

Survey of the health and nutrition status of a squatter community in Khayelitsha

I. M. LE ROUX, P. J. LE ROUX

Summary

The findings of a nutrition and health survey in Site B, a squatter area in Khayelitsha close to Cape Town, are reported. Of the children under 6 years, 16,8% were found to be under weight for age, 23,5% were stunted and 2,5% wasted, indicating a serious nutritional crisis in this community. Children with a low-birth-weight had a 3 times greater risk of being under weight for age and a 2 times greater risk of being stunted than children with birth-weights greater than 2500 g. Of the children born outside Cape Town, 21,9% were under weight for age compared with 13,5% of children born in Cape Town. Of the pre-school children, 4,2% had completed or were on antituberculosis treatment compared with 2% of the children in the age group 6 - 18 years and 3,2% of adults. Sixty per cent of the pre-school children with tuberculosis were under weight for age. Half the adult population was fully employed, and 22% of households had no wage earners. Assuming literacy after 4 years of schooling, 76% of the adults were literate, but only 2,5% had completed Standard 10. Women were generally better qualified than men.

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More than half the world's population will live in urban areas at the end of this century.¹ The process of urbanisation is taking place in both less and more developed countries but at a much higher rate in the former.

In South Africa apartheid laws worked against urbanisation by keeping South African blacks in homelands and other rural areas and denying them access to cities as well as resettling previously urbanised people in resettlement camps. Since 1986, with the abolition of the pass laws, the urbanisation process has proceeded unhampered. The black urban population is expected to increase from 13 million in 1985 to 33 million in 2010 — 20 million new urban people in 25 years.²

This rapid growth of cities is accompanied by a rapid increase of people living in poor and overcrowded conditions in shanty towns on the periphery. Women and children are especially vulnerable, which lead to poor health and malnutrition. Very little is known about the extent of these problems.

Philani, a non-governmental health and nutrition organisation, opened a clinic in Site B, a squatter area on the outskirts of Khayelitsha, near Cape Town in 1986. Most of the people in this area are refugees who fled the Crossroads squatter area during the conflict in 1986. The staff at the nutrition centre needed to know more about the nutrition, health status and needs of the community around the clinic. After consultation with the community, a survey was carried out during August - October 1988.

The aims of this study were: (i) to establish anthropometrically the nutrition status of pre-school children in the area; (ii) to determine other parameters of nutrition and

health, such as birth weight, length of breast-feeding, immunisation coverage in the children, as well as frequency of tuberculosis and other illnesses suffered by adults and children; (iii) to establish the utilisation of available health services and the community's assessment of these services, as well as suggested improvements; (iv) to provide some demographic and socio-economic parameters and to try to establish whether these correlated with the nutrition status of pre-school children; and (v) to determine what proportion of malnourished children in Site B are reached by Philani and what the need is for further nutrition intervention in the area.

Subjects and methods

A simple random sample of 312 shacks was drawn from a total of 7692 recorded on the official map at the time. Each of the households was visited by 2 Xhosa-speaking nutrition workers together with a nursing sister or doctor. A questionnaire was filled in for each household. The senior woman in the house was the most common respondent. The nutrition workers conducted the interview while the sister or doctor weighed and measured the height of children under 6 years and the mid-arm circumference of children 1 - 5 years old. A Detector baby scale was used for weighing babies up to 15 kg (accurate to 10 mg) and an ordinary bathroom scale (accurate to 50 mg) for older children. Heights were measured with children standing barefoot against a wall. Children too small to stand were measured while lying on a table.

Information regarding age, sex, birthplace and incidence of tuberculosis was recorded for each member of the family. In the case of children under 6 years, weight, height, mid-arm circumference, birth weight, immunisations and duration of breast-feeding were recorded.

In the case of members of households 18 years of age or older information regarding years in Cape Town, level of education, employment, children born and deceased was requested. The number of rooms in each dwelling (shack) was also recorded. Questions were asked about health problems in the family — where help was sought when a family member was ill, the quality of health services in the community, and suggestions for improvement.

The data collected were codified and recorded in D-base on a Olivetti M 15 lap-top computer, using the US National Center for Health Statistics (NCHS) percentage charts as reference standards.

Results and discussion

Demographic and socio-economic background data

A total of 1485 people from 312 household was included in the survey. Of these 688 were male, 742 were female and in 55 cases no gender was recorded. The adult population was very young. Of those > 20 years, almost half (47%) were < 30 years; this can probably be explained by the fact that predominantly young people migrated to the urban areas once the apartheid edifice started crumbling.

