the nutrients needed by children in the first six months of life and is an uncontaminated nutritional source. Complementing breast milk before six months of age is unnecessary and is indeed discouraged because the likelihood of contamination and resulting risk of diarrhoeal disease are high. Early initiation of complementary feeding also reduces breast milk output because the production and release of breast milk is modulated by the frequency and intensity of suckling.

Table 11.2 shows breastfeeding practices by the child's age. A minority of babies are exclusively breastfed throughout the first six months of life, and, even among babies under age 2 months, the majority (58 percent) are given other liquids or foods in addition to breast milk. More than three-quarters of children age 6-9 months are receiving complementary foods, and 60 percent of children age 18-23 months have been weaned. Bottle feeding is not very common; 3 percent of babies under six months of age are fed with a bottle, and the proportion bottle-fed peaks at 10 percent among children 12-17 months.

Table 11.2 Breastfeeding status by age

Percent distribution of youngest children under three years living with the mother by breastfeeding status and percentage of children under three years using a bottle with a nipple, according to age in months, Zimbabwe 2005-2006

Age in months	Percent distribution of youngest child under age three living with the mother by breastfeeding status						Total	Number of children	Percentage using a bottle with a nipple ¹	Number of children
	Not breast-feeding	Exclusively breastfed	Breastfeeding and consuming:							
			Plain water only	Nonmilk liquids/juice	Other milk	Complementary foods				
<2	1.9	40.6	20.4	3.0	20.7	13.4	100.0	134	1.0	137
2-3	0.8	17.0	19.3	1.5	36.7	24.7	100.0	189	3.5	189
4-5	3.2	14.3	8.2	0.0	29.2	45.1	100.0	190	4.1	194
6-8	0.8	0.8	6.3	0.0	15.5	76.6	100.0	279	7.6	289
9-11	3.8	0.4	1.5	0.0	6.7	87.5	100.0	230	6.3	237
12-17	13.1	0.8	3.9	0.1	2.9	79.3	100.0	547	10.2	564
18-23	60.4	0.0	0.2	0.5	0.7	38.3	100.0	428	4.1	455
24-35	95.3	0.0	0.0	0.0	0.0	4.7	100.0	726	1.8	936
<4	1.7	24.1	17.7	1.7	29.2	25.6	100.0	403	2.8	407
<6	2.0	22.2	15.5	1.4	29.7	29.3	100.0	513	3.1	520
6-9	1.0	0.9	5.2	0.0	14.2	78.7	100.0	350	7.2	361
12-23	33.9	0.4	2.2	0.2	1.9	61.3	100.0	975	7.5	1,019

Note: Breastfeeding status refers to a "24-hour" period (yesterday and last night). Children classified as breastfeeding and consuming plain water only consume no supplements. The categories of not breastfeeding, exclusively breastfed, and breastfeeding and consuming plain water, water-based liquids/juice, other milk, or complementary foods (solids and semi-solids) are hierarchical and mutually exclusive, and their percentages add to 100 percent. Thus, children who receive breast milk and water-based liquids and who do not receive complementary foods are classified in the water-based liquid category even though they may also get plain water. Any children who get complementary food are classified in that category as long as they are breastfeeding as well.

¹ Based on all children under three years

11.1.3 Median Duration and Frequency of Breastfeeding

Table 11.3 shows that the median breastfeeding duration, i.e., the length of time for which half of children are breastfed, is 18.8 months. Babies are breastfed two and a half months longer on average in rural than in urban areas. The median breastfeeding duration is shortest in Harare (16.9 months) and longest in Masvingo (21.1 months). Breastfeeding durations are substantially shorter for children whose

mothers have more than a secondary education and children in the highest wealth quintile than for other children.

On average, babies are exclusively breastfed for less than one month, with the highest durations of exclusive breastfeeding observed among babies in Harare (1.8 months). The median duration of predominant breastfeeding, i.e., the period in which a baby receives only water or other nonmilk liquids in addition to breast milk, is 1.6 months.

Table 11.3 Median duration and frequency of breastfeeding

Median duration of any breastfeeding, exclusive breastfeeding, and predominant breastfeeding among children born in the three years preceding the survey, percentage of breastfeeding children under six months living with the mother who were breastfed six or more times in the 24 hours preceding the survey, and mean number of feeds (day/night), by background characteristics, Zimbabwe 2005-2006

Background characteristic	Median duration (months) of breastfeeding among last-born children in the past three years ¹				Frequency of breastfeeding among children under six months ²			
	Any breastfeeding	Exclusive breastfeeding	Predominant breastfeeding ³	Number of children	Percentage breastfed 6+ times in past 24 hours	Mean number of day feeds	Mean number of night feeds	Number of children
Sex								
Male	18.7	0.6	1.5	1,644	95.1	7.0	5.2	254
Female	18.9	0.7	1.6	1,577	94.9	6.4	5.1	242
Residence								
Urban	16.9	0.9	1.8	920	95.3	6.7	5.5	118
Rural	19.4	0.6	1.5	2,300	94.9	6.7	5.1	377
Province								
Manicaland	18.6	0.5	0.9	407	93.1	5.0	5.1	53
Mashonaland Central	20.0	0.5	2.0	355	100.0	6.8	5.0	47
Mashonaland East	17.2	0.5	1.6	265	94.2	(8.1)	(6.3)	44
Mashonaland West	18.6	0.6	0.6	310	97.2	7.6	6.0	61
Matabeleland North	17.6	0.6	2.8	207	98.9	7.0	3.8	47
Matabeleland South	18.1	1.4	1.8	147	86.8	(6.8)	(5.6)	25
Midlands	19.3	0.6	1.1	480	93.1	6.6	4.9	65
Masvingo	21.1	0.6	1.4	506	94.5	6.3	4.7	80
Harare	16.9	1.8	2.3	387	92.0	6.4	5.7	54
Bulawayo	18.3	0.6	1.9	156	100.0	(6.7)	(4.8)	20
Mother's education								
No education	20.3	0.4	0.7	125	100.0	*	*	13
Primary	19.4	0.6	1.5	1,152	95.0	6.8	5.2	189
Secondary	18.4	0.6	1.7	1,862	94.6	6.6	5.2	283
More than secondary	12.5	0.7	2.6	81	100.0	*	*	11
Wealth quintile								
Lowest	19.7	0.5	1.5	794	95.1	6.8	4.7	130
Second	19.1	0.6	1.5	679	92.7	6.7	5.3	116
Middle	19.8	0.5	0.7	563	95.3	6.7	5.4	93
Fourth	18.4	0.7	2.1	688	98.6	6.6	5.4	91
Highest	15.5	1.1	1.8	496	93.4	6.6	5.4	65
Total	18.8	0.6	1.6	3,220	95.0	6.7	5.2	496
Mean for all children	18.7	2.1	3.5	na	na	na	na	na

Note: Median and mean durations are based on current status. Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates a figure is based on fewer than 25 unweighted cases and has been suppressed.
na = Not applicable

¹ It is assumed that non-last-born children or last-born child not living with the mother are not currently breastfeeding.

² Excludes children who do not have a valid answer on the number of times breastfed

³ Either exclusively breastfed or received breast milk and plain water, water-based liquids, and/or juice only (excludes other milk)

Except in Matabeleland South, more than nine in ten babies under six months of age were breastfed six or more times in the 24 hours preceding the survey interview. The mean number of day feeds was 6.7 and the mean number of night feeds was 5.2.

11.2 DIETARY DIVERSITY AMONG YOUNG CHILDREN AND WOMEN

In the 2005-06 ZDHS, women who had at least one child under the age of three living with them were asked questions about the types of foods and liquids they and their youngest child had consumed during a 24-hour period prior to the survey. Mothers were also asked about the number of times the child had eaten solid or semi-solid food during the period.

The results of these questions are subject to a number of limitations. First, the results do not apply to the full universe of young children and women. Approximately 10 percent of all children under age three were excluded from consideration because they were not the youngest child under age three or because they were not living with the mother. Women who have at least one child under age three living with them represent 31 percent of all women age 15-49. The dietary data for both women and children also are subject to recall errors on the mother's part. In addition, the mother may not be able to report fully on the child's intake of food and liquids if the child was fed by other individuals during the period. Despite these problems, the information collected in the 2005-06 ZDHS on the types of foods and liquids mothers and young children are consuming is useful in assessing the diversity of children's and women's diets.

11.2.1 Foods and Liquids Consumed by Infants and Young Children

Appropriate nutrition includes feeding children a variety of foods to ensure that nutrient requirements are met. Vitamin-A rich fruits and vegetables should be consumed daily. Although eating a range of fruits and vegetables, especially those rich in vitamin A, is important, studies have shown that plant-based complementary foods by themselves are insufficient to meet the needs for certain micronutrients (WHO/UNICEF, 1998). Therefore, it has been advised that meat, poultry, fish, or eggs should be eaten daily, or as often as possible. Fat also is important in the diets of infants and young children because it provides essential fatty acids, facilitates absorption of fat-soluble vitamins (such as vitamin A), and enhances dietary energy density and palatability. Tea and coffee contain compounds that inhibit iron absorption and are not recommended for children. Sugary drinks and excessive juice consumption should be avoided because, other than energy, they contribute little to the diet and as a result decrease the child's appetite for more nutritious foods (PAHO/WHO, 2003).

