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Base-line village health profiles in the E.Y.N rural health programme area of north-east Nigeria

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Summary

In order to document the health profile of rural farming communities not yet reached by the EYN Rural Health Programme, based at Garkida, Nigeria, four villages were surveyed by a Sheffield medical student who lived for several weeks in each village, working alongside local women. Villagers helped in separate surveys of village environment and water sources, of compound (household) hygiene, of male heads of compounds, of women of childbearing age, and of children.

Stagnant rain-water ponds and widespread animal faeces litter were the main village environmental hazards and hardly any satisfactory pit latrines were seen. One person in nearly 2000 surveyed treated the drinking water. Infant mortality was estimated at 200 per 1000. Commonly reported health problems included abdominal pain, coughs and colds, filariasis, diarrhoea, scabies, worms, blood in stool, fever, back pain and eye infections. In each village fewer than 20% of the men and fewer than 10% of the women had received any education. Average completed family size was 6 or 7 children per woman with 3 other non-surviving children. The causes of malaria and of diarrhoea were each known by fewer than 10% of mothers in each village. About a quarter of the under fives had suffered from diarrhoea in the past fortnight, a quarter had received any immunisation and one fifth were at least mildly malnourished. One quarter of children aged 6-12 years attended school.

Résumé

Afin d'établir le profil de santé des communautés rurales auxquelles le programme de santé rurale EYN basé à Garkida dans le Nigeria n'a pu encore s'étendre, une enquête portant sur quatre villages a été faite par un étudiant en médecine de Sheffield qui a vécu pendant plusieurs semaines dans chacun des villages, travaillant avec les femmes locales. Les villageois ont aidé à faire le point sur l'environment villageois, l'approvisionnement en eau, l'hygiène collective dans les familles, les chefs masculins des communautés, les femmes en âge d'avoir des enfants, et les enfants.

Des mares d'eau de pluie stagnantes et des matières fécales animales répandues un peu partout constituaient les principaux risques environnementaux des villages, ainsi que le manque presque complet de latrines adéquates. Une personne seulement sur les presque 2,000 concernées par l'enquéte traitait son eau de boisson. La mortalité enfantine a été estimée à 200 sur 1000. Parmi les problèmes de santé les plus remarqués figuraient les douleurs abdominales (50 sur 1000), les toux et les rhumes, la filariose, les diarrhées, la gale, les vers abdominaux, la dysenterie, les doulers au dos et les infections oculaires. Moins de 20% des hommes et moins de 10% des femmes dans chaque village avaient été scolarisés. Le nombre final des enfants par famille était de 6 à 7 enfants par femme en moyenne, avec 3 autres enfants décédés. Moins de 10% des méres par village connaissaient les causes du paludisme et des diarrhées. Environ un quart des enfants de moins de 5 ans avaient souffert de diarrhées au cors des 15 jours précédents, un quart seulement avaient bénéficié d'une immunisation quelconque, et un cinquiéme montraient des symptômes de carences alimentaires plus ou moins graves. Un quart des enfants entre 6 et 12 ans d'âge étaient scolarisés.

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Introduction

The Ekklesiyar Yan'uwa a Nigerian Rural Health Programme (EYN RHP) was formerly known as the Lardin Gabas RHP[1]. Based at Garkida, Gongola State, Nigeria, it encompases in 1986 a region of estimated population 1.2 million with nearly 2000 villages of 400-2000 people.

A medical school lecturer from Sheffield (RAD) visited the programme to identify opportunities for research. It was agreed with the medical consultant to the programme that a Sheffield medical student (JT) on leave of absence could assist the programme by documenting the health profile of a number of villages not yet reached by the programme, but where it was expected that village health workers would shortly be trained. In this way programme impact could later be assessed.

Method

After a pilot study of survey methods in a village close to Garkida, six villages from districts without existing health care facilities were chosen by formal random selection with the assistance of the local government health departments.

