CHAPTER 3

GENERAL RESULTS

INTRODUCTION

Vitamin A and iron nutritional status is known to be adversely affected by a number of factors which include socioeconomic status, breastfeeding patterns, food security, diet, level of maternal education and literacy, employment, water supply and level of sanitation, access to health and social services, access to agricultural services as well as morbidity patterns[1]. In this regard, it is well recognised that acute infections or infestations are associated with low serum vitamin A and iron concentrations and are thought to be a consequence of the acute phase response[2,3]. The more severe the infection, the lower the vitamin A level[4]; similar findings have been reported for iron[3]. This chapter summarises, therefore, the sociodemography, breastfeeding practices, prevalence of goitre and morbidity data (illness episodes in the 48 hours and health service utilisation in the month preceding the interview).

RESULTS

Survey Population

A total of 360 clusters were studied of which 358 were available for analysis (Table 3.1); of these, 163 were rural and 195 were urban. A total of 18 219 households (19 003 families) were selected for the study. In accordance with the sampling strategy, the number of households selected was similar in all provinces; however, the number of children varied from 843 in Gauteng to 1670 in North West (Table 3.2). Of the 11 430 children included in the study, 6 469 and 4 961 lived in rural and urban areas, respectively. A parent provided the information for the majority of the children studied (national average 71%; range 59-76%) (Tables 3.2, 3.3). The date of birth was given for 91% and documented for 67% of the children (Table 3.2). A total of 4 788 blood samples were drawn with a similar number from rural and urban areas (Tables 3.2, 3.3).

Table 3.1 Details of clusters selected in survey

	Northern Cape	Western Cape	Eastern Cape	KwaZulu Natal	Eastern Transvaal	Northern Province	Gauteng	North West	Free State	**South Africa**
No. of clusters completed	40	40	40	40	40	40	40	40	40	360
Clusters available for analysis	40	40	40	40	40	40	40	38	40	358
Rural clusters	10	3	28	24	27	35	1	18	17	163
Urban clusters	30	37	12	16	13	5	39	20	23	195
Clusters completed by:										
June 1994	0	4	0	5	0	0	5	7	0	14
July 1994	17	31	5	20	27	12	20	6	10	149
August 1994	10	4	8	11	9	17	12	20	11	88
September 1994	11	1	17	2	2	6	3	3	9	71
October 1994	2	0	6	0	2	0	0	2	3	16
November 1994	0	0	2	0	0	5	0	0	5	14
December 1994	0	0	1	2	0	0	0	0	2	5
January 1995	0	0	1	0	0	0	0	0	0	1
No. of Households selected	1876	2061	1990	2023	2092	2079	2056	2048	1994	18219
No. of families selected	1990	2160	2062	2198	2205	2195	2195	2069	2037	19003

Table 3.2 Details of children selected in survey by province

	Northern Cape	Western Cape	Eastern Cape	KwaZulu Natal	Eastern Transvaal	Northern Province	Gauteng	North West	Free State	South Africa
No. of children selected	948	846	1577	1306	1299	1488	843	1670	1453	11430
No. of children in rural areas	269	130	1264	943	939	1411	11	841	661	6469
No. of children in urban areas	679	716	313	363	360	77	832	829	792	4961
Percent of children whom respondent was:										
Parent	74.2	74.3	68.2	59.3	74.5	73.5	75.7	75.8	66.2	70.9
Relative	21.1	19.6	22.4	29.3	17.4	17.7	21.0	19.6	17.3	20.5
Other caretaker	1.6	4.5	2.9	4.1	2.7	3.2	2.6	3.0	8.1	3.7
Not recorded	3.1	1.6	6.5	7.3	5.4	5.6	0.7	1.6	8.4	4.9
Percent of children whom birth date was given	93.8	96.3	84.3	75.0	93.8	92.7	94.1	94.9	94.6	90.6
Percent of children whom birth date was documented	72.8	89.5	61.0	57.2	58.0	67.7	67.7	70.8	66.3	66.8
Percent of children aged:										
6-11 months	8.5	9.5	9.4	9.2	8.6	10.1	10.1	7.7	8.3	9.1
12-23 months	18.4	19.9	16.8	19.6	19.4	19.0	22.3	18.6	18.6	19.0
24-35 months	20.6	18.1	20.4	19.5	21.0	19.8	19.0	19.9	20.6	19.9
36-47 months	19.4	19.8	19.9	19.6	19.2	20.1	18.5	18.7	19.3	19.4
49-59 months	17.7	18.0	17.7	18.2	18.6	18.1	17.1	20.2	18.7	18.4
60-71 months	15.4	14.7	15.8	13.9	13.2	12.2	13.0	14.9	14.5	14.2
Percent males	49.8	47.0	48.4	50.2	48.2	50.0	48.4	50.7	49.3	49.2
No. of children whom blood was taken	531	423	523	547	522	589	395	598	660	4788
No. of blood specimens which could be matched	524	422	494	547	516	564	395	570	656	4688
No. of matched blood specimens from rural areas	141	65	382	380	355	523	0	293	283	2428
No. of matched blood specimens from urban areas	383	357	112	167	161	41	389	277	373	2260