Table 11.4 is based on information from women about the foods and liquids consumed by their youngest child during the 24-hour period prior to the survey. As expected, the proportions of children who consumed foods or liquids included in the various food groups generally rise with the age of the child. Children who are still breastfed also are less likely to consume the various types of foods than children who are not being breastfed. For example, 68 percent of nonbreastfeeding children age 6-23 months consumed foods made from roots or tubers in the 24-hour period prior to the survey, compared with 49 percent of breastfeeding children in that age group. Of particular concern is the fact that substantial proportions of children age 6-23 months, whether breastfeeding or not, did not consume any vitamin-A rich food during the 24-hour period before the survey. Substantial proportions of children in the age group also did not consume meat, poultry, or fish; fats; or cheese, yogurt; and other milk products.

Table 11.4 Foods and liquids consumed by children in the day or night preceding the interview

Percentage of youngest children under three years of age living with the mother who consumed specific food groups in the day or night preceding the interview, by breastfeeding status and age, Zimbabwe 2005-2006

Age in months	Liquids			Solid or semi-solid foods										Number of children	
	Infant formula	Other milk ¹	Other liquids ²	Fortified baby foods	Food made from grains ³	Fruits and vegetables rich in vitamin A ⁴	Other fruits and vegetables	Food made from roots/tubers	Food made from legumes and nuts	Meat/fish/poultry/eggs	Cheese, yogurt, other milk products	Any other solid or semi-solid food	Food made with oil/fat/butter		Sugary foods
BREASTFEEDING CHILDREN															
<2	15.0	8.7	8.4	1.9	7.7	1.8	0.0	3.0	0.7	1.3	0.4	2.6	0.5	0.0	132
2-3	44.1	13.5	7.9	2.6	12.9	3.4	0.0	2.4	0.9	2.0	3.6	5.6	4.1	1.3	187
4-5	53.9	9.4	12.6	2.6	24.9	10.4	1.9	10.1	7.0	4.5	9.9	12.5	9.8	2.3	183
6-8	68.0	17.3	28.1	12.4	30.1	24.3	4.9	27.3	7.0	18.2	21.4	30.1	25.7	5.6	276
9-11	65.6	25.6	40.2	28.5	32.1	31.4	9.1	50.5	12.8	34.7	32.2	31.2	30.2	6.3	221
12-17	59.4	22.2	38.6	23.7	26.1	43.8	11.9	58.0	10.8	39.4	37.9	40.2	37.3	9.3	475
18-23	64.0	13.4	49.3	27.5	18.7	48.4	10.3	60.1	14.0	37.1	36.2	45.1	43.7	9.1	169
24-35	(43.9)	(22.6)	(59.3)	(34.4)	(21.6)	(63.2)	(16.9)	(77.5)	(14.3)	(38.5)	(26.8)	(46.0)	(30.2)	(11.7)	34
6-23	63.4	20.3	37.9	22.5	27.1	37.4	9.4	49.4	10.7	33.0	32.6	36.8	34.1	7.8	1,142
Total	56.0	17.5	29.9	16.7	23.7	28.4	7.0	36.8	8.5	24.1	24.2	28.1	25.4	5.9	1,678
NONBREASTFEEDING CHILDREN															
12-17	69.1	30.1	53.5	49.2	36.1	56.8	26.2	70.2	32.5	63.7	47.2	59.6	48.9	36.7	72
18-23	58.7	25.0	54.8	38.2	34.9	57.4	15.6	69.4	21.6	51.6	42.0	44.5	40.4	18.2	259
24-35	52.1	26.1	60.9	38.6	26.5	53.7	14.5	71.3	15.5	49.1	38.1	42.0	40.7	14.8	692
6-23	59.7	26.6	53.2	39.6	34.7	56.9	17.5	68.2	23.5	54.0	42.6	47.6	42.2	21.7	342
Total	54.5	26.4	58.1	38.5	29.3	54.2	15.3	69.6	18.0	50.3	39.2	43.5	40.8	17.0	1,044

Note: Breastfeeding status and food consumed refer to a 24-hour period (yesterday and last night). Figures for nonbreastfeeding children are not shown separately for age groups under 12 months due to the small numbers of nonbreastfeeding children in those age groups. Figures in parentheses are based on 25-49 unweighted cases.

¹ Other milk includes fresh, tinned, and powdered cow or other animal milk.

² Does not include plain water

³ Includes fortified baby food and porridge or gruel

⁴ Includes pumpkin; carrots; yellow or orange yams, squash, or sweet potatoes; dark green leafy vegetables; mangoes; and papayas

11.2.2 Appropriate Infant and Young Child Feeding

Appropriate infant and young child feeding (IYCF) practices include timely initiation of feeding solid/semi-solid foods from age six months and increasing the amount of foods and frequency of feeding as the child gets older while maintaining frequent breastfeeding. Guidelines have been established with respect to appropriate IYCF practices for children age 6-23 months (PAHO/WHO, 2003; and WHO, 2005).

Table 11.5 and Figure 11.1 present a summary indicator of appropriate feeding practices that describes the quality of infant and young child feeding practices. The indicator takes into account the percentages of children age 6-23 months for whom feeding practices met minimum standards with respect to both food diversity (i.e., the number of food groups consumed) and feeding frequency (i.e., the number of times the child was fed) as well the consumption of breast milk, milk, and milk products. Breastfed children are considered as being fed appropriately if they consume at least three food groups and receive food or liquids other than breast milk at least twice per day in the case of infants 6-8 months and at least three times per day in the case of children 9-23 months. Non-breastfed children are considered to be fed appropriately if they consumed four food groups, including milk and milk products, and are fed at least four times per day.

Table 11.5 Infant and young child feeding (IYCF) practices

Percentage of youngest children age 6-23 months living with the mother who are fed according to three IYCF practices based on breastfeeding status, number of food groups, and times they are fed during the day or night preceding the survey, by background characteristics, Zimbabwe 2005-2006

Background characteristic	Among breastfed children 6-23 months, percentage fed:				Among nonbreastfed children 6-23 months, percentage fed:					Among all children 6-23 months, percentage fed:				
	3+ food groups ¹	Minimum times or more ²	Both 3+ food groups and minimum times or more	Number of children	Milk or milk products ³	4+ food groups	4+ times or more	With 3 IYCF practices ⁴	Number of children	Breast milk, milk, or milk products ³	3+ or 4+ food groups ⁵	Minimum times or more ⁶	With 3 IYCF practices	Number of children
Age in months														
6-8	44.7	72.0	38.6	276	*	*	*	*	2	99.7	44.6	71.4	38.3	279
9-11	62.6	39.4	32.3	221	*	*	*	*	9	98.2	61.8	38.2	31.4	230
12-17	69.0	54.0	44.5	475	84.1	71.0	39.5	38.1	72	97.9	69.2	52.1	43.7	547
18-23	76.5	51.8	44.5	169	79.0	64.9	29.1	23.8	259	87.3	69.5	38.1	32.0	428
Sex														
Male	62.6	55.6	40.9	592	78.5	62.6	34.9	30.3	173	95.1	62.6	51.0	38.5	765
Female	63.4	54.7	40.5	549	80.1	68.1	26.1	22.2	169	95.3	64.5	48.0	36.2	718
Residence														
Urban	82.4	60.4	54.3	287	82.5	79.2	39.6	35.6	136	94.4	81.4	53.7	48.3	424
Rural	56.5	53.4	36.2	855	77.1	56.1	24.5	20.0	205	95.6	56.4	47.9	33.0	1,060
Province														
Manicaland	47.0	56.1	32.1	152	(82.7)	(54.7)	(21.4)	(17.6)	48	95.8	48.9	47.7	28.6	200
Mashonaland Central	54.2	44.9	26.8	137	(88.4)	(85.0)	(7.6)	(7.6)	28	98.0	59.5	38.5	23.5	165
Mashonaland East	88.0	71.4	70.0	88	(87.9)	(56.9)	(41.8)	(34.4)	25	97.3	81.1	64.8	62.0	113
Mashonaland West	70.8	42.2	39.2	91	(52.0)	(43.2)	(5.3)	(3.3)	32	87.4	63.6	32.6	29.8	124
Matabeleland North	47.6	64.2	34.2	68	(54.9)	(34.8)	(13.7)	(8.0)	21	89.3	44.6	52.2	28.0	89
Matabeleland South	61.5	55.2	29.9	52	(45.3)	(49.3)	(19.1)	(11.7)	18	85.7	58.3	45.7	25.1	70
Midlands	69.4	63.5	53.3	180	(89.0)	(70.6)	(43.5)	(43.5)	41	98.0	69.6	59.8	51.5	221
Masvingo	49.3	50.4	30.9	204	(94.4)	(59.7)	(36.0)	(28.4)	46	99.0	51.2	47.7	30.4	250
Harare	82.1	51.2	46.0	117	92.9	86.3	49.8	49.8	57	97.7	83.5	50.7	47.2	174
Bulawayo	86.2	62.0	57.3	54	(58.2)	(93.6)	(43.6)	(26.1)	24	87.2	88.4	56.4	47.8	78
Mother's education														
No education	(32.3)	(15.8)	(11.4)	44	*	*	*	*	11	(94.7)	(26.6)	(12.5)	(9.1)	56
Primary	57.6	51.1	37.0	432	73.1	47.1	26.7	22.4	101	94.9	55.6	46.5	34.3	533
Secondary	68.0	60.0	44.4	646	82.8	76.4	35.2	30.3	214	95.7	70.1	53.8	40.9	860
More than secondary	*	*	*	20	*	*	*	*	15	(89.3)	(81.6)	(48.2)	(43.1)	36
Wealth quintile														
Lowest	48.3	47.3	27.8	310	74.6	47.0	26.7	21.7	66	95.5	48.1	43.7	26.7	376
Second	56.4	47.8	32.1	237	77.3	54.7	21.8	15.2	76	94.5	56.0	41.5	28.0	313
Middle	62.3	64.8	44.7	221	(79.1)	(72.9)	(28.8)	(25.8)	31	97.5	63.6	60.4	42.4	252
Fourth	76.9	59.7	53.5	241	78.1	67.5	27.7	23.1	87	94.2	74.4	51.1	45.4	328
Highest	84.7	62.7	56.5	132	86.2	85.1	45.5	43.8	81	94.7	84.9	56.1	51.7	214
Total	63.0	55.2	40.7	1,142	79.3	65.3	30.5	26.3	342	95.2	63.5	49.5	37.4	1,483