Philani Nutrition Centres, Crossroads and Khayelitsha, Institute for Social Development, University of the Western Cape, Bellville, CP

I. M. LE ROUX, MED. LIC. (KAROLINSKA)

P. J. LE ROUX, B. COM. HONS, D.D.E. (CANTAB.)

The young adult population partly explains why nearly half (47%) of those < 20 years were < 5 years old. Virtually one-fifth of the total population (19,4%) of Site B were < 5 years old. This is a very high proportion, even when compared to squatter areas elsewhere in the world.³

Most of the adult population migrated from the rural areas (Table I). Only 5% of those over 18 years were born in Cape Town, as against 29% of those between 6 years and 18 years and 64% of the 0 - 5 year age cohort. In a study undertaken on behalf of SHAWCO, the proportion of pre-school children in the neighbouring Site C born in Cape Town was 64,8%, virtually identical to that of this study.⁴ In the more established Nyanga, the study⁴ found that the proportion of pre-school children born in Cape Town was about 85%. Sixty per cent of the adult migrants arrived in Cape Town during the 1980s, 27,5% during the 1970s, 10% during the 1960s, and the remaining 2,5% during the preceding two decades.

TABLE I. BIRTHPLACE ACCORDING TO AGE COHORT (%)

	< 6 yrs (N=315)	6 - 18 yrs (N=254)	Adults (N=837)
Cape Town	64	29	5
Transkei	18	37	60
Ciskei	6	18	18
Rest of SA	13	16	17

Half the adult population (50,3%) was fully employed and 1,2% partly employed. Three-quarters of the men (75%) and only about one-third of the women (32%) were employed. More than one-fifth of the households (22%) had no wage earners whatsoever.

Assuming that a person is literate after 4 year's schooling, about three-quarters of the adults (76%) in Site B are literate. Less than one-quarter had left school before completing standard 3. On the other hand, only 1 in every 40 of the adults (2,5%) had passed standard 10. The women tended to be better qualified than the men. Virtually 80% of the women were literate, and the percentage with a standard 9 or matric was virtually 3 times as high as that of men (Table II).

TABLE II. HIGHEST EDUCATIONAL QUALIFICATION OF ADULTS (%)

	Women (N=407)	Men (N=353)	Total (N=760)
No education	8,7	8,5	8,7
Sub A - Std 2	12,3	17,9	14,8
Std 3 - Std 5	29,6	38,8	33,5
Std 6 - Std 8	40,4	32,9	36,9
Std 9 - Std 10	8,7	3,1	6,3

On average, 4,7 people lived in a shack and 1,9 in a room. If one assumes that there is severe overcrowding when there are ≥ 4 people per room, 7,4% of the households were severely overcrowded. This percentage is much less than the 48,2% for Site C, 26,8% for Nyanga shacks and 45,3% for Nyanga houses found by C. T. Hugo-Hamman *et al.* (unpublished report to SHAWCO, 1988).

Health status of schoolchildren and adults

Nearly 9 out of every 10 of all adults and children of ≥ 6 years (87%) for whom information was provided were said to be in good health. It was reported that 1,7% had asthma or a 'tight chest', and that nearly 1,9% had hypertension. 'Fits' (epilepsy?) were reported in 1,0% and tuberculosis in 0,5% of cases. In addition, there was a wide range of complaints varying from headaches and eye, nose and ear problems, to stomach pains and swollen legs and feet.

A specific question was included to determine whether people had tuberculosis and had been treated for this. Of the 839 adults for whom information was provided, 3,2% had been diagnosed as having had tuberculosis. Of these, virtually two-thirds (63%) had completed their treatment.

According to official statistics,⁵ tuberculosis notifications for blacks in the areas covered by the Western Cape Regional Services amounted to 0,8% of the population. This is only a quarter of the percentage reported to us. However, as Yach⁶ pointed out, only one-third to one-half of cases are actually reported. The official figure thus adjusted can be as high as 2,4%. The remaining difference could reflect differences in the tuberculosis incidence between Khayelitsha and the other areas, or it could be that the official figure should have been adjusted by a factor of 4 rather than 3.

Health care when in need of treatment

Virtually one-half (46%) of the adult members of households for whom information was provided visited a day hospital the last time they did not feel well and virtually one-third (33%) visited a private doctor. One-tenth (10%) visited other hospitals, and 1 in every 20 (5%) visited a regional council or non-governmental clinic. Traditional healers were reportedly visited by 1,7% of the people (this seems to be an under-estimation — there might have been a reluctance to admit in the presence of the visiting medical staff that the help of traditional healers was sought). A few respondents did not seek help at all the last time they were ill.

When children were taken ill, 49% were taken to day hospitals, 22% to private doctors, 9,5% to hospitals, 8,1% to clinics and 3,2% to traditional healers.

