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**CHAD CHILD SURVIVAL  
BASELINE SURVEY**

(Project No. 677-0064)

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September 1, 1992

## ACKNOWLEDGEMENTS

We would like to thank Ms. Virginia Paine and Dr. Anita Mackie for their energetic support and for making the resources available which made this survey possible.

In addition, thanks are due to Dr. Dougla, Medecin-Chef of the Moyen-Chari, Dr. Albert Burki of ITS, Dr. Bernard Francois of the BSPE and the MSPAS staff of the Moyen Chari, for their generous backing both in time and energy.

The survey would not have been possible without the diligence and devotion of the twenty-five interviewers who worked long hours under trying conditions. They understood the need to finish the survey before the beginning of the rainy season and good naturedly put up with the long difficult hours.

We must give credit to the personnel of the BCR who put in many overtime hours, despite their own pressing timetable, to provide us with all the maps and special materials, without which we could not have carried out the sampling methodology.

We gratefully recognize the contribution of Peace Corps Volunteer Rick Kieferndorf, and of Kevin Sturr, who, after setting up the computers, took the responsibility for providing training and supervision for data input. Their expertise resulted in a data base that was a pleasure to use.

We also thank Peace Corps Volunteer Sarah Halverson for gathering all the information about child survival activities in the Moyen-Chari and Kaspar Wyss from ITS for providing us with endless documentation and helpful comments.

We are thankful to Mr. Felix Lee of the FEWS Project for sharing his knowledge of Chad and his help in the production of the initial drafts of this report.

Finally, we must acknowledge the unwavering assistance of Mr. Paul Talkingbing in all aspects of the survey. His competence and interpersonal skill facilitated all the field activities. He personally visited each village chief and skillfully paved the way for the survey teams. He was on hand for the analysis and cheerfully gave many insights into interpretations of the data.

## LIST OF ACRONYMS AND ABBREVIATIONS

AIDS	Aquired Immuno-Deficiency Sydrome
ARI	Acute Respiratory Infection
BCG	Bacille de Calmette et Guerin
BCR	Bureau Centrale de Rescensement
BEF	Bien Etre Familial (Family Planning Services)
BELACD	Bureau d'Etudes et la Liason D'Action Caritative et de Developpement
BSPE	Bureau de Statistiques Plannification et Etudes
CCSP	Chad Child Survival Project
DMD	Dietary Management of Diarrhea
DTC	Vaccin Anti-Diphtere, Tetanos, Coqueluche
ED	Enumeration District
EPI	Expanded Program for Immunization (PEV)
FEWS	Famine Early Warning System Project
IEC	Information Education and Communication
ITS	Institut Tropical Suisse
KAP	Knowledge Attitude and Practice
MSPAS	Ministere de la Sante Publique et Affaires Sociales
NGO	Non-Governmental Organization
ORT	Oral Rehydration Therapy
PEV	Programme Elargi de Vaccination (EPI)
PNLS	Programme National de Lutte Contre le SIDA
PPS	Probability Proportional to Size
SIDA	Syndrome d'Immunodeficiencie Acquise
SMI	Sante Maternelle et Infantile (MCH)
SPSS	Statistical Package for Social Sciences
TT	Tetanus Toxoid Vaccine
USAID	United States Agency for International Development
VAT	Vaccin Anti-Tetanique
WHO	World Health Organization

## CURRENCY EQUIVALENTS

US \$1.00 = 260 FCFA

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## EXECUTIVE SUMMARY

The goal of the United States Agency for International Development (USAID) funded Child Survival Project in Chad is to improve the quality of life and health status of Chadian infants, children and women of child-bearing age. The purpose of this survey was to provide baseline measurements which will allow for an evaluation of the project's progress and provide information for project planning.

The survey was conducted in the Moyen Chari project area during the months of April and May 1992. It was a population based survey, with a target group composed of mothers, age 45 and under, who are full time residents of the project area. The sample was divided into two strata, rural and urban, selected with a multi-stage stratified sampling plan prepared with population estimates from the census bureau.

Data were collected by five teams of local women, who used a structured questionnaire developed and pilot tested prior to the survey. The questionnaire was designed to allow the interviewers to code the unprompted responses of the mother during the interview.

The questionnaire was administered to 1270 women, 932 from the rural strata and 338 from the urban strata. What follows is a summary of the findings.

In the urban area, 50% of the women claimed to know how to read and write; fifteen percent made that claim in the rural area. The level of formal education was low, one third of the urban women and only 15% of the rural women had ever attended a primary school.

The largest religion is Catholic, which constituted 60% of the rural and 45% of the urban population. The Protestants accounted for 18% of the rural and 30% of the urban population. Muslims were generally found in the urban area. They made up 20% of the urban and 8% of the rural sample.

When asked about their place of birth, seventy percent of the rural women lived in the same canton and 41% lived in the same village they were born in. Urban women tended to have moved to the city from outside, so a trend of urbanization was evident.

Thirty-five percent of the women in the urban area and more than fifty percent of the rural women had at least one co-wife. Polygamy did not appear to differ by religion except in the rural area where the small muslim population appeared to practice it less.

Fifty-eight percent of the urban women listen to the radio every day versus only 11% in the rural area. Since Radio Sarh has insufficient power to reach much of the survey area, most women listen to the N'Djaména radio station.

Breastfeeding is universal in the project area (98%), and generally prolonged. Ninety-two percent of the mothers breastfed their babies for over a year and 79% did so for over eighteen months.

Approximately 50% of the mothers of children under six reported at least one sick child within the last two weeks. Diarrhea was by far the most common ailment, accounting for about 50% of all reported illness.

Malaria accounted for 13% of illness among children in the rural area and 16% in the urban. Twenty-nine percent of urban mothers and 13% of rural mothers knew that malaria was caused by mosquito bites.

The estimated mortality rate for children up to age five is approximately 19% in the urban area and 24% in the rural area.

Sixty-four percent of rural mothers and ninety-one percent of urban mothers had heard of Oral Rehydration Therapy (ORT). However only a third of the mothers in both strata could correctly explain how to prepare the solution.

The survey showed that 87% of the urban and 44% of the rural women had heard of Acquired Immuno-Deficiency Syndrome (AIDS). Among these, thirty-nine percent of the rural women and 23% of the urban women had no idea how it was transmitted. Most cited the radio as their source of knowledge about AIDS.

During their last pregnancy 51% of the rural women attended a dispensary for prenatal care. Fifty-two% had received tetanus toxoid vaccine and 56% had taken anti-malaria drugs. Among urban women, 88% had had prenatal care, 88% received the Tetanus Toxoid (TT) vaccine and 75% took anti-malaria drugs.

Knowledge of modern contraceptive methods is practically non-existent in the rural area and very low in the urban area.

The median age of first pregnancy is seventeen.

Eighty-nine percent of the rural women were circumcised as were 71% of the urban women.

Seventy-five percent of the mothers had at least one child with the uvula removed by a traditional healer.

## I. INTRODUCTION

Long-term field activities in the Moyen Chari for the Chad Child Survival Project are scheduled to begin in October 1992. "The goal is to improve the quality of life and health status of Chadian infants, children and women of child-bearing age. The project purpose is to strengthen the administration and delivery of an improved package of integrated SMI/BEF (Maternal/Child Health and Family Well Being) services in selected prefectures and to reinforce the capability of the MSPAS to operate and maintain a national health information system" (Project Paper). This is in keeping with the newly defined national health policy, which states that the first priority is to build up the capacity of the district level health structure to support the local dispensaries, which in turn will provide a minimum package of health services. The SMI/BEF policy conforms with the national policy by setting as its highest priority, the integration of all its activities into the existing health structure. Efforts to reduce morbidity and mortality in children will not succeed without parallel development in other fields such as family planning and women's education. The child survival project will concentrate on interventions in several areas. These include oral rehydration therapy (ORT) and the dietary management of diarrhea (DMD), management of acute respiratory infection (ARI) and malaria, maternal health and family planning.

The purpose of this survey was to provide baseline measurements of the indicators that will be used to evaluate future progress of the project and also to provide a point of departure for planning project activities. Since the survey was population based with a randomly selected sample, it represents a unique opportunity to obtain non clinic-based information and therefore may include women who do not normally come into contact with the health care system.

## II. BACKGROUND

Chad, one of the largest countries in Africa, is consistently listed as one of the poorest countries in the world. No matter what development criteria is used; GNP per capita, adult literacy, life expectancy or infant mortality, Chad is usually found among the ten lowest ranking countries.

Most Chadians earn their living by subsistence agriculture, fishing and raising of livestock. Cotton and livestock have traditionally been the country's chief export, at times accounting for 80% of the export earnings and the lion's share of the government's revenues. The per capita income for Chad in 1991 was reported by the Ministry of Health and Social Affairs (MSPAS) as \$269.

The country is bordered on the north by Libya, with Sudan to the east, Central African Republic to the south, and Niger, Nigeria and Cameroon to the west. Chad is the largest landlocked country in the world without railroad access to an ocean port. The nearest port is Douala, Cameroon which is approximately 1500 kilometers to the southwest.

### A. Climate

The 1,284,000 square kilometers has three distinctive climatic zones. The northern half of the country is in the heart of the Sahara Desert with an annual rainfall of less than 200 millimeters. The central zone is Sahelian with between 200 and 900 millimeters and the southern zone is Sudanian with over 900 millimeters of rain per year. The rainy season in the south is from late May to early October.

### B. Demography

The estimated population of Chad is 5,507,000 with an overall population density of 4.1 inhabitants per square kilometer. This population, however, is not evenly distributed, with only 0.2 inhabitants/km<sup>2</sup> in the north, 4.6/km<sup>2</sup> in the central and eastern portions and 18.5/km<sup>2</sup> in the south. The urban population which is defined as those people living in towns of 5,000 or more is 23%. The capital city of N'Djaména accounts for 7.8% of the total population. Fifty-one percent of the population is under the age of twenty; thirty percent is under age ten. Demographic information on Chad must be used with care since Chad has never had a national census. The figures presented here are provided by the MSPAS Planning and Statistics Division (BSPE) which utilizes the results of the 1989 voter registration with the age proportions established in a 1964 population survey. The first national census is planned for early 1993. The preliminary activities for that census provided very useful materials for this survey.

C. Religion

Muslim	50%
Christians	23% (majority are Catholic)
Animist	24%

*Source: UNICEF, 1989*

D. Languages

French and Arabic are the official languages with over 200 other Chadian languages.

E. History

The fact that Chad has been inhabited by humans since time immemorial is attested to by the remains of a million year old human skull found in Borkou. Tombs in the Tibesti have been carbon dated to B.C. 4900. The region of Kanem appears under the same name on maps as early as A.D. 872 and tenth century arabic manuscripts describe the area of present day Chad as producing millet, beans, and wheat and also raising sheep, cattle, horses and camels. Chad has traditionally been a crossroads for trade between the muslim north and the animist Bantu tribes of the tropical forest.

The French first appeared in Chad in 1891 and established their authority by military force. Chad achieved independence from France in 1960 and has since been subjected to incessant internal rebellions, civil wars and periodic interventions by outside forces.

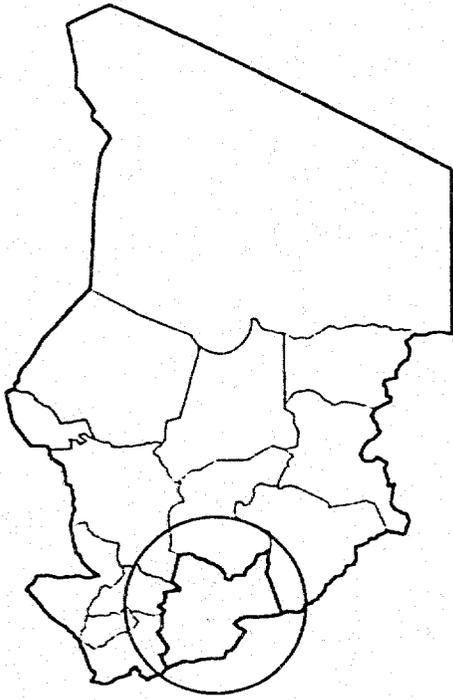
Table 1: Key Developmental Indicators

	CHAD	MOYEN CHARI
Geographic size:	1,284,000 km <sup>2</sup>	45,180 km <sup>2</sup>
Population:	5,507,975	648,795
Population Density:	4.1 per km <sup>2</sup>	14.36 per km <sup>2</sup>
Male:	47.4%	46%
Female:	52.6%	54%
Birth Rate:	42.3/1000	?
Death Rate:	19.04/1000	?
Growth Rate:	2.33%	?
Per Capita Income:	US\$266	?
Number of Hospitals:	9	3
Number of Centre Medicales:	22	5
Hospital beds: (per 100,000 pop.)	72.8	109
Dispensaries:	302	45
Poste de Santé:	38	14

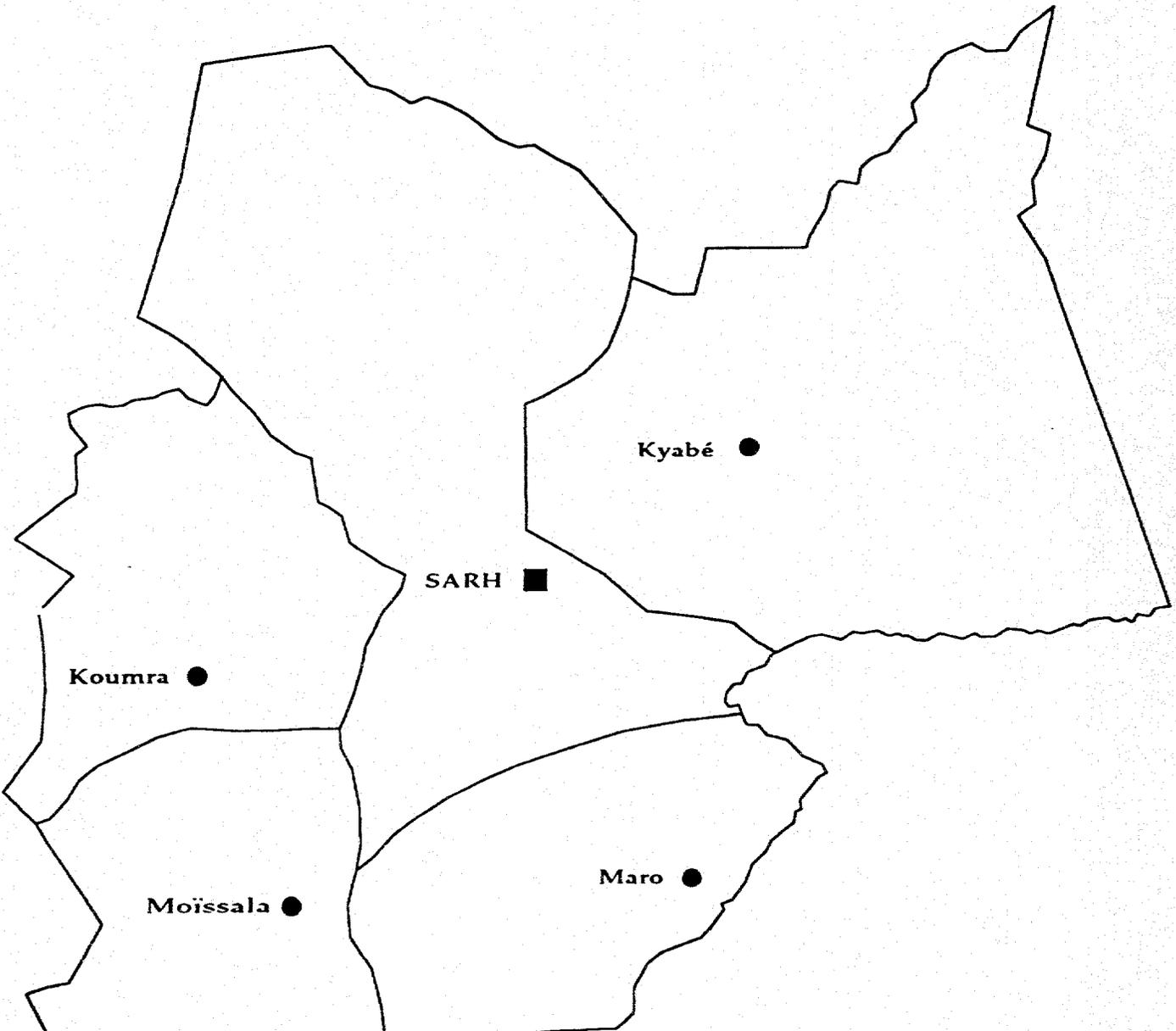
*Source: Annuaire de Statistiques Sanitaires du Tchad 1991 (BSPE)*

#### F. General Background on Moyen Chari

The project target area is in the Moyen Chari Prefecture which is in the southern part of Chad (see Map 1). Being in the Sudanian zone, it gets considerably more rainfall than the desert area of the north and has several cash crops such as sugar cane, and cotton. The area is also renowned for its mangos and is on the main road to the Central African Republic.



**Map 1**  
**Prefecture of Moyen Chari**  
**Republic of Chad**



## G. Other Organizations Involved in Child Survival Activities in the Moyen Chari

Many other organizations participate in child survival interventions in the Moyen Chari. A brief description of their activities follows.

### 1. UNICEF

UNICEF is a major donor of medicines, vaccines, ORT packets and pharmaceutical materials to the fourteen prefectures of Chad under the auspices of the MSPAS. The Prefecture Socio-Sanitaire of the Moyen Chari is allocated a certain quantity relative to the size of the prefecture and is thus responsible for the assurance of these supplies to programs which adhere to national guidelines and agendas such as PEV (Program Elargi Vaccination).

### 2. Institut Tropical Suisse (ITS)

The Support Project (Project d'Appui) in collaboration with the Prefecture Socio-Sanitaire is under the direction of the seventh phase of ITS's Health Program in Chad. At the Sarh level, ITS activities include direct administrative and technical support to the Délégué Socio-Sanitaire by an advisor as well as reinforcement of the capacity for management, planning and human resource development. Pharmaceutical management support to the Central Hospital in Sarh, and minimal supply of emergency medicines also fall within the realm of ITS activities. ITS's long-term commitment is to the District of Kyabé where in addition to the aforementioned activities, it is involved in the construction and management of two dispensaries.

### 3. Coopération Française

Project support in the Moyen Chari (as part of the national program) for the control of tuberculosis and leprosy.

Financial support of 5 million FCFA per year for the continuation of secteur IV activities and for epidemiologic surveillance at the Sarh hospital.

### 4. APPEL de Cherbourg

APPEL de Cherbourg is an association of French pediatricians who have established a long-term commitment to working with doctors and nurses of the central hospital, the dispensaries in Sarh, and the social service agents of the Centre Sociale. Two times a year for a period of three weeks, a Cherbourg team arrives to give practical and technical assistance in the areas of pediatrics, maternity, gynecology, malnutrition, childbirth and maternal pathology. Although APPEL does give some medications, education is the primary focus of their interventions.

## 5. CARE CHAD

Until May 1992 CARE Chad has been the only agency involved in drilling and hand pump installation in the Moyen Chari. Due to the lack of funding, they have stopped installing hand pumps and focused on the Information, Education and Communication (IEC) component of the project. Through a process of redefining goals and objectives, the IEC component has evolved into a broader scoped community development project with activities in health education, water and sanitation, home industries, agriculture, reforestation, and appropriate technologies. CARE Chad considers its retrained animators as "agents de development" with skills in analyzing the needs of communities and locating the necessary contacts, information, and resources to help communities meet their needs. In terms of health related activities, CARE does not use a "shot gun approach" of imposing predefined vertical programs upon communities. Instead, all interventions are directed by the communities themselves and are unique to each community. Health interventions include ORT and nutrition education, diarrheal disease prevention, water and sanitation education, and the construction of improved sanitation facilities.

## 6. BELACD/Moyen Chari (Bureau d'Etudes et de Liason d'Action Caritative et de Developpement)

Headquartered in Sarh, BELACD is a development institution financed by various Christian organizations and is primarily under the direction of the Catholic Mission of the Moyen Chari. BELACD's development activities can be divided into four broad areas: agriculture, health, education, and women in development. In terms of health interventions, BELACD runs a highly structured system of health centers and dispensaries with a budget of 161,000,000 FCFA for 1991-1993. Besides two hospitals located in Goundi and Bébora (soon to be transferred to Moïssala), BELACD furnishes clinical and technical support to dispensaries which have nurses and are equipped to provide curative health care. In addition, BELACD has organized nine health posts which have no professional health workers, but have medicines and personnel trained in primary health care. Four of these posts are in rural Sarh and the other five are in the Moïssala area. In more inaccessible regions throughout the prefecture, BELACD has helped create 196 rudimentary village pharmacies and 275 village health groups that operate on a very basic health care level. Medicines are furnished or sold to these health posts and other public dispensaries by eight BELACD pharmaceutical depots (Depots de Vente): Danamadji, Maro, Koumabou, Kyabé, Bédaya, Bédjiondo, Moïssala, and Djoli. Health education takes place at the dispensary level and includes nutrition, ORT, maternal health, hygiene, and disease prevention. BELACD is also preparing to start a family well-being program in collaboration with the MSPAS.

## 7. Baptist Mission

The Baptist Mission has a medical center in Koumra and works principally in the district of Koumra. It maintains an evangelical perspective to its health programming in the region. The areas addressed by mission programs are mainly clinical and curative, but also

include the supply of medicines, vaccines, educational materials, and managerial support. The medical center houses in and out-patient surgery, dental and eye clinics, and a primary health care unit. Services are paid for by the patients. All health workers and nurses employed by the Baptist Mission receive training in Koumra and must conform to its religious objectives. The mission also runs approximately 5-6 dispensaries in the Moyen Chari which are not funded by the MSPAS but are included in its formal structure of public facilities. The mission has trained village-based health workers in the areas of hygiene, ORT, nutrition, and child-spacing. The Mission's hospital and related health programs were established by an American, Dr. Seymour, over thirty-five years ago and are now under the supervision of his son Mark Seymour.

#### 8. La Foi Bahai

The Foi Bahai intervenes in preventive health care on a grassroots level in the Sarh, Maro and Moïssala districts. Since 1984 the Foi Bahai has been training community development and village-based health workers (secouristes) and animators with the financial assistance of the Red Cross and World Neighbors, another Non-Governmental Organization (NGO). Presently the Foi Bahai has over 50 secouristes and animators trained in the management of village pharmacy accounts (caisses), vaccination, sanitation education, nutrition, ORT, family planning, and disease prevention. Educational activities include the use of theater and role-playing to convey health messages. The Foi Bahai also supports a dispensary in Moïssala with medications bought from Pharmat in N'Djaména. This dispensary is supervised by four Chadian nurses trained by the MSPAS and one Iranian nurse.

#### 9. Dr. Maggie Nigri

Dr. Maggie Nigri, a French pediatrician, has been based in Békamba (Koumra district) for over ten years. Taking a village-based approach to health interventions, Dr. Nigri works with the Prefecture Socio-Sanitaire in order to implement the policies of the MSPAS. With the financial aid of an association of friends and family in France, she has been able to build and supply three dispensaries in Békamba, Peni and Bégou. Medicines are bought from BELACD. All nurses working in the dispensaries have been trained by Dr. Nigri. She and her nurses are highly active doing health education, primary health care, and disease prevention in surrounding villages in her zone. Dr. Nigri is currently serving as the Chief of Koumra's sanitation district.