Note: Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates a figure is based on fewer than 25 unweighted cases and has been suppressed.

¹ Food groups: a) infant formula, milk other than breast milk, cheese or yogurt or other milk products; b) foods made from grains, roots, and tubers, including porridge, gruel, and fortified baby food from grains; c) vitamin A-rich fruits and vegetables; d) other fruits and vegetables; e) eggs; f) meat, poultry, fish, and shellfish (and organ meats); g) legumes and nuts; h) foods made with oil, fat, butter

² At least twice a day for infants 6-8 months and at least three times a day for children 9-23 months

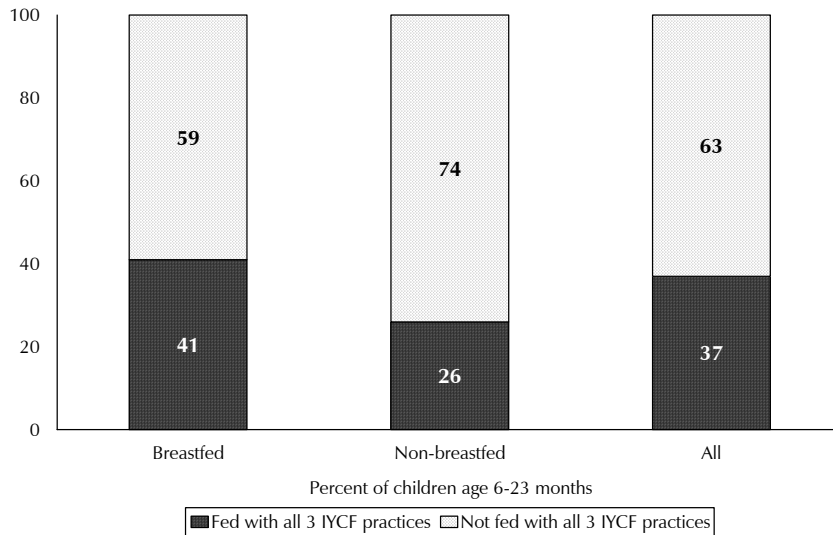
³ Includes commercial infant formula; fresh, tinned, and powdered animal milk; and cheese, yogurt, and other milk products

⁴ Nonbreastfed children ages 6-23 months are considered to be fed with three appropriate feeding practices if they receive appropriate breast milk substitutes and are fed at least the minimum number of times per day with at least the minimum number of food groups.

⁵ 3+ food groups for breastfed children and 4+ food groups for nonbreastfed children

⁶ Fed solid or semi-solid food at least twice a day for infants 6-8 months, 3+ times for other breastfed children, and 4+ times for nonbreastfed children

Figure 11.1 Infants and Young Child Feeding (IYCF) Practices



ZDHS 2005-2006

According to the results presented in Table 11.5, 95 percent of the youngest children age 6-23 months living with the mother received breast milk, milk, or milk products during the 24-hour period prior to the survey, 64 percent had an adequately diverse diet (i.e., they had been fed foods from the appropriate number of food groups depending on their age and breastfeeding status), and 50 percent had been fed the minimum standard number of times appropriate for their age and breastfeeding status. Feeding practices for just over one-third of children age 6-23 months met the minimum standard with respect to all three of these feeding practices.

Breastfed children were more likely to be fed appropriately than nonbreastfed children. Compliance with IYCF practices is greater among urban children than rural children. Looking at provincial differences, children in Mashonaland East were the most likely and children in Mashonaland Central the least likely to be fed according to the IYCF guidelines. The likelihood that a child is fed appropriately rises with the mother's education and the wealth quintile.

11.2.3 Foods and Liquids Consumed by Mothers

Adequate maternal nutrition is important for the health and reproductive outcomes of women and for child survival and development. Table 11.6 shows that foods made from roots or tubers are the staple for the majority of women. Seven in ten mothers consumed foods made from roots or tubers during the 24-hour period prior to the survey and one in four mothers consumed foods made from grains. Table 11.6 also shows that sources of important micronutrients are missing from many women's diets. More than half of women did not eat meat, fish (including shellfish), poultry, or eggs during the 24-hour period prior to the survey. The consumption of meat, fish, poultry, and eggs is important because these foods are principal sources of protein and iron. A large majority of mothers also did not consume milk or milk products, which are important sources of calcium; nearly four-fifths of mothers of young children did not drink any milk and more than three-fifths did not consume milk products like cheese or yogurt. Half of mothers did not consume vitamin A-rich fruits and vegetables during the 24-hour period prior to the survey interview.

There are substantial variations in the proportions of women consuming the various food groups. For example, 72 percent of urban women report consumption of meat, fish (including shellfish), poultry, or eggs, compared with 32 percent of rural residents. Urban residents also are much more likely to consume vitamin A-rich foods and milk or milk products than rural residents. Consumption of these food groups increases with the woman's education level and the wealth quintile.

Table 11.6 Foods consumed by mothers in the day or night preceding the interview

Among mothers age 15-49 of children under three years of age, the percentage who consumed specific types of foods in the day or night preceding the interview, by background characteristics, Zimbabwe 2005-2006

Background characteristic	Foods made from grains	Foods made from roots/tubers	Foods made from legumes	Meat/fish/shellfish/poultry/eggs	Cheese/yogurt	Vitamin A-rich fruits/vegetables ¹	Other fruits/vegetables	Foods made with oil/fat/butter	Any other solid or semi-solid food	Sugary foods	Milk	Tea/coffee	Other liquids	Number of women
Age														
15-19	26.5	67.3	9.6	39.5	32.8	51.5	13.3	32.6	46.9	10.5	14.1	48.7	94.3	286
20-29	24.2	70.3	9.7	45.9	39.7	50.2	12.5	40.0	48.8	12.8	18.6	56.0	94.1	1,615
30-39	23.0	69.4	7.7	41.7	35.6	54.9	15.5	42.1	48.4	8.3	23.4	53.7	94.6	705
40-49	17.4	59.4	12.5	29.9	19.3	32.5	8.3	39.6	44.8	4.4	15.1	33.8	91.8	116
Residence														
Urban	40.1	68.1	12.1	71.8	51.5	61.3	23.8	46.7	67.4	23.6	27.8	78.9	93.7	771
Rural	17.4	69.8	8.2	32.3	31.3	46.7	9.0	37.0	40.8	6.1	15.8	43.7	94.3	1,951
Province														
Manicaland	10.3	83.7	8.6	26.8	27.7	41.2	9.3	27.5	19.6	7.4	15.9	58.9	90.7	334
Mashonaland Central	7.3	75.9	4.2	30.9	36.6	42.6	2.4	65.5	30.0	2.2	8.7	39.4	95.3	314
Mashonaland East	13.4	86.0	9.2	36.3	52.1	53.8	10.9	17.7	26.6	7.0	17.3	56.9	95.9	226
Mashonaland West	15.8	66.8	5.9	42.5	39.9	48.7	7.3	37.6	66.6	13.4	20.4	42.6	90.5	260
Matabeleland North	77.2	26.1	8.0	37.5	5.2	49.3	20.2	1.6	21.7	6.6	19.9	44.2	93.8	177
Matabeleland South	88.6	20.4	10.3	41.8	4.7	69.8	13.7	9.1	23.0	10.6	24.2	63.3	94.9	131
Midlands	8.8	71.4	11.9	50.5	40.5	53.5	16.4	54.1	60.2	8.3	31.8	47.8	94.6	399
Masvingo	1.9	78.9	5.9	31.4	34.3	42.9	5.6	46.9	63.8	10.1	11.2	39.7	96.6	429
Harare	32.0	82.1	15.1	73.1	72.3	55.2	23.9	52.8	73.6	25.8	23.0	81.1	93.6	319
Bulawayo	90.2	31.6	19.5	85.3	18.9	82.9	42.5	34.6	78.3	25.6	25.9	90.4	95.8	135
Education														
No education	10.6	59.1	8.9	19.1	16.6	31.8	5.4	49.1	41.5	0.9	4.5	12.2	94.6	102
Primary	17.4	67.7	7.3	33.0	27.9	43.0	8.9	35.8	43.9	5.9	15.1	35.2	93.9	969
Secondary	27.5	71.2	10.4	50.1	43.3	56.6	15.4	41.0	50.7	14.0	21.9	66.5	94.2	1,584
More than secondary	49.8	62.7	12.7	76.5	52.1	56.0	34.1	50.8	67.0	30.7	36.7	81.0	95.9	67
Wealth quintile														
Lowest	18.3	61.8	5.8	26.7	24.6	44.5	7.7	37.2	46.6	4.4	11.1	26.1	95.0	658
Second	16.7	71.8	7.8	32.3	31.0	45.5	7.4	36.4	36.5	3.3	16.8	43.9	94.4	595
Middle	15.9	75.3	9.9	32.3	36.9	49.5	9.7	36.1	37.1	8.6	17.8	58.5	92.9	481
Fourth	29.5	71.5	10.6	60.1	45.0	55.0	16.7	43.5	54.8	16.7	22.2	71.1	93.5	574
Highest	44.2	67.4	14.5	76.3	54.8	64.0	29.4	47.5	71.9	27.9	32.9	82.1	94.6	414
Total	23.8	69.3	9.3	43.5	37.0	50.8	13.2	39.7	48.3	11.1	19.2	53.7	94.1	2,722