Suggested improvements in the health services

Thirty-eight per cent of respondents indicated that they were satisfied with available health services. One-tenth wanted more hospitals, 3% more day hospitals and 8% wanted hospitals and day hospitals to stay open longer hours. One in 20 (5%) wanted more clinics. There were many other suggestions ranging from more public telephones and better ambulance services to more traditional healers, community health workers, dentists and private doctors.

Health status of pre-school children

Of the 317 children under 6 years of age living in the shacks visited, the weight and age of 279 were recorded. More than one-sixth (16,8% or 47) of these children were underweight, i.e. under the 3rd percentile of weight for age (Table III). This is higher than the reported incidence of underweight in recent studies for similar squatter communities around Cape Town (C.T. Hugo-Hamman *et al.* — unpublished report to SHAWCO, 1988).^{4,7} However, even the lowest of these (the 10,3% estimate for all three areas combined in the Hugo-Hamman study, is not statistically significantly smaller than the finding of this survey ($z = 1,07$).

Height-for-age data was available for 277 children (Table III). Of these almost a quarter (23,5%) were stunted (< 90% of

expected height for age), indicating a chronic problem of undernutrition.

TABLE III. CHILDREN < 3rd PERCENTILE (%)

	Philani survey	SHAWCO survey
Weight/age	16,8	10,3
Height/age	23,5	29,6
Weight/height	2,5	2,8

Weight-for-height data were available for 289 children, 2,5% of whom were under the 3rd percentile of expected weight for height and therefore considered to be wasted, i.e. suffering from acute severe malnutrition. The figures on stunting and wasting were similar to the Hugo-hamman *et al.* SHAWCO report for Site C and Nyanga.

In Table IV the percentage of children underweight for age are presented. As is usually the case, there is a big increase in the percentage of children underweight for age in the second year, when breast-feeding can no longer sustain normal weight. In this study the high incidence continued into the third year, to decline to lower rates in the fourth and fifth years.

TABLE IV. CHILDREN UNDER WEIGHT FOR AGE

Age cohort (yrs)	% underweight
0 - 1	11,3
1 - 2	24,1
2 - 3	27,3
3 - 4	11,1
4 - 5	15,2
5 - 6	14,7

The immunisation of four-fifths (82%) of the children under 6 years was, according to the information provided by the mother, up to date. Only 1,4% of the children had no immunisation whatsoever, whereas immunisation was incomplete in 16,5% of cases. 'Road-to-Health' cards were not always available and could thus not be referred to for confirmation in all cases. This is a high proportion to be immunised if compared to some other recent studies in similar areas⁴ and may reflect over reporting by the mothers. Children < 6 years had been breast-fed for an average of 11 months. In this survey 13,6% of children had never been breast-fed.

Of the children < 6 years 4,3% were diagnosed as having had tuberculosis. Of these, about one-third had completed their treatment. This is higher than the 2,0% found in this study for the 6 - 18-year age group. Yach⁶ also reported that the lowest tuberculosis incidence in the western Cape is in the 5 - 14-year-old age group.

Of the women of child-bearing age, 380 had a total of 1 266 children (an average of 3,3 children per mother). Of these children, 20,5% had died by the time of the interview.

Socio-economic indices and malnourishment

An attempt was made to determine which socio-economic factors would explain or predict undernourishment. It has often been reported that underweight children have been breast-fed for shorter periods than children with a normal weight. In this study, underweight children were breast-fed

for almost exactly the same period as the children not underweight (11,98 months v. 11,85 months). As many as 16,4% of the children not underweight for age had never been breast-fed, as against 10,6% of the underweight children. This difference is not statistically significant at a 95% level ($z = 1,78$).

It was suspected that there would be a higher degree of unemployment in households with underweight children. In fact, there were fewer of these households with no income earners and the distribution of income earners was fairly similar (Table V).

TABLE V. DISTRIBUTION OF HOUSEHOLDS ACCORDING TO NUMBER OF INCOME EARNERS

No. of income earners	Households with underweight children		Households with normal weight children	
	%	Cum. %	%	Cum. %
0	8,8	8,8	16,9	16,9
1	52,9	61,7	40,3	57,2
2	20,6	82,3	28,1	85,3
3	11,8	94,1	10,1	95,4
4+	5,9	100	4,7	100

Information on income was not requested, and it is of course possible that the actual income of earners in the households of those with normal weight was higher. However, the relatively low proportion of households with no income earner in the case of the underweight children is difficult to explain, and is counter to what the clinical histories of the children admitted to the nutrition clinic would have led the researchers to expect.