#### 10. Cooperation Italienne

The Italian cooperation supplies ORT packets to the Moyen Chari. They also have plans for an assistance project in primary health care.

### III. METHODOLOGY

#### A. Data Collection

The survey was conducted between April 13 and May 12, 1992 in the prefecture of Moyen Chari. The urban strata was composed of 338 mothers from the towns of Koumra and Sarh. The rural strata was composed of 932 mothers from 61 villages in the rural sections of Sarh, Koumra and Maro sub-prefectures.

The survey targeted mothers aged 45 and under in the interest of gathering information about maternal and child health issues. It was felt that older mothers would not provide information on current practices and that the recall of these women would be unreliable. There was no minimum age.

Interviewers were all local women, mostly mothers, who had completed secondary education. These women were chosen because they themselves were part of the target group and could therefore more easily communicate with the women being interviewed. Given the subject matter covered by the questionnaire, male interviewers would have been inappropriate.

In preparation for the survey, official letters were sent by the Prefect informing canton chiefs that a health survey would be performed in selected villages and that their cooperation would be solicited. Prior to the actual visit of the team, a representative of the Medecin Chef personally contacted each canton and village chief to inform them of the timing and objectives of the survey and to request that the women of the village remain at home the day of the survey. During the mapping and listing process either the chief or another local guide accompanied the supervisor throughout the village. Once the respondents had been selected, they were interviewed in the privacy of their homes. Data was collected using a structured questionnaire developed and pilot tested prior to the survey. The questionnaire consisted of 148 questions written in french but asked in the spoken language of the mother (see questionnaire in Annex A). The questionnaire was developed to allow for coding of the unprompted responses of the mother while the interview was being conducted. Documentation was requested in the form of identity cards and vaccination cards to validate information about age and vaccination coverage. Interviews took approximately one hour to complete.

Out of a total of 1302 women selected, 1270 completed interviews, 19 had traveled, 5 were paying condolence calls, 2 were deaf, 1 was in mourning and 3 refused. An additional five women were eliminated because it was discovered at the time of the interview that they had never had a child.

## B. Data Verification, Entry and Analysis

Efforts to insure the validity of the data were made at several points both during data collection in the field and at the time of data entry. Supervisors reviewed each questionnaire in the field and an attempt was made to correct any ambiguities before leaving the village. Survey administrators then reviewed and verified all coding before data were entered into the computers. Data were entered on 386 micro-computers using the EpiInfo software package, version 5, which was programmed to include a strict data edit and skip routine. All data were entered twice and run through EpiInfo's validation program.

## C. The Sample

The process of developing a sampling frame was facilitated by the fact that the Bureau Central de Resencement (BCR) was able to provide canton maps, which they had drawn in preparation for the 1993 census. In addition to canton maps, the BCR provided sketches and population estimates for villages and other administrative sub-divisions. These maps were used to develop the sampling frame and are now in the possession of the Prefecture Socio-Sanitaire of the Moyen Chari. They will provide an invaluable resource for the Chad Child Survival Project (CCSP).

A multi-stage stratified sampling plan was used to select eligible respondents. Sampling was separate for rural and urban strata and the final sample contained 932 rural women and 338 urban women. These women represent a random sample of the project target area. A detailed description of the sampling methodology is presented in Annex B.

## D. Methodological Issues

### 1. Open-ended questions

The technique of unprompted responses, i.e. leaving the answer open and then categorizing it according to the response, is both a strength and a weakness. It has the advantage of not leading the respondent to the desired or expected response, but it is also highly dependent on the interviewees ability to express herself and the interviewers biases in interpretation (Kroeger). In this survey, there was undoubtedly a lot of variation in definition of terms, especially because there were so many languages spoken in the target area. An attempt was made to minimize this problem by standardizing as much of the terminology as possible during the training of the interviewers and also by using interviewers from the same ethnic group as the target group.

### 2. Measuring morbidity and mortality

This type of cross-sectional survey can provide proxy measures of health status. It is not a substitute for measuring prevalence or incidence of specific diseases nor can it produce baseline data for impact evaluation of such outcomes as reduction in mortality or

morbidity due to specific causes. However, it does provide useful baseline information on process indicators, such as reported changes in level of knowledge of issues like ORT and AIDS transmission, practices such as pre and post-natal care and knowledge and attitudes toward family planning. Such intermediate variables are indicative of final outcomes and at the same time are less expensive and easier to measure (Van Norren).

### 3. Recall

Deciding upon a recall period for questions pertaining to reported illness is always problematic and indeed there is a whole body of literature on the advantages and disadvantages of various approaches. Currently, a two-week recall period is commonly used instead of the 12-month recall. The recall for recent illness is thought to be more reliable and the information about related treatments and practices more useful, even though the risk of overestimating common illnesses exists (Kroeger). If a 12-month recall period is used, earlier illnesses tend to be forgotten, so the 2-week period is a compromise. This survey used a two-week recall period for illnesses of the child and the mother.

## E. Constraints

### 1. Language

Twenty-six languages were identified during the course of the survey, most of which could be classified into 3 or 4 major language groups. Given the impossibility of translating the questionnaire into multiple languages, it was fortunate that Sara and Arabic were widely understood. During the selection of the interviewers an attempt was made to recruit women who spoke a wide variety of languages. On occasion it was necessary to use local interpreters.

### 2. Biased Responses

Although the interviewers were in the same age group as the interviewees, there was still a large cultural gap between the urban educated women and the mostly illiterate rural women. There was often suspicion on the part of villagers about the goals of the survey which may have caused biased responses, especially for economic data. Suspicion, lack of variability and vague distinctions about who owns what in extended families, typically make information pertaining to revenue and expenses difficult to gather in developing countries. Therefore, there is a lot of room for error in the data collected on amount spent, for example, on health care. Population-based surveys in rural areas are also notoriously weak for collecting data about the use of traditional healers and remedies. It can probably be assumed that the use of traditional healers was under-reported, although the fact that the interviewers were not "health personnel" may have alleviated the problem somewhat. In any event, data about use of traditional healers are better collected through anthropological research.

### 3. Reliability

Given the time and budgetary limitations of the survey, it was not possible to test the reliability of the survey instrument by doing repeat interviews at a later date or with different interviewers with the same respondents.

#### F. Analysis

A descriptive analysis was performed with the EpiInfo and SPSS software packages. The primary statistics of interest are proportions and means.

A. Demographic and Socio-Economic1. Age

It was extremely difficult to obtain the true ages of the women being interviewed. During the pilot survey, an attempt was made to link age with specific historical events. This approach was not very useful since outside events have little to do with village life. In the end, most ages were rough approximations agreed upon by the women and the interviewers. In some instances specific events in the village could be used to help pinpoint dates in the past. In other instances husbands were consulted who might have had more of a notion of calendar time. Women were asked for birth certificates, identity cards or other forms of documentation of year of birth, and whenever possible, these were used to determine age. During the analysis, the age distribution of women with identity cards, (10% of the total), was compared to that of women without cards. The age distribution in five-year intervals for the two groups was very similar. So despite the fact that it was not possible to get exact ages, categories that were more or less correct were obtained by grouping women into five-year intervals that spanned the age heaping on either side. Most age heaping occurred at age 30.

Table 2: Age Distribution

Age	Rural (N=929)	Urban (N=338)
15-19	10%	6%
20-24	21%	21%
25-29	27%	26%
30-34	19%	22%
35-39	16%	15%
40-44	7%	7%
> 45	---	3%

Median = 28    Median = 29

As seen in Figure 1, approximately a quarter of the women fell into each of the following categories: less than 23, 23-27, 28-33 and greater than 33. All subsequent age analyses use these four categories unless otherwise stated.

Figure 1  
AGE DISTRIBUTION

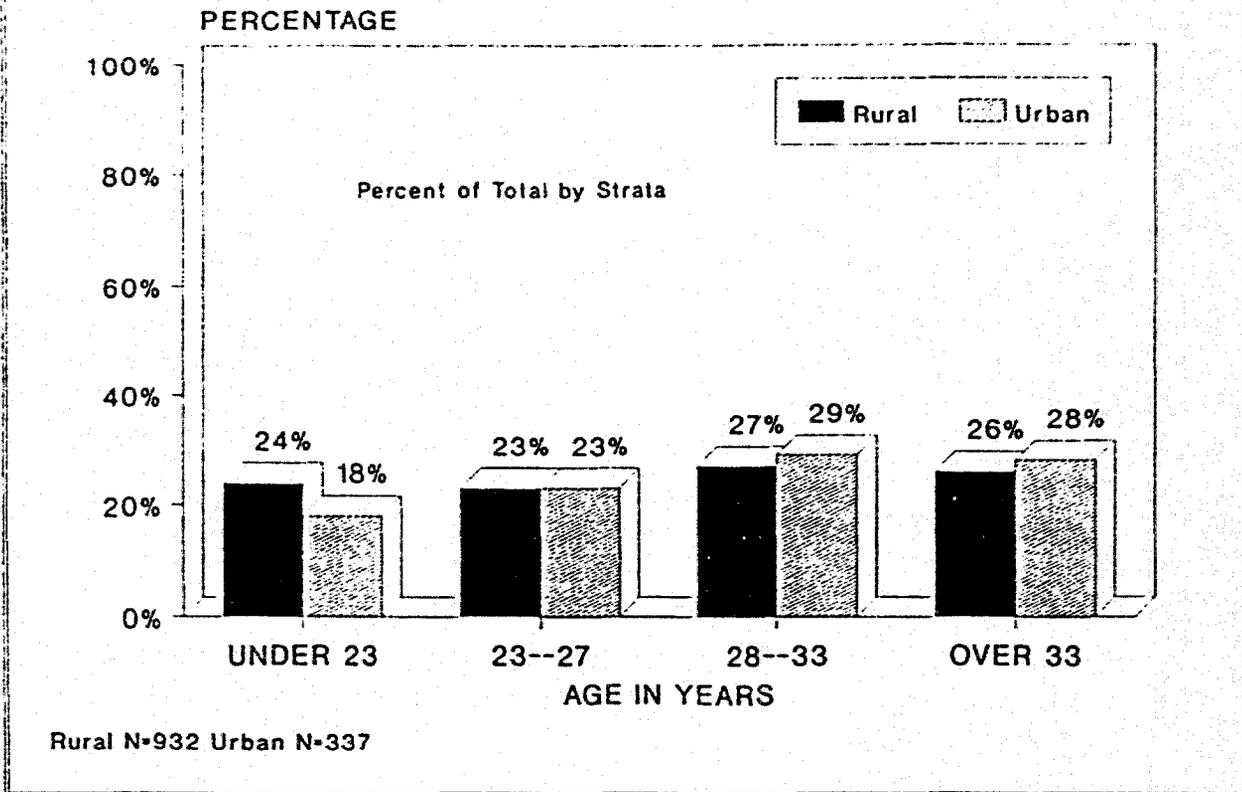
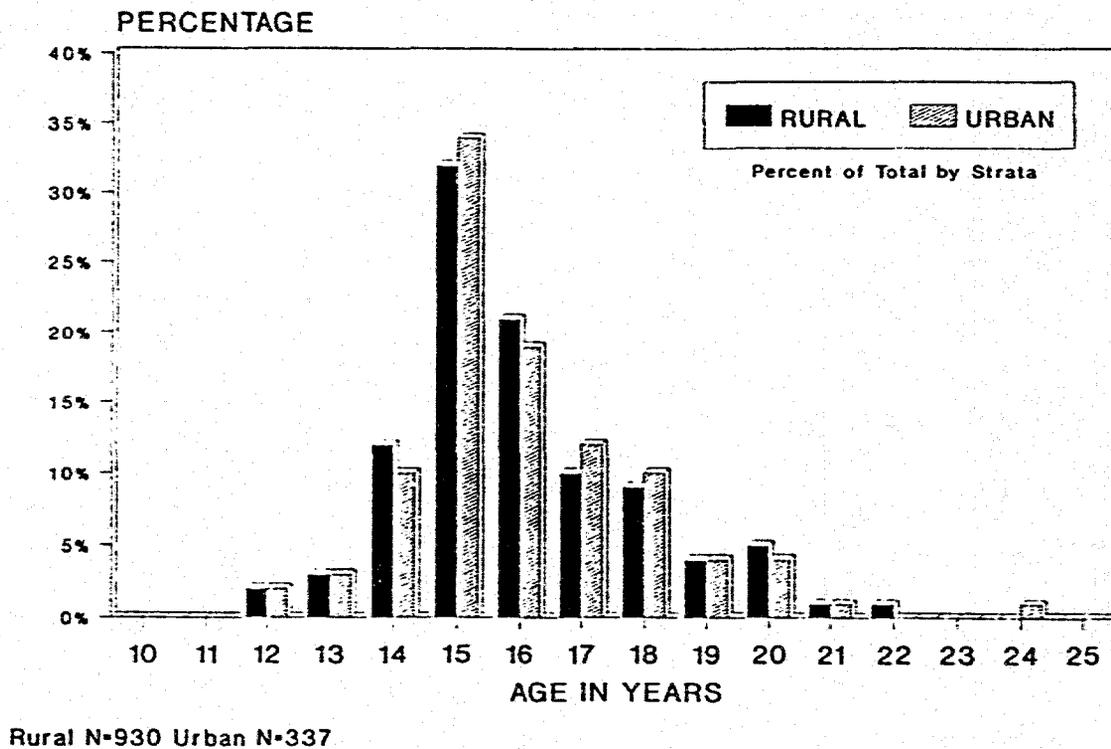


Figure 2  
MOTHER'S AGE AT FIRST MARRIAGE



## 2. Parity

Table 3: Average Parity by 5-Yr Age Groups

Age	Rural (N=922)	Urban (N=327)
15-19	1.36	1.16
20-24	2.18	1.94
25-29	3.33	3.44
30-34	5.53	5.17
35-39	6.70	6.94
40-44	7.86	8.52

## 3. Age at first marriage

As seen in Figure 2, the range of age at first marriage extends from 10 to 25 with a peak at age 15.

## 4. Education and literacy

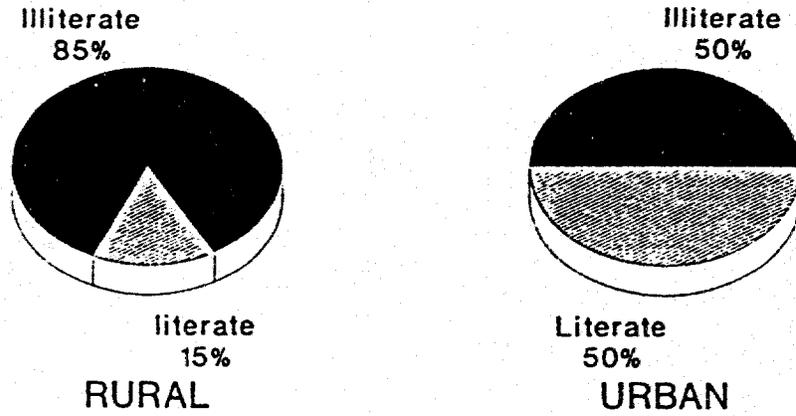
In the urban area, 50% of the women claim to know how to read and write, whereas only 15% make that claim in the rural area.

The level of formal education is very low, as shown in Figure 4. Nineteen percent of women in the urban area and 4% in the rural area completed only primary school. Sixteen percent of the urban women went beyond primary school compared to less than 1% in the rural area. Only 7 out of 932 women in the rural area finished secondary school and only 1 in the urban area had attended university.

## 5. Religion

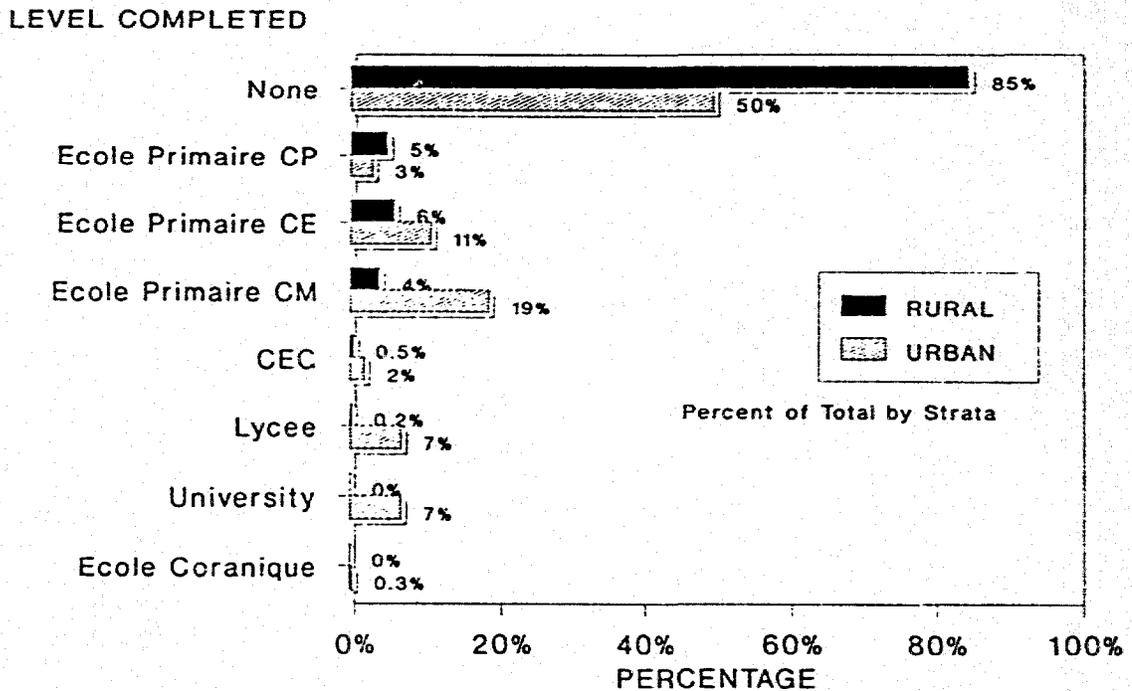
The largest religious group is Catholic which constituted 60% of the rural population and 45% of the urban population. It is followed by the Protestant group, which accounts for 18% and 30% in the rural and urban areas respectively. Muslims are generally found in the urban area where they constitute 20% of the sample. Eight percent of the rural population is Muslim. The remainder is made up of animists, bahais and people practicing no religion. While the majority of the population claimed to be Christian or Muslims, it should be pointed out that animist practices are still an ingrained part of the culture.

Figure 3  
LITERACY AMONG SURVEY WOMEN



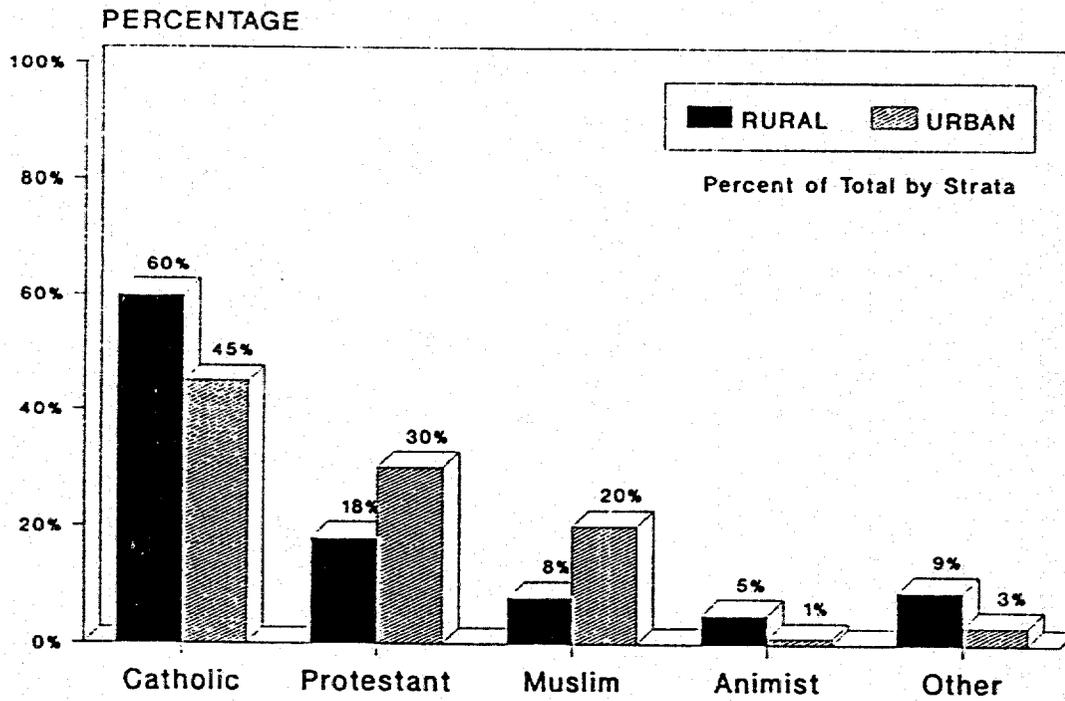
Rural N=932 Urban N=338

Figure 4  
FORMAL EDUCATION OF WOMEN



Rural N= 932 Urban N=338

Figure 5  
RELIGION OF WOMEN IN SURVEY



Rural N=932 Urban=338

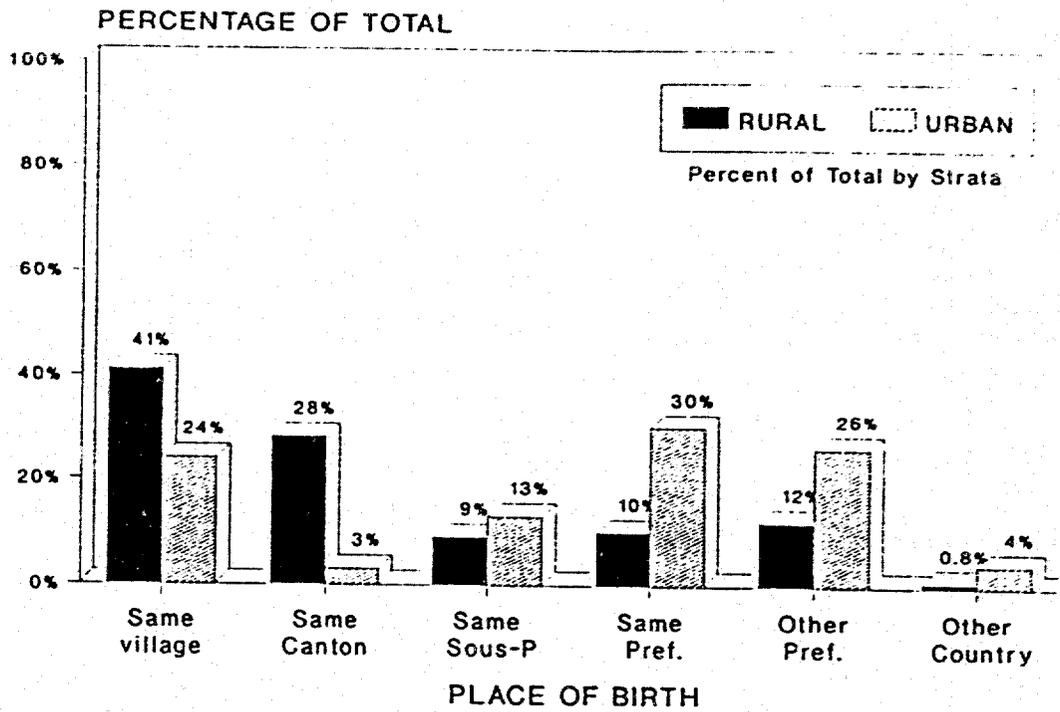
## 6. Place of birth

Data on place of birth is suggestive of urbanization and population movement. Only 25% of the women in the urban strata were born in the urban centers they now live in and 26% came from outside the Moyen Chari altogether. On the other hand, more than 70% of the women in the rural strata were born in the same canton they now live in and 41% of them still live in the same village they were born in. Employment possibilities with SONASUT, Coton Tchad, Easo and until recently, the STT, are at least partially responsible for population movement to Sarh. Reportedly there are whole villages that have emptied out almost entirely because of people seeking work in urban centers.