Note: Foods were consumed in the past "24-hour" period (yesterday and last night).

¹ Includes pumpkin; carrots; yellow or orange yams, squash, or sweet potatoes; dark green leafy vegetables; mangoes; and papayas

11.3 ANAEMIA PREVALENCE

Anaemia is a condition that is marked by low levels of haemoglobin in the blood. Iron is a main component of haemoglobin, and iron deficiency is estimated to be responsible for half of all anaemia globally. Other causes of anaemia include malaria, hookworm and other helminths, other nutritional deficiencies, chronic infections, and genetic conditions depending on the region. Anaemia is a serious concern for children because it can impair cognitive development, stunt growth, and increase morbidity from infectious diseases.

The 2005-06 ZDHS included direct measurement of haemoglobin levels using the HemoCue system. This system consists of a battery-operated photometer and a disposable microcuvette¹ coated with a dried reagent that serves as the blood-collection device. For the test, a drop of capillary blood taken from a person's fingertip or heel was drawn into a microcuvette. The blood in the microcuvette was analyzed using the photometer, which displayed the haemoglobin concentration.

Haemoglobin testing was carried out for three groups: children age 6-59 months, women age 15-49, and men age 15-54. In the case of young children or youth age 15-17, the consent of an adult or other caretaker was obtained for the test. Information was obtained on haemoglobin levels for 85 percent of the children, 86 percent of the women age 15-49, and 79 percent of the men age 15-54 who were eligible for testing.

During the fieldwork, each respondent or parent/caretaker was given the results of the test immediately. In cases in which the haemoglobin reading was below 9.0 g/dl (grams per decilitre), the respondent or parent/caretaker was referred to MOH&CW facilities for follow-up.

Anaemia is classified as mild, moderate, or severe based on the concentrations of haemoglobin in the blood. The cutoff values used in defining each of these levels vary according to age and, for women, pregnancy status. The following summarises the cutoffs used in the analysis of the anaemia data:

	Mild (g/dl)	Moderate (g/dl)	Severe (g/dl)	Any (g/dl)
<u>Children age 6-59 months</u>	10.0-10.9	7.0-9.9	< 7.0	<11.0
<u>Women age 15-49</u>				
Not pregnant	10.0-11.9	7.0-9.9	<7.0	<12.0
Pregnant	10.0-10.9	7.0-9.9	< 7.0	<11.0
<u>Men age 15-54</u>	10.0-11.9	7.0-9.9	<7.0	<12.0

Table 11.7 presents anaemia levels for children 6-59 months at the time of the 2005-06 ZDHS by selected background characteristics. Overall, 58 percent of these children suffered from some degree of anaemia. A small proportion (1 percent) was classified as having severe anaemia, while three in ten children were moderately anaemic. Looking at the differentials in Table 11.7, anaemia was more prevalent among children under age 18 months than among older children, with a peak rate of 84 percent observed among children 9-11 months. Severe anaemia peaks at 3 percent among children age 12-17 months. Boys are slightly more likely to be anaemic than girls. Anaemia prevalence varies by province from 55 percent in Manicaland to 63 percent in Mashonaland East.

¹ A microcuvette is a small, transparent laboratory vessel.

Table 11.7 Prevalence of anaemia in children					
Percentage of children age 6-59 months classified as having anaemia, by background characteristics, Zimbabwe 2005-2006					
Background characteristic	Anaemia status by haemoglobin level				Number of children
	Mild (10.0-10.9 g/dl)	Moderate (7.0-9.9 g/dl)	Severe (<7.0 g/dl)	Any anaemia (<11.0 g/dl)	
Age in months					
6-8	20.4	54.0	2.6	77.0	223
9-11	28.5	54.0	1.5	84.0	220
12-17	27.3	44.0	3.3	74.7	512
18-23	29.1	37.4	1.3	67.8	439
24-35	27.6	30.0	0.7	58.4	952
36-47	28.2	20.2	0.4	48.8	977
48-59	28.1	16.7	0.7	45.6	1,032
Sex					
Male	29.0	30.1	1.1	60.2	2,186
Female	26.3	28.9	1.2	56.4	2,168
Mother's status					
Interviewed	28.2	30.7	1.3	60.1	3,395
Not interviewed but in household	25.8	27.7	1.7	55.1	228
Not interviewed, and not in the household ¹	25.9	24.6	0.6	51.1	731
Residence					
Urban	25.8	30.0	2.2	58.0	1,025
Rural	28.2	29.3	0.9	58.4	3,329
Province					
Manicaland	29.0	25.5	0.8	55.4	568
Mashonaland Central	33.6	24.7	0.7	59.0	474
Mashonaland East	28.4	33.2	1.5	63.1	412
Mashonaland West	24.2	32.9	2.0	59.1	387
Matabeleland North	26.2	32.3	0.0	58.5	333
Matabeleland South	28.7	30.7	1.9	61.2	246
Midlands	28.6	27.8	1.3	57.7	753
Masvingo	26.3	31.5	0.7	58.5	570
Harare	25.2	29.7	1.3	56.3	421
Bulawayo	21.2	32.0	2.8	55.9	189
Mother's education²					
No education	22.7	34.0	1.4	58.1	159
Primary	28.3	30.5	0.8	59.6	1,320
Secondary	28.4	30.3	1.6	60.3	2,072
More than secondary	23.9	27.5	0.0	51.4	71
Wealth quintile					
Lowest	29.0	30.5	0.7	60.2	1,080
Second	29.3	27.0	0.7	56.9	999
Middle	27.2	28.5	1.4	57.1	895
Fourth	26.0	32.5	1.8	60.3	812
Highest	25.4	29.3	1.6	56.3	567
Total	27.7	29.5	1.2	58.3	4,354

Note: Table is based on children who stayed in the household the night before the interview and were tested for anaemia. Prevalence is adjusted for altitude using formulas by CDC (1998). Haemoglobin in g/dl = grams per decilitre. Total includes 1 case for which information on the mother's education is missing.

¹ Includes children whose mothers are deceased

² For women who are not interviewed, information is taken from the Household Questionnaire. Excludes children whose mothers are not listed in the household schedule

Table 11.8 shows anaemia levels among women age 15-49. More than one-third of women (38 percent) were anaemic, with the majority (27 percent) classified as mildly anaemic. Nine percent of the women were moderately anaemic and one percent were found to be severely anaemic. Women who were pregnant were more likely to be anaemic than either breastfeeding mothers or other women (47 percent, 36 percent, and 37 percent, respectively). Anaemia levels also varied by province. Manicaland had the lowest level of anaemia (31 percent). Rates were highest in Masvingo (48 percent) and in Matabeleland South (45 percent).