Table 3.3 Details of children selected in survey by age group

	6-11 months	12-23 months	24-35 months	36-47 months	49-59 months	60-71 months
No. of children selected	1036	2166	2285	2219	2101	1623
No. of children in rural areas	610	1204	1328	1170	1170	886
No. of children in urban areas	426	962	957	931	931	737
Percent of children whom respondent was:						
Parent	79.5	73.8	69.3	70.6	66.6	70.2
Relative	12.0	17.7	22.4	21.7	24.3	20.6
Other caretaker	2.8	4.2	3.2	3.1	4.3	4.4
Not recorded	5.7	4.2	5.2	4.6	4.9	4.8
Percent of children whom birth date was given	95.1	94.5	91.7	89.5	88.4	85.8
Percent of children whom birth date was documented	75.0	72.9	68.5	65.0	61.2	60.8
Percent males	47.5	48.5	49.6	49.5	49.2	50.2
No. of blood specimens which could be matched	228	698	859	1022	1037	853
No. of matched blood specimens from rural areas	120	335	450	537	534	452
No. of matched blood specimens from urban areas	108	354	409	485	503	401

Table 3.4 Urban representation in the survey compared to that of the population

Percentage of children in the survey who lived in urban areas compared with the percentage of the total population in 1991 who lived in urban areas

	Northern Cape	Western Cape	Eastern Cape	KwaZulu Natal	Eastern Transvaal	Northern Province	Gauteng	North West	Free State
Percentage of sample	71.6	84.6	19.6	27.8	27.7	5.2	98.7	49.6	54.5
Percentage of the population[1]	73.1	86.4	32.4	38.2	31.4	9.2	96.0	31.8	54.4

Source: Central Statistical Service Provincial Statistics Part 10 Republic of South Africa Report No. 00-90-10 (1994) Pretoria

Demography

Age distribution

The age distribution of the children sampled was fairly consistent across all provinces and across age groups (Tables 3.2, 3.3). Almost equal numbers occurred in each year of life from one to four years of age, with about half that number aged 6 to 11 months. Fewer children than anticipated were five years old; a possible explanation for the latter is that the older children were less likely to be at home at the time of the survey.

Gender distribution

Approximately half of the sample of children consisted of males. This was consistent across provinces as well as across age groups (Tables 3.2, 3.3).

Urban/Rural distribution

The sampling strategy did not incorporate stratification to ensure proportional urban/rural composition. It was thus all the more important to check that the distribution in the sample was not too different from the population distribution. The urban/rural distribution of the sample varied considerably among provinces. At the one extreme, 99% of the sample in Gauteng lived in urban areas, whereas in the Northern Province only 5% came from urban areas. The urban percentage in the sample was remarkably similar to that of the population based on the 1991 census[5] (Table 3.4) for most provinces; the sample in the Eastern Cape and KwaZulu/Natal under-represented, whereas the sample in North West over-represented, the urban areas. Possible explanations for the observed differences include sampling error, population mobility since the 1991 census, or differences in the definition of urban/rural between Central Statistical Services and the ex-TBVC states.

Socioeconomic Status

These results describe the conditions under which children aged 6 to 71 months lived in South Africa (Table 3.5) in 1994. Almost 60% of children lived in formal homes, whilst 12% lived in informal structures. The mean room density was 2 persons per room with little difference among provinces. One third of children lived in homes with electricity; this figure ranged from a mere 13% in the Eastern Cape to 87% in Gauteng and 82% in the Western Cape. Just over 60% of the children had access to tap water, although only a third of these had taps at home. At the national level, a greater percentage of children lived in households that had a television set (42%) than a fridge (31%); this was also the case across provinces.

Table 3.5. Living conditions of children

	Northern Cape	**Western Cape**	**Eastern Cape**	**KwaZulu Natal**	**Eastern Transvaal**	**Northern Province**	**Gauteng**	**North West**	**Free State**	**South Africa**
Type of Home:										
Formal	89.8	86.0	41.3	45.8	60.4	65.8	79.4	75.6	67.3	59.8
Traditional	1.7	1.8	46.5	47.0	24.3	24.3	1.1	12.9	19.6	28.5
Informal	8.5	12.2	12.2	7.2	15.3	9.9	19.5	11.5	13.1	11.7
Mean room density (persons per room)	2.1	1.7	2.4	2.1	1.6	1.7	2.2	2.2	2.0	2.0
Live in home with electricity	61.9	82.1	13.1	36.1	37.2	24.1	86.8	26.2	40.3	36.6
Live in home with water from:										
River or dam	4.6	2.1	40.3	38.1	3.4	14.2	0.0	2.6	0.8	19.6
Borehole	3.5	3.1	8.5	12.9	24.5	21.6	2.5	22.0	10.5	13.4
Tap	86.0	94.6	49.5	44.3	62.8	54.0	97.1	71.3	86.2	62.8
Other source	5.9	0.2	1.7	4.7	9.3	10.2	0.4	4.1	2.5	4.4
If tap water, type of access:										
Communal tap	12.6	5.0	51.9	26.5	50.5	75.7	19.5	60.5	44.9	42.1
Tap on the plot	28.2	18.3	19.4	30.6	19.6	11.1	32.5	9.6	17.4	20.8
Tap in the house	59.2	76.7	28.7	42.9	29.9	13.2	47.7	29.9	37.7	37.1
Live in home with working fridge	43.5	68.7	14.6	27.2	32.8	22.4	63.9	21.1	28.9	30.8
Live in home with working TV	52.0	78.0	28.1	33.9	43.2	30.5	72.2	46.3	50.1	41.7

Table 3.6. Socioeconomic conditions of children

	Northern Cape	Western Cape	Eastern Cape	KwaZulu Natal	Eastern Transvaal	Northern Province	Gauteng	North West	Free State	South Africa
Mother's highest education level:										
Less than standard 5	41.0	21.4	40.7	44.5	46.0	40.1	14.1	49.5	38.2	39.0
Standard 5	28.6	33.6	32.7	21.4	20.5	20.6	24.0	24.6	28.7	25.4
Standard 8	16.2	27.3	15.1	18.4	17.9	21.5	35.4	12.8	22.4	19.9
Standard 10	9.4	12.0	5.8	11.9	12.1	12.2	21.3	9.9	9.2	11.2
Tertiary education	4.8	5.7	5.7	3.8	3.5	5.6	5.2	3.2	1.5	4.5
Mother currently employed	36.7	45.8	19.4	24.0	23.6	13.8	29.7	20.3	26.5	23.1
Father lives at home most of the week	53.1	59.9	33.9	33.3	51.3	30.8	56.6	46.9	56.8	41.2

Less than 16% of children had mothers with standard 10 education or higher (Table 3.6); less than a quarter of children had mothers who were employed at the time of the survey. Forty percent of children had fathers who lived at home most of the week; this percentage was lowest in the Eastern Cape, KwaZulu/Natal and Northern Province.

Morbidity

Of the 4 788 children from whom a blood sample was drawn, 95% were regarded as being healthy by the respondent (Table 3.7); this figure ranged from 93% in KwaZulu/Natal to 99% in the Eastern Transvaal. The percentage of children considered to be healthy did not differ between urban and rural areas or across age groups (Tables 3.7, 3.8).

At national level, 6% of children were reported to have been ill in the 48 hours prior to the interview (Table 3.7). The prevalence of diarrhoea, cough, and fever was 1%, 4% and 2%, respectively. Although the prevalence of diarrhoea was similar among provinces, Gauteng and the Western Cape had, in general, the highest prevalence of illness, cough and fever which was significantly higher than that in most other provinces. In terms of health service utilisation, 9% of children on a national basis had seen a health care worker or traditional healer in the month prior to the interview and 1% of children had been admitted to hospital in the same period (Table 3.7). Health service utilisation was higher in urban compared with rural areas. Once again, a striking difference in provincial patterns was noted.

Table 3.7. Health status by area of residence

General health status of children aged 6 to 71 months as reported by the respondent, South Africa, 1994

	Northern Cape	Western Cape	Eastern Cape	KwaZulu Natal	Eastern Transvaal	Northern Province	Gauteng	North West	Free State	South Africa	Rural	Urban
Percentage Healthy	97.7	92.9	95.0	92.6	98.6	96.2	95.5	94.5	93.0	94.7	94.1	95.6
During 48 hours prior to interview:												
Percentage who were ill	4.4	13.4	4.9	8.0	1.3	4.1	12.4	3.1	2.9	6.2	5.2	7.9
Percentage with diarrhoea	0.2	1.1	1.4	1.1	0.2	1.1	1.3	0.3	0.4	1.0	1.1	0.7
Percentage with cough	4.3	11.8	3.1	4.7	1.3	2.5	9.8	1.8	3.2	4.4	3.0	6.5
Percentage with fever	0.6	4.2	2.7	1.5	0.3	1.2	3.5	0.7	0.9	1.8	1.8	1.9
During the month prior to the surve12.3y interview:												
Percentage taken to a doctor or clinic or traditional healer	4.8	12.3	11.5	11.5	0.9	3.6	15.7	8.2	6.7	9.2	7.3	12.2
Percentage hospitalised	1.2	3.0	0.5	1.2	0.0	0.6	1.0	1.9	1.1	1.0	0.8	1.3
Percentage with visible goitre	4.2	2.3	1.1	0.3	1.1	1.4	0.2	1.2	1.5	1.0	1.1	1.0

The prevalence of morbidity declined progressively with increasing age (Table 3.8). The prevalence of cough was higher than that for diarrhoea and fever. Whereas the use of community health services declined with increasing age, no such trend was noted with respect to hospital admissions.

In this study, there was a consistent tendency for a higher percentage of children who were ill or had cough or diarrhoea or fever to have serum vitamin A concentration of < 20 æg/dL. However, there was no difference in the mean serum vitamin A concentration of those children reported as ill [23,3 æg/dL; 95% confidence interval (CI) 21,2; 25,4] versus those reported to be healthy (23,9 æg/dL; 95% CI 23,4; 24,5). This was also the case for cough (23,7 æg/dL; 95% CI 22,0; 25,5) versus no cough (23,9 æg/dL; 95% CI 23,3; 24,5), diarrhoea (22,2 æg/dL; 95% CI 19,3; 25,1) versus no diarrhoea (23,9 æg/dL; 95% CI 23,3; 24,5) and fever (23,5 æg/dL; 95% CI 18,9; 28,1) versus no fever (23,9 æg/dL; 95% CI 23,4; 24,5). These findings would suggest that the illness episodes reported were not severe.

Table 3.8. Health status by age group

General health status of children aged 6 to 71 months as reported by the respondent, South Africa, 1994

	6-11 months	12-23 months	24-35 months	36-47 months	49-59 months	60-71 months
Percentage Healthy	94.6	94.2	93.5	94.1	96.8	94.4
During 48 hours prior to interview:						
Percentage who were ill	10.7	9.2	6.5	6.9	4.2	3.5
Percentage with diarrhoea	3.2	2.9	0.5	1.1	0.2	0.0
Percentage with cough	7.5	6.4	4.4	4.8	3.1	2.6
Percentage with fever	3.3	4.2	1.3	1.7	0.8	1.1
During the month prior to the survey interview:						
Percentage taken to a doctor or clinic or traditional healer	17.2	13.2	10.7	8.3	6.2	6.4
Percentage hospitalised	0.6	1.1	1.6	1.4	0.7	0.3
Percentage with visible goitre	1.1	0.8	1.0	1.0	1.3	1.1

Goitre

The presence of visible goitre was noted in 1% of children nationally (Table 3.7). At provincial level, the rate varied from 0,2% in Gauteng to 4% in the Northern Cape. No difference was noted when comparing rural with urban areas or age strata (Tables 3.7, 3.8).

Breastfeeding

The percentage of three year old children who were breastfed averaged 88%, ranging from 76% in the Western Cape to 97% in the Northern Province, the only province in which the prevalence was >90% (Table 3.9). A greater proportion of rural children were breastfed (91%) compared to urban children (83%). Furthermore, in general, a greater percentage of rural children were breastfed for longer periods (Fig. 3.1); a significantly lower percentage (4%) of rural children were breastfed for less than 3 months as compared to children living in urban areas (8%). The percentage of children that were never breastfed was similar (10-13%) across all age groups (Table 3.10). A statistically significant (Chi square for linear trend = 12,9; p <0,001) tendency for younger children to be breastfed for less than three months was apparent (Tables 3.10; Fig. 3.2); this trend was particularly prominent for urban children (Table 3.11). Employment, at the time of the survey, did not appear to affect the prevalence of breastfeeding practices (Table 3.12), but a significantly (Chi square for linear trend = 18,3; p; < 0,001) higher percentage of well educated mothers breastfed for less than three months.

Table 3.9. Breastfeeding practices by area of residence

Percentage of children aged 36 to 47 months who were never breastfed or where breastfed for various durations as reported by the respondent South Africa 1994

	Northern Cape	Western Cape	Eastern Cape	KwaZulu Natal	Eastern Transvaal	Northern Province	Gauteng	North West	Free State	South Africa	Rural	Urban
No. of children	181	162	310	252	247	294	153	309	272	2180	1250	930
Percentage who were breastfed for period:												
Never	20.3	24.0	12.9	13.9	13.4	3.4	10.3	12.9	12.0	11.9	9.2	16.8
Unknown duration	1.7	5.0	1.9	3.2	1.2	1.7	1.3	0.7	2.1	2.1	2.0	2.3
Less than 1 month	0.6	0.6	0.3	1.2	0.4	0.0	0.6	0.0	0.4	0.5	0.5	0.5
1 to 2months	3.9	6.2	3.6	3.6	3.2	2.0	9.2	3.3	4.4	4.0	2.8	6.1
3 to 5 months	9.5	13.5	10.6	6.8	5.2	1.4	9.9	6.5	5.3	7.1	4.8	11.1
6 to 11 months	6.6	9.3	7.8	7.5	9.3	4.1	6.5	7.2	6.2	7.0	7.2	6.6
12 to 23 months	21.1	14.2	33.5	32.1	29.3	43.2	36.0	32.6	23.1	32.7	36.1	26.9
24 to 35 months	26.3	13.0	24.2	29.3	35.2	37.8	22.3	29.8	35.7	29.1	32.5	22.9
At least 36 months	10.0	14.2	5.2	2.4	2.8	6.4	3.9	7.0	10.8	5.6	4.9	6.8
Less than 3 months	5.6	8.9	4.5	5.5	4.2	2.1	10.9	3.7	5.5	5.1	3.6	7.9
95% confidence interval	1.6;9.6	2.7;15.2	2.3;6.6	2.5;8.5	0.9;7.5	0.0;4.4	4.4;17.4	1.3;6.2	2.0;9.0	3.9;6.3	2.4;4.8	5.3;10.5

Table 3.10. Breastfeeding practices by age group

Percentage of children aged 36 to 47 months who were never breastfed or where breastfed for various durations as reported by the respondent South Africa 1994

	6-11 months	12-23 months	24-35 months	36-47 months	49-59 months	60-71 months
No. of children	1024	2147	2249	2180	2060	1587
Percentage who were breastfed for period:						
Never	10.3	10.2	12.0	11.9	11.1	12.6
Unknown duration	5.2	2.5	2.9	2.1	4.5	3.7
Less than 1 month	0.4	0.4	0.5	0.5	0.4	0.6
1 to 2months	5.7	4.8	5.1	4.0	4.0	3.5
3 to 5 months	7.5	8.2	5.9	7.1	5.7	8.1
6 to 11 months	70.9	7.5	8.2	7.0	8.5	7.9
12 to 23 months	-	66.4	36.3	32.7	31.8	28.0
24 to 35 months	-	-	29.1	29.1	27.2	28.4
At least 36 months	-	-	-	5.6	6.8	7.2
Less than 3 months	6.8	5.8	6.4	5.1	4.9	4.7
95% confidence interval	4.8;8.9	4.4;7.1	5.1;7.7	3.9;6.3	3.6;6.2	3.4;6.0

Figure 3.1. Duration of breastfeeding of children aged three years

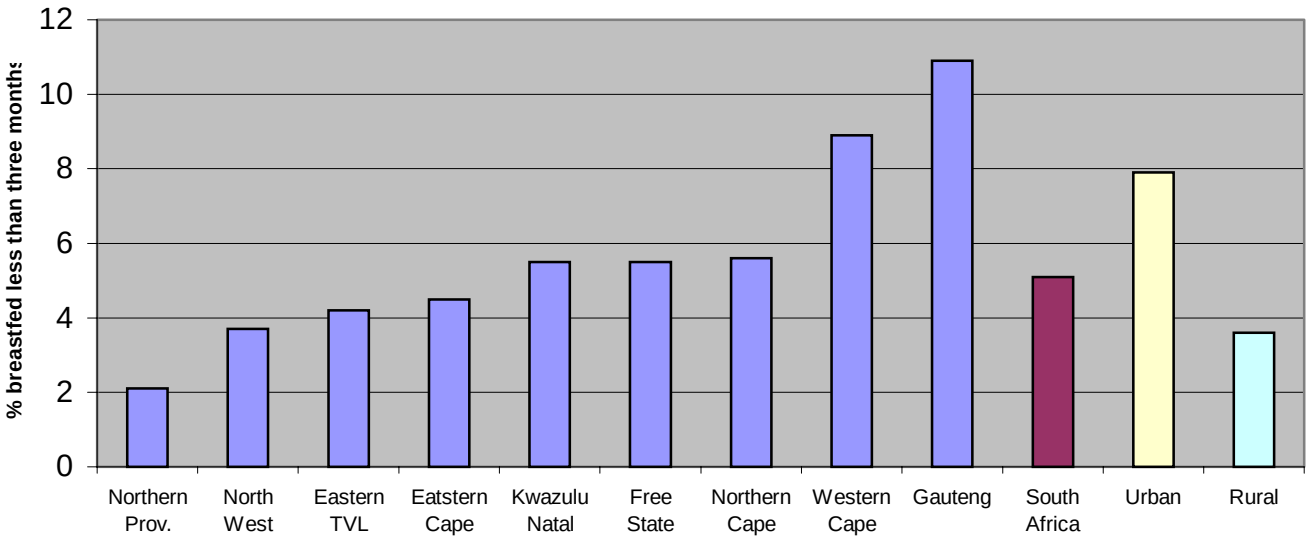

Table 3.11. Breastfeeding practices by age group in rural and urban areas

Percentage of children aged 36 to 47 months who were never breastfed or where breastfed for various durations as reported by the respondent South Africa 1994

	6-11 months		12-23 months		24-35 months		36-47 months		49-59 months		60-71 months	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
No. of children	601	423	1190	957	1301	948	1250	930	1146	914	863	724
Percentage who were breastfed for period:												
Never	7.2	15.9	7.1	15.2	9.3	16.8	9.2	16.8	9.0	14.5	9.9	16.6
Unknown duration	7.4	1.2	3.6	0.7	3.2	2.4	2.0	2.3	4.8	4.0	3.6	3.9
Less than 1 month	0.1	0.9	0.4	0.3	0.6	0.2	0.5	0.5	0.0	0.9	0.3	1.0
1 to 2months	4.4	8.2	3.7	6.6	4.0	7.3	2.8	6.6	3.0	5.7	2.8	4.5
3 to 5 months	4.9	12.2	4.9	13.3	4.1	9.2	4.8	11.1	3.1	9.9	4.6	13.3
6 to 11 months	76.0	61.6	6.6	9.0	7.3	10.0	7.2	6.6	7.0	10.7	8.0	7.7
12 to 23 months	-	-	73.3	54.9	41.4	27.0	36.1	26.9	36.8	23.9	30.7	24.1
24 to 35 months	-	-	-	-	30.1	27.1	32.5	22.9	30.6	22.0	33.5	20.9
At least 36 months	-	-	-	-	-	-	4.9	6.8	5.7	8.4	6.6	8.0
Less than 3 months	4.8	10.8	4.4	8.1	5.1	9.1	3.6	7.9	3.3	7.7	3.5	6.6
95% confidence interval	2.5;7.2	6.9;14.8	2.9;6.0	5.6;10.7	3.6;6.5	6.4;11.8	2.4;4.8	5.3;10.5	1.6;4.9	5.5;9.9	1.9;5.1	4.5;8.7

Figure 3.1. Duration of breastfeeding of children aged three years

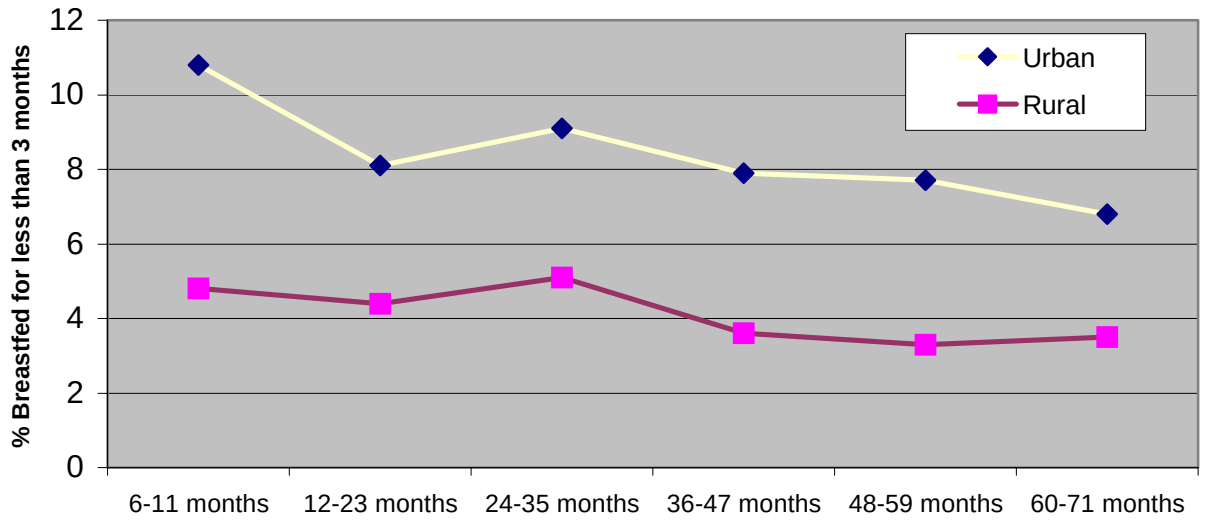

Table 3.12. Breastfeeding practices by maternal education and maternal employment

Percentage of children aged 36 to 47 months who were never breastfed or where breastfed for various durations as reported by the respondent South Africa 1994