## 7. Polygamy

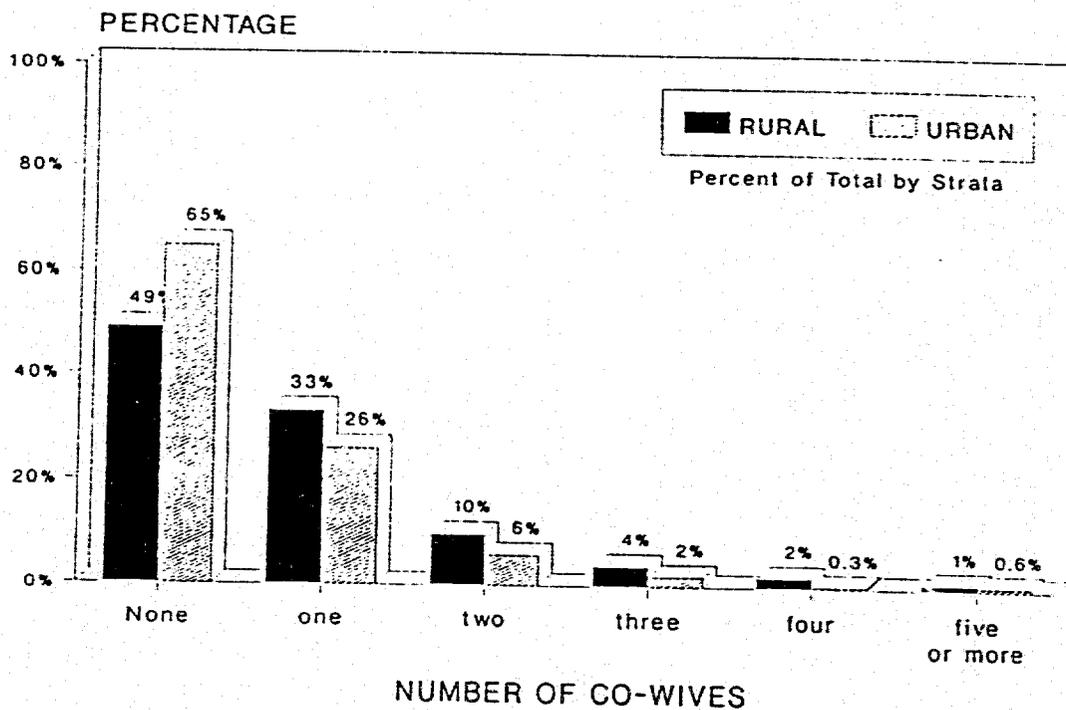
Thirty-five percent of the women in the urban area and more than 50% of the women in the rural area have at least one co-wife. Polygamy is probably more common in the rural area due to the necessity of having large families to work in the fields. In addition, the higher cost of living in the urban area may be beginning to act as a deterrent to having multiple wives. Polygamy does not appear to differ by religion except in the rural area where Muslims appear to practice it less often than Catholics and Protestants.

Figure 6  
"WHERE WERE YOU BORN"



Rural N=932 Urban N=338

Figure 7  
NUMBER OF CO-WIVES



Rural N=883 Urban N=301

8. Housing characteristics

Table 4: Housing Characteristics

	Rural (N=932)		Urban (N=338)	
<b>Housing Material</b>				
Cement Brick	7	(1%)	46	(14%)
Mud Brick	859	(92%)	291	(86%)
Straw	66	(7%)	0	(0%)
<b>Roof</b>				
Tin	37	(4%)	244	(72%)
Straw/Mud	895	(96%)	94	(28%)
<b>Toilet Facilities</b>				
Flush Toilet	3	(0%)	13	(4%)
Latrine	230	(25%)	274	(81%)
Bush	699	(75%)	51	(15%)
<b>Electricity</b>	0	(0%)	36	(11%)

Cement brick houses and tin roofs are indicative of greater wealth. They are seen more often in the urban area, probably because there are more salaried workers, fonctionnaires and merchants living there. If one can afford a tin roof, the necessity of having to rebuild one's roof every two years is avoided. Most people in the rural area cannot afford this luxury, as seen in Table 4.

The data show a high percentage of households with latrines in both the rural and urban areas, 25% and 81% respectively. This information is somewhat misleading, however, because while it is true that people may have latrines, the quality and upkeep of the latrines is often very poor. In the urban area, sometimes a very shallow hole with no cover, right next to the house is called a latrine. And in the rural area, where people tend to have more animals, often the latrines are trampled on and destroyed by the animals who are attracted by the smell and knock down protective fencing in order to eat the grass. These latrines are often very poorly maintained, however people still use them as toilet facilities.

## 9. Husband's occupation

As expected, most husbands in the rural area are farmers (81%). Husbands who are unemployed are much more likely to live in the urban area. Since many urban husbands (47%) are salaried workers, they are more vulnerable to being laid off, in which case the burden of feeding and taking care of the family falls more heavily on the woman. Normally it is the husband's role to provide for his family, but when his money is insufficient, the woman must find money to supplement. Husbands in the urban area are more often merchants or military men than rural husbands.

## 10. Radio listenership

Fifty-eight percent of the women in the urban area listen to the radio everyday versus only 11% in the rural area. Forty-six percent of the women in the rural area never listen to the radio. Radio Sarh is listened to almost exclusively in the Sarh area since it does not transmit more than about 30 kilometers. The station listened to most frequently overall is N'Djaména. People often listen to the radio to get information about deaths, arrivals and births as well as to get other messages. Given the high proportion of women who listen to the Sarh and N'Djaména radio stations one or more times per week, it appears that the radio is an excellent medium for IEC messages about health. Most women cited the radio, for example, as the source through which they learned about AIDS.

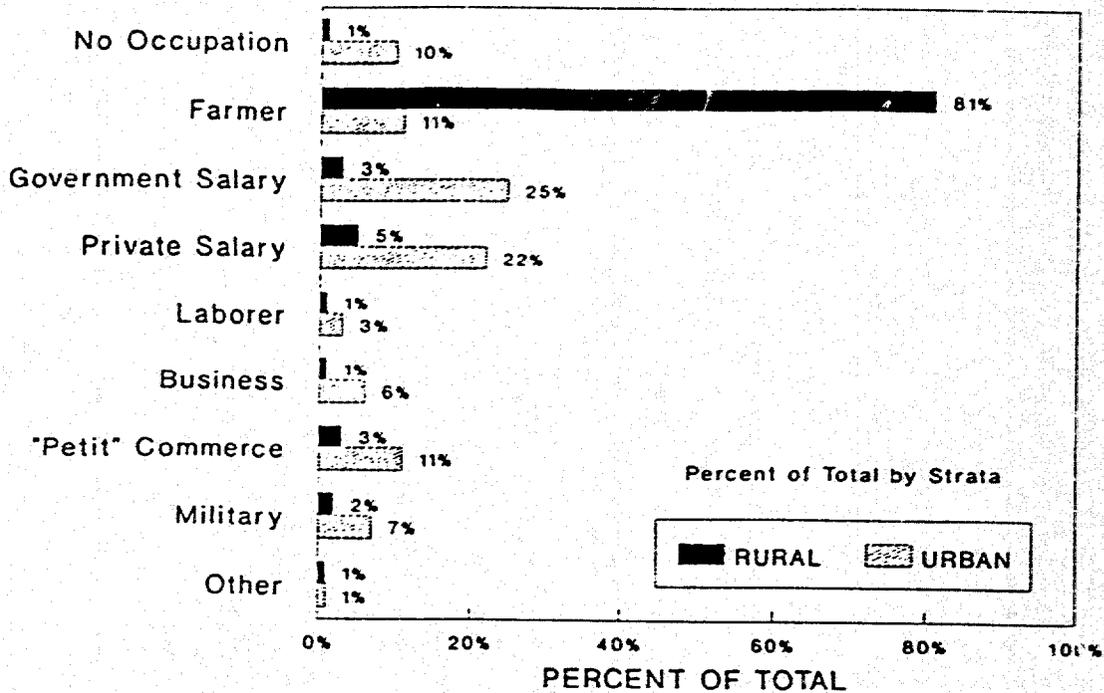
## 11. Household wealth

Households of women in the urban area were much more likely to have luxury items such as radios, tape recorders, motorcycles, cars and refrigerators, although the latter are likely to be for work. Eighty-five percent of urban women had radios versus 50% in the rural area. Ninety-seven percent of the people in the urban area had oil lamps while only 57% had them in the rural area. The fact that most people in the urban area had petrol lamps was not surprising since they are very accessible and cheaper than electricity. Ox-drawn carts (charettes) were more common as a means of transport in the rural area where people have animals, and hand-pushed carts (pousse-pousse) were more common in the urban area. However, the overall percentage who had any means of transport at all was low, except for bicycles, which exist in 34% of urban households.

## 12. Women's sources of income

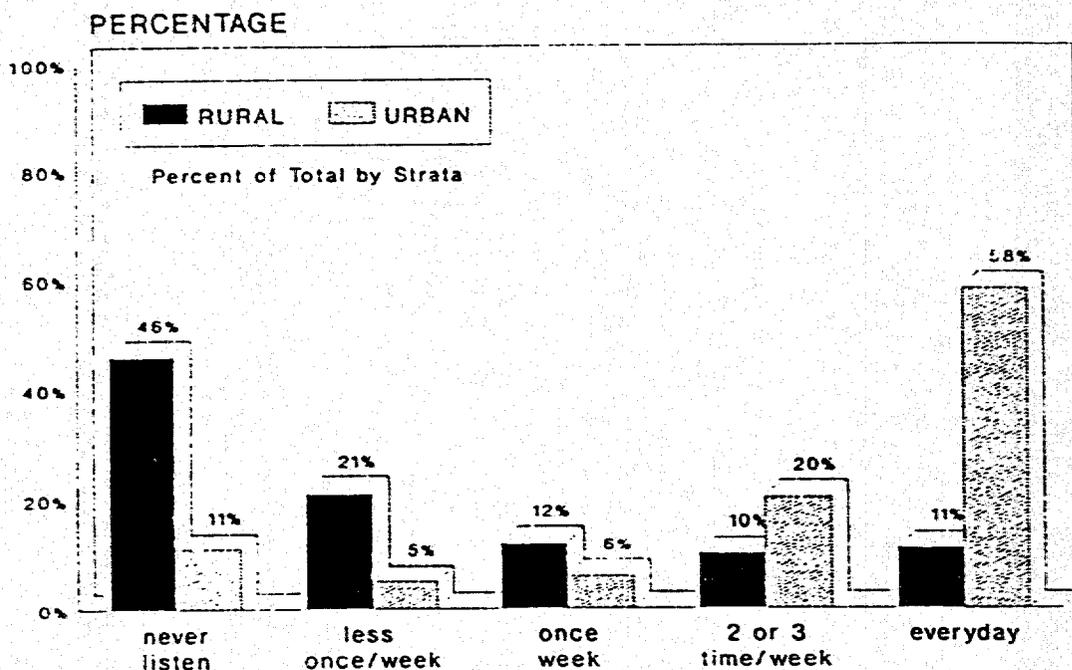
As mentioned above, women often have to supplement the husband's income to buy the necessary items for feeding and clothing the children, sending them to school, etc. Most women, 73% rural and 46% urban, make millet beer to get extra income. As seen in Figure 12 they also do petit commerce, selling their products in the local market. Urban women do petit commerce more often than rural women (Figure 12) and they also tend to make more money (Figure 13), fortunately, since their husband's are more often unemployed and there are more expenses in the urban area. Figure 13 shows the amount of money the woman claims to have earned during the past month from the activities she mentioned in Figure 12. Seventy-nine percent of the rural and 41% of the urban women made less than

Figure 8  
HUSBAND'S OCCUPATION



Rural N=932 Urban N=338

Figure 9  
RADIO LISTENING FREQUENCY



Rural N=932 Urban N=338

Figure 10  
 PERCENT OF LISTENERSHIP  
 BY RADIO STATION

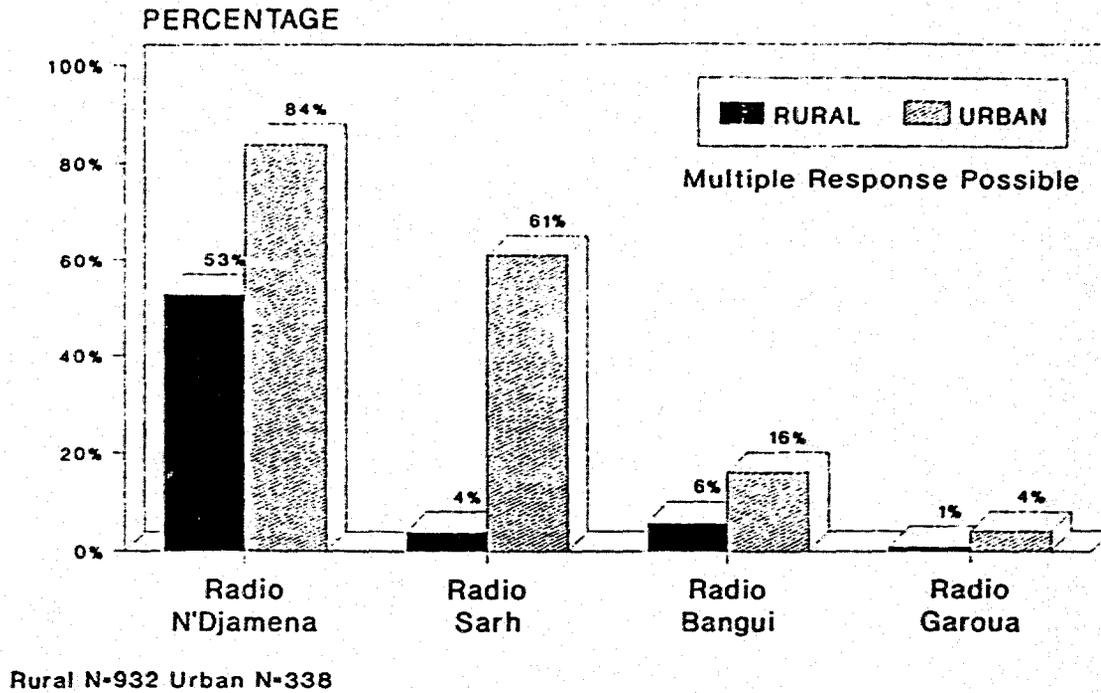


Figure 11  
 HOUSEHOLD INDICATORS OF WEALTH

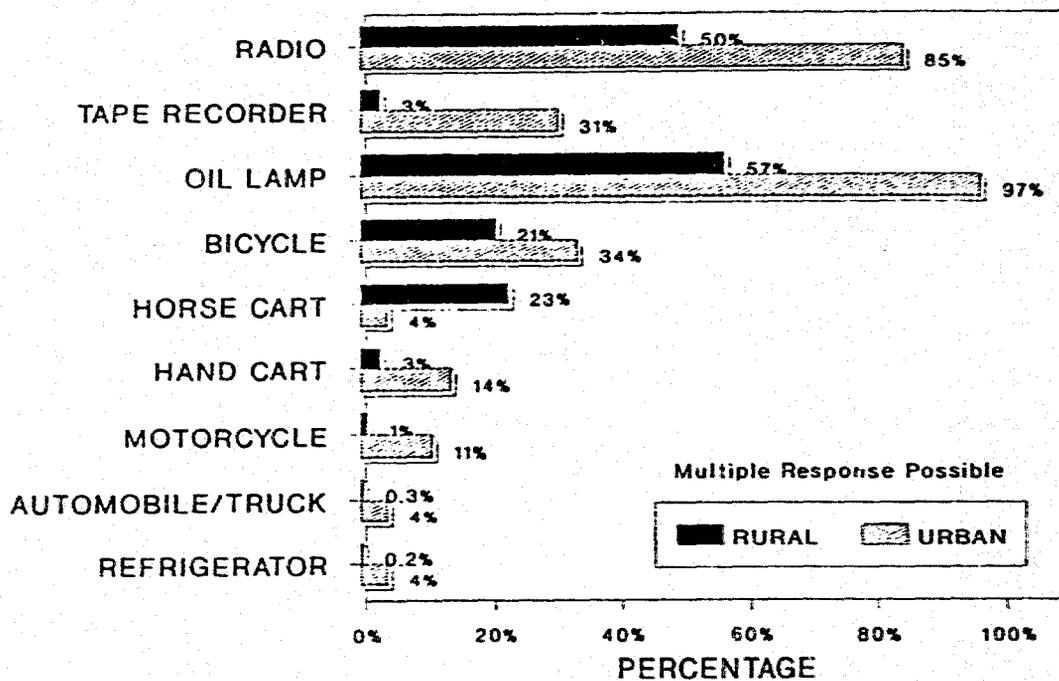
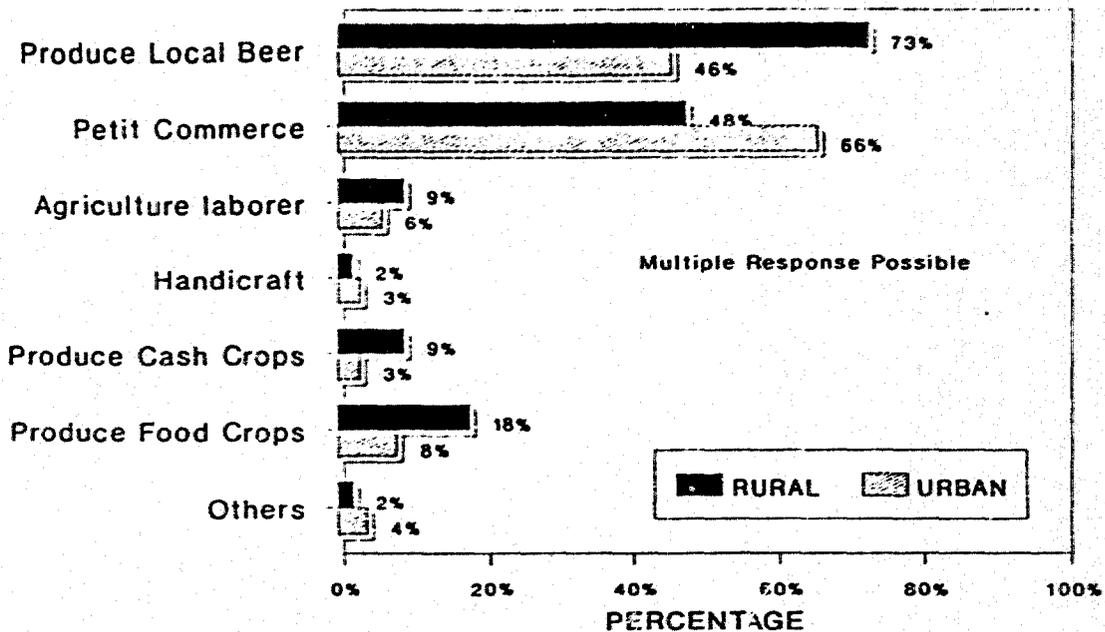
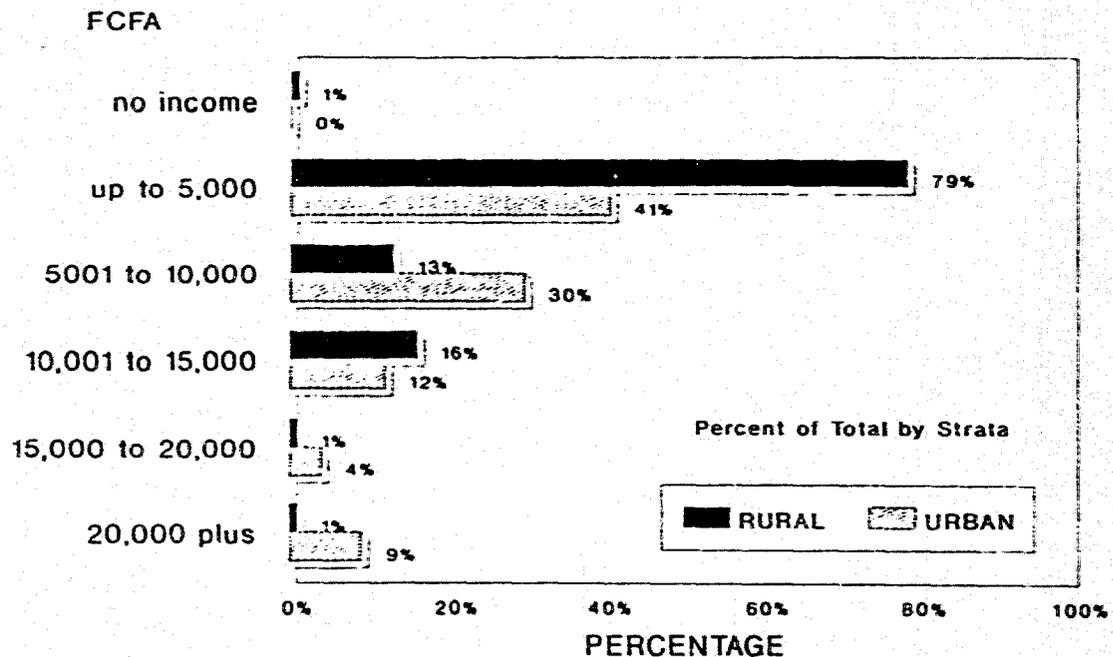


Figure 12  
**SOURCE OF WOMEN'S INCOME  
 FOR HOUSEHOLD EXPENSES**



Rural N-932 Urban N-338

Figure 13  
**INCOME LAST MONTH (MARCH OR APRIL)  
 FROM WOMEN'S ACTIVITIES**



Rural N-932 Urban N-338

5,000 FCFA the month before the survey. Since the survey was conducted in April and May, the reference period for the money earned is March and April. This period corresponds to the harvest time for cash and market crops such as cotton, millet, corn, beans and peanuts. Women have their own personal fields and 27% of the rural women mentioned those fields as a source of income during the preceding month. Due to the timing of the survey, reported earnings are probably higher than at other times of the year.

Figures 14, 15 and 16 show the usual amounts spent on various household staples, and it is evident that urban women spend more than rural women. Sixty-eight percent of the rural women spent less than 100 FCFA for fuel during the week prior to the survey; whereas 88% of the urban women spent over 300 FCFA for fuel. This is as expected since rural women do more subsistence farming and also can gather wood for fuel. Seventy-nine percent of rural women spent less than 1000 FCFA for food whereas 70% of urban women spent more than 1000 FCFA. Rural women also spend less on soap. Urban women are likely to wash clothes more often for work and other activities outside the home.

### 13. Animals

Table 5: Mean Number of Animals Belonging to Women

Animals	Rural (N=932)	Urban (N=338)
Chickens	2.4	1.8
Goats	1.7	0.6
Chicks	3.2	2.0
Lamb	0.7	0.1
Bulls	0.8	0.2
Donkeys	0.0	0.0
Cows	0.2	0.0
Horses	0.0	0.0

Rural women tend to have more animals than urban women, since they have the land to support them. These animals provide a source of revenue for in the form of dairy and meat products. They are also a resource for such expenses as the marriage of their children, for example helping sons pay dowries to obtain wives.