Table 11.8 Prevalence of anaemia in women

Percentage of women age 15-49 with anaemia, by background characteristics, Zimbabwe 2005-2006

Background characteristic	Anaemia status by haemoglobin level				Number of women	
	Not pregnant	Mild anaemia	Moderate anaemia	Severe anaemia		Any anaemia
	Pregnant	10.0-11.9 g/dl	7.0-9.9 g/dl	<7.0 g/dl		<12.0 g/dl
		10.0-10.9 g/dl	7.0-9.9 g/dl	<7.0 g/dl	<11.0 g/dl	
Age¹						
15-19		26.2	7.9	0.3	34.5	1,840
20-29		25.6	8.7	0.8	35.1	2,909
30-39		29.8	10.3	1.3	41.4	1,771
40-49		29.8	12.0	2.5	44.3	1,114
Children ever born²						
None		26.0	9.4	0.7	36.1	2,200
1		26.2	8.6	1.1	36.0	1,382
2-3		28.5	9.2	1.0	38.6	2,244
4-5		25.7	10.3	2.0	38.0	1,091
6+		32.4	10.0	0.6	43.1	718
Maternity status²						
Pregnant		27.4	18.1	1.5	47.0	525
Breastfeeding		28.0	8.2	0.2	36.3	1,491
Neither		27.1	8.9	1.2	37.3	5,618
Smoking status²						
Smokes cigarettes/tobacco		28.5	6.3	1.6	36.4	69
Does not smoke		27.3	9.4	1.0	37.7	7,562
Residence						
Urban		27.7	9.9	1.2	38.9	2,762
Rural		27.1	9.1	0.9	37.1	4,872
Province						
Manicaland		23.8	5.8	1.1	30.7	877
Mashonaland Central		29.6	5.8	1.6	37.1	652
Mashonaland East		23.8	9.0	0.8	33.6	657
Mashonaland West		25.2	11.2	1.4	37.8	696
Matabeleland North		27.2	7.5	0.9	35.7	470
Matabeleland South		32.9	10.0	2.1	45.0	367
Midlands		27.0	9.7	1.0	37.7	1,127
Masvingo		32.2	15.2	0.1	47.5	1,046
Harare		26.2	8.5	0.9	35.6	1,175
Bulawayo		27.3	9.2	1.4	38.0	567
Education						
No education		29.5	9.2	3.4	42.1	342
Primary		28.3	9.7	1.3	39.3	2,546
Secondary		26.7	9.1	0.7	36.5	4,540
More than secondary		25.8	11.2	2.4	39.4	206
Wealth quintile						
Lowest		29.4	9.5	1.4	40.2	1,412
Second		24.0	9.7	0.4	34.1	1,347
Middle		27.2	8.2	0.9	36.3	1,398
Fourth		28.6	10.2	1.2	40.1	1,666
Highest		27.1	9.2	1.2	37.5	1,812
Total		27.3	9.4	1.0	37.8	7,634

Note: Table is based on women who were interviewed in the survey and consented to the anaemia test. Prevalence is adjusted for altitude using formulas by CDC (1998). The total includes 4 cases for which information on smoking status is missing.

¹ For women who were not interviewed, information is taken from the Household Questionnaire.

² Excludes women who were not interviewed.

In contrast to the levels among young children and women, anaemia rates among men are quite moderate. Table 11.9 shows that 11 percent of men were anaemic, with 2 percent classified as moderately anaemic and less than 1 percent considered to be severely anaemic. Anaemia levels were lowest among men age 20-29 (5 percent) and men living in Bulawayo and Matabeleland North (7 percent each). Anaemia rates were highest among men in Masvingo (16 percent) and Mashonaland West (14 percent). Anaemia levels generally decline as the man's educational level and the wealth quintile increase.

Table 11.9 Prevalence of anaemia in men

Percentage of men age 15-54 with anaemia, by background characteristics, Zimbabwe 2005-2006

Background characteristic	Anaemia status by haemoglobin level				Number of men
	Mild anaemia (10.0-11.9 g/dl)	Moderate anaemia (7.0-9.9 g/dl)	Severe anaemia (<7.0 g/dl)	Any anaemia (<12.0 g/dl)	
Age¹					
15-19	10.8	2.5	0.2	13.5	1,580
20-29	4.2	1.0	0.2	5.4	1,985
30-39	9.3	2.7	0.5	12.5	1,172
40-49	10.7	2.4	0.1	13.2	697
50-54	9.9	3.4	0.5	13.8	241
Smoking status²					
Smokes cigarettes/tobacco	7.9	1.8	0.3	9.9	1,373
Does not smoke	8.2	2.1	0.3	10.6	4,298
Residence					
Urban	6.9	1.8	0.4	9.0	2,072
Rural	8.9	2.2	0.2	11.3	3,603
Province					
Manicaland	7.1	1.1	0.0	8.2	682
Mashonaland Central	6.6	1.9	0.0	8.4	507
Mashonaland East	6.2	1.7	0.3	8.1	524
Mashonaland West	9.9	3.8	0.7	14.3	599
Matabeleland North	5.8	1.6	0.0	7.4	333
Matabeleland South	8.8	1.9	0.6	11.3	222
Midlands	7.9	2.7	0.6	11.2	920
Masvingo	13.8	2.0	0.0	15.8	635
Harare	7.7	1.8	0.2	9.8	915
Bulawayo	5.6	1.0	0.2	6.9	338
Education					
No education	9.5	2.1	1.6	13.2	82
Primary	9.7	2.6	0.2	12.6	1,622
Secondary	7.6	1.8	0.3	9.7	3,687
More than secondary	5.5	2.0	0.2	7.8	284
Wealth quintile					
Lowest	10.4	1.9	0.6	12.9	934
Second	8.0	2.7	0.1	10.7	1,013
Middle	8.0	2.1	0.0	10.0	1,045
Fourth	8.9	2.2	0.3	11.3	1,505
Highest	5.7	1.4	0.4	7.5	1,178
Total	8.1	2.0	0.3	10.5	5,675

Note: Table is based on men who were interviewed in the survey and consented to the anaemia test. Prevalence is adjusted for altitude using formulas by CDC (1998). The total includes 4 men for whom information on smoking status is missing.

¹ For women who were not interviewed, information is taken from the Household Questionnaire.

² Excludes women who were not interviewed

11.4 MICRONUTRIENT INTAKE AND SUPPLEMENTATION

Micronutrient deficiency is a serious contributor to childhood morbidity and mortality. Micronutrients are available in foods and can also be provided through direct supplementation. Breastfeeding children benefit from supplements given to the mother.

Iron deficiency is one of the primary causes of anaemia, which has serious health consequences for both women and children. Vitamin A is an essential micronutrient for the immune system and plays an important role in maintaining the epithelial tissue in the body. Severe vitamin A deficiency (VAD) can cause eye damage and is the leading cause of childhood blindness. VAD also increases severity of infections such as measles and diarrhoeal disease in children and slows recovery from illness. VAD is common in dry environments where fresh fruits and vegetables are not readily available. Vitamin A supplementation of young children is an important tool in addressing VAD.

Information on the foods mothers and young children under age three consumed in the 24-hour period prior to the ZDHS is useful in assessing the extent to which women and children are consuming food groups rich in two key micronutrients—vitamin A and iron—in their daily diet. In addition, the ZDHS included several questions designed to ascertain whether young children or their mothers had received vitamin A supplements, and women were asked about iron supplementation during pregnancy.

11.4.1 Micronutrient Intake and Supplementation among Children

Table 11.10 looks at the intake of foods rich in vitamin A and iron by the youngest child under age three living with the mother, and at recent vitamin A supplementation among children age 6-59 months. The results in Table 11.10 indicate that children are more likely to consume vitamin A-rich foods than iron-rich foods. Sixty-one percent of young children consumed foods rich in vitamin A in the 24-hour period prior to the survey, while 41 percent of these children consumed foods rich in iron. As expected, intake of both vitamin A- and iron-rich foods increases as children are weaned. Intake of foods rich in these two micronutrients is higher among urban than rural children and also varies considerably by province, with the lowest proportions of children consuming foods rich in vitamin A and iron observed in Masvingo, Mashonaland Central, and Manicaland. Consumption of iron-rich foods is also notably lower in Matabeleland North than in other provinces. The likelihood that a child consumed foods rich in vitamin A and iron increases with the mother's education and the wealth quintile.

Table 11.10 also provides information on the coverage of the programme of vitamin A supplementation among young children. Forty-seven percent of children age 6-59 months received a dose of vitamin A in the six months prior to the interview. The supplementation rate peaked at 55 percent among children age 18-23 months. Urban children were more likely to have received a vitamin A dose than rural children. The proportion of children who received a vitamin A dose was lowest in Manicaland and Midlands (29 percent and 32 percent, respectively) and highest in Matabeleland North and Matabeleland South (70 percent and 67 percent, respectively). The likelihood that a child was given a vitamin A dose rose with the mother's education and generally increased with the wealth quintile.