In the time available for the study, between March (towards the end of the dry season) and September, 1986, four of the six villages were surveyed, on which we report here. The villages selected were Sama (Ga'anda District; Gombi Local Government Area, Gongola State), the three small adjacent villages of Wanganga, Zira Gudaku and Zira Maji (Miringa District, Biu Local Government Area, Borno State), considered as one village Waganga in our analysis; Hansa (Gulak District, Michika Local Government Area, Gongola State) and Sina Mala, with the small adjacent village of She, also in Michika Local Government Area, Gongola State.

The student, who had previously visited Nigeria for a medical elective period, lived and worked in the villages surveyed. To supplement her limited knowledge of Hausa and to communicate with villagers who spoke only a local language, an interpreter accompanied her throughout the study period.

After meeting village leaders and gaining the confidence of the community, and especially the women, by cooking, washing and farming alongside them, the student carried out a number of surveys consecutively. The first required participation of the villagers in drawing a sketch map of the village on the ground, which the student transferred to paper, so that the location of households could be identified in a later household survey. Then an environmental survey was conducted to describe water sources, clearance of vegetation, garbage disposal and surface water management in and around the village.

At the household (compound) level, a simple building and amenities survey was conducted and the male compound heads were interviewed. All women of child-bearing age were interviewed and their conjunctivae examined for evidence of anaemia. Arm circumference was measured for children aged 1-5 years. Structured interviewing was used to elicit data on vital statistics, morbidity, and health knowledge and attitudes.

Results

The four communities for which data are tabulated varied in size from 368 to 610 persons (Table 1). Estimates of birth rates and mortality rates from vital events in the past year suggested birth rates comparable to those for Nigeria as a whole (Nigeria 1987: crude birth rate 50/1000), but mortality rates somewhat higher (Nigeria 1987: crude death rate 16/1000)[2]. There are insufficient numbers of births annually to allow reliable estimates of infant mortality rates for each village, the average across the four areas being 200 infant deaths per 1000 live births (Nigeria, 1987: infant mortality rate 106/1000)[2].

Table 1: Population and birth, death and fertility rates in study villages

	Sama	Wanganga	Hansa	Sina	All areas
No of compounds	67	72	78	57	274
No of persons	505	477	610	368	1960
Crude birth rate/1000	65	69	38	49	55
Crude death rate/1000	36	113*	38	22	53
General fertility rate/1000	393	452	258	269	342

*Half of the under five population died in epidemics of whooping cough and measles in one of the three constituent villages in the dry season.

Table 2: Status of the physical environment of the four villages

	Sama	Wanganga	Hansa	Sina
Vegetation left uncleared	Yes*	No	No*	Yes
Refuse dumped next to compounds	No	Yes**	Yes**	Yes**
Rainwater ponds in wet season	Not known*	Yes	Yes	Yes
Animal faeces litter	Yes	Yes	Yes	Yes

* Surveyed in dry season
* But maize grown in compounds
** Burned in dry season

The village environments in general show the need for improved clearance or disposal of vegetation, refuse, animal faeces and surface water (Table 2). The various water sources used by villagers are listed in Table 3. In general these were inadequate in quantity and/or quality during at least part of the year. The villagers were concerned more with the quantity and proximity of water than with its appearance (which may have been some guide to its quality). Only one of the villages (Hansa) had more than 10% of compounds with zinc roofs (a sign of relative affluence) and none of the villages included even this percentage with satisfactory pit latrines (Table 4). Only one person (a school teacher) in the four area treated the drinking water in any way. In each village over three quarters of the compounds had a hygienic method of storage of drinking water. Only in Wanganga were as many as a quarter of the compounds kept clear of animal faeces. Here, nearly all compounds had a bathing area while this was rare in the other villages. Hygienic cooking areas were observed in only half of the compounds in Sina but in 80% of those in Sama.