### 14. Savings groups

In Chad, women are often members of savings groups known as tontines. In a tontine, a woman donates a set amount of money on a weekly or monthly basis and when it is her turn, perhaps once a year, she takes the whole pot for that week or month. It is a type of investment which she can cash in on periodically and have a sum large enough to engage in

Figure 14  
WEEKLY MARKET EXPENDITURES  
FOR FOOD (USUAL EXPENSE)

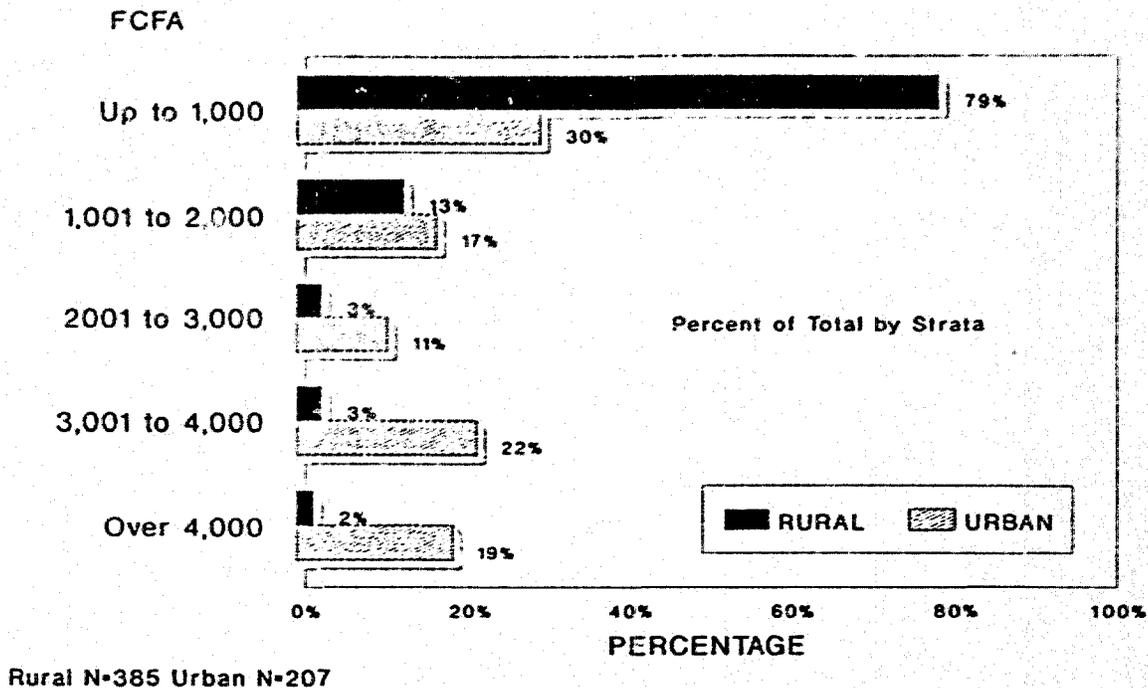


Figure 15  
WEEKLY MARKET EXPENDITURES  
FOR FUEL (USUAL EXPENSE)

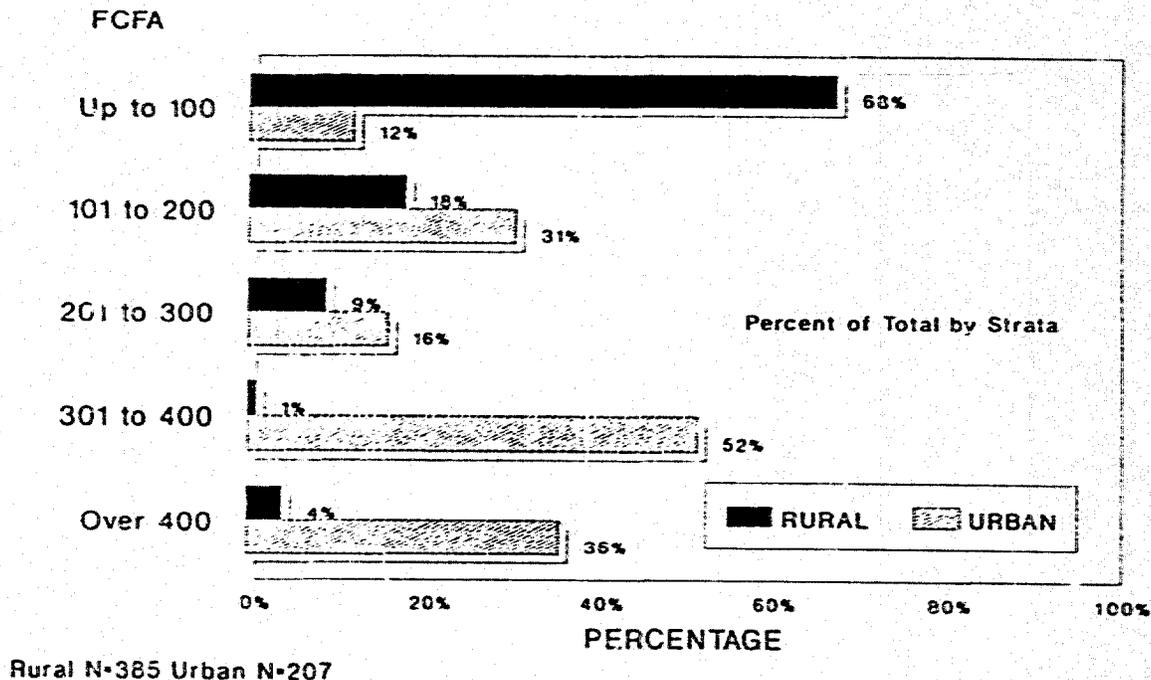
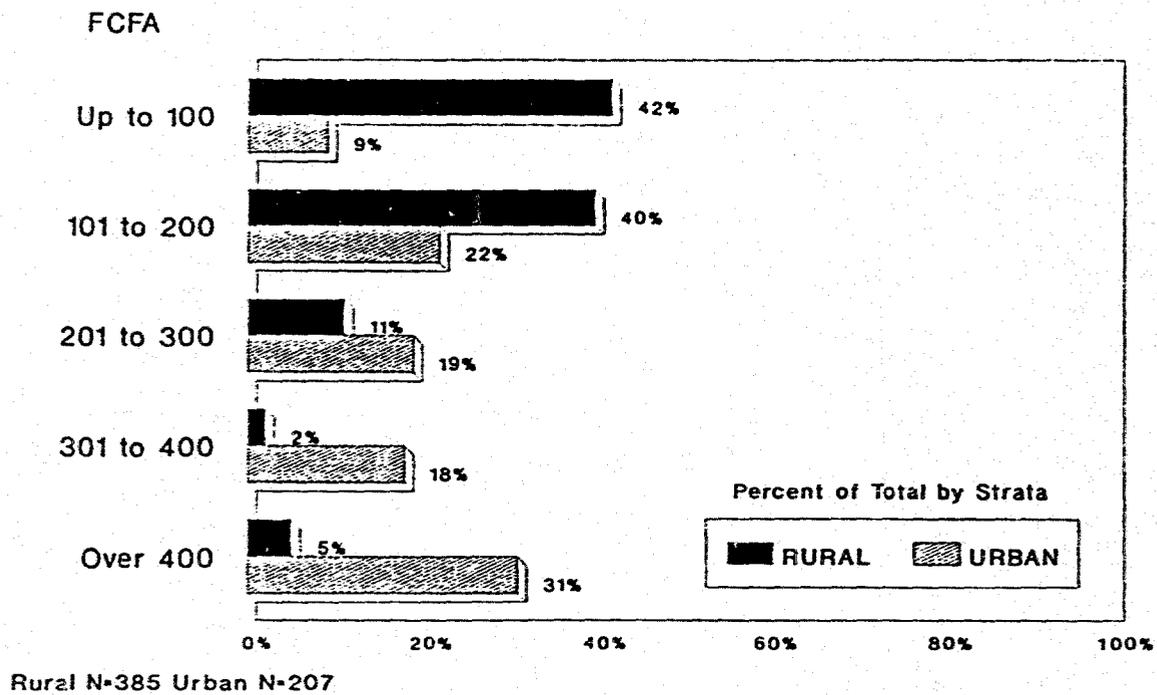


Figure 16  
 WEEKLY MARKET EXPENDITURES  
 FOR SOAP (USUAL EXPENSE)



BEST AVAILABLE DOCUMENT

activities that require capital. For example, the money from the tontine might provide enough cash to stock a business, buy a piece of land or build a house. As seen in Figure 17, a large proportion of women are members of tontines, especially in the rural area. Sixty-two percent of rural and 54% of urban women report that they are members of tontines, although the amount contributed by rural women is small, (usually less than 500 francs a week). Eighty-five percent of the tontine members contribute on a weekly basis, the other 15% on a monthly basis. The proportion of women in tontines is higher in the rural area, possibly because these women know and trust one another more easily, having grown up together. Since so many women belong to tontines, and they have regular meetings, these gatherings could represent an excellent occasion for health education sessions.

## 15. Savings

Women were asked if they were able to save any money during the past year and if so, how much. Twenty-two percent of the urban and 27% of the rural women reported having saved money, but the amounts available for saving were much greater for urban women. Rural women usually reported savings under 3,000 FCFA, whereas 32% of the urban women who had saved money were able to save more than 9,000 FCFA.

### B. Illness of Children Under Age Six

Ninety-one percent of the women in the survey had children under the age of six. They were asked about illnesses of their children during the preceding two weeks. Studies have shown that there is a tendency to overestimate diseases in the recent past (Kroeger). However, the two-week recall period was chosen, not in order to get disease prevalence, but rather to obtain information about practices related to treatment of common illnesses. If a longer recall period had been used, there might have been a tendency to forget details about less serious illnesses.

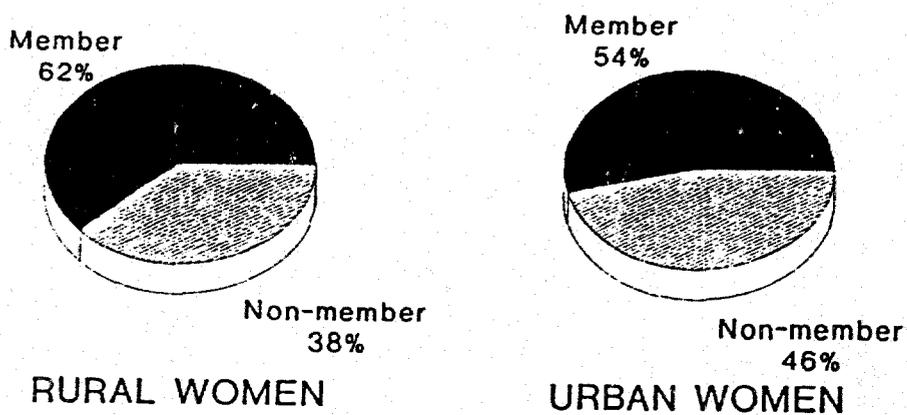
#### 1. Practices

##### a. Type of illness

Among the women with children under six, approximately 50% of them reported at least one sick child within the past two weeks. Approximately 25% of them reported a child with diarrhea, and approximately 7% reported a child with malaria.

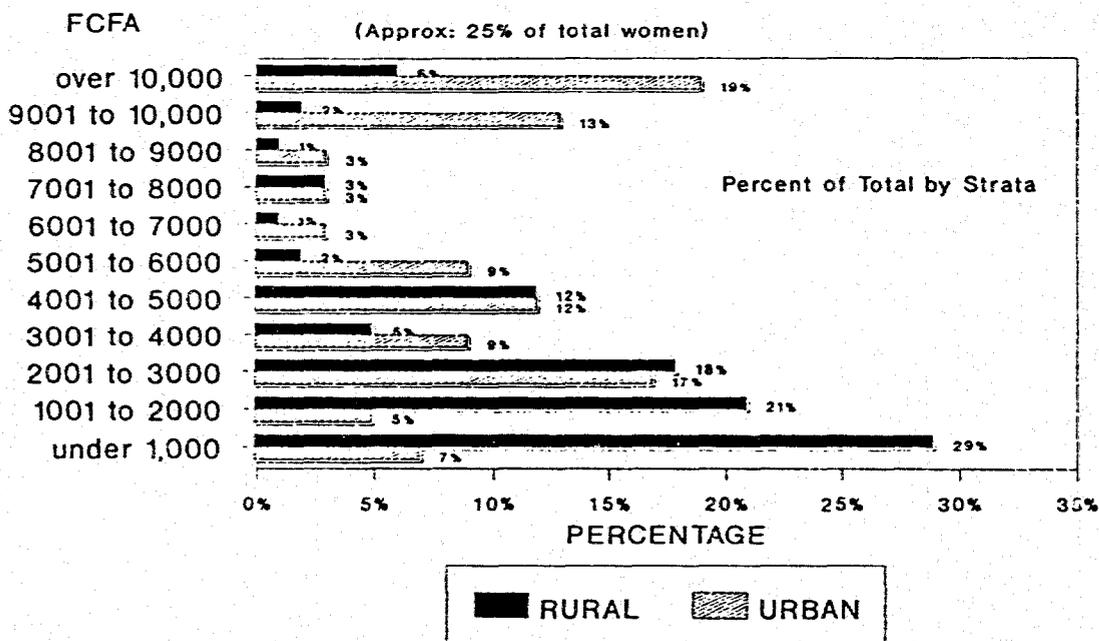
Among the 427 children reported to have been sick in the rural area and 137 children reported to have been sick in the urban area, diarrhea was by far the most common ailment, accounting for about 50% of reported illness. It was followed by malaria or fever, which accounted for 13% of the illness in the rural area and 16% in the urban area. Although the total number of children with skin conditions was small, (approximately 40), there was a noticeable absence in the urban area of any children under 18 months old with reported skin conditions. In the rural area, however, skin conditions accounted for 10% of all illness in children 18 months and under. The definition of skin disease is non-specific and since the responses were open, skin disease could have referred to any of the diseases which cause skin

Figure 17  
 PERCENT OF WOMEN WHO ARE MEMBERS  
 OF A SAVINGS GROUP



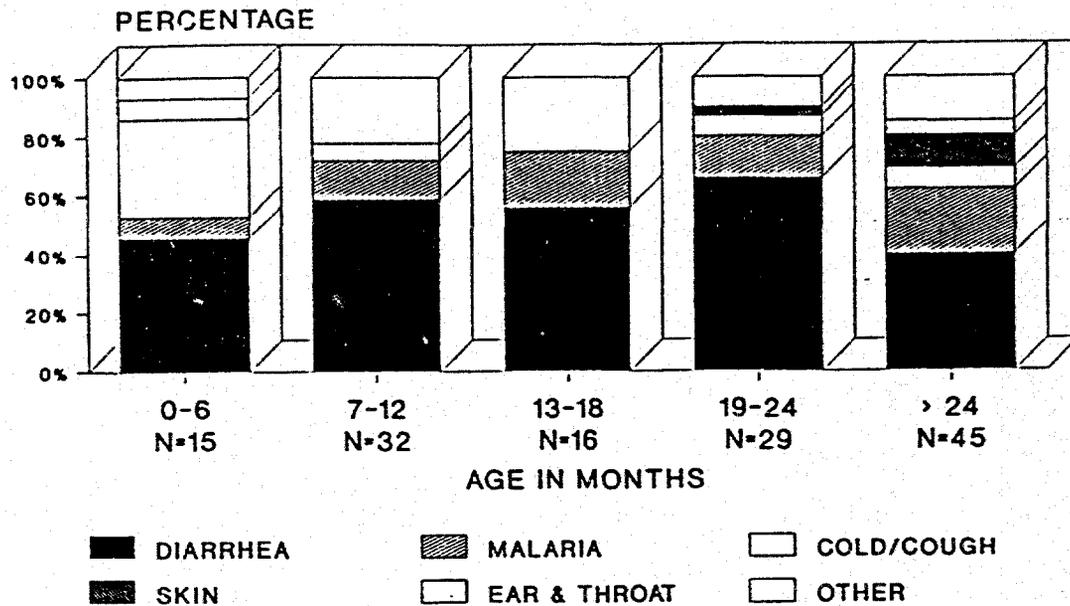
Rural N=932 Urban N=338

Figure 18  
 TOTAL SAVINGS FOR LAST YEAR FOR  
 WOMEN WITH ANY SAVINGS AT ALL



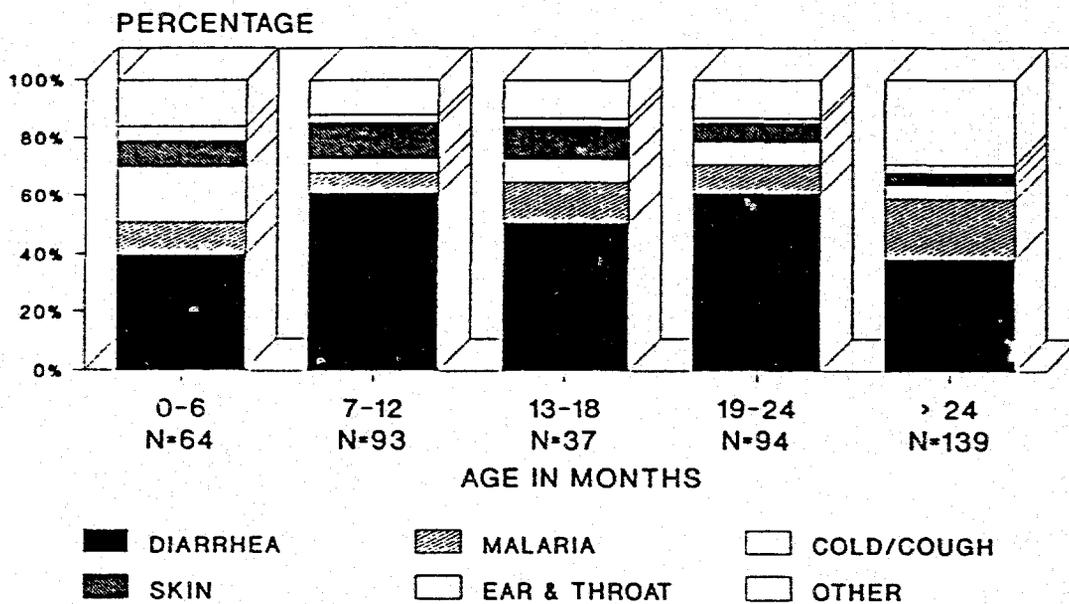
Rural N=254 Urban N=75

Figure 19  
 DISEASES OF CHILDREN UNDER SIX  
 REPORTED BY URBAN MOTHERS



Urban N=137

Figure 20  
 DISEASES OF CHILDREN UNDER SIX  
 REPORTED BY RURAL MOTHERS



Rural N=427

rashes including measles, chicken pox, scabies, etc. Therefore it is not possible to say why skin diseases were mentioned more frequently in the rural area. Some conceivable hypotheses are that there was more measles in the rural area or that a lack of available water in the rural area led to more rashes.

b. Type of treatment

For diarrhea, in both the urban and the rural areas, most women report having treated the child at home during the past two weeks with either a modern or a traditional remedy. Use of a modern remedy at home implies either oral rehydration solution or antibiotic capsules purchased in the local market without a prescription. Traditional remedies include brewed leaves, roots and barks of trees and other plants. Visits to traditional healers were rare, less than 1%, even in the rural area. A substantially larger proportion of urban than rural women took their child to the hospital or dispensary, 29% versus 12%. This is possibly due to the fact that there is a larger choice of health facilities in the urban area and also less distance to travel.

For malaria/fever, there was much less reported use of traditional remedies than for diarrhea. In the urban area, the use of traditional remedies for malaria was non-existent, as opposed to 26% for diarrhea. Traditional remedies were still used by 9% of rural women. Virtually no one in either strata mentioned having gone to a traditional healer.

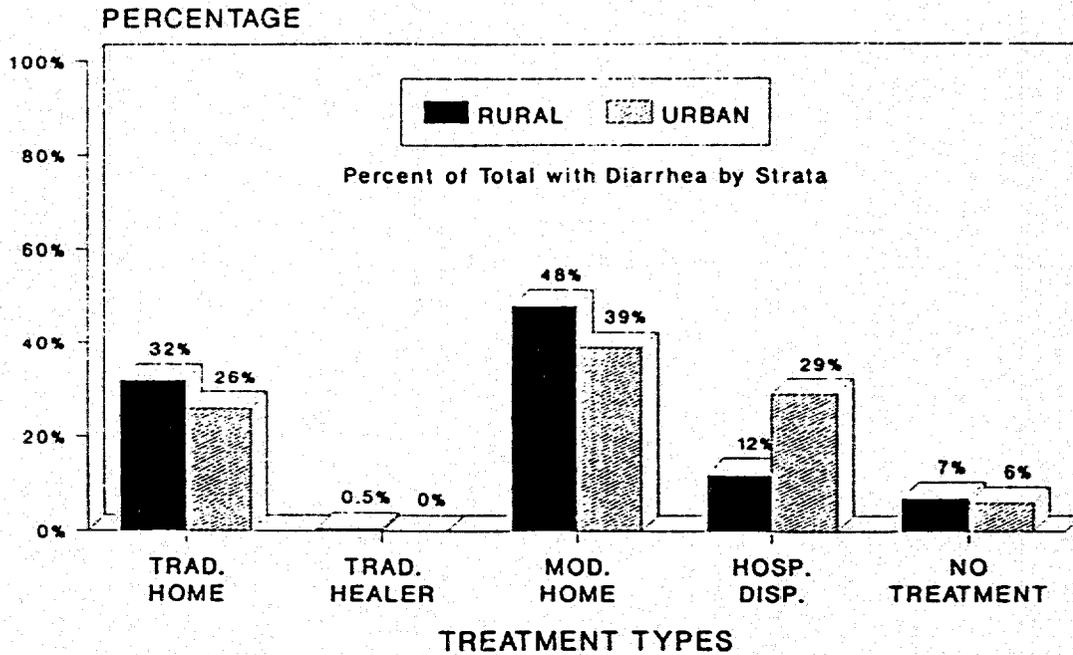
Modern treatment at home was the first choice treatment followed by hospital or dispensary. Modern treatment at home for malaria or fever implies either nivaquine pills or injections of other anti-malarial drugs such as chloroquine or quinimax purchased in the local market or at the pharmacy without a prescription. Women in the rural area reported taking their children to the dispensary for malaria or fever more often than for diarrhea, possibly because they felt incapable of treating it at home and/or because it seemed more urgent than diarrhea. Urban women were equally likely to take their children to the hospital, whether for diarrhea or for malaria.