Table 11.10 Micronutrient intake among children

Percentage of youngest children under age three living with their mother who consumed vitamin A-rich and iron-rich foods in the day or night preceding the survey, and percentage of children age 6-59 months who received vitamin A supplements in the six months preceding the survey, by background characteristics, Zimbabwe 2005-2006

Background characteristic	Among last-born children age 6-35 months:			Among children age 6-59 months:	
	Percentage consumed foods rich in vitamin A in past 24 hours ¹	Percentage consumed foods rich in iron in past 24 hours ²	Number of children	Percentage given vitamin A supplements in past 6 months	Number of children
Age in months					
6-8	32.5	18.3	279	33.1	289
9-11	49.5	35.3	230	49.3	237
12-17	62.0	42.6	547	53.6	564
18-23	68.3	45.9	428	54.7	455
24-35	71.2	48.7	726	48.7	936
36-47	na	na	na	44.4	1,870
Sex					
Male	60.0	40.9	1,121	46.1	2,218
Female	62.5	42.0	1,089	48.2	2,133
Breastfeeding status					
Breastfeeding	52.8	33.2	1,176	47.6	1,213
Not breastfeeding	71.2	50.9	1,013	47.1	3,082
Residence					
Urban	78.8	64.4	643	52.9	1,287
Rural	54.0	32.0	1,567	44.7	3,065
Province					
Manicaland	49.3	27.8	279	29.2	554
Mashonaland Central	48.9	30.5	267	39.6	501
Mashonaland East	67.6	37.3	179	44.8	320
Mashonaland West	67.1	50.2	194	50.5	414
Matabeleland North	55.0	28.8	129	70.4	272
Matabeleland South	73.4	37.0	106	66.6	207
Midlands	66.6	49.7	335	31.6	656
Masvingo	47.9	30.0	349	54.8	658
Harare	76.8	64.1	262	55.6	562
Bulawayo	85.0	69.3	110	61.3	208
Mother's age					
15-19	60.5	39.0	404	46.4	885
20-29	61.6	43.4	1,248	47.6	2,436
30-39	64.7	40.4	477	47.6	890
40-49	37.8	27.3	80	40.7	141
Mother's education					
No education	35.4	22.5	89	37.6	186
Primary	51.1	30.2	775	43.5	1,591
Secondary	68.4	48.1	1,291	49.6	2,467
More than secondary	77.4	72.2	55	60.0	107
Wealth quintile					
Lowest	46.7	26.6	525	45.3	1,069
Second	54.3	32.6	478	39.9	891
Middle	59.0	31.1	387	48.4	750
Fourth	70.8	54.9	481	49.8	930
Highest	82.4	69.3	340	54.2	711
Total	61.2	41.4	2,210	47.1	4,351

Note: Information on vitamin A and iron supplements is based on the mother's recall. Total includes 56 cases in which information on breastfeeding status is missing.

na = Not applicable

¹ Includes meat (and organ meat), fish, poultry, eggs, pumpkin, carrots, yellow or orange yams, squash or sweet potatoes, dark green leafy vegetables, mangoes, and papayas

² Includes meat (including organ meat), fish, poultry, and eggs

11.4.2 Micronutrient Intake among Mothers

Table 11.11 includes several measures of vitamin A and iron intake and supplementation among mothers of young children and also presents the proportion of women reporting night blindness during pregnancy, a condition that is associated with vitamin A deficiency.

The majority (68 percent) of mothers with a child under three years of age living with her consumed vitamin A-rich foods during the 24 hours preceding the survey, and 44 percent of women ate foods rich in iron. Women in the 40-49 year age range were less likely than younger women to have consumed vitamin A- or iron-rich foods. Intake of vitamin A- and iron-rich foods was highest among women in urban areas, those with more than secondary education, and those in the highest wealth quintile.

A single dose of vitamin A given within two months of childbirth treats night blindness and increases the vitamin A content of breast milk, reducing the risk of VAD among breastfed children. Table 11.11 shows that only 14 percent of women with a child born in the five years before the survey received a vitamin A dose in the first two months after the birth of the last child. Supplementation rates were highest among urban women (18 percent) and women living in Bulawayo (23 percent), Midlands (22 percent), and Mashonaland West (20 percent).

Five percent of women with a recent birth said that they had experienced night blindness during their pregnancy. After adjusting for women who also reported vision problems during daylight, 1 percent of women were estimated to have suffered night blindness during pregnancy.

As discussed earlier in the chapter, pregnant women are more likely to be anaemic than other women. Iron status among pregnant women can be improved by means of iron supplements as well as by increased consumption of iron-rich foods and control of parasites and malaria. Table 11.11 shows the percent distribution of women who gave birth during the five years prior to the survey by the number of days the woman took iron tablets during the pregnancy for her last-born child. The majority of women who took supplements took them for less than 60 days (32 percent), and 56 percent did not take iron supplements at all. Women living in Harare and Mashonaland East were least likely to have taken iron tablets or syrup during their last pregnancy (70 percent and 67 percent, respectively). Matabeleland North and Masvingo had the highest iron supplementation rates among pregnant women (49 percent and 50 percent, respectively).

Table 11.11 Micronutrient intake among mothers

Percentage of women age 15-49 with a child under age three years living with her who consumed vitamin A-rich and iron-rich foods in the 24 hours preceding the survey; the percentage of women with a child born in the past 5 years who received a vitamin A dose in the first two months after the birth of the last child; the percentage of mothers who during the pregnancy of the last child born in the five years prior to the survey suffered from night blindness; and the percentage who took iron tablets or syrup for specific numbers of days, by background characteristics, Zimbabwe 2005-2006

Background characteristic	Consumption of vitamin A-rich and iron-rich food in the 24 hours preceding the survey among women with a child under age three years			Percentage of women who received vitamin A dose post-partum ³	For the last child born in the past five years							Number of women with a child born in past five years
	Percentage consumed vitamin A-rich foods ¹	Percentage consumed iron-rich foods ²	Number of women with a child under 3 years		Percentage of women who suffered night blindness during pregnancy		Number of days women took iron tablets or syrup during pregnancy					
					Reported	Adjusted ⁴	None	<60	60-89	90+	Don't know/missing	
Age												
15-19	66.1	39.5	286	15.4	4.0	1.4	58.0	31.7	1.4	6.9	2.0	329
20-29	68.5	45.9	1,615	15.1	4.8	1.4	56.8	32.1	2.0	4.1	5.1	2,354
30-39	70.7	41.7	705	13.3	6.3	1.2	55.3	31.0	2.1	5.2	6.5	1,148
40-49	48.7	29.9	116	11.7	8.0	3.1	48.7	32.0	3.1	4.8	11.4	269
Residence												
Urban	85.7	71.8	771	18.1	3.5	0.3	57.2	29.8	2.3	4.6	6.0	1,285
Rural	61.0	32.3	1,951	12.7	6.2	2.0	55.3	32.6	1.9	4.7	5.4	2,815
Province												
Manicaland	53.5	26.8	334	12.2	6.3	1.0	58.8	27.0	2.0	3.4	8.8	497
Mashonaland Central	54.4	30.9	314	6.2	8.4	3.4	58.5	29.6	1.4	3.1	7.3	457
Mashonaland East	69.9	36.3	226	13.4	6.9	2.6	67.0	25.5	2.7	2.5	2.3	319
Mashonaland West	69.5	42.5	260	19.7	7.4	3.2	55.3	31.7	2.5	7.0	3.5	415
Matabeleland North	72.4	37.5	177	11.5	3.4	0.6	48.5	27.9	5.8	15.3	2.5	263
Matabeleland South	85.8	41.8	131	14.0	1.9	0.0	43.2	32.4	2.1	3.5	18.8	184
Midlands	71.7	50.5	399	21.7	4.2	1.0	56.9	39.5	0.7	1.9	1.0	584
Masvingo	55.0	31.4	429	8.6	5.6	1.2	43.2	40.9	1.0	7.8	7.1	609
Harare	84.5	73.1	319	16.8	2.8	0.2	69.9	22.8	1.1	1.9	4.4	566
Bulawayo	97.5	85.3	135	22.5	5.3	0.5	44.7	37.2	6.1	4.0	8.0	207
Education												
No education	41.3	19.1	102	10.0	7.3	3.1	51.7	27.5	2.9	6.9	11.1	166
Primary	57.8	33.0	969	12.6	6.4	1.8	56.9	31.6	2.0	4.7	4.9	1,445
Secondary	75.2	50.1	1,584	15.8	4.7	1.1	56.2	32.3	1.9	4.2	5.5	2,383
More than secondary	85.1	76.5	67	14.7	3.7	0.6	44.0	28.8	4.7	12.3	10.3	106
Wealth quintile												
Lowest	56.8	26.7	658	12.6	6.6	2.2	53.3	33.3	1.6	6.7	5.2	934
Second	59.8	32.3	595	10.9	5.4	1.4	56.4	31.9	2.1	4.1	5.4	823
Middle	63.5	32.3	481	13.9	6.2	2.5	58.9	31.0	2.2	2.8	5.1	714
Fourth	76.9	60.1	574	16.8	5.6	0.9	56.7	30.5	2.1	4.6	6.2	902
Highest	90.3	76.3	414	18.2	2.8	0.2	55.0	31.8	2.3	4.9	6.1	727
Total	68.0	43.5	2,722	14.4	5.4	1.4	55.9	31.7	2.0	4.7	5.6	4,100

¹ Includes meat (and organ meat), fish, poultry, eggs, pumpkin, carrots, yellow or orange yams, squash or sweet potatoes, dark green leafy vegetables, mangoes, and papayas

² Includes meat (and organ meat), fish, poultry, eggs

³ In the first two months after delivery

⁴ Women who reported night blindness but did not report difficulty with vision during the day

11.5 NUTRITIONAL STATUS OF CHILDREN

Anthropometric data on height and weight collected in the 2005-06 ZDHS permit the measurement and evaluation of the nutritional status of young children in Zimbabwe. This evaluation allows identification of subgroups of the child population that are at increased risk of faltered growth, disease, impaired mental development, and death. Trends in child malnutrition can also be assessed by comparing the 2005-06 ZDHS results with those obtained during the 1994 and 1999 ZDHS surveys.