Nearly all of the male compound heads in four villages were farmers. In Sama, where 17% of them had received some type of formal education, 66% were Christian and 26% followed traditional religions. In Wanganga 37% had been educated and 99% were Muslims. In Hansa 20% were educated and

Table 3: Sources of water in the four villages

Usage	Sama	Wanganga	Hansa	Sina
Drinking (wet season)	rain	wells	rain	rain
	streams	holes	wells	spring
				stream
Drinking (dry season)	holes	wells	wells	wells
				holes
Washing (wet season)	streams	ponds	ponds	streams
				spring

Table 4: Survey of environmental status of compounds in the four villages

Percentage of compounds with:	Sama (n = 67)	Wanganga (n = 72)	Hansa (n = 78)	Sina (n = 57)	All areas (n = 274)
Zinc roof	9	—	15	7	8
Satisfactory pit latrine	—	7	—	—	2
Satisfactory water storage	80	89	77	82	82
Treated water	1	—	—	—	0
Bathing area	8	93	11	11	32
Satisfactory cooking area	80	64	72	51	67
Floor cleared of animal faeces	—	26	21	5	14

55% were Christian. In Sina only 2% had been educated and 60% were Muslims.

In Sina, about half the population reported some complaint (especially abdominal pain and scabies) at the time of interview or within the previous two weeks (Table 5). At the other three villages a quarter reported some complaint, abdominal pain, scabies and 'filaria' being most common. Three quarters of those with some complaint at Hansa and Sina, and two-thirds of those in Wanganga sought no treatment for their condition. In Sama nearly half sought treatment from a traditional healer only. None of the women of child-bearing age interviewed at Sina had received any education and Sama had the highest percentage (11%) (Table 6). A third of the women in Wanganga, Hansa and Sina were clinically anaemic as were half of those at Sama. They had so far delivered a mean of between five and six children each (live or still born), of whom over half had survived to date (but three quarters of those born in Hansa), suggesting an average completed family size of 6 or 7 children.

Table 5: Pattern of morbidity over a two week period in the study area

	Sama	Wanganga	Hansa	Sina	All areas
Total population	505	477	610	368	1960
No (%) with any complaint	131 (26)	134 (28)	159 (26)	179 (49)	603 (31)
% of those with any complaint who sought treatment from:					
— Western health facility*	11	10	17	6	5
— Traditional healer only	48	21	6	14	21
— Market stall/pharmacist only	12	2	1	6	5
— None	29	66	76	74	63
Specific prevalence (per 1000)					
— Abdominal pain	34	55	38	114	55
— Diarrhoea	30	44	31	40	36
— Worms	24	21	29	22	24
— Blood in stool	22	13	5	53	20
— Blood in urine	2	8	25	5	11
— Cold/cough	32	46	29	50	38
— Chest pain	6	2	—	24	7
— Fever	12	15	25	37	21
— Scabies	48	13	16	77	35
— Eye infection	2	17	33	—	15
— Back pain	16	13	12	24	16
— Muscle strain	—	—	—	53	10
— Filaria (on examination)	44	25	38	50	39

* Often in addition to the other sources of treatment

Table 6: Some social and health related characteristics of women with children under five years in the study area

	Sama (n = 63)	Wanganga (n = 76)	Hansa (n = 80)	Sina (n = 73)	All areas (n = 292)
% literate	10	4	1	—	6
% educated	11	7	2	—	5
% clinically anaemic	51	32	33	34	37
Mean no of children delivered to date	5.8	5.9	5.1	5.1	5.5
% of these children surviving to date	56	62	74	59	63

Table 6 *contd.*

No with a child aged five years or under	63	65	68	57	253
% of these knowing cause of:					
— malaria	3	8	3	—	4
— diarrhoea	3	6	4	11	6
% seeking treatment for malaria in child:					
— western health facility, pharmacist or medicine seller*	19	19	21	12	18
— traditional only	49	19	—	5	18
% eating more when pregnant	33	75	93	54	65

* Often in addition to traditional sources.