In terms of distance from the nearest dispensary, as shown in Figure 23, the nearer the woman lived to a dispensary, the more apt she was to use it. Women who lived far from dispensaries were more likely to treat the child at home, whether with modern or traditional care.

c. Removal of the uvula

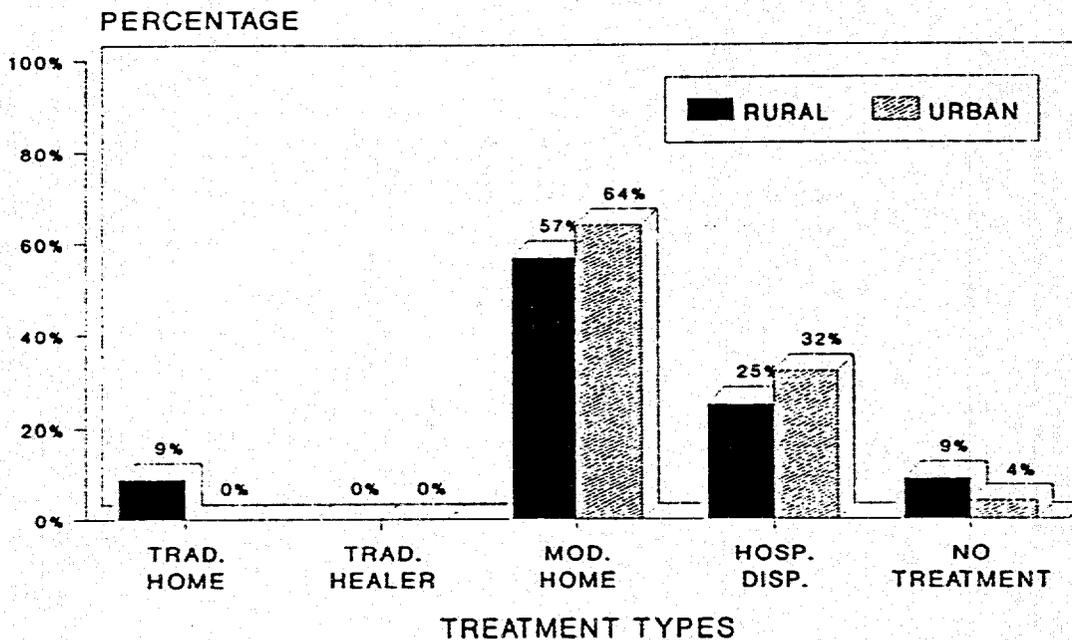
In the study area it is widely believed that the removal of the uvula is necessary if a child is not healthy and energetic. This procedure, which is done by a local healer, requires that the uvula be snipped with a special instrument without benefit of anesthesia. The level of cleanliness is unknown but evidence from dispensary data suggests that subsequent infection is common. This procedure can be repeated, if the child still fails to thrive, and it is felt that not enough of the uvula was removed the first time. Figure 24 shows that 75% of the women, both rural and urban, have had the uvula removed from at least one of their children.

Figure 21  
TREATMENT OF CHILDREN UNDER SIX  
WITH DIARRHEA



Rural N=56 Urban=22

Figure 22  
TREATMENT OF CHILDREN UNDER SIX  
WITH MALARIA OR FEVER



Rural N=213 Urban=72

Figure 23  
 TYPE OF TREATMENT AND  
 DISTANCE FROM DISPENSARY

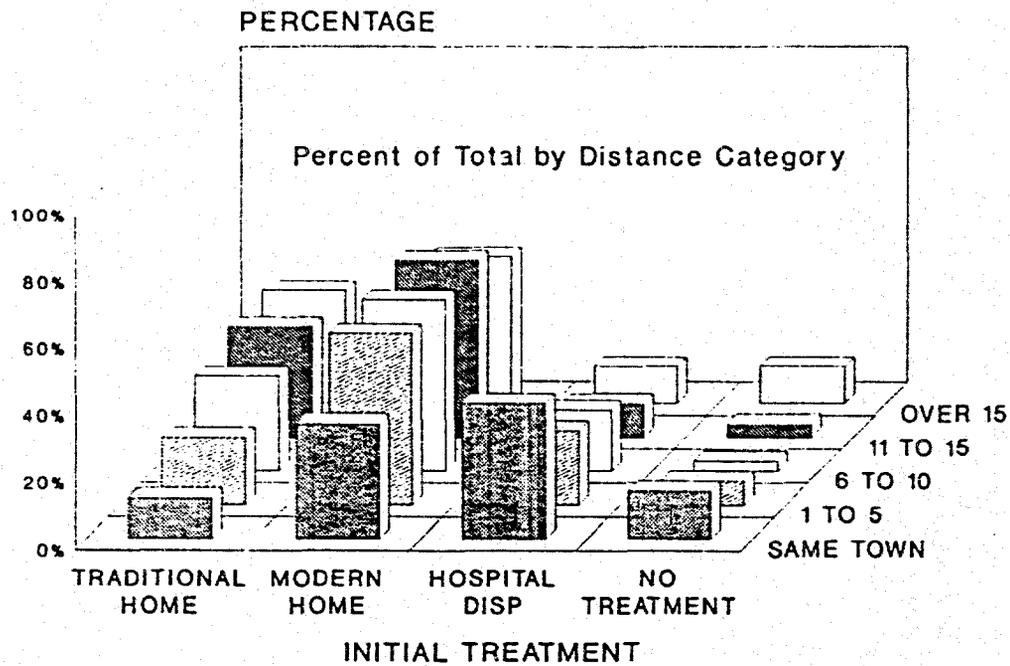
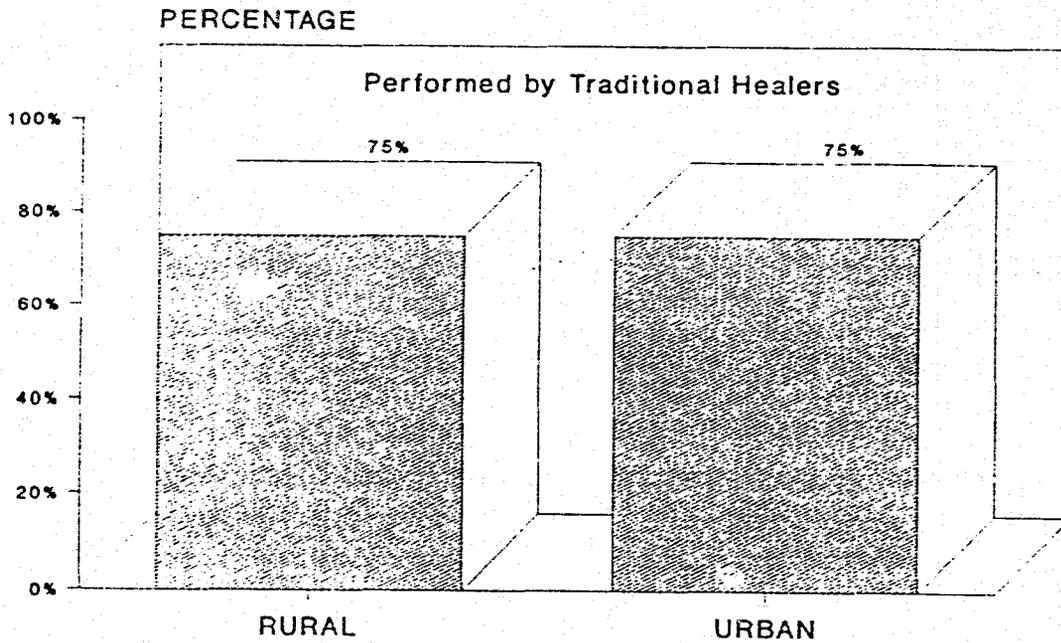


Figure 24  
 MOTHERS WHO HAD AT LEAST ONE CHILD  
 WITH UVULA REMOVED



Rural N=932 Urban N=337

As seen in table 11, ten women mentioned that this procedure was responsible for the death of one of her children. In the rural area literate women were slightly more likely to have the procedure done, 80% versus 73%. This may be related to the cost involved for the procedure rather than to any difference in belief or practices. In the urban area, the literate women were less apt to have a child's uvula removed, 69% versus 81%.

d. Decision to treat

In general, mothers reported that they were the ones who made the decision about medical treatment. This was true regardless of the type of treatment. However, one noticeable difference was that the father intervened more often in the decision to treat the child at the hospital than he did in the decision to treat the child at home. This was especially true in the rural area. There are several possible explanations as to why this was the case although other research techniques would be required to investigate further how these types of decisions are made. Some possible hypotheses are that rural fathers might be more likely to be familiar with modern treatments than rural mothers and realize the necessity for medical attention, especially for serious illnesses. In addition, since treatment of children at dispensaries involves traveling long distances for people living in the rural area, the father may be the one who physically takes the child to the dispensary which would then automatically involve him in the decision. In some cases, women need permission from their husbands to leave the village. The fact that treatment at the hospital might be costly is another reason to involve the husband in the decision.

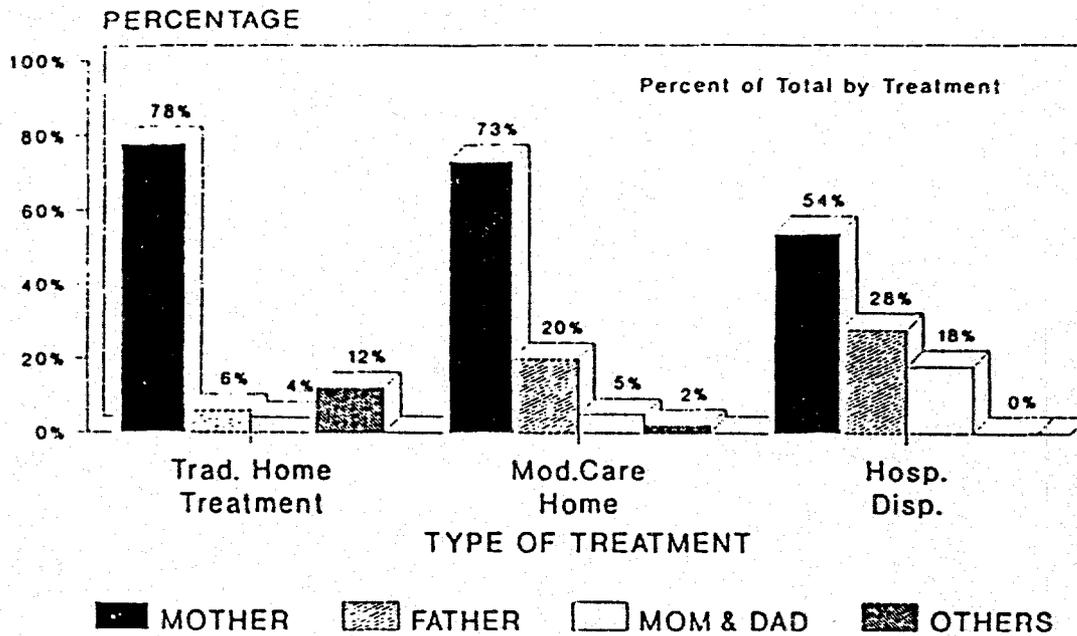
e. Cause of illness

A surprisingly high percentage of women said that their children's diarrhea was caused by microbes (35% rural and 32% urban). But the majority either did not know the cause or thought it was nothing special. Only two women cited sorcery as the cause. According to the data from this survey, sorcery is often blamed as the cause of death but is not invoked as a reason for illness.

f. Cost

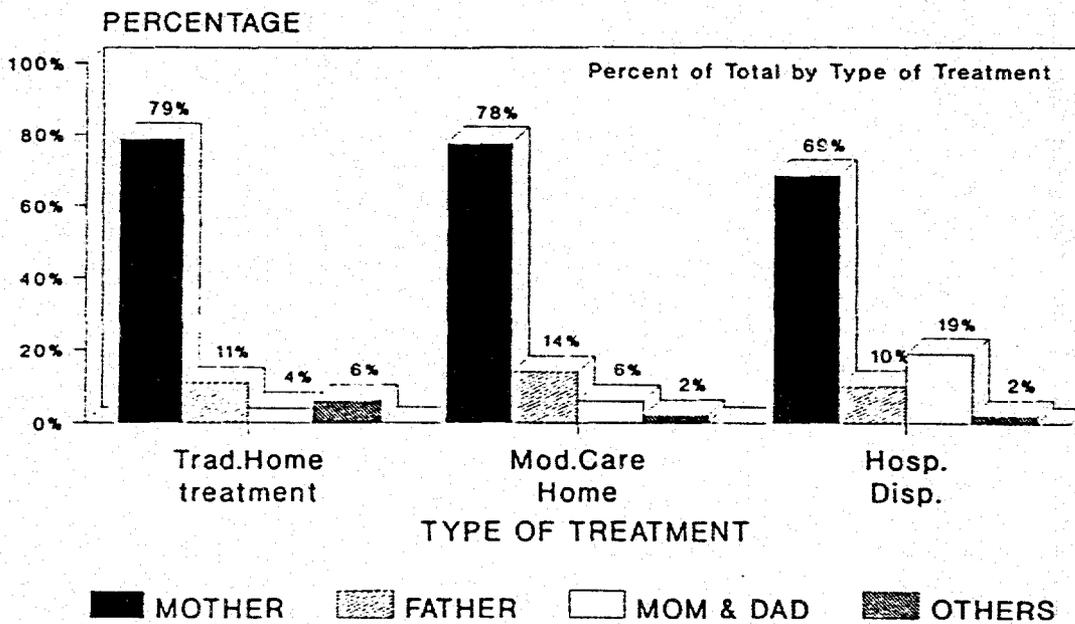
Among women who reported a sick child during the past two weeks, most spent less than 500 FCFA on medical treatment. Fifteen percent of the rural women report having spent nothing at all and an additional 29% spent 100 FCFA or less. This latter group is probably purchasing single pills in the local market or small quantities of herbs. In the urban area, 12% report having spent nothing at all but 75% spent more than 100 FCFA on medical treatment for their child's last illness. The median amount spent in the rural area was 200 FCFA and in the urban area it was 400 FCFA.

Figure 25  
WHO MADE DECISION TO TREAT CHILD  
IN RURAL AREA BY METHOD



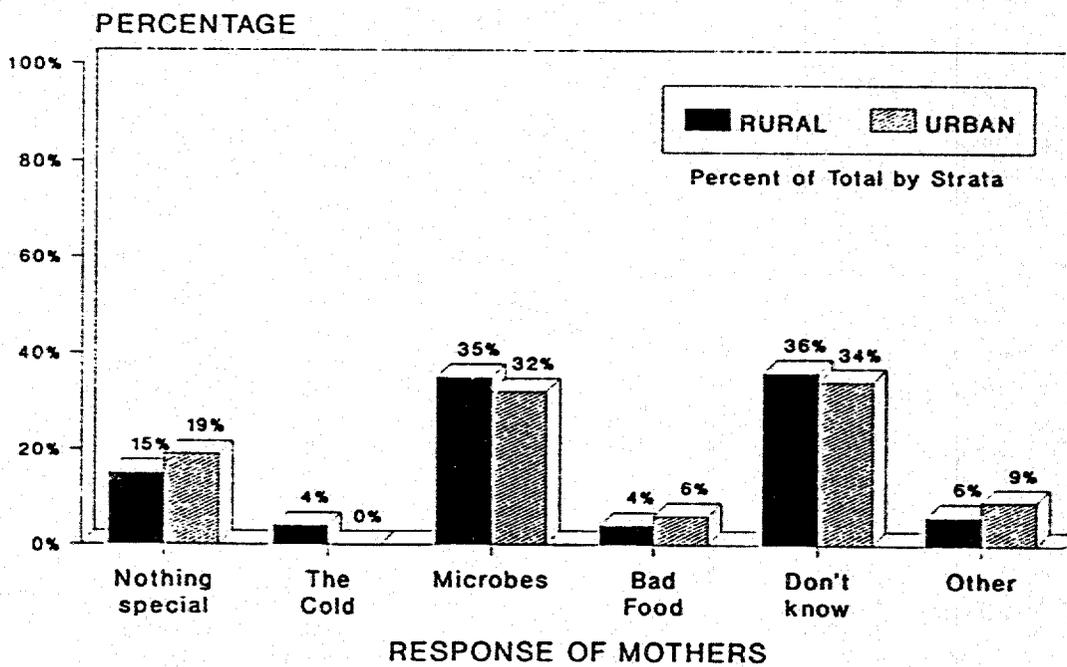
N-394

Figure 26  
WHO MADE DECISION TO TREAT CHILD  
IN URBAN AREA BY METHOD



N-131

Figure 27  
 "WHAT PROVOKED YOUR CHILD'S DIARRHEA"



Rural N=213 Urban N=72  
 Asked of mothers who reported  
 a child with diarrhea

Figure 28  
**AMOUNT SPENT ON  
 CHILD'S LAST ILLNESS**

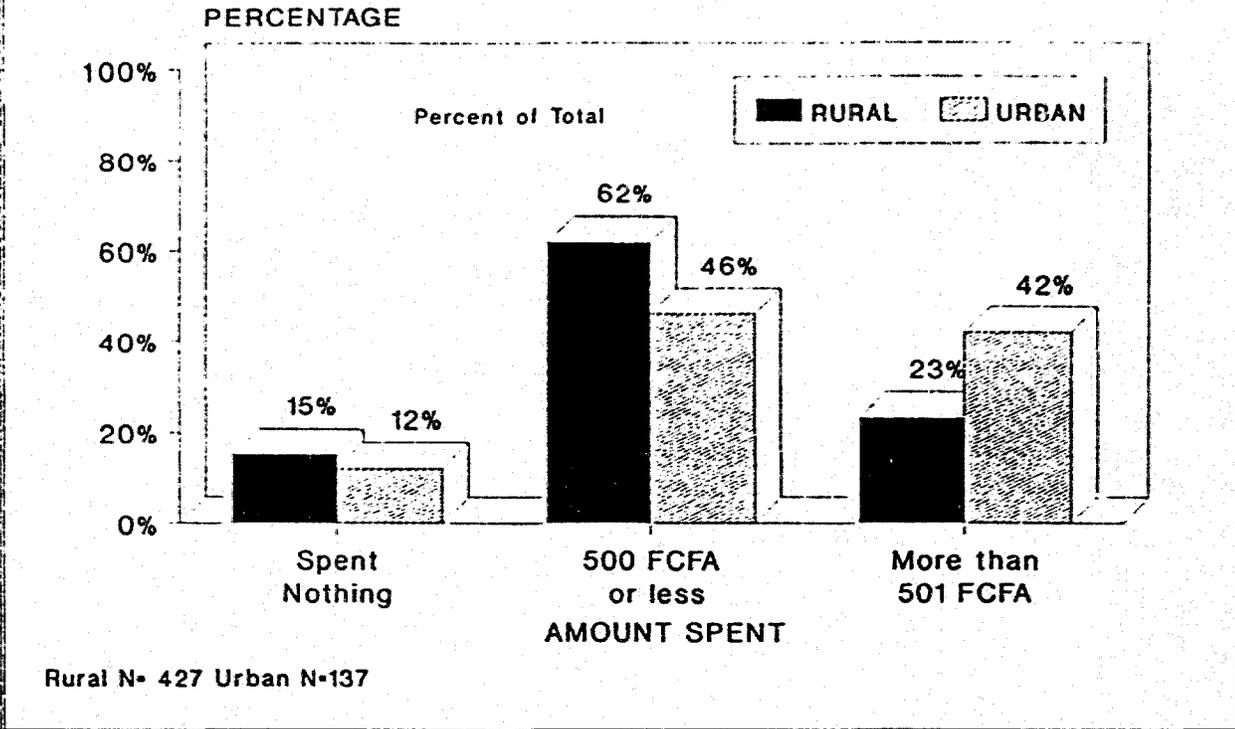
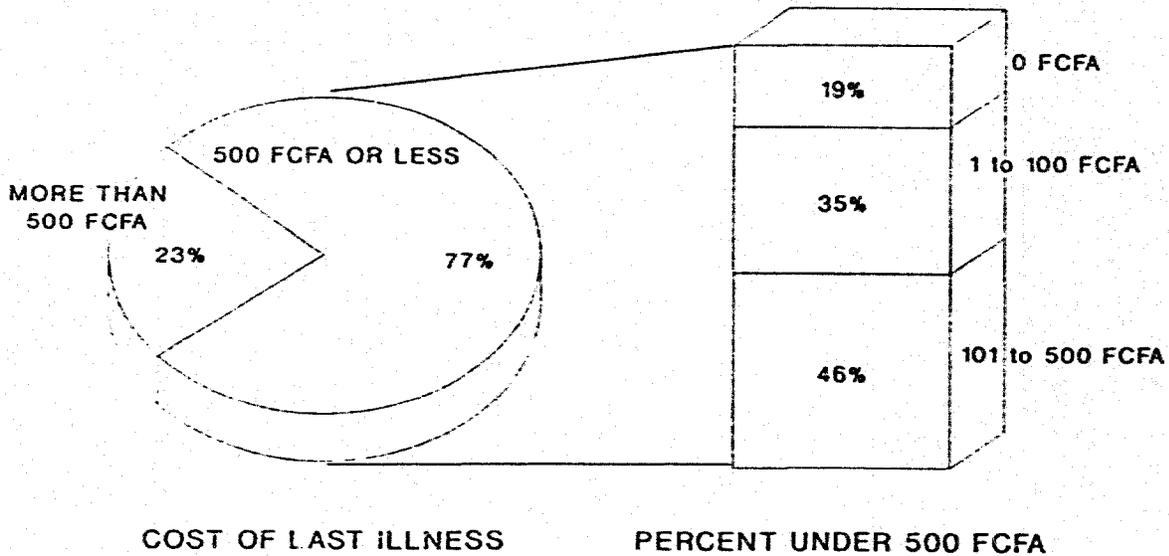


Figure 29  
**COST OF CHILD'S TREATMENT  
 RURAL WOMEN WHO SPENT LESS THAN 500 FCFA**



## 2. Knowledge

### a. Diarrhea

Mothers were asked an open-ended question about what types of diarrhea they were familiar with in children. Only 1.5% of the women could not mention any type at all. The types mentioned most often were green stool and white stool, although bloody and liquid stool were mentioned frequently as well. Anecdotally it is said that mothers associate bloody, green and watery stools with "worms" or "microbes" and that white stools are thought to be caused by salty or "bitter" mother's milk. There was very little difference in the types of treatment mentioned for the various types of diarrhea (see Figures 31 and 32), although mothers did mention taking the child to the hospital or dispensary as the appropriate treatment more often for bloody stools than for white stools. Giving medicine or special drinks were mentioned with the same frequency for bloody stools as for white stools. Interestingly enough, 12% of rural mothers knew about and mentioned traditional healers as a way to treat diarrhea, but no one admitted to having taken their child to a traditional healer during the illness of the past two weeks. It is a common observation of researchers in developing countries, that use of traditional healers is under-reported and that anthropological research is needed to obtain more accurate information (Kroeger).