11.5.1 Measurement of Nutritional Status among Young Children

Evaluation of nutritional status is based on the rationale that in a well-nourished population, there is a statistically predictable distribution of the height and weight of children of a given age. Use of a standard reference population facilitates analysis of any given population over time, as well as comparison of subgroups of the population. One of the most commonly used reference populations, and the one used in this report, is the NCHS (U.S. National Centre for Health Statistics) standard.

Three standard indices of physical growth that describe the nutritional status of children are presented:

- height-for-age
- weight-for-height
- weight-for-age

Each of these indices gives different information about growth and body composition that can be used to assess nutritional status.

Height-for-age is a measure of linear growth. A child who is below minus two standard deviations (-2 SD) from the median of the NCHS reference population in terms of height-for-age is considered short for his/her age, or stunted, a condition reflecting the cumulative effect of chronic malnutrition. If the child is below minus three standard deviations (-3 SD) from the reference mean, then the child is considered severely stunted. A child between -2 SD and -3 SD is considered moderately stunted. Stunting reflects malnutrition over a long time and is also affected by recurrent and chronic illnesses.

Weight-for-height describes current nutritional status. A child who is below -2 SD from the reference mean for weight-for-height is considered too thin for his/her height, or wasted, a condition reflecting acute or recent nutritional deficit. As with stunting, wasting is considered severe if the child is below -3 SD below the reference mean. The weight-for-height index gives information about children's recent experience with food intake. Wasting represents failure to receive adequate nutrition in the period immediately preceding the survey and may be the result of recent illness or of seasonal variations in the food supply. Severe wasting is closely linked to a child's mortality risk.

Weight-for-age is a composite index of weight-for-height and height-for-age and thus does not distinguish between acute malnutrition (wasting) and chronic malnutrition (stunting). A child can be underweight for her/his age because s/he is stunted, because s/he is wasted, or because s/he is wasted and stunted. Weight-for-age is a good overall indicator of a population's nutritional health and is often used to monitor nutritional status on a longitudinal basis. Similar to weight-for-height, this index is subject to seasonal variation.

11.5.2 Results of Data Collection

Measurements of height and weight were obtained for all children under age six living in the households selected for the 2005-2006 ZDHS sample. The results include children who were not biological offspring of the women interviewed in the survey.

Although data were collected for all children under age six, for purposes of comparability with prior ZDHS surveys, the analysis is limited to children under age five. Height and weight measurements were obtained for 92 percent of the 5,785 children under age five who were present in ZDHS households at the time of the survey. Of these children, 7 percent were considered to have implausibly high or low values for the height or weight measures or lacked data on the child's age in months (not shown in table). The following analysis focuses on the children for whom complete and plausible anthropometric and age data were collected.

11.5.3 Levels of Child Malnutrition

Table 11.12 presents the three nutritional status indices—height-for-age, weight-for-height, and weight-for age—for children under five years according to selected background characteristics. Overall, 29 percent of children were stunted at the time of the 2005-06 ZDHS, 6 percent were wasted, and 17 percent were underweight.

All of the indices indicate that malnutrition increases with a child's age, with prevalence peaking in the age range 12-23 months, and declining again as children approach their fifth birthday. For example, stunting affects nearly half of children age 18-23 months, and 20 percent of children in that age range are severely stunted. Nine percent of children age 12-23 months are wasted, and the highest rate of severe acute malnutrition is found in the 12-17 month age group (2 percent).

Boys are slightly more likely to be malnourished than girls. The rates for children born to underweight mothers are generally higher on all malnutrition indices than those born to normal-weight or overweight mothers. Children reported as very small and small at birth also have higher chances of being stunted, wasted, and underweight.

Malnutrition levels vary by residence. All three indices are higher among rural children than urban children. Mashonaland East, Mashonaland Central, and Manicaland have the highest rates of stunting at 31 percent, 35 percent, and 35 percent, respectively. Mashonaland East (11 percent) has the highest prevalence of wasting, followed by Mashonaland West (9 percent) and Masvingo (7 percent). Malnutrition rates are lowest in children whose mothers have more than secondary education and children in the highest wealth quintile.

Table 11.12 Nutritional status of children

Percentage of children under five years classified as malnourished according to three anthropometric indices of nutritional status: height-for-age, weight-for-height, and weight-for-age, by background characteristics, Zimbabwe 2005-2006

Background characteristic	Height-for-age		Weight-for-height		Weight-for-age		Number of children
	Percentage below -3 SD	Percentage below -2 SD ¹	Percentage below -3 SD	Percentage below -2 SD ¹	Percentage below -3 SD	Percentage below -2 SD ¹	
Age in months							
<6	1.1	7.8	0.7	5.1	0.4	2.1	382
6-8	4.1	16.9	0.4	6.5	0.9	10.0	240
9-11	8.8	23.6	0.9	6.4	3.5	16.3	217
12-17	11.6	32.4	2.0	9.3	4.2	17.9	510
18-23	20.2	48.2	1.1	9.3	3.9	24.6	421
24-35	13.4	30.4	1.6	6.9	4.9	21.0	970
36-47	13.9	31.7	1.4	5.4	3.3	16.8	1,028
48-59	9.6	29.2	1.2	4.8	2.5	15.5	1,092
Sex							
Male	11.7	31.2	1.5	6.7	3.4	17.1	2,441
Female	11.2	27.6	1.1	6.1	3.0	16.2	2,419
Birth interval in months²							
First birth ³	10.6	26.3	1.5	6.3	3.0	14.5	1,170
<24	12.8	29.4	0.6	6.9	2.6	17.5	245
24-47	10.0	30.3	1.0	6.8	3.7	17.2	1,394
48+	10.4	29.2	0.7	5.0	1.9	15.3	1,071
Size at birth²							
Very small	18.0	45.5	2.4	16.9	7.7	34.0	133
Small	13.1	33.2	1.0	8.9	5.0	23.7	409
Average or larger	9.9	27.5	1.0	5.3	2.5	14.1	3,293
Mother's status							
Interviewed	10.4	28.7	1.1	6.2	2.9	15.9	3,880
Not interviewed but in household	11.3	28.0	2.9	8.8	4.1	14.4	258
Not interviewed, and not in the household ⁴	16.7	33.8	2.0	6.8	4.5	21.5	722
Mother's nutritional status^{2,5}							
Underweight (BMI <18.5)	12.3	34.7	1.7	10.3	5.4	27.5	308
Normal (BMI 18.5-24.9)	10.7	29.9	1.0	5.9	2.9	16.2	2,694
Overweight (BMI ≥25)	9.3	23.2	1.2	5.4	2.2	10.6	827
Missing	3.3	19.1	0.0	8.9	2.5	12.1	51
Residence							
Urban	9.9	23.8	0.8	4.5	2.0	11.3	1,186
Rural	11.9	31.2	1.5	7.0	3.6	18.4	3,674
Province							
Manicaland	14.7	34.9	0.8	5.4	2.8	16.2	643
Mashonaland Central	11.5	34.8	0.9	6.2	3.8	22.3	577
Mashonaland East	15.2	30.8	3.4	11.1	6.0	21.2	419
Mashonaland West	9.0	27.1	2.8	9.4	3.3	15.6	464
Matabeleland North	8.1	28.0	0.7	5.9	3.2	15.9	376
Matabeleland South	8.9	27.7	0.5	3.9	1.9	14.4	271
Midlands	10.2	27.3	0.4	5.3	2.0	16.9	764
Masvingo	12.6	28.9	2.2	7.1	3.5	16.7	653
Harare	11.4	25.1	0.4	3.9	2.8	10.2	490
Bulawayo	9.3	23.9	1.6	5.4	4.1	13.8	203

Continued...

Table 11.12—Continued

Background characteristic	Height-for-age		Weight-for-height		Weight-for-age		Number of children
	Percentage below -3 SD	Percentage below -2 SD ¹	Percentage below -3 SD	Percentage below -2 SD ¹	Percentage below -3 SD	Percentage below -2 SD ¹	
Mother's education⁶							
No education	9.8	33.9	1.3	8.9	5.1	20.2	186
Primary	10.3	30.0	1.3	7.2	3.2	17.5	1,520
Secondary	10.9	28.0	1.1	5.7	2.8	14.9	2,339
More than secondary	3.7	12.1	0.0	1.0	0.6	1.6	91
Wealth quintile							
Lowest	13.8	33.4	1.1	6.9	4.0	20.7	1,183
Second	11.7	32.5	1.5	6.8	3.6	19.3	1,108
Middle	10.7	29.1	1.3	7.1	3.0	15.4	982
Fourth	9.7	25.6	1.9	6.6	2.9	14.8	920
Highest	10.2	22.9	0.7	3.4	2.3	9.3	667
Total	11.4	29.4	1.3	6.4	3.2	16.6	4,860

Note: Table is based on children who stayed in the household the night before the interview. Each of the indices is expressed in standard deviation units (SD) from the median of the NCHS/CDC/WHO International Reference Population. The percentage of children who are more than three or more than two standard deviations below the median of the International Reference Population (-3 SD and -2 SD) is shown according to background characteristics. Table is based on children with valid dates of birth (month and year) and valid measurement of both height and weight. Total includes 31 cases for which information is missing on the size at birth and 1 case for which information is missing for mother's education.