Among the women who currently had a child aged five years or under, there was hardly any knowledge of the causes of malaria and diarrhoea. Up to one fifth of the mothers claimed that they sought western medical treatment for their child when suffering from malaria. Half of the mothers at Sama sought help only from traditional healers in that situation, the traditional herbal remedy for malaria containing quinine. Of these mothers of young children the proportions who claimed they ate more when pregnant (when asked if they ate less, the same or more) varied from one third at Sama to nearly all of those in Hansa. Children 12 years or under made up about half of the village population and those aged five or under made up about one fifth (Table 7). Among children aged five or under between 1% (Sama) and 13% (Hansa) were born in hospital. Between 13% (Sina) and 87% (Hansa) of mothers claimed to have received some antenatal care. Among children aged 1 to 5 years, 8% (Hansa) to 29% (Sina) had suffered from diarrhoea in the past two weeks, and 10% (Sina) to 48% (Sama) had received at least one immunisation. Malnutrition among these children aged 1-5 years, as indicated by mid upper arm circumference less than 13.5 cm, was highest in Wanganga (34%) where 6% were severely malnourished (arm circumference less than 12.5 cm) and was lowest in Hansa (7% and 1%, respectively). School attendance among children aged 6-12 years varied from none in Sina to 39% in Wanganga.

Table 7: Health profile of children in the study area

	Sama	Wanganga	Hansa	Sina	All areas
Total Population	505	477	610	368	1960
Children aged 0-12 years					
Total number	242	251	350	152	995
As % of whole population	48	53	57	41	51
Children aged 0-5 years					
% born in hospital	6	1	13	3	6
% of mothers who received antenatal care	54	45	87	13	54
Children aged 1-5 years					
Diarrhoea prevalence* (%)	21	27	8	29	20
% having had one or more immunisations	48	34	11	10	26
Mid upper arm circumference:					
% < 13.5 cm (malnutrition)	17	34	7	27	20
% < 12.5 cm (severe malnutrition)	6	6	1	3	4
Children aged 6-12 years					
% attending school	22	39	24	—	23

* In last two weeks

Discussion

The village of Sama was the most traditional village, a quarter of the people following traditional religion, a half seeking treatment only from a traditional healer when ill. As many as a half of the children had received some immunisation yet only one third of the women knew the need to eat more when pregnant. An estimated 20% of Nigerian infants have birth weights of 2500 grammes or less[2].

Wanganga, an exclusively Muslim village, had the cleanest compounds and one third of its men were educated, yet it had the highest prevalence of malnutrition and the highest crude death rate, arising mainly among the under fives.

Hansa, a wealthier village if the zinc roofs are a reliable indicator, was predominantly Christian, had the highest proportion (93%) of women who ate more when pregnant, the highest proportion (87%) who had received antenatal care and whose children were born in hospital (13%). It had the highest survival (74%) amongst the children, the lowest prevalance of diarrhoea (8%) among those aged 1 to 5 years and the lowest prevalence of malnutrition (7%).

Sina, a predominantly Muslim village, where only 2% of the men were educated, only 13% of mothers had received antenatal care and none of its children were schooling, had unhygienic cooking areas in half of the compounds, half of its population currently ill, especially with abdominal pain and scabies, and a quarter of its children aged 1-5 years were malnourished. Children living with only one parent were particularly at risk.

While the communities themselves need to prioritise their own health needs, our study illustrates the great burden of water- borne and nutritional illness. Adequate clean water and sanitation are generally not available, water is untreated and sometimes not hygienically transported and stored. In rural areas of north-east Nigeria in general it has been estimated that under 10% of households have pumped or piped water[3] and in villages such as those studied, an average of 10 litres of water per person per day is thought to be used[4] which is half the WHO recommended daily minimum. Over half the households in rural north-east Nigeria are said to have a traditional pit latrine[3], but that is hard to reconcile with the observations in these villages.

An aspect of environmental hygiene needing attention and which may be feasible under the control of the community without expense is the clearance of animal faeces, refuse, surface water and vegetation. Goats and chickens were free to roam within the compounds for protection against predators. A separate fenced area for animals within the compound would ensure cleaner human habitation. Compounds also need to be cleared of low-lying vegetation which harbours flies and mosquitos. Women need to be made aware of the importance of keeping cooking areas hygienic, and to understand the causes of malaria and diarrhoea and the need to eat more when pregnant. Access to antenatal care and immunisation will need to be widened, especially in the remote area of Sina, where schooling is also needed. Maternal mortality in Nigeria (1500/100 000) is among the highest in the world and only 30% of the rural population is estimated to be able to reach appropriate local health services by the local means of transport in no more than one hour[2].

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