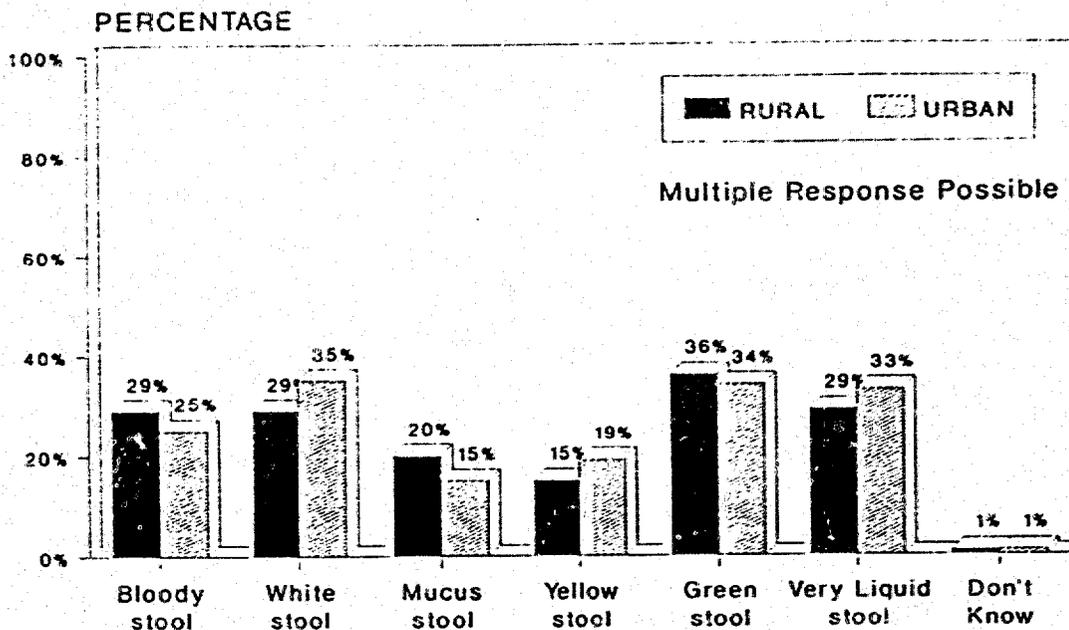
### b. Acute respiratory disease

Only 4% of mother's could not mention any type of cough and almost all knew about coughs with a cold or with cold weather. A fairly large percentage (between 40 and 50%) mentioned pertussis but as seen in Figures 34 and 35, both rural and urban mothers were less likely to mention medication as a treatment for pertussis than for cough with a cold. Special food or drink was the treatment mentioned most often, regardless of type of cough. Slightly more mothers mentioned hospitalization for pertussis than for cough with cold but the information about hospitalization is of questionable reliability due to the way the question was asked.

### c. Malaria

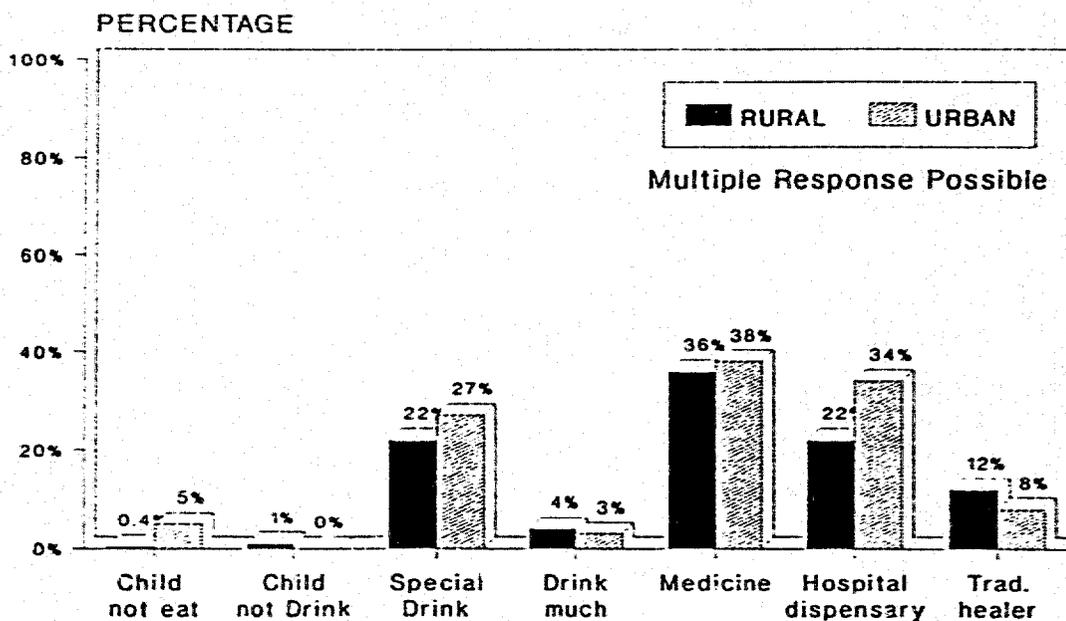
When asked what causes malaria, most mothers mentioned the cold. Only 29% of urban mothers and 13% of rural mothers mentioned mosquito bites. Approximately the same number mentioned the rains.

# DIARRRHEA STOOL TYPES MENTIONED BY MOTHERS



Rural N=932 Urban N=338

Figure 31  
TREATMENTS MENTIONED BY MOTHERS FOR  
DIARRRHEA WITH "WHITE" STOOL



Rural N=272 Urban N=117

Figure 32  
TREATMENTS MENTIONED BY MOTHERS FOR  
DIARRRHEA WITH BLOODY STOOLS

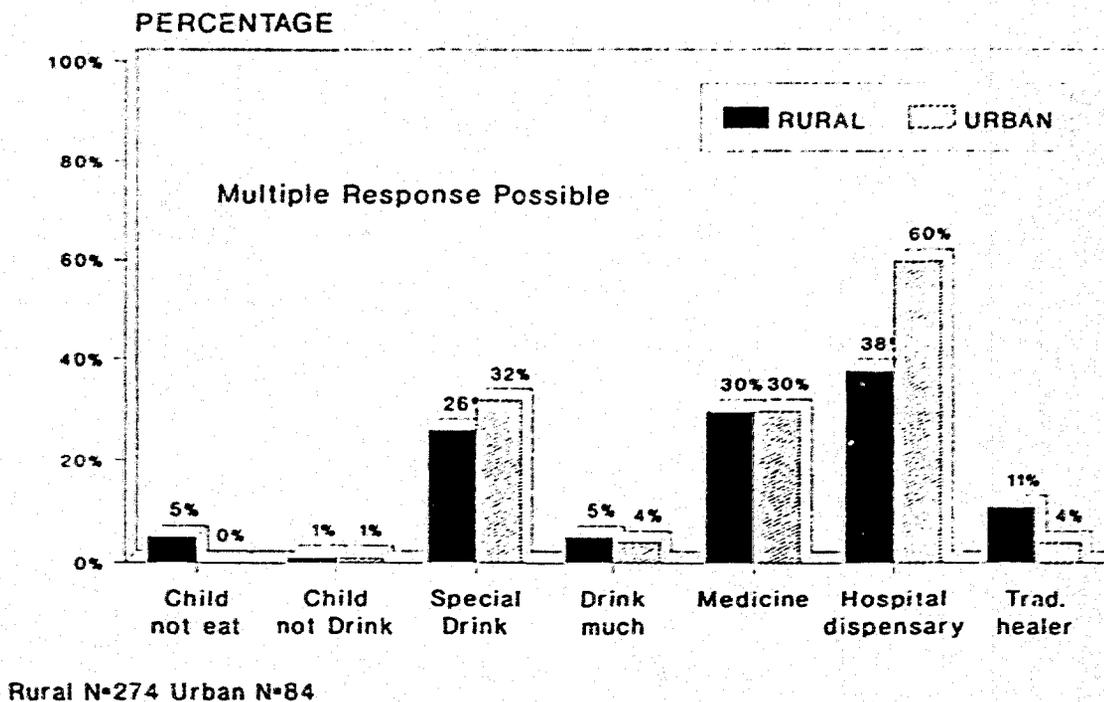
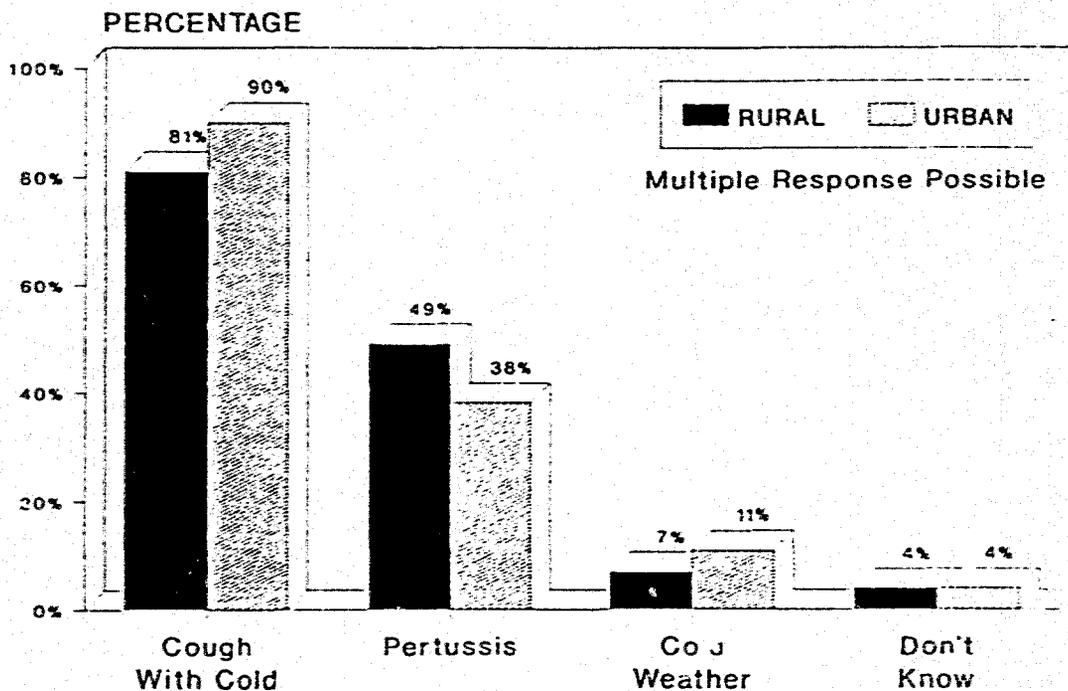
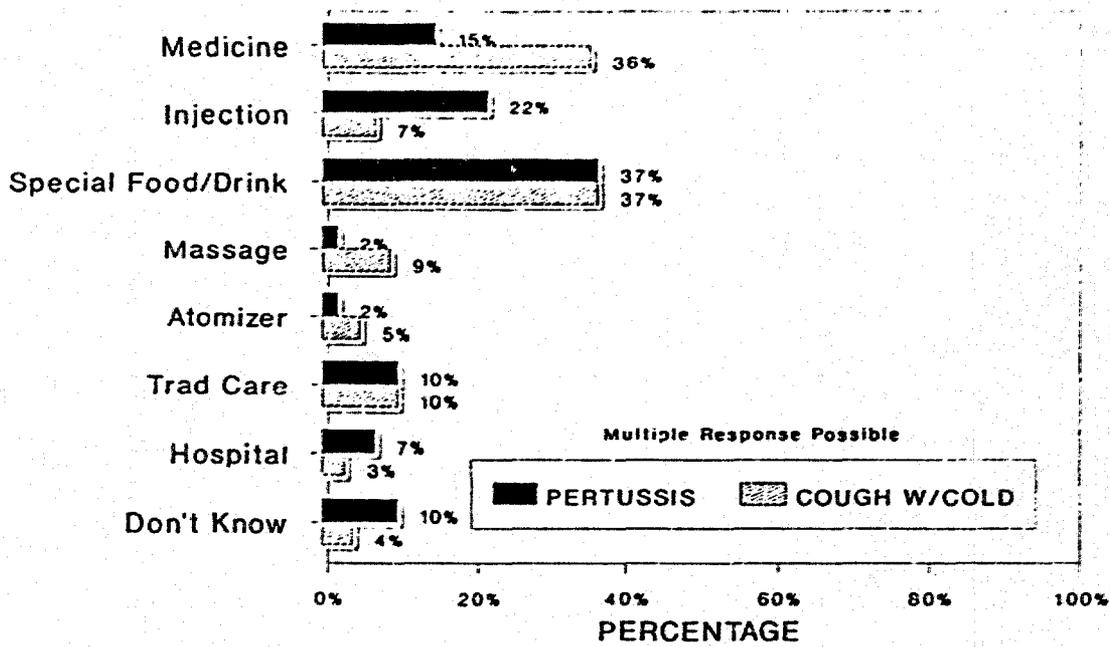


Figure 33  
COUGH TYPES MENTIONED BY MOTHERS



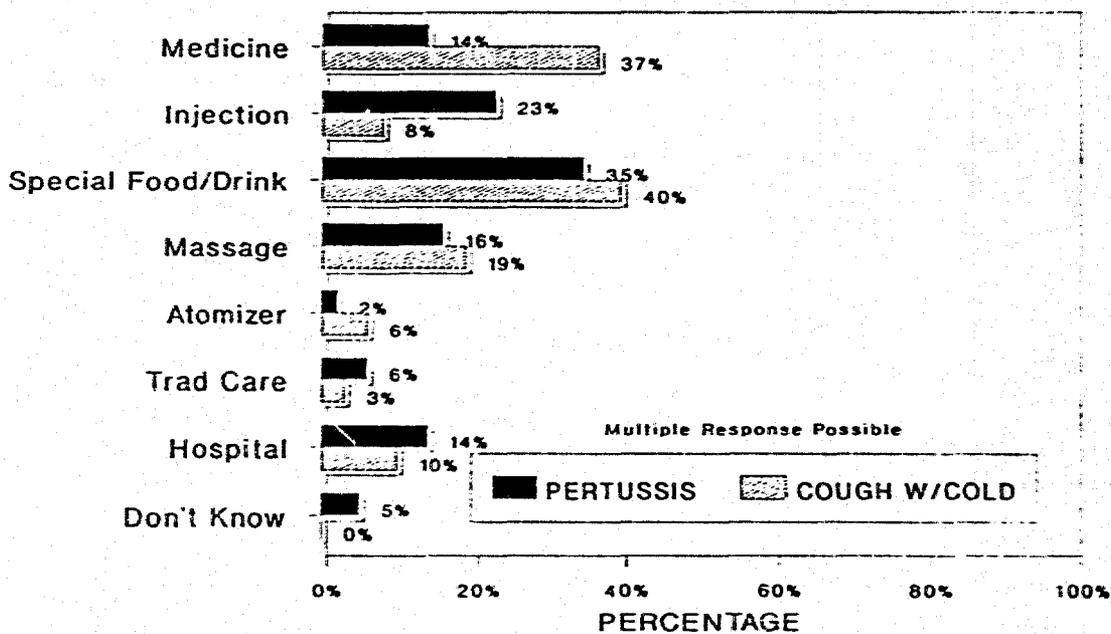
Rural N=932 Urban N=338

Figure 34  
**COUGH TREATMENTS MENTIONED  
 BY RURAL MOTHERS**



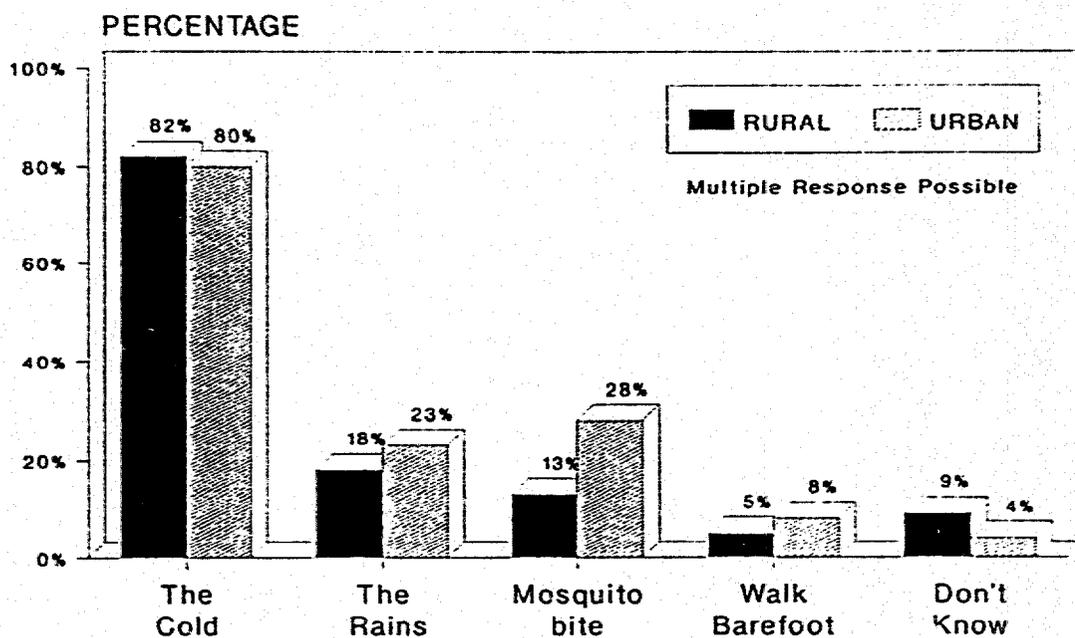
Pertussis N=459 Cough W/Cold N=756

Figure 35  
**COUGH TREATMENTS MENTIONED  
 BY URBAN MOTHERS**



Pertussis N=128 Cough W/Cold N=303

Figure 36  
"WHAT CAUSES MALARIA?"  
RESPONSES FROM MOTHERS



Rural N=932 Urban N=338

## C. Child Vaccination Coverage

Data on vaccination coverage were very difficult to collect. During the pilot survey it was apparent that mothers could not provide reliable information on which vaccines the child had received, or even whether the injection was indeed a vaccine and not another medication. Therefore it was decided to collect vaccine information only from vaccination cards.

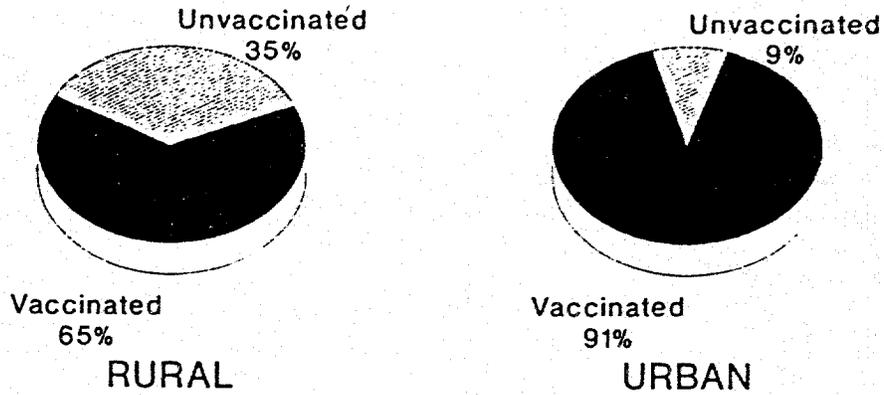
### 1. Methodology

Mothers who had at least one child under six years of age were asked if their children had been vaccinated. Sixty-five percent of the rural mothers and 91% of the urban mother said that at least one of their children had been vaccinated (see Figure 37). The mothers were then requested to show the interviewer the vaccination card. Sixty-one percent of the rural and 69% of the urban mothers who had at least one child vaccinated were able to show the interviewer a card. Once produced, the information was transferred directly from the card to the questionnaire. Therefore ALL COVERAGE DATA ARE FROM CHILDREN WITH CARDS. If the numbers are extrapolated and it is assumed that none of the children whose mothers said "no" to the first question had cards, (a reasonable assumption since otherwise they would have responded "yes"), then approximately 39% of the rural children under six and 63% of the urban children had cards.

### 2. Analysis of coverage using vaccination cards only

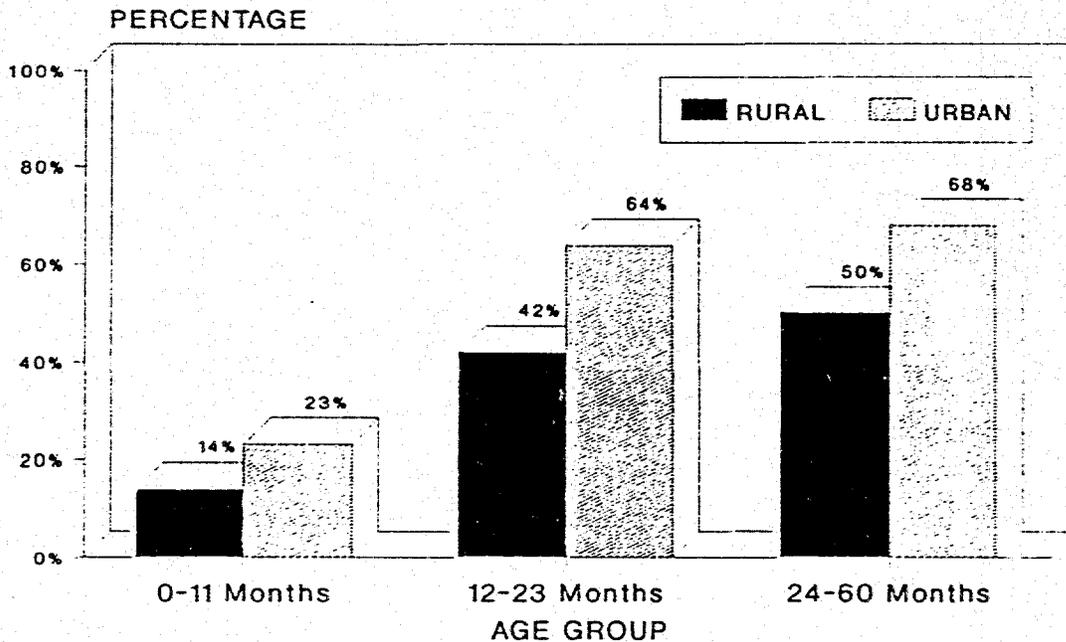
Figure 38 shows the percentage of children with cards who were fully vaccinated by age group. Half of the children in the rural area who had cards and were over the age of twenty-four months were fully vaccinated according to the schedule recommended by World Health Organization (WHO). In the urban area 68% were fully vaccinated. The apparent low coverage in the 0 to 11 month age group can be explained by the fact that measles vaccine is not given before the age of nine months. It would be difficult to administer the large number of measles vaccines that would be necessary to complete the series recommended for full coverage, in such a short time window. Figures 39 and 40 provide information on selected vaccines by age group. The fact that the Bacille de Calmette et Guerin (BCG) percent is always in the high 90's is due to nature of these data. These are data from cards and the first vaccines provided by the Expanded Program on Immunization (EPI) are generally BCG and Vaccin Anti-Diphthère, Tetanos, Coqueluche (DTC1). Two return visits are required to receive DTC3 which explains the drop between DTC1 and DTC3. The overall drop rate between DTC1 and DTC3 for children over age 2 was 11% in the urban strata and 25% in the rural strata. It should be noted that the data for children over 23 months is historical and reflects the emphasis on EPI by UNICEF when this cohort was under two years of age. The recent report on the SMI/BEF national program (April, 1992) in Chad stated that there has been a drop in the percent of children fully vaccinated, from 15% in 1990 to 6% in 1991. While information on all children is not available from this survey, the data that was obtained suggests that the Moyen Chari is well above the national average in vaccination coverage.

Figure 37  
 WOMEN WITH CHILDREN UNDER 6  
 WHO HAVE AT LEAST ONE CHILD VACCINATED



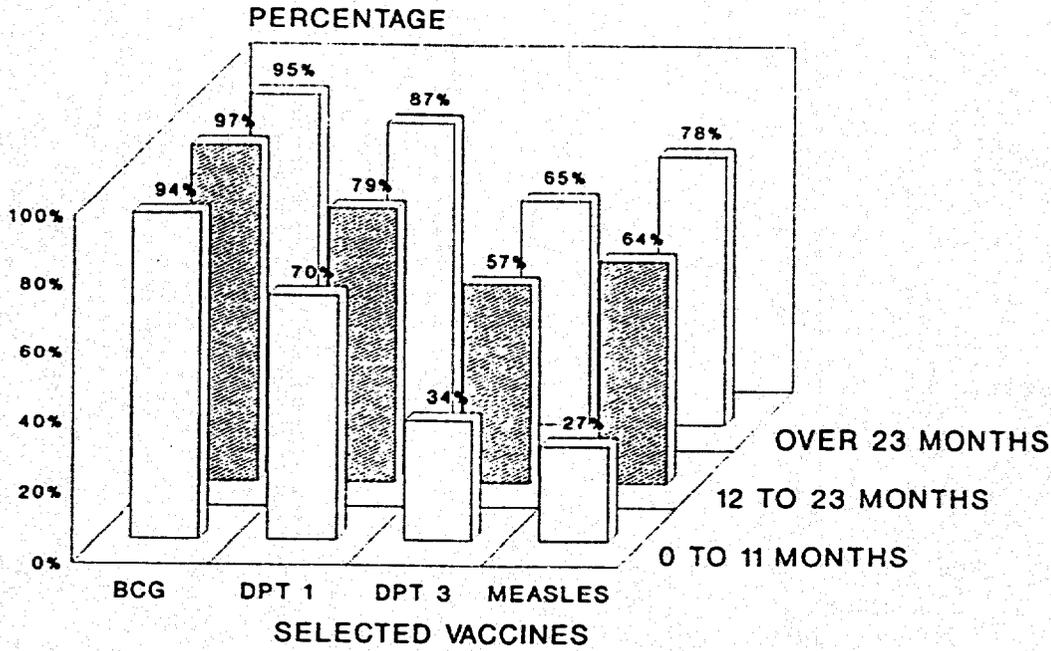
Rural N=856 Urban N=295

Figure 38  
 PERCENT OF CHILDREN FULLY VACCINATED  
 AMONG CHILDREN WITH VACCINATION CARDS



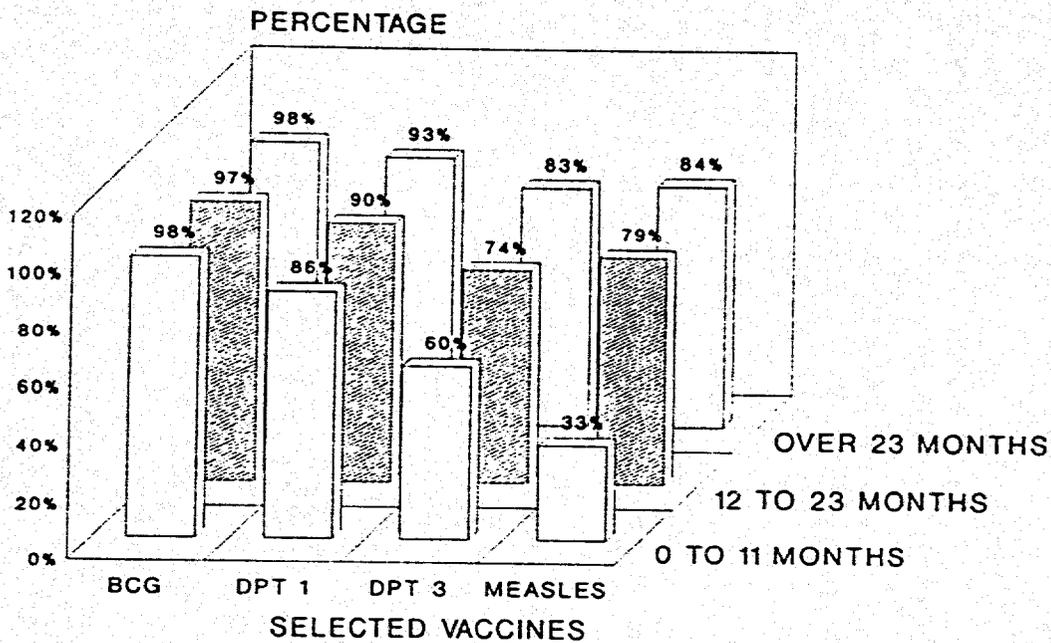
Rural N=570 Urban N=307

Figure 39  
 VACCINATION COVERAGE FOR RURAL CHILDREN WITH CARDS



N-570

Figure 40  
 VACCINATION COVERAGE FOR URBAN CHILDREN WITH CARDS



N-307

### 3. Distance to dispensary and EPI coverage

Figure 41 graphically shows the decline in vaccination coverage as the distance to the nearest dispensary increases. Only 20% of the rural mothers who lived in the same town as the dispensary had no children vaccinated whereas 45% of the mothers who lived over 15 kilometers from the nearest dispensary had no children vaccinated.

#### D. Oral Rehydration Therapy

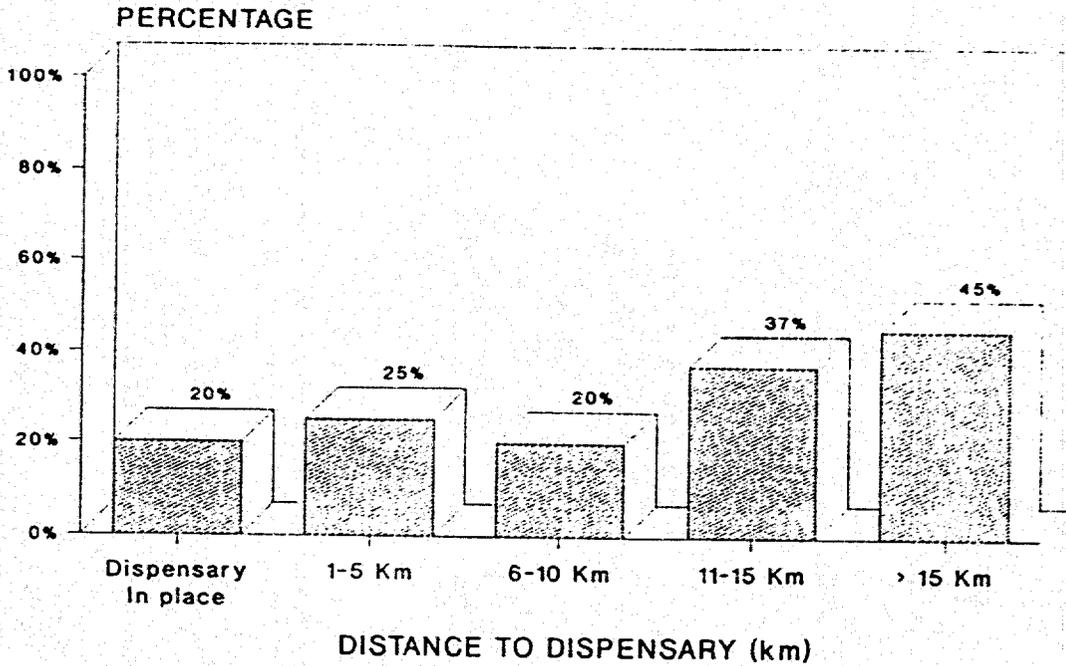
The results of this survey clearly show that diarrhea is a major health problem in Chad. In the two weeks before the interview 50% of the children under the age of six who were sick, had diarrhea. The frequency was even higher (61%) in children between 18 and 24 months. In addition, when questioned about her deceased children, 91 mothers mentioned diarrhea as the cause of death. Since dehydration is the cause of death (no matter what the origin of the diarrhea), ORT is the single most important approach in the prevention of diarrheal deaths. ORT can be prepared at home by the mother for each episode at a reasonable cost. In addition to saving lives, ORT, if combined with proper feeding practices, can also reduce the detrimental effects of repeated episodes of diarrhea on nutritional status.

Figure 42 shows that 64% of the rural and 91% of the urban mothers had heard of ORT. Even among illiterate rural women, probably the least knowledgeable group, the survey showed that 60% of them had heard of ORT (see Figure 43). Although the knowledge of the existence of ORT was high, only a third of the mothers could explain how to prepare ORT solution and give the ingredients of sugar, salt and water, in their correct proportions. Only this third of the mothers is therefore capable of effectively using ORT for treating diarrhea (see Figure 44). In the rural area an additional 27% could name the ingredients but not the correct proportions. Twice as many urban (52%) as rural mothers had knowledge of ORT packets.

Figure 45 shows that the health staff was the major source of this information, 69% of the rural mothers and 78% of the urban mothers learned about ORT either at the hospital or the dispensary. While the radio played a role in disseminating information about ORT (9% rural and 14% urban), apparently it was not as effective as the face to face interaction that occurred in the dispensaries.

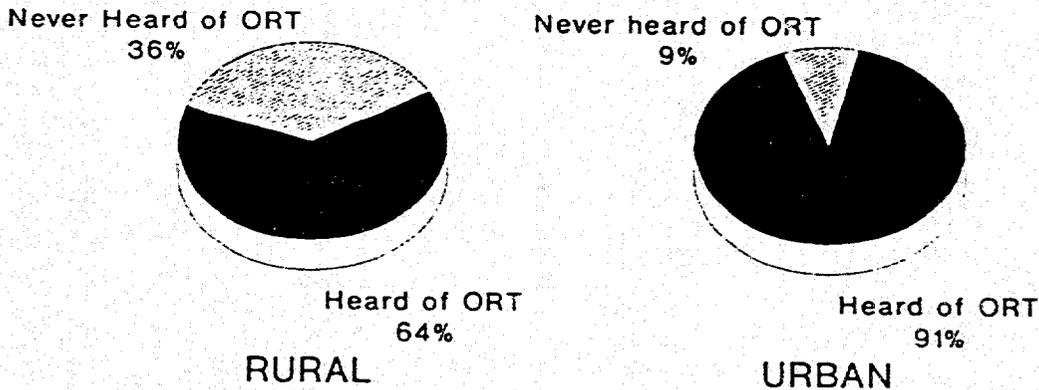
Until recently, Care Chad has been conducting a wells program in some villages of the Moyen Chari which included an ORT educational component. A rapid assessment of those villages with CARE wells that were included in this survey showed a slightly higher proportion of mothers who had heard of ORT and knew how to use it correctly. Figures 46 and 47 show that 71% of the mothers in the "CARE" villages had heard of ORT and 36% could correctly give the ingredients and proportions.

Figure 41. RURAL MOTHERS WITH NO CHILDREN VACCINATED BY DISTANCE TO NEAREST DISPENSARY



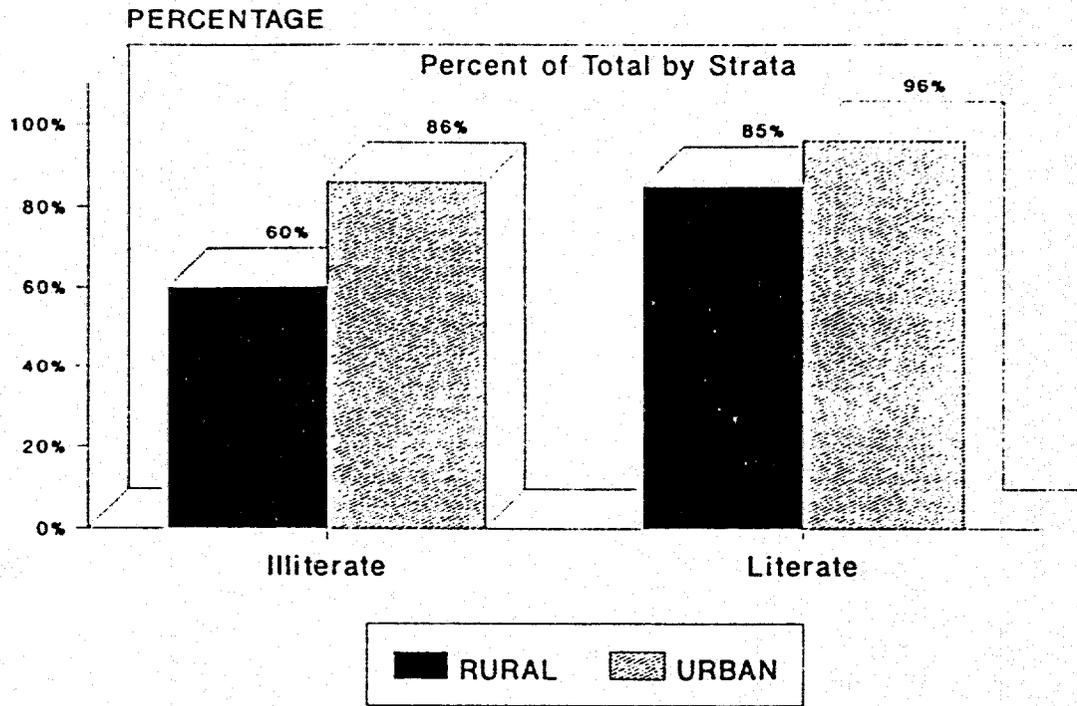
Rural N=856

Figure 42  
KNOWLEDGE OF ORT  
BY RURAL AND URBAN



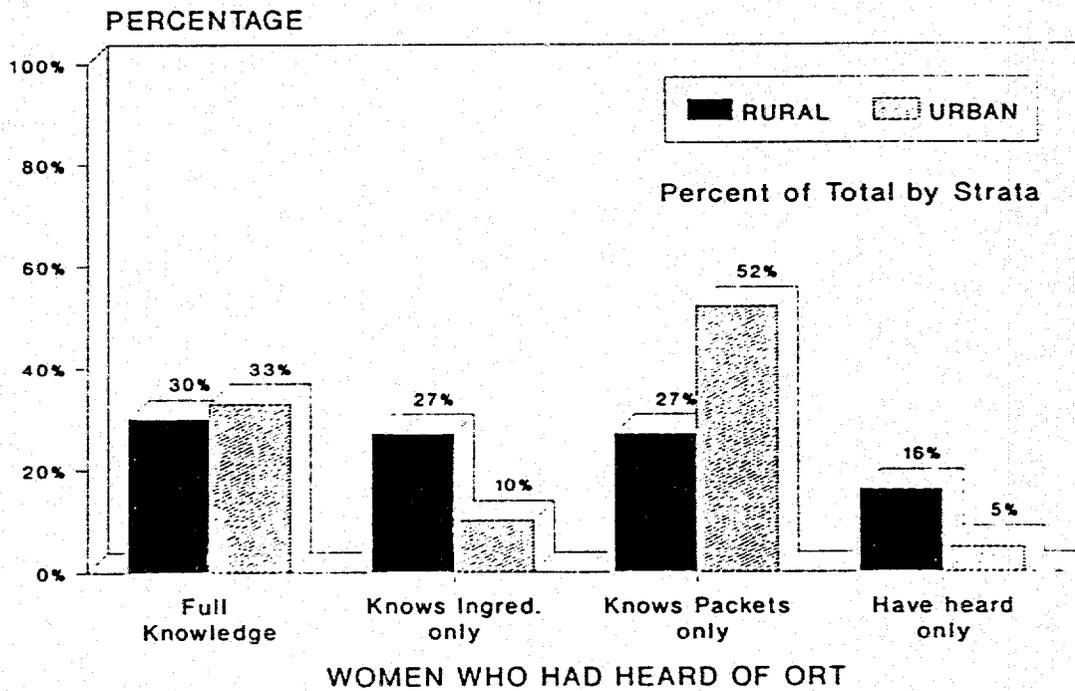
Rurai N=932 Urban N=338

Figure 43  
 KNOWLEDGE OF ORT BY LITERACY



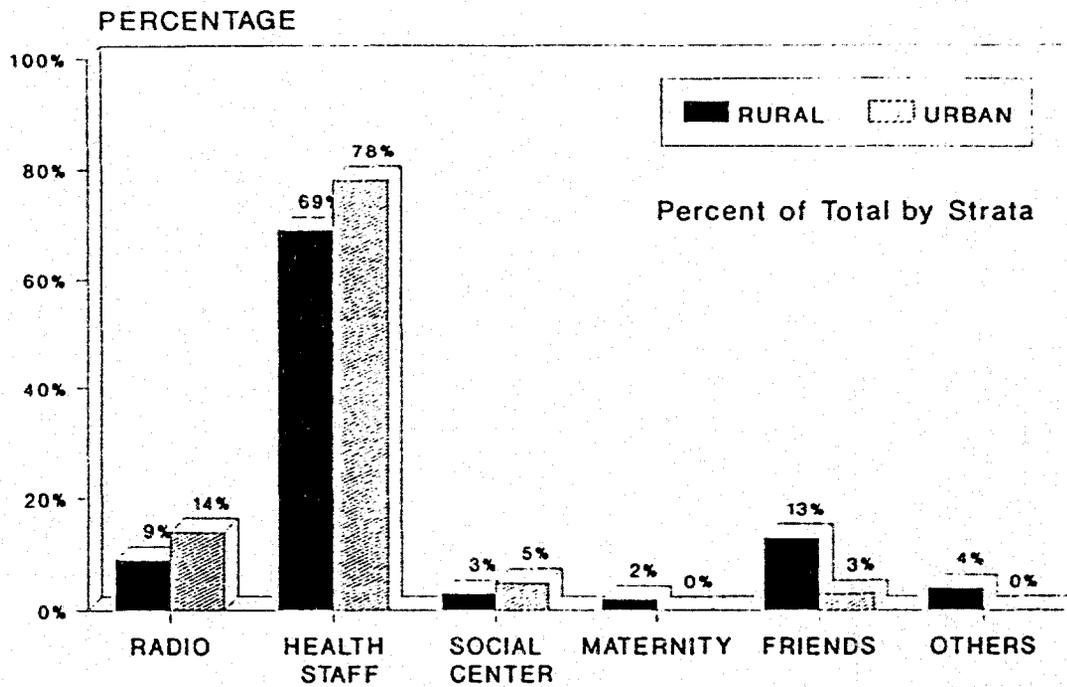
Rural N=932 Urban N=338

Figure 44  
 KNOWLEDGE OF ORT PREPARATION



Rural N=594 Urban N=308

Figure 45  
SOURCE OF ORT KNOWLEDGE



Rural N=594 Urban N=308

Figure 46  
KNOWLEDGE OF ORT IN RURAL AREAS  
BY CARE INTERVENTION (PUMP)

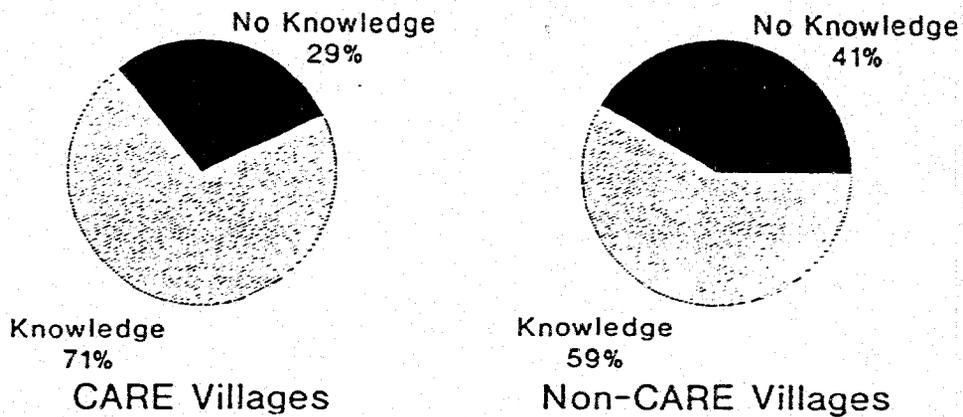
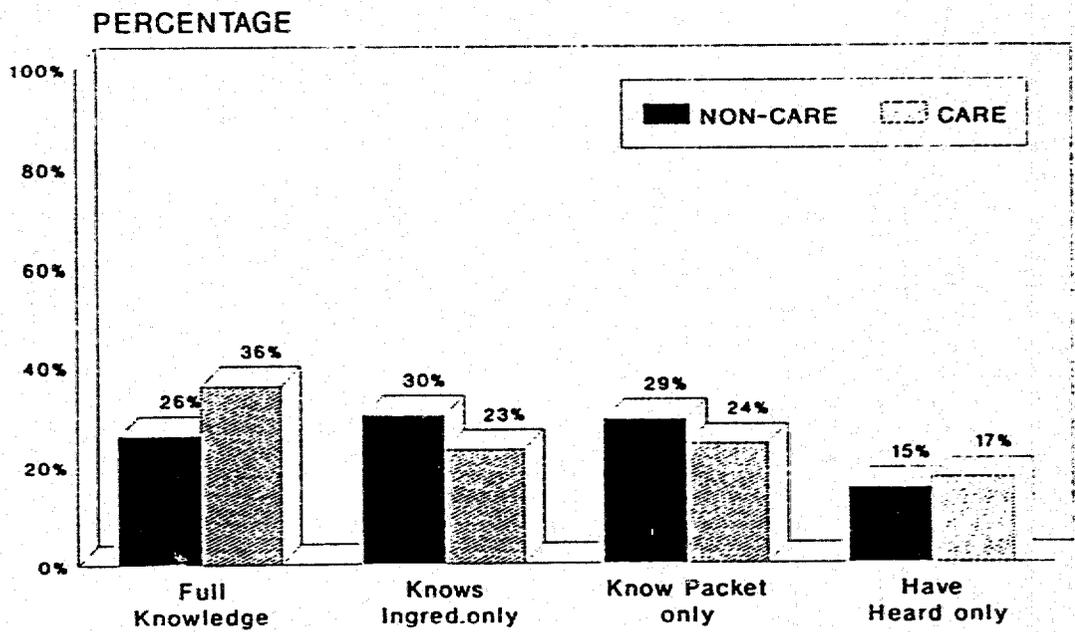


Figure 47  
 KNOWLEDGE OF ORT PREPARATION  
 BY CARE INTERVENTION



N=594

## E. Breastfeeding

### 1. Frequency

During the course of the interviews the mothers were asked a series of questions on their breastfeeding practices. All questions pertained to the youngest child. Of the 1269 mothers who responded, all but nineteen said that they breastfed their youngest child (98.5%). Table 6 gives a breakdown according to rural and urban areas.

Table 6: Prevalence of Breastfeeding

	Breastfed		Did Not Breastfeed	
	Freq	%	Freq	%
RURAL	915	98.3%	16	1.7%
URBAN	335	99.1%	3	0.9%
TOTAL	1250		19	

Seven of the nineteen mothers who did not breastfeed their infants cited insufficient milk as the reason.

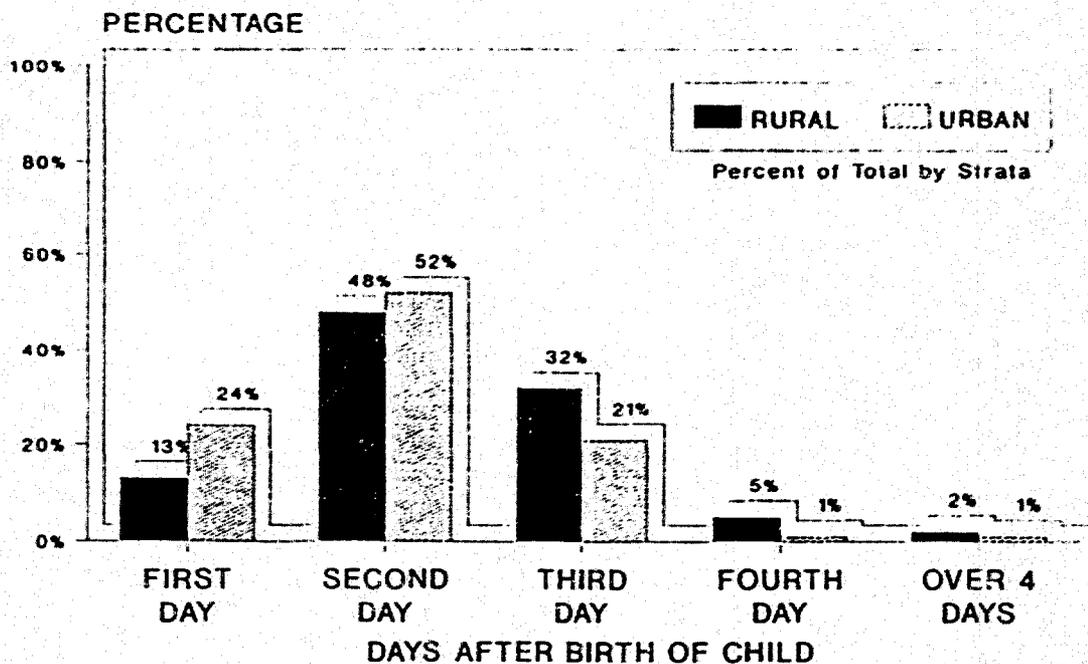
### 2. Timing

In the Moyen Chari some mothers delay the start of breastfeeding, ostensibly because they believe that colostrum is deleterious to the child's health. Of the 1249 women who responded to the question about when they had begun breastfeeding their newborn babies, 814 (65%) said they began on or before the second day. An additional 363 women (29%) said they began on the third day. Seventy-two (6%) of the women waited four days or more, and seven women waited seven days. These babies were not necessarily starved during this period because the child is usually given water and breastfed by another woman while waiting for the mother's milk to start flowing. Figure 48 shows the extent of this practice of delaying breastfeeding by rural and urban strata. The women in the urban area began breastfeeding earlier, 76% of them were breastfeeding by the second day compared to 61% who were breastfeeding in the rural area by the second day.

### 3. Age at weaning

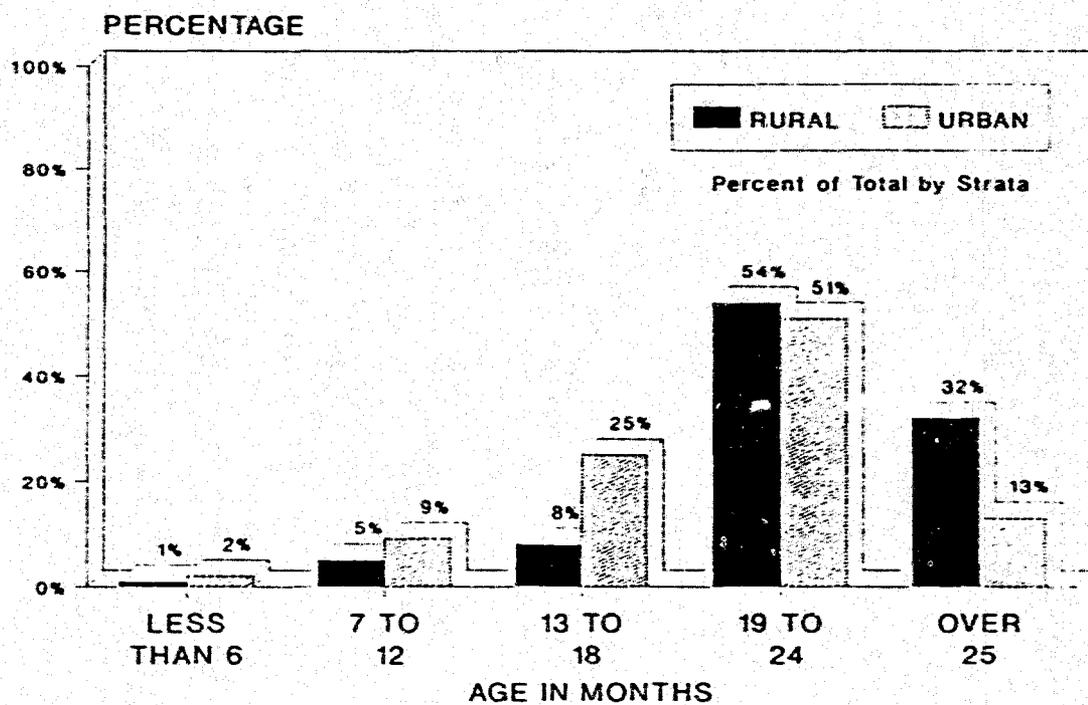
When asked at what age they refused the breast to their youngest child, the responses of the 1024 women who answered this question show that most mothers (92%) breastfeed their babies for at least a year, and that 79% do so for more than 18 months. Figure 49 shows the age at which the mother's youngest child was weaned, broken down by rural and

Figure 48  
 "WHEN DID YOU BEGIN TO  
 BREASTFEED YOUR BABY?"



Rural N=914 Urban N=335

Figure 49  
 AGE AT WEANING



Rural N=722 Urban N=302

urban strata. While half of the rural and urban women reported that they weaned their child between 18 and 24 months, there is a definite tendency to wean earlier in the urban population. Twenty-five percent of the urban mothers weaned their babies between the ages of 13 and 18 months whereas only eight percent of the rural mothers did so.

4. Reasons for weaning

Table 7: Reasons For Weaning Child

Reasons	RURAL		URBAN	
	freq.	%	freq.	%
Child was old enough	377	52.2%	195	64.6%
New Pregnancy	271	37.5%	72	23.8%
Mother Sick	28	3.9%	9	3.0%
Poor/Insuf.Milk	28	3.9%	16	5.3%
Others	18	2.5%	10	3.3%

5. Age at which the first solid food was given to the child

The mothers in the survey were asked at what age the child was first given solid food, usually a porridge of millet. Sixty-three percent said that the first solid food was given between the ages of five and six months. Figure 50 presents this information by rural and urban strata and shows that urban mothers are slightly more inclined to start giving solid foods to their children before the age of five months.

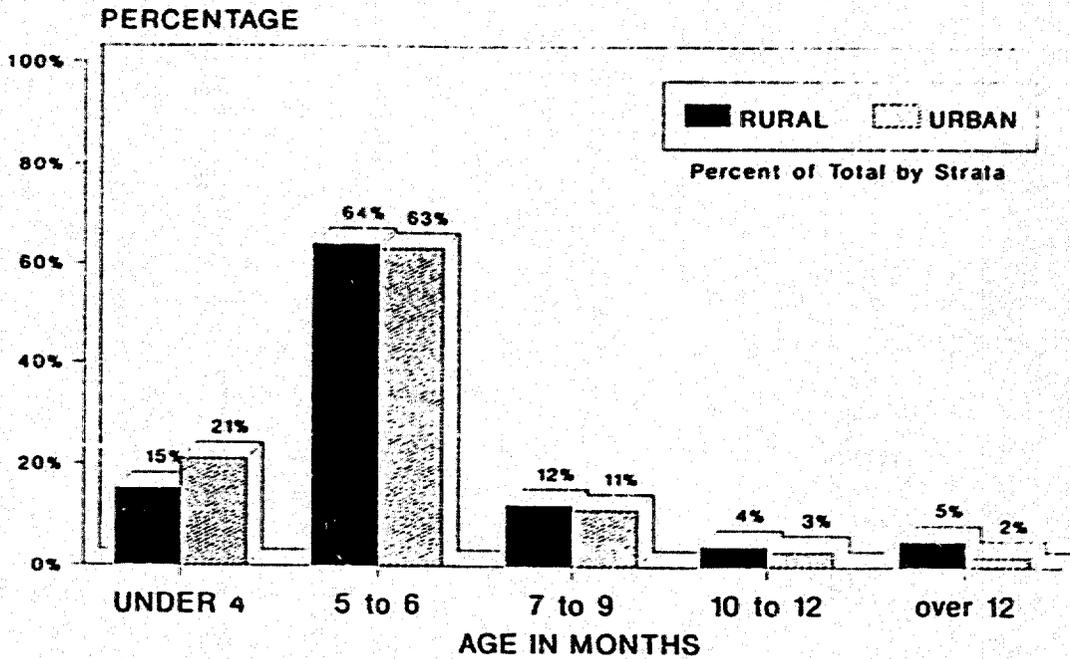
F. Last Pregnancy

1. Prenatal visit

A series of questions was directed at the last pregnancy of the mothers. Each mother was asked if she attended a dispensary for prenatal care, and 50.8% of the rural mothers and 87.5% of the urban replied in the affirmative. Figure 51 shows that there is little difference between the age groups. The younger women in the rural area were slightly more likely to have attended a dispensary for prenatal care (57%) than the older women (43%).

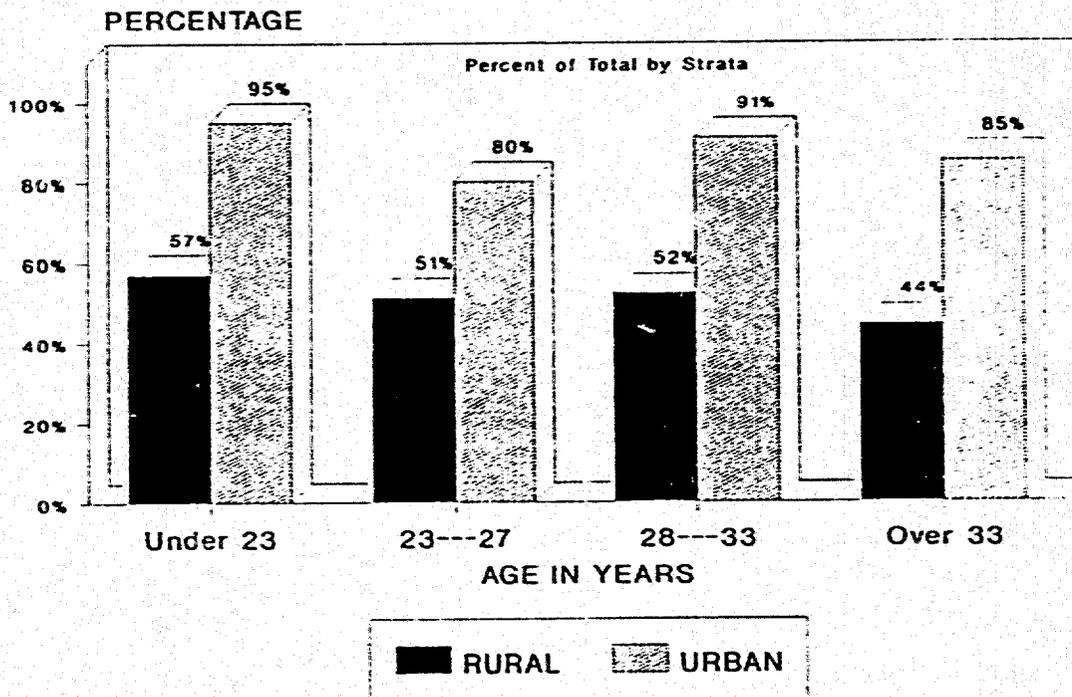
When those women who did not attend a dispensary for prenatal care were asked why they did not attend, over half in the rural area said they didn't have the money. This is twice as often as the urban women. One reason may be that the rural mothers must consider travel cost. However, the urban mothers were three times as likely to mention the lack of time as a constraint (see Figure 52).

Figure 50  
AGE AT WHICH FIRST SOLID FOOD GIVEN TO CHILD



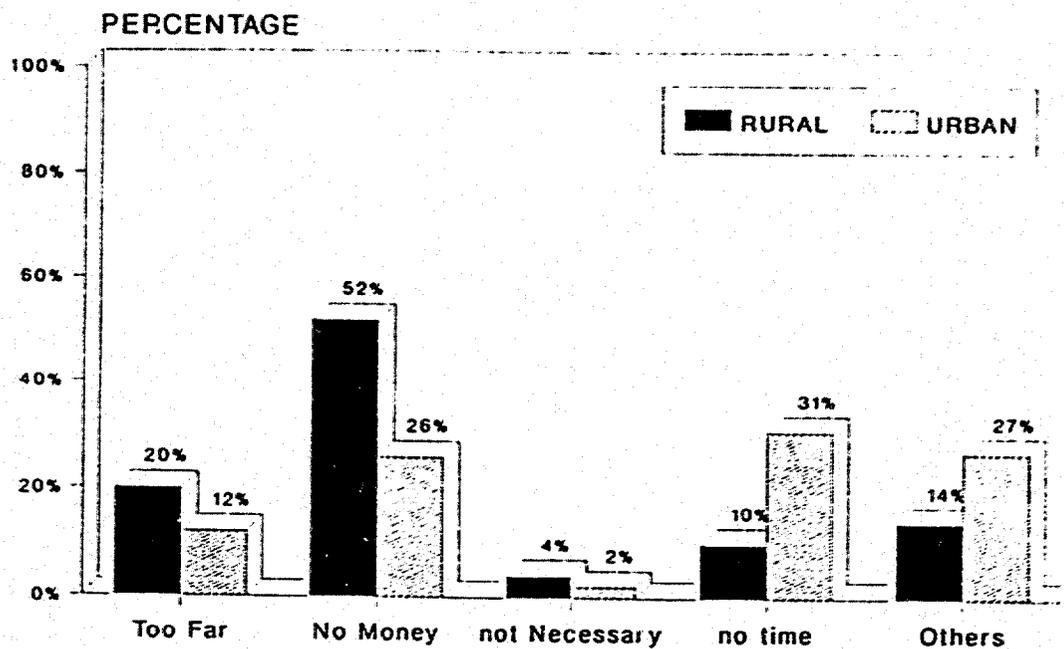
Rural N=723 N=302

Figure 51  
PRENATAL VISITS DURING LAST PREGNANCY



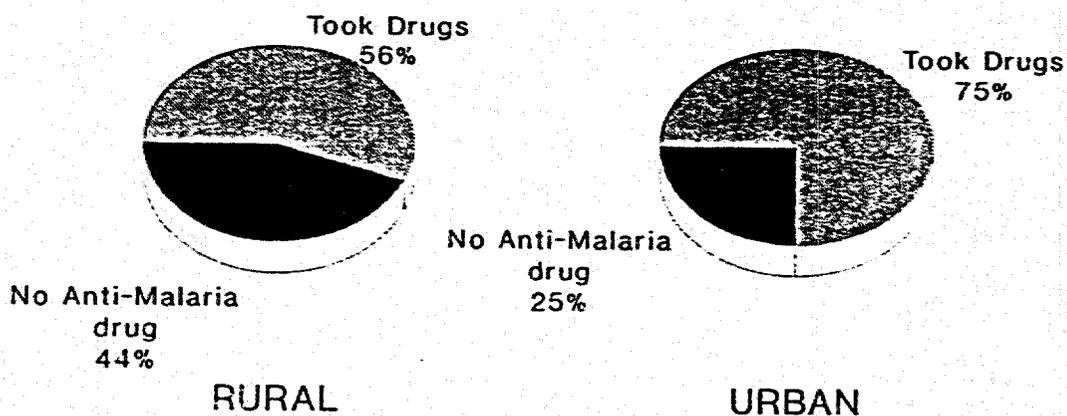
RURAL N=932 URBAN N=337

Figure 52  
 REASONS FOR NO PRENATAL VISITS  
 DURING LAST PREGNANCY



Rural N=458 Urban N=42

Figure 53  
 PERCENTAGE OF WOMEN WHO TOOK  
 ANTI-MALARIA DRUGS DURING LAST PREGNANCY



Rural N=918 Urban N=332

## 2. Anti-malaria drugs during pregnancy

Seventy-five percent of the urban women said that they took some anti-malaria drugs during their last pregnancy. In the rural area the percentage was considerably less, at 56% (see Figure 53).

## 3. Tetanus toxoid coverage

The recommended policy of WHO is to protect the new born child against neonatal tetanus by immunizing the mother. The women in this survey were first asked if they had received TT during their last pregnancy and if so to show the interviewer their vaccination card. Figure 54 shows that 52% of the rural mothers claimed to have received TT. Thirty percent of them could verify this with a card. In the urban area 88% of the women received TT. Fifty-six percent of them had cards.

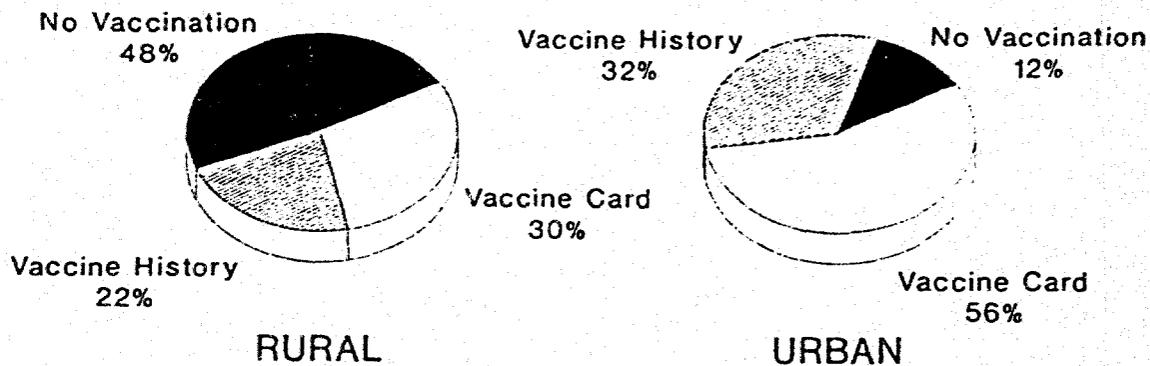
The WHO recommendation is that each woman receive five doses of TT at appropriate intervals, to provide her with lifetime protection against tetanus and to protect her new-born children against neonatal tetanus.

Table 8: WHO Recommended Schedule for Tetanus Toxoid

Tetanus Toxoid Vaccination	Appropriate Interval Between Injections	Length of Protection Against Tetanus
TT1	-----	None
TT2	One month after TT1	Three years
TT3	Six months after TT2	Five years
TT4	One year after TT3	Ten years
TT5	One year after TT4	Lifetime

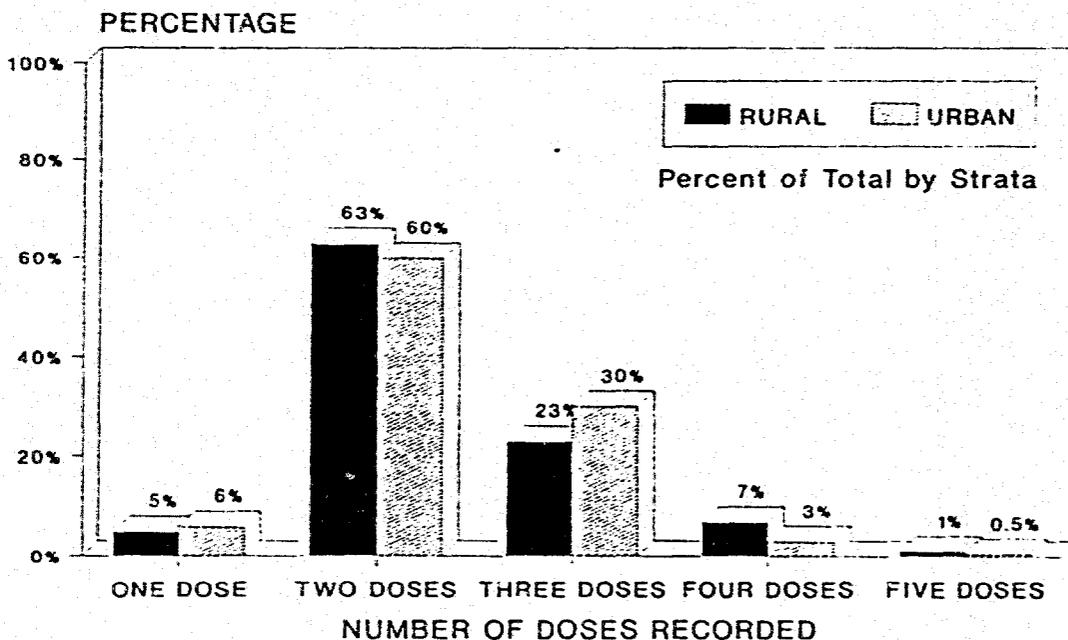
With these WHO recommendations in mind, the interviewer was asked to transfer the TT information from the vaccination cards to the questionnaire. An analysis of these cards is shown in Figure 55. The level of protection in rural and urban areas is remarkably similar. The greatest difference is in TT3 where the urban women have a 7% advantage. Over 30% of the women had TT3 or more. Only 5.7% of the women in the survey had a card showing only TT1, which gives no protection to the new born infant. Forty-one mothers reported that they lost a child to tetanus.

Figure 54  
 PERCENTAGE OF WOMEN VACCINATED WITH  
 TETANUS TOXOID DURING LAST PREGNANCY



Rural N=918 Urban N=332

Figure 55  
 TETANUS TOXOID COVERAGE AMONG WOMEN  
 WITH VACCINATION CARDS



RURAL N=278 URBAN N=186

Figure 56  
 WHERE LAST DELIVERY TOOK PLACE

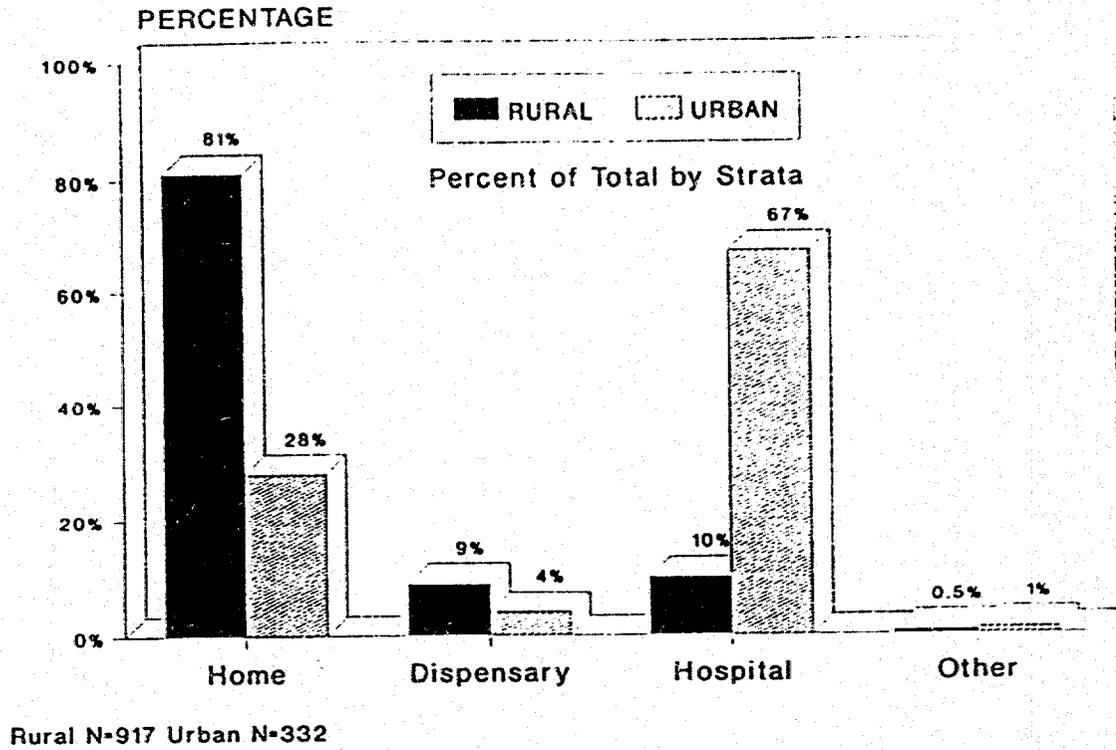


Figure 57  
 "WHO ASSISTED IN LAST CHILDBIRTH?"  
 RURAL AND URBAN RESPONSES