¹ Includes children who are below -3 SD from the International Reference Population median

² Excludes children whose mothers were not interviewed

³ First-born twins (triplets, etc.) are counted as first births because they do not have a previous birth interval.

⁴ Includes children whose mothers are deceased

⁵ Mother's nutritional status in terms of BMI (body mass index) is presented in Table 11.13.

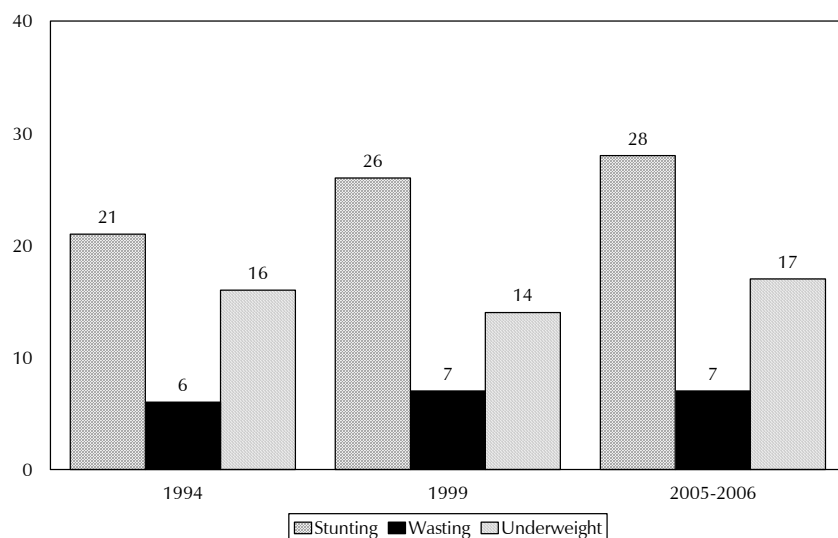
⁶ For women who are not interviewed, information is taken from the Household Questionnaire. Excludes children whose mothers are not listed in the household schedule

11.5.4 Trends in Child Malnutrition

Trends in the nutritional status of children can be assessed for the period 1994 to 2006 using information from the three rounds of the ZDHS surveys carried out during that period. Because the 1994 survey obtained height and weight data only for children under three years of age of interviewed mothers, the trends presented in Figure 11.2 are limited to children in this group.

The results of the three surveys indicate that the nutritional status of young children in Zimbabwe has declined since 1994. In particular, the prevalence of stunting has risen steadily, from 21 percent in 1994 to 28 percent at the time of the 2005-06 ZDHS. Wasting remained at a comparatively high level (6-7 percent) throughout the period. The proportion underweight decreased somewhat between 1994 and 1999 and then rose to the present level of 17 percent.

Figure 11.2 Trends in the Nutritional Status of Children Under Age Three,¹ Zimbabwe 1994-2006



¹ Of interviewed women

11.6 WOMEN'S NUTRITIONAL STATUS

Anthropometric data on height and weight were collected in the 2005-06 ZDHS for 98 percent of the women age 15-49 interviewed in the survey. These data are used to calculate several measures of the nutritional status of women, specifically maternal height and body mass index (BMI).

Maternal height is an outcome of nutrition during childhood and adolescence. It is useful in predicting the risk of difficult delivery, because small stature is frequently associated with small pelvis size. The risk of low birth weight babies is also higher for short women. The cutoff point, i.e., the height below which a woman is considered to be at nutritional risk, is defined as 145 centimetres. According to the results in Table 11.13, less than 1 percent of women age 15-49 are shorter than this cutoff in Zimbabwe.

Information on BMI is also presented in Table 11.13. BMI is calculated by dividing the weight in kilograms by the height in metres squared (kg/m^2). Pregnant women and women who had a birth in the preceding two months are excluded from the calculation of BMI. For the BMI, a cutoff of 18.5 has been recommended for assessing chronic energy deficiency among nonpregnant women. At the other end of the BMI scale, women are considered overweight if their BMI ranges between 25.0 and 29.9 and obese if their BMI exceeds 30.0.

Overall, 66 percent of women have a BMI in the normal range, 25 percent are overweight, and 9 percent are thin. Seven percent of women are classified as mildly thin, while 2 percent are severely thin. Seven percent of women in Zimbabwe are classified as obese. Women in the 15-19 year age group, women from Matabeleland North, and women with no education are more likely than other women to have a BMI below 18.5. The proportion overweight or obese rises with age, education status, and the wealth quintile. Urban women are nearly twice as likely to be overweight or obese as rural women. Looking at the regional patterns, Bulawayo and Harare have the highest proportions of overweight or obese women, and Mashonaland Central the lowest proportion.

Table 11.13 Nutritional status of women

Among women age 15-49, the percentage with height under 145 cm, mean body mass index (BMI), and the percentage with specific BMI levels, by background characteristics, Zimbabwe 2005-2006

Background characteristic	Body mass index ¹											
	Height		Mean body mass index (BMI)	Thin					Overweight/obese			Number of women
	Percent-age below 145 cm	Number of women		Normal 18.5-24.9 (total normal)	<18.5 (total thin)	17.0-18.4 (mildly thin)	<17 (moderately and severely thin)	≥25.0 (total over-weight or obese)	25.0-29.9 (over-weight)	≥30.0 (obese)		
Age												
15-19	1.2	2,110	21.5	73.4	15.3	10.0	5.3	11.3	10.1	1.2	1,935	
20-29	0.6	3,345	22.7	71.3	7.3	6.0	1.3	21.4	17.2	4.3	2,955	
30-39	0.5	2,009	24.1	59.2	6.5	5.2	1.3	34.3	23.3	11.0	1,873	
40-49	0.7	1,264	24.8	50.7	8.4	6.4	2.1	40.8	23.3	17.5	1,240	
Residence												
Urban	0.6	3,410	24.2	57.7	6.8	5.1	1.8	35.4	24.0	11.5	3,222	
Rural	0.9	5,319	22.3	71.2	10.8	8.0	2.8	18.0	13.7	4.2	4,782	
Province												
Manicaland	2.2	1,029	23.5	66.5	5.3	3.9	1.4	28.1	20.5	7.7	937	
Mashonaland Central	0.3	815	21.8	75.3	12.0	8.5	3.5	12.7	10.2	2.6	737	
Mashonaland East	0.4	708	22.8	69.4	9.3	7.8	1.5	21.4	14.8	6.6	638	
Mashonaland West	0.7	820	22.7	67.7	9.7	7.2	2.5	22.6	17.7	4.9	735	
Matabeleland North	0.5	534	21.9	66.9	16.9	10.8	6.1	16.2	12.1	4.1	489	
Matabeleland South	0.3	435	22.9	62.6	12.4	10.1	2.4	25.0	17.9	7.1	405	
Midlands	0.5	1,171	22.8	68.1	10.2	7.7	2.5	21.6	15.1	6.6	1,060	
Masvingo	1.3	1,097	22.7	70.5	9.6	7.7	1.9	19.9	14.4	5.5	994	
Harare	0.3	1,445	24.2	56.2	6.9	4.9	2.0	36.9	25.8	11.1	1,355	
Bulawayo	0.3	674	24.2	58.2	6.0	4.3	1.7	35.7	23.5	12.2	654	
Education												
No education	1.2	373	23.0	59.0	15.8	12.8	3.0	25.1	15.2	10.0	360	
Primary	1.2	2,839	22.7	68.2	9.9	6.8	3.1	21.9	16.2	5.8	2,561	
Secondary	0.5	5,252	23.1	66.5	8.5	6.5	2.0	25.0	18.2	6.9	4,837	
More than secondary	0.0	265	26.0	36.4	7.1	5.4	1.6	56.5	33.1	23.5	246	
Wealth quintile												
Lowest	0.9	1,514	21.8	73.7	12.9	9.8	3.1	13.4	10.8	2.6	1,363	
Second	0.8	1,480	22.0	72.1	12.5	8.8	3.7	15.4	12.6	2.8	1,298	
Middle	1.1	1,527	22.4	71.6	10.0	7.4	2.5	18.4	13.6	4.8	1,388	
Fourth	0.5	1,960	23.6	63.0	7.6	5.8	1.8	29.4	21.4	7.9	1,806	
Highest	0.5	2,247	24.5	55.5	5.8	4.2	1.6	38.7	25.2	13.5	2,149	
Total	0.7	8,729	23.1	65.8	9.2	6.8	2.4	25.0	17.8	7.2	8,004	

Note: The body mass index (BMI) is expressed as the ratio of weight in kilograms to the square of height in metres (kg/m²).

¹ Excludes pregnant women and women with a birth in the preceding 2 months