There were, on average, 4,54 people, of whom 1,87 were children < 6 years, in the households in which underweight children were found. In the case of households with no underweight children, there were on average 5,90 people, of which 2,74 were children under 6 years. Again, the results were against expectations, since it was suspected that underweight children would be from large households. If severe overcrowding is defined as ≥ 4 people per room, the proportion of families in severely overcrowded conditions from which underweight children came (6,9%) was virtually identical to other households (7,4%).

Other correlations with malnourishment

Birth-weights were available for 172 of the children < 6 years — 6,9% of these had low birth-weights. Of those with a low birth-weight, half were underweight for age, half were stunted and one-third were both underweight and stunted at the time of the survey. Those with a low birth-weight had a 3 times greater risk of being underweight for age than those whose birth weight was > 2500 g and 2 times greater risk of being stunted — these differences were statistically highly significant ($z = 3+$).

Of the children born in Cape Town, 13,5% were underweight for age and 21,9% of those born in other places were underweight for age. This difference is not statistically significant at the 95% confidence level. These differences are virtually identical to those found by Yach, *et al.*⁷ where the bigger sample led to the difference being statistically highly significant at a 95% confidence level ($z = 1,57$).

Of the 4,2% pre-school children who were being treated for tuberculosis or had completed antituberculosis treatment, 60% were underweight; as noted above, the percentage for all pre-school children was 16,8%. This shows a strong correlation between tuberculosis and malnourishment.⁸

Conclusion

Using the NCHS standard we calculated that there were about 1 300 malnourished children in Site B. (There were 317 children in our sample of 4,12% of the Site B households. The total number of children < 6 years in Site B thus comes to 7815. Of these, 16,8% were underweight for age according to the NCHS standard.) At the time of the survey 451 children were admitted to the nutrition support programme at Philani in Site B. At the most, one-third of these children were from Green Point, a squatter area adjacent to Site B. This would indicate that about one-quarter of the children in need of treatment in Site B was reached by the clinic.

It could, of course, also be argued that the NCHS standard is not appropriate for a South African squatter community, and that this is an overestimate of the number of children in need of nutritional intervention.⁹ However, the proportion of children under weight for age in Site B is so high that even if less stringent standards were applied, there is clearly a nutritional crisis in this community.

This was an important indicator for the staff of Philani to increase its work in the community. This has resulted in the extension of the Site B clinic and a new clinic, partly serving the Green Point community located in Town 2. However, since 1988 the population in Site B has more than tripled. No amount of extended nutrition intervention programmes will solve this crisis. Proper housing and employment opportunities would do more for the nutrition and the ultimate health of the people in these communities.

Although the results have been written up by the authors, this project was made feasible by the hard work and dedication of the Philani staff. Gill Frame, Mamfene Nyoka, Lindiwe Gwegwe, Nomzekeliso Peter, Noxolo Dyani, Bridget Coppin, Nontombeko Mekuto, Nokhanyo Ggozo and Keli Mbangata all made indispensable contributions to this study. Debbie Budlender, from Centre for Adult and Continuing Education at the University of the Western Cape, is thanked for her assistance with getting the data into D-base and retrieving the results.

REFERENCES

1. Yach D, Mathews C, Buch E. Urbanisation and health: methodological difficulties in undertaking epidemiological research in developing countries. *Soc Sci Med* 1990; 31: 507-514.
2. Urban Foundation. Policies for a new urban future. *Urban Debate* 1990; No. 2.
3. Giugliani ERJ. The malnourished children of the urban squatter families: a study in Porto Alegre, Brazil. *J Trop Pediatr* 1987; 33: 194-198.
4. Yach D, Coetzee N, Hugo-Hamman CT, Fisher SA, Kibel MA. Identifying children at risk in peri-urban Cape Town. *S Afr J Epidemiol Infect* 1990; 5: 6-8.
5. Acting Medical Officer of Health. *Annual Report*. Cape Town: Western Cape Regional Services Council, 1988.
6. Yach D. Tuberculosis in the Western Cape Health Region of South Africa. *Soc Sci Med* 1988; 27: 683-689.
7. Hugo-Hamman CT, Kibel MA, Michie CA, Yach D. Nutrition status of pre-school children in a Cape Town township. *S Afr Med J* 1987; 72: 353-355.
8. Hennink MJ, Skibbe A, Donald TR. Failure to gain in weight prior to the diagnosis of pulmonary tuberculosis. *J Trop Pediatr* 1988; 34: 108-109.
9. Habicht JP, Martonell R, Yarbrough C, Martina RM, Klein RE. Height and weight standards for preschool children: how relevant are ethnic differences in growth potential? *Lancet* 1974; 2: 611-613.