

Adverse social, nutrition and health conditions in rural districts of the KwaZulu-Natal and Eastern Cape provinces, South Africa

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Abstract

Objective: This study determined the socio-demographic, nutritional and health status of children and their caregivers in two rural districts in KwaZulu-Natal (KZN) and one rural district in the Eastern Cape (EC), South Africa.

Design: A cross-sectional survey was conducted.

Setting: The study population resided in Umkhanyakude (sub-district Jozini) and Zululand (sub-district Pongola) in KZN, and in OR Tambo (sub-district Nyandeni) in the EC province.

Subjects: Children 0 to 59 months old (Umkhanyakude n = 398; Zululand n = 303; OR Tambo n = 364) and their caregivers were included.

Methods: Structured interviewer-administered questionnaires were conducted and height and weight were measured.

Results: Households in OR Tambo had less access to services (tap water 3%, toilets 33%), compared to Umkhanyakude (tap water 50%, toilets 82%) and Zululand (tap water 74%, toilets 98%). Wood was the main energy source used to cook food in all three districts (> 75%). Grants were a main source of income (Umkhanyakude and Zululand 61%; OR Tambo 55%). Many households obtained vegetables from their own garden (Umkhanyakude and Zululand 30%; OR Tambo 70%). The households that reportedly had enough food available at all times (Umkhanyakude and Zululand 25%; OR Tambo 17%), were in the minority. The diarrhoea prevalence reported by the caregivers was high (Umkhanyakude 35%; Zululand 24%; OR Tambo 24%). The prevalence of stunting was higher for children older than 12 months and varied between 22 and 26%. The prevalence of overweight among children 0 to 23 months exceeded the prevalence of underweight. The prevalence of overweight and obesity among caregivers was high (Umkhanyakude 42%; Zululand 60%; OR Tambo 56%).

Conclusion: Concerted efforts are needed to address the adverse social, nutrition and health conditions in these districts.

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Background

Rural women and children are among the worst affected individuals in South Africa (SA) in terms of social, nutritional and health status. This relates directly to racial and gender discrimination, the migrant labour system, destruction of family life, income inequalities and violence stemming from the past governmental era.¹ During this period, the lives of women and children, especially those from poorly resourced rural homelands, were greatly affected by under-resourced health services, environmental risks and food insecurity.² Based on its economy, SA is viewed as a middle-income country, but the country's health outcomes are reported as being worse than those in many lower income countries.¹ Health inequities between and within provinces still exist 15 years after the democracy and remain the root cause of this paradoxical situation in SA.¹ There are also marked differences in disease and mortality rates between races, reflecting the racial differences in terms of access to basic household living conditions and other determinants of health.¹ Between 2005 and 2007, the Eastern Cape (EC) and KwaZulu-Natal (KZN) provinces had among the highest poverty (people living on an income below R250 per month) and infant mortality rates, the lowest number of child

births conducted in a medical facility, and the second lowest access to free potable water within 200 m.^{3,4} The districts Umkhanyakude and Zululand in KZN and OR Tambo in the EC were listed among the 20% of districts defined as being very deprived, and with the greatest need for resources, access to services and development.⁴

Since the introduction of the Millennium Development Goals (MDG) baseline in 1990, SA is one of only 12 countries in the world where childhood mortality has increased and maternal mortality has not changed.^{5,6} Infections, including HIV/AIDS, are a leading cause of under-five child and maternal deaths,^{7,8} malnutrition remains persistently high, and sub-clinical vitamin A deficiency among children under five and women remains a public health problem.⁹ Constraints in human resources, which have been listed among the reasons for the persistent poor health outcomes, have been reported to the Ministry of Health, but little has been done to address the situation.⁹ The insufficient implementation of core health policies developed by the governing party and failure to translate these into practice have also been under scrutiny and criticised, yet the progress in this regard remains slow.^{1,9,10,11} Infrastructural problems, living too far from health facilities and having no money

to pay for transport deprive the rural poor from essential goods and services that are needed for their development and economic independence.^{12,13,14} Poverty and environmental constraints are disempowering and negatively affect human behaviour. It was found that poor rural women are less likely to give birth at a medical facility, or to deliver with the assistance of a skilled health worker than are their wealthier urban counterparts.^{13,14} This further exposes the rural poor to sub-optimal health care, which is detrimental to maternal and child health. The bleak picture in terms of rural people's health and health care systems to date seems discouraging. However, the recent review of the health of SA reflects new hope and confidence in terms of the new political developments,¹ which need commitment and support from all role-players and communities.

The Nutritional Intervention Research Unit (NIRU) of the Medical Research Council (MRC) was commissioned by Health Systems Trust (HST), a non-governmental organisation (NGO), to assess the nutritional and health status of children 0 to 59 months old as well as that of their caregivers in rural districts in KZN and the EC. This survey formed part of a community-based project implemented by HST in 2003,¹⁵ which fits into the Integrated Nutrition Programme (INP) focus areas of the National Department of Health (DoH).¹⁶ This study reports on the social, nutrition and health conditions prevalent within these rural communities.

Subjects and methods

Study population and sampling

The study population resided in two districts in KZN, i.e. Umkhanyakude (sub-district Jozini) and Zululand (sub-district Pongola), and one district in the EC, i.e. OR Tambo (sub-district Nyandeni), SA. The study had a cross-sectional design. The target population comprised children aged between 0 and 59 months and their caregivers. The HST identified five clinics in each of the three districts and randomly selected five schools within the catchment areas of each clinic. A stratified random sample was drawn in each district using the five clinics in each district as the strata. At each of the selected schools, learners with siblings under five years old were identified. One-hundred 0 to 59-month-old children per clinic were randomly selected from the five schools proportional to the number of learners per school. This amounted to 500 children per district and translated to a total of 1500. The caregiver and the selected child were asked to attend a central place for scheduled sessions of anthropometric measurements and completion of questionnaires.

The sampling procedure was based on the assumptions that (i) a good coverage of the study population would be obtained by using primary school learners to identify households with siblings between 0 and 59 months old, and (ii) recruitment through schools would give a high consent for participation. Due to unfavourable weather conditions, inaccessible roads and overlapping of the survey with pay-out dates of social grants in certain communities, the required sample size of 100 children per clinic catchment area did not materialise. It was envisaged that interviews would be done at different sites within a clinic catchment area. In most cases, interviews were done on one site and mainly at a clinic. This contributed to a smaller-than-required sample size and possible under-representation of households far away from the clinic in the final sample.

The HST recruited 45 fieldworkers, 15 for each district, to administer the questionnaires through caregiver interviews. These fieldworkers were trained by NIRU during a three-day workshop. Four NIRU fieldworkers received a refresher course in anthropometry and were responsible for measuring the height and weight of preschool children and their caregivers, recording vitamin A supplementation data from the Road to Health Card (RTHC) and checking the questionnaires for completeness. NIRU researchers assisted by HST facilitators did the quality control by checking the completed questionnaires for irregularities during the survey and on-site visits.

Questionnaire information

The questionnaire was developed in accordance with the guidelines of Gross et al¹⁷ and contained questions from a previous survey¹⁸ that was conducted in the area prior to the implementation of the HST project. The questionnaire was translated into the local language (Zulu for KZN and Xhosa for EC). The translated questionnaire was verified through back-translation and pre-tested before being finalised. The trained fieldworkers interviewed the caregivers of the selected children during 7 to 18 April in Zululand, 5 to 16 May in Umkhanyakude and 26 May to 6 June 2008 in OR Tambo.

Anthropometry

NIRU staff measured the height and weight of the 0 to 59-month-old children and their caregivers. The measurements were taken with the participants wearing light clothing and no shoes. A calibrated electronic load cell digital scale (UC-321 Precision Health Scale, Mascot) accurate to 50 g was used to obtain weight measurements. Infants and children who were unable to stand alone were held by their caregivers after the scale had been zeroed with their caregivers on the scale. Recumbent length of children younger than two years was measured to the nearest 0.1 cm, using a horizontally placed measuring board with a fixed headboard and a movable foot piece. The height of children two years and older and their caregivers was measured to the nearest 0.1 cm using a vertical wooden board with a fitted measuring tape and a movable headpiece. The child's age was recorded from the RTHC. Anthropometric data were analysed using the World Health Organization (WHO) child growth standards for age, sex, height and weight¹⁹ and expressed as z-scores (standard deviations [SDs] of the median of the reference population) for each of the anthropometric indices of malnutrition. Children with height-for-age, weight-for-age and weight-for-height z-scores more than two standard deviations below the reference median were classified as stunted, underweight and wasted, respectively. Children with weight-for-height more than two standard deviations above the reference median were classified as overweight. For the caregivers, body mass index (BMI) was calculated as the weight in kilograms divided by the square of height in metres and categorised as underweight (BMI < 18.5), normal weight (BMI 18.5 – < 25), overweight (BMI 25 – < 30) or obese (BMI ≥ 30).²⁰

Data analysis

Data were captured and cleaned by NIRU scientists. Data analysis was done using Microsoft Excel, SPSS and the SAS software package. Categorical data are presented as frequencies and percentages. The mean and SD are given for continuous data. Data are presented per district and province.

Ethics

The Ethics Committee of the MRC approved the survey (EC07-005). The HST co-ordinated the planning and implementation of the survey. Written consent was obtained from the caregivers after their rights as well as the purpose and nature of the study were explained to them.

Results

Study population

The number of households (caregiver–child pairs) interviewed within the three districts varied (Umkhanyakude $n = 398$; Zululand $n = 303$; OR Tambo $n = 364$), and none of the districts achieved the targeted sample size of 500. In total, 1065 respondents were interviewed, of whom 99% were female. The caregivers in OR Tambo were slightly older (34 ± 13 years) than those in Umkhanyakude and Zululand (both 29 ± 11 years).

Personal and socio-demographic information of the caregivers and the households

Table I reflects personal and socio-demographic information of the respondents and their households. Most of the caregivers were the biological mother of the child (Umkhanyakude 81%; Zululand 79%; OR Tambo 71%). The average household size was approximately eight people per household. Most households in Zululand (59%) and Umkhanyakude (74%) obtained drinking water from a tap (own, public or neighbours' tap), while nearly all in OR Tambo (91%) obtained drinking water from a river or dam. For the households who obtained drinking water from a river or dam, the time taken to fetch water varied. Between 29 and 44% of the households reportedly took more than one hour to fetch water in the three districts. More than two-thirds of the households in all three districts indicated wood and open fires (either in or outside the house) as the main source of energy to cook food. In KZN most of the households had access to toilets (mostly pit toilets), in Umkhanyakude this percentage was 82% and in Zululand 98%, versus 33% in OR Tambo. The majority of the caregivers (Umkhanyakude 92%; Zululand 90%; OR Tambo 90%) were unemployed. Most households had a cell phone (Umkhanyakude 84%; Zululand 89%; OR Tambo 84%).

Employment status of respondents' husbands/partners if in a union

The husbands/partners of those caregivers in union comprised a small group (Umkhanyakude $n = 42$; Zululand $n = 47$; OR Tambo $n = 160$). More than half of the husbands/partners were unemployed (Umkhanyakude 64%; Zululand 53%; OR Tambo 52%), the rest were either full-time employees (Umkhanyakude 19%; Zululand 44%; OR Tambo 28%) or casual employees (Umkhanyakude 17%; Zululand 2%; OR Tambo 20%).

Place of birth of youngest child born between 2004 and 2008

For children born between 2004 and 2008 (Umkhanyakude $n = 376$; Zululand $n = 319$; OR Tambo $n = 160$), the place of birth was as follows: in hospital (Umkhanyakude 71%; Zululand 76%; OR Tambo 55%), at a clinic (Umkhanyakude 14%; Zululand 3%; OR Tambo 5%) and at home (Umkhanyakude 15%; Zululand 21%; OR Tambo 39%).

The caregivers reported that some biological mothers of the children in the study were no longer alive (Umkhanyakude $n = 7$, 1.7%; Zululand $n = 7$, 2.4%; OR Tambo $n = 6$, 1.7%).

Sources of household income and food

Table II reflects the sources of household income and food. A large number of caregivers (Umkhanyakude 75%; Zululand 73%; OR Tambo 88%) indicated child support grants as a source of household income. Very few caregivers indicated an own salary (Umkhanyakude 16%; Zululand 16%; OR Tambo 9%), or husband/partner's salary (Umkhanyakude 18%; Zululand 27%; OR Tambo 21%) as a source of household income. The selling of vegetables (Umkhanyakude 19%; Zululand 11%; OR Tambo 14%) was also indicated as a source of household income.

More than 95% of the households in the three districts indicated shops as a source where they obtained food during the previous month. Approximately 30% of the households in the two KZN districts and 70% in the EC obtained food from their own garden. The households that indicated that they always had enough food available for consumption (Umkhanyakude 26%; Zululand 25%; OR Tambo 17%) were in the minority. Just over 50% of the households in Umkhanyakude and Zululand and 22% in OR Tambo reported experiencing periods of food shortage during the 12 months prior to the survey. Households were most vulnerable to food shortages during January, and to a lesser extent in February and March.

Information on grants

Table III reflects information on social grants. In the EC, the caregivers obtained information on social grants from the village chief (37%), other community members (24%), the clinic sister (21%) or community health workers (21%), while information on social grants in KZN were mostly obtained from the clinic sister (Umkhanyakude 24%; Zululand 21%). The number of orphans and disabled people who qualified for grants and received them was much lower compared to the elderly (Umkhanyakude 91%; Zululand 95%; OR Tambo 90%) and children younger than 14 years (Umkhanyakude 80%; Zululand 81%; OR Tambo 90%). A lack of documents (Umkhanyakude 46%; Zululand 49%; OR Tambo 30%) was given as the main reason for not receiving a grant.

Information on community-based growth monitoring sites

Of the 1 065 households surveyed, 144 (13%) attended a community-based growth monitoring (CBGM) site, which is a key component of the HST project. Of the 144 caregivers that visited the CBGM sites, the majority visited monthly (Umkhanyakude 89%; Zululand 73%; OR Tambo 54%). Of the 25 (17%) that had been referred from the CBGM sites to the clinic, the following were indicated as reasons for the referral: underweight or not growing well ($n = 4$), child being ill ($n = 9$), immunisation ($n = 7$) and not sure ($n = 5$).

Child health problems

Information on child health, as reported by the caregiver, is given in Table IV. Health problems experienced by the child during the two weeks prior to the survey included respiratory infections such as continuous coughing or continuous running nose (Umkhanyakude 33%; Zululand 41%; OR Tambo 40%), fever (Umkhanyakude 54%; Zululand 44%; OR Tambo 44%), lack of appetite (Umkhanyakude 50%; Zululand 47%; OR Tambo 47%) and diarrhoea (Umkhanyakude 35%; Zululand 24%; OR Tambo 24%). The majority of the caregivers (Umkhanyakude 89%; Zululand 79%; OR Tambo 69%) were familiar with the regime to prepare the oral rehydration solution (ORS). Many

Table I: Personal and socio-demographic information of the household^a

	KwaZulu-Natal		Eastern Cape
	Umkhanyakude (N = 398)	Zululand (N = 303)	OR Tambo (N = 364)
Relation of the respondent to the child	%	%	%
Biological mother	81	79	71
Grandmother	11	12	20
Aunt	6	8	7
Other: sibling, caretaker, other wife	1	1	3
Marital status of respondent	%	%	%
Married, only wife	7	8	16
Married, more than one wife	2	5	3
Common-law wife	2	3	23
Widowed	0	4	14
Unmarried	89	80	44
Mean and SD for the number of household members according to age categories			
Children aged 0 to 59 months	2.1 (1.3)	2.4 (2.1)	1.9 (1.1)
Schoolchildren	2.5 (2.1)	3.1 (2.6)	2.4 (1.8)
Adults	3.4 (2.4)	3.7 (2.4)	2.7 (1.6)
Elderly	0.5 (1.0)	0.6 (0.8)	0.4 (0.7)
Source of drinking water	%	%	%
Own tap	11	49	< 1
Public tap/neighbour's tap	39	25	2
River/dam	41	21	91
Other (borehole, well, water pump, canal, rain water)	9	6	6
Time taken to fetch water if river was the main source^a	%	%	%
Less than 20 min	23	32	31
Between 20 and 60 min	31	36	40
More than 60 min	44	30	29
Don't know	2	2	< 1
Main source of energy to cook food	%	%	%
Electricity	6	21	16
Wood, open fires inside/outside the house	88	67	76
Gas or paraffin	6	7	7
Other	0	5	< 1
Toilet facilities	%	%	%
Flush toilet	2	< 1	4
Pit toilet	80	98	29
No toilet, use forest or bush	18	2	66

^aUmkhanyakude (n = 164); Zululand (n = 63); OR Tambo (n = 333)

Table II: Sources of household income and food sources

	KwaZulu-Natal		Eastern Cape
	Umkhanyakude (N = 398)	Zululand (N = 303)	OR Tambo (N = 364)
	%	%	%
Income^a			
Own income/salary	16	16	9
Husband/partner's salary	18	27	21
Maintenance paid by father	17	17	21
Live-in family, friends or boarders	22	24	21
Child grant	75	73	88
Social grant for orphans	6	7	7
Disability grant	9	8	8
Pension	27	35	26
Sales of vegetables	19	11	14
Other	10	8	14
No cash income	10	4	9
Food sources the previous month^a			
Shops	96	95	98
Own garden	31	30	70
Community garden	6	10	8
Clinic garden	1	5	5
Own livestock	25	33	35
Clinic food aid / welfare / NGO	3	3	4
Household food available for consumption			
Always enough	26	25	17
Sometimes not enough	46	49	56
Often not enough	28	26	26
Food shortages during the 12 months prior to the survey	51	52	22

^aRespondents could give more than one answer

Table III: Information on grants

	KwaZulu-Natal						Eastern Cape		
	Umkhanyakude (N = 398)			Zululand (N = 303)			OR Tambo (N = 364)		
Households' sources of information on grants	%			%			%		
Clinic sister	24			22			21		
Family	15			7			4		
Community health worker	16			20			21		
Project volunteer	5			4			2		
Chief or elderly people	10			9			37		
Media ^a	10			12			3		
Community ^b	8			7			24		
Government departments ^c	10			9			3		
Other ^d	8			1			10		
No one	17			14			5		
Household members that qualified for and received social grants	Qualify for grant	Received grant		Qualify for grant	Received grant		Qualify for grant	Received grant	
	N	n	%	N	n	%	N	n	%
Elderly	140	128	91	132	125	95	141	127	90
Children < 14 years	377	302	80	264	213	81	360	324	90
Disabled people	57	40	70	35	23	66	46	30	65
Orphans	116	47	40	90	41	46	67	27	40
Reasons why qualifying members did not receive a grant	Umkhanyakude (n = 173)			Zululand (n = 119)			OR Tambo (n = 106)		
	n	%		n	%		n	%	
Did not know they qualify	25	14		14	12		17	16	
Lacked documents	79	46		58	49		32	30	
Unable to travel	3	2		0	-		4	4	
Other	29	17		25	21		31	29	
Don't know where to apply	15	9		15	12		6	6	
Don't know / not sure	21	12		7	6		16	15	

^a Radio, TV, newspapers; ^b Neighbours, friends, ward councillors; ^c Home affairs, social welfare, social development; ^d Schools, shops, hospitals

Table IV: Child health problems as reported by the caregiver

More than one answer were allowed	KwaZulu-Natal		Eastern Cape
	Umkhanyakude (N = 398)	Zululand (N = 303)	OR Tambo (N = 364)
	%		%
Child health: symptoms of child two weeks prior to interview^a			
Vomiting	24	15	18
Fever	54	44	44
Skin rash / sores	33	41	40
Respiratory infections ^b	37	35	36
No appetite	50	47	47
Diarrhoea ^c	35	24	24
Recipe for ORT solution			
One litre boiling water, 8 teaspoons sugar, ½ teaspoon salt	89	79	69
Any other	6	15	11
Unsure / Don't know	6	6	20
Have in household			
Sugar	59	76	71
Salt	85	87	77
Clean drinking water	69	87	70
Children ≥ 24 months (number of doses of vitamin A supplementation received)	(n = 91)	(n = 82)	(n = 122)
None	23	39	21
One dose	34	45	34
Two doses	31	13	27
Three doses	11	2	18
Four doses ^d	1	0	0

^a Respondents were asked each option; ^b Respiratory infections: reported as either continuous coughing or continuous running nose; ^c Diarrhoea: reported as four or more loose or watery stools in 24 hours

^d The required number of doses of the vitamin A supplement a child of 24 months is expected to receive

Table V: Nutritional status for 0 to 59-month-old children and their caregivers

	KwaZulu-Natal		Eastern Cape	All
	Umkhanyakude	Zululand	OR Tambo	
	%	%	%	%
Children 0 to 11 months	(n = 154)	(n = 97)	(n = 81)	(n = 332)
Stunted	12	16	14	13
Underweight	2	2	2	2
Wasted	2	0	0	1
Overweight	13	7	9	11
Children 12 to 23 months	(n = 97)	(n = 65)	(n = 60)	(n = 222)
Stunted	24	26	26	25
Underweight	6	2	0	3
Wasted	1	0	0	<1
Overweight	6	5	3	5
Children 24 to 59 months	(n = 129)	(n = 116)	(n = 166)	(n = 411)
Stunted	22	26	26	25
Underweight	2	1	3	2
Wasted	0	0	0	0
Overweight	0	2	1	1
Caregivers' BMI	(n = 398)	(n = 303)	(n = 326)	(n = 1 027)
Underweight (BMI < 18.5)	3	1	3	2
Normal weight (BMI 18.5 – < 25)	55	39	41	46
Overweight (BMI 25 – < 30)	27	32	26	28
Obese (BMI ≥ 30)	15	28	30	23

Stunted: height-for-age z-score < -2 SD of the median of the reference population

Underweight: weight-for-age z-score < -2 SD of the median of the reference population

Wasted: weight-for-height z-score < -2 SD of the median of the reference population

Overweight (children): weight-for-height z-score > 2 SD of the median of the reference population

households lacked one or more of the ingredients (salt, sugar and clean water) required to make ORS at the time of the survey.

The coverage of vitamin A supplementation for children aged 24 months and older was generally low. Of the 295 children in this age category, 80 (27%) received no supplement, 110 (37%) received one dose, 72 (24%) two doses, 32 (11%) three doses and only one child (< 1%) received four doses. The Zululand sub-district in KZN had the lowest coverage.

Nutritional status of children and their caregivers

The children's and caregivers' nutritional status is given in Table V. Based on the WHO classification for child malnutrition,²¹ the prevalence of both underweight and wasting were low in the three districts. The highest prevalence of underweight was recorded for Umkhanyakude (6%) in the 12 to 23-month-age category. The prevalence of stunting almost doubled from the first to the second year of life. The prevalence of stunting in children older than 12 months was at the medium level (Umkhanyakude 24%; Zululand 26%; OR Tambo 26%). The prevalence of overweight in children aged 0 to 23 months exceeded the underweight prevalence rates. The prevalence of overweight and obesity for the caregivers was high (Umkhanyakude 42%; Zululand 60%; OR Tambo 56%).

Discussion

In this study, the social, nutrition and health profile of children under five and their caregivers from three rural districts, two from KZN and one from the EC, were assessed. Most caregivers who brought the children for the interview were the biological mother or a relative. The caregivers indicated that a few biological mothers were no longer alive, and that a significant number of households had orphans as

members (Table III). Since there has been a rapid increase in the number of children orphaned through HIV/AIDS,²² it is important to monitor the situation regarding maternal deaths and primary child carers. This information may help to detect orphans and sibling-headed households in order to facilitate immediate intervention, if needed. This study did not collect information on the link between maternal deaths and HIV/AIDS.

The basic dwelling of a poor rural household often comprises a single room or hut, of which many still lack electricity, safe water or sanitation, which poses environmental health implications.^{2,14} In KZN, more households had access to piped water compared to previous findings for the same area, while the figure dropped in the EC.¹⁸ In comparison to the findings of the Demographic and Health Survey (DHS) of 2003 for the overall non-urban population,¹⁴ far less households in the EC and KZN districts had access to piped water. Fetching water is regarded as being largely the responsibility of women and girls.²² Thus, dependency on water from rivers or dams creates an extra burden on women and girls, which may interfere with child caring. For the majority of the households who were dependent on water from rivers, dams or streams in the respective districts, it took more than 20 minutes to a water source, which is higher than the DHS findings.^{14,23} Open fires inside the house pose a major health hazard, as it increases the risk of indoor smoke inhalation, respiratory tract infections, accidental fires and exposure to burns.²⁴ Inadequate toilet facilities together with unsafe water supplies are equally risky, as it may increase exposure to diarrhoea and parasitic and other infections, placing children at risk of dying.²⁵ A study in a semi-rural village in the Limpopo province (formerly known as the Northern Province) showed that paternal unemployment was associated with an increased risk of child malnutrition.²⁶ Since paternal unemployment was high in the

three districts, it should be factored in during nutritional surveys to ensure that nutritionally vulnerable households in which the father is unemployed are targeted.

The high percentage of home births in the OR Tambo district (39%) was very similar to the figure reported for the same area in 2003,²⁷ and three times higher than the 2003 DHS findings.¹⁴ Although the motivation for home births may be culturally oriented, infrastructural problems, transport costs and availability and service accessibility in rural communities also contribute to this high prevalence rates.^{12,13} Most mothers who give birth at home do not have immediate contact with health staff and do not receive the same care or information as their counterparts who give birth at a health facility. Giving birth at home therefore deprives mothers and infants of essential health interventions, which may be needed to promote their survival, and subsequently contradicts the MDGs in terms of safe maternal and child health.²⁸ Since the role of traditional practitioners and their services as a potential component within comprehensive health care have been acknowledged,²⁹ a mix of traditional and mainstream services may be a feasible interim measure to optimise home births. The process will require a team of experts to ensure compliance with conditions and regulations of the traditional health practitioners bill.³⁰

The findings on sources of income, food, household assets and sources of information on social grants varied. Household income was obtained through a variety of social grants, reflecting a positive spin-off of governmental initiatives to address poverty, and at the same time, it also reflects the enormous dependence on governmental support over the last years.¹⁴ Notwithstanding the large number of grant recipients, problems such as lack of documents and transport, inability to travel and not knowing the qualifying criteria prevented some eligible households from accessing grants. Whereas the majority of caregivers in the two KZN districts relied mostly on the clinic staff for information on social grants, the caregivers in OR Tambo obtained information from a variety of sources. The latter indicates the joint responsibility that communities could take in the transfer of essential information. This should be strengthened and adopted in underserved rural communities. The households reported as having enough food available for consumption at all times during the month before the survey were in the minority if compared to those not having enough. This coincides with findings previously reported for the study area.¹⁸ Vegetable production from an own garden was indicated as an important source of household food and was substantially more in both provinces compared to previous findings.¹⁸ The important role of local food production could be the outcome of various initiatives, for example the HST project.¹⁵ The number of households that reportedly experienced food shortages during the 12 months prior to the survey suggests that neither social grants nor own vegetable production could ensure enough food for household consumption at all times. This should be viewed in the context of the high unemployment rate, the average of eight members per household and the low percentage of members that earned a salary. Social grants and vegetable gardens provide highly needed short-term relief, but should be complemented with long-term initiatives based on skills development to equip and enable the rural poor to enter the formal job market. Skills development and job creation are needed to ensure that households in under-resourced, inaccessible rural areas have a stable income. Since landlines are

lacking in most rural villages, it is reassuring to know that most households owned a cell phone, which may improve communication with essential services.

Between 11 and 16% of respondents attended a CBGM site, which targeted households far from the clinic. A recent paper described the activities at the CBGM sites.¹⁵ It should be noted that the study sample comprised caregivers from an entire clinic catchment area, which is a mix of a rural and deep rural populations. It is not known how many of the caregivers interviewed lived within the catchment area of the CBGM sites. The target sample size for the study was not obtained and the caregivers staying far from the clinic were probably under-represented. CBGM is a powerful step towards primary care delivered at the very basic level where it is needed. Adequate promotion of and support for CBGM may strengthen the existing health service capacity by facilitating early detection and targeting of growth irregularities, minor ailments and immunisation defaulter tracking for further management.^{31,32}

In the context of adverse rural conditions, the percentage of children (between a quarter and a third) who, according to the caregiver, suffered from respiratory infections, diarrhoea and symptoms of underlying infections (e.g. fever and no appetite) is not surprising. Diarrhoea, one of the forerunners contributing to under-five child deaths,^{25,33} was higher in both provinces compared to findings of a previous study in the same area.²⁷ The health outcomes are based on definitions of Gross et al, which differ from the WHO questionnaire definitions of diarrhoea and acute respiratory infections. It is encouraging that most caregivers knew the correct method of preparing ORS. However, not all the households had clean drinking water, sugar and salt (the basic ingredients for homemade ORS) available in their homes at the time of the survey. Households with children suffering from diarrhoea should be provided with these ingredients or pre-packed ORS. These can probably be distributed by community workers. It is viewed that disease prevention and treatment of the sick in areas with limited and unequally distributed resources are largely dependent on the involvement of the community.²⁹ Yet, not enough priority is given to the shifting of non-clinical tasks to trained health workers to supplement under-resourced health facility staff.^{2,31,32} The IMCI, which utilises trained health workers, and seeks to address major child health problems such as malnutrition and diarrhoea in resource-poor countries through improved case-management, improved health system support and improved family and community practices, is an ideal strategy if adequately implemented.³⁴ In Tanzania, child care as well as the assessment, diagnosis and treatment of child health problems were better, while the caregivers received more appropriate counselling, and had better knowledge about how to care for their sick children in the districts where the IMCI strategy was implemented.³⁴ Health authorities in under-served communities should build on and utilise the strengths of the IMCI and similar projects to improve child health and survival.^{31,32,34} For children aged 24 months and older, only one child received the required four doses of vitamin A supplements, while 27% received none. Considering the high prevalence of vitamin A deficiency reported for the EC and KZN,⁹ this low coverage is unacceptable. The need for health facility support in administering the vitamin A supplementation programme to improve coverage is also demonstrated in this result.¹⁶

The prevalence of underweight and wasting for all children in the three districts was low. The prevalence of stunting was low in children under 12 months old, and at the medium level for children from 12 months and older.²¹ Compared to a previous study done in 2003 in the area,¹⁸ the current study showed a lower prevalence of both underweight and wasting, and a higher prevalence of stunting. These differences can probably be ascribed, at least partly, to the different reference values that were used to define malnutrition; the survey done in 2003 used the National Center for Health Statistics (NCHS) standards, while the current study used the WHO standards. Norris and co-workers³⁵ compared the growth patterns of a cohort of South African children using the NCHS and WHO standards, and indicated that the WHO standard identified children as being generally more stunted and overweight. In this study, stunting was a bigger problem than underweight or wasting, which is usually associated with extended periods of inadequate food intake, poor dietary quality or increased morbidity,³⁶ and should therefore be monitored. Maternal obesity was higher than previously reported in OR Tambo and Pongola,¹⁸ and co-existed with child under-nutrition. The increase in overweight and obesity are reaching pandemic proportions in SA, and since it is a forerunner of chronic diseases, it poses a major challenge to the public health system.

Conclusion

In conclusion, given the complexity regarding the adverse conditions that persist in the rural districts of the EC and KZN, universal access to basic health care and health equity for the rural poor may take many more decades to achieve. The most feasible strategy to facilitate change may be to determine and build on existing strengths within these communities. This may help to establish a workforce that may pave the way for gradual integration of key intervention strategies.

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