	Highest education attained by mother					Mother employed at time of survey	
	< Standard 5	Standard 5	Standard 8	Standard 10	Tertiary Education	No	Yes
No. of children	843	519	441	228	90	1620	512
Percentage who were breastfed for period:							
Never	9.8	12.4	11.9	16.5	13.3	11.5	13.3
Unknown duration	1.9	2.0	1.7	1.8	0.0	1.6	4.0
Less than 1 month	0.5	0.5	0.8	0.3	0.0	0.5	0.4
1 to 2months	2.8	3.3	4.6	7.7	7.1	3.4	5.5
3 to 5 months	5.3	4.6	9.3	10.3	14.3	5.7	11.8
6 to 11 months	6.8	6.0	6.4	9.5	11.6	7.3	6.3
12 to 23 months	31.8	36.7	31.6	30.5	32.1	33.7	29.2
24 to 35 months	34.4	28.8	28.4	20.0	16.6	30.7	24.0
At least 36 months	6.7	5.7	5.3	3.4	5.0	5.6	5.5
Less than 3 months	3.6	4.4	6.2	6.2	8.2	4.4	6.9
95% confidence interval	1.9;5.3	2.1;6.6	3.3;9.0	3.3;9.0	0.6;15.8	3.2;5.7	4.0;9.8

DISCUSSION

As expected, on the basis of the sampling strategy employed, the number of children studied varied among provinces. This probably reflects the fact that there are fewer children per household in urban than in rural areas. Nevertheless, children of all the age groups selected are well represented in the study sample.

Socioeconomic parameters determined in the study indicate that two thirds of children live in homes without electricity, almost 40% do not have access to tap water, one in five have a working mother, 60% have a father that lives away from home for most of the week, one in ten live in informal settlements, and only one in five have a mother with an education level higher than standard ten. Four out of ten children live in a home with a television set. Similarly poor socioeconomic conditions have been reported by the national poverty study of SALDRU[6].

The difference in the prevalence of diarrhoea (1%) and cough (4%) in children who gave a blood sample could in all probability be ascribed to the timing of the survey. The low prevalence of diarrhoea may be due to the fact that the survey was conducted during late winter and spring when the expected rates for diarrhoea would be low. The converse would apply for cough. Furthermore, it is possible that respondents with ill children were less likely to allow their child to donate a blood sample. Morbidity data in terms of prevalence of cough and fever and health service utilisation as reflected by visits to community health workers and admission to hospital varied at provincial level. The reasons for the consistently lower rates in the Eastern Transvaal are not clear. The higher rates for health service utilisation in Gauteng and in the Western Cape could be ascribed to the greater accessibility to health care facilities.

Detection of visible goitre in children under the age of five years is known to be difficult and is usually not recommended for population studies assessing the prevalence of iodine deficiency disorders[7]; further, physical detection of an enlarged goitre without ultrasonography is likely to result in underdiagnosis. For this reason, it is usually recommended that, if visible goitre is used as a public health screening tool for iodine deficiency disorders, school-going children should be examined. Therefore, the low prevalence of goitre reported in this study does not necessarily imply that iodine deficiency is not a problem in South Africa. In this regard, the relatively higher prevalence rate of 4% found in the Northern Cape is of concern and it may be indicative of significant prevalence of iodine deficiency in that area. This possibility is supported by a recent unpublished study[8] of about 700 primary school children in six towns in this area which has shown that the prevalence of goitre varied from 9-25%. Further investigation and definition of the prevalence of iodine deficiency in this area is, therefore, warranted.

The study has shown that the prevalence of breastfeeding amongst three year old children in all provinces was between 76% and 90%, with the notable exception of the Northern Province where the prevalence was 97%. This supports results from previous studies which have shown rates of 96% and 97% in ex-Lebowa and ex-Venda9,10 respectively. The comparatively low rate in the Western Cape (76%) confirms previous

findings which indicate that in Bishop Lavis[11] and Khayelitsha[12] approximately 20% of children were not breastfed. The latter may be a reflection of the effects of urbanization which is known to be associated with decreased prevalence of breastfeeding practices[13]. In this regard, it is of some concern that younger children tended to be breastfed for periods shorter than three months, especially in the urban areas, and may indicate a trend away from breastfeeding; this tendency should be confirmed and the underlying causes should be further investigated. Moreover, these results should be interpreted with caution, since data on the duration of breastfeeding was obtained by recall and mothers/guardians may have rounded off or forgotten the exact duration. The prevalence of exclusive breastfeeding was not determined in this study and should also be further investigated.

RECOMMENDATIONS

The important and recognised role of socioeconomic upliftment in the long-term improvement of nutritional status of the community at large, falls outside the objectives of the present study and the scope of this report. Recommendations are, therefore, restricted to iodine deficiency disorders and breastfeeding:

SAVACG offers its assistance in the implementation of those recommendations for which it has the relevant expertise and infrastructure. In terms of the recommendations made in this chapter, SAVACG can assist with recommendations 3.1.1, 3.2.2.1 and 3.2.2.2.

3.1 Iodine status:

3.1.1 Within the methodological limitations discussed in this report, the results of this study seem to confirm previous fragmented data that iodine deficiency may occur in some parts of the country. The need for the better definition of iodine status at the national level in school-going children should be seen within the framework of other national health priorities. Certainly, such a study would be essential for the formulation of an informed policy on any necessary intervention, such as the recently proposed legislation for universal salt iodisation[14]. In view of the findings of the present study, it is recommended that iodine status of school-going children as well as pregnant and lactating mothers in the Northern Cape is assessed using biochemical and clinical parameters[8].

3.2 Breastfeeding:

3.2.1 Short-term

3.2.1.1 Within the framework of health care services, and primary health care in particular, exclusive breastfeeding for 4-6 months should be promoted and implemented according to international goals[15], in order to maintain the high prevalence of breastfeeding recorded in most provinces in the study. Television would be an appropriate medium to employ for this purpose, since a substantial number of homes have a working television set.

3.2.2 Medium-term

3.2.2.1 The prevalence of exclusive breastfeeding for 4-6 months in the country is largely unknown and should be defined.

3.2.2.2 The factors responsible for the documented tendency for younger children to be breastfed for periods shorter than three months, especially in urban areas, should be identified. In this regard, and with the primary objectives of the study in mind, breastfeeding is

known[16] to substantially reduce the risk of vitamin A deficiency, a protective effect which extends to the third year of life. This is also of particular importance, in view of the current poorly documented claims of possible faltering of breastfeeding practices in the country.

3.2.2.3 Based on recommendations 3.2.2.1 and 3.2.2.2 above, a "warm chain" for breastfeeding[17] should be established which includes appropriate training of health care personnel and alleviation of the everyday constraints with which a lactating mother may be faced both at home and at the work place.

3.2.2.4 In South Africa, these goals should be achieved in close partnership with all relevant role players and with due consideration to and respect for the choice of an informed mother regarding the feeding of her child.

3.2.3 Long-term

3.2.3.1 Breastfeeding practices including exclusive breastfeeding should form part of the national surveillance system in order to monitor progress and take corrective steps as appropriate.

3.2.3.2 The long-term achievement of these goals should be addressed within the proposed framework of the Nutrition Committee18 regarding an integrated nutrition strategy for South Africa which must be compatible with the ethos and principles of the government's Reconstruction and Development Programme for socioeconomic upliftment.

REFERENCES

1. Indicators for assessing vitamin A deficiency and their application in monitoring and evaluating intervention programmes. Report of a joint WHO/UNICEF consultation. WHO/NUT/94.1. Geneva. 1994.

2. Louw JA, Werbeck A, Labadarios D, et al. Blood vitamin concentrations during the acute phase response. Crit Care Med. 1992; 20: 934-941.

3. Debton TA, Diamond GA, Matloff JM, Gray RJ. Anemia therapy: individual benefit and social cost. Sem Oncol. 1994; 21 (Suppl 3): 28-35.

4. Hussey G. Personal communication.

5. Population Census 1991. Central Statistical Services. Provincial Statistics. Part 10. Report No 00-90-10. Pretoria 1994.

6. Project For Statistics On Living Standards And Development. South Africans Rich And Poor: Baseline Household Statistics. SALDRU. School of Economics. University of Cape Town. 1994.

7. World Health Organisation. Micronutrient Deficiency Information System (MDIS). Global prevalence of iodine deficiency disorders. Working Group Paper No 1. Geneva. 1994.

8. Jooste PL. Personal communication.

9. Steyn NP, Badenhorst CJ, Nerl JH, Ladzani R. Breastfeeding and weaning practices of Pedi mothers and the dietary intakes of their preschool children. S Afr J Food Sci Nutr. 1993; 5: 10-13.

10. Zollner E, Carlier ND. Breastfeeding and weaning practices in Venda, 1990. S Afr Med J. 1993 ;83: 580-583.

11. Strategic Management Team of the Western Cape: Working Group on Nutrition. Situation analysis of the nutrition situation in the Western Cape. 1994.

12. Strategic Management Team of the Western Cape: Working Group on Nutrition. Nutrition in the Western Cape. 1994.

13. Romero-Gwynn E. Breastfeeding pattern among Indochinese immigrants in Northern California. Am J Dis Child. 1989; 143: 804-808.

14. Department of Health. Foodstuffs, Cosmetics and Disinfectants Act, 1972 (Act No 54 of 1972). Regulations relating to salt. Government Gazette; 18 November: No R 1965. 1994.

15. World Health Organisation. World Declaration on Nutrition: Plan of action for nutrition. Division of Food and Nutrition. Geneva. 1993.

16. Mahalanabis D. Breastfeeding and vitamin A deficiency among children attending a diarrhoea treatment centre in Bangladesh: a case-control study. Br Med J. 1991; 303: 493-496.

17. Anonymous. A warm chain for breastfeeding. Lancet. 1994; 344: 1239-1241.

18. Report of the Nutrition Committee to the Minister of Health: An integrated Nutrition Strategy for South Africa. Department of Health. Pretoria. 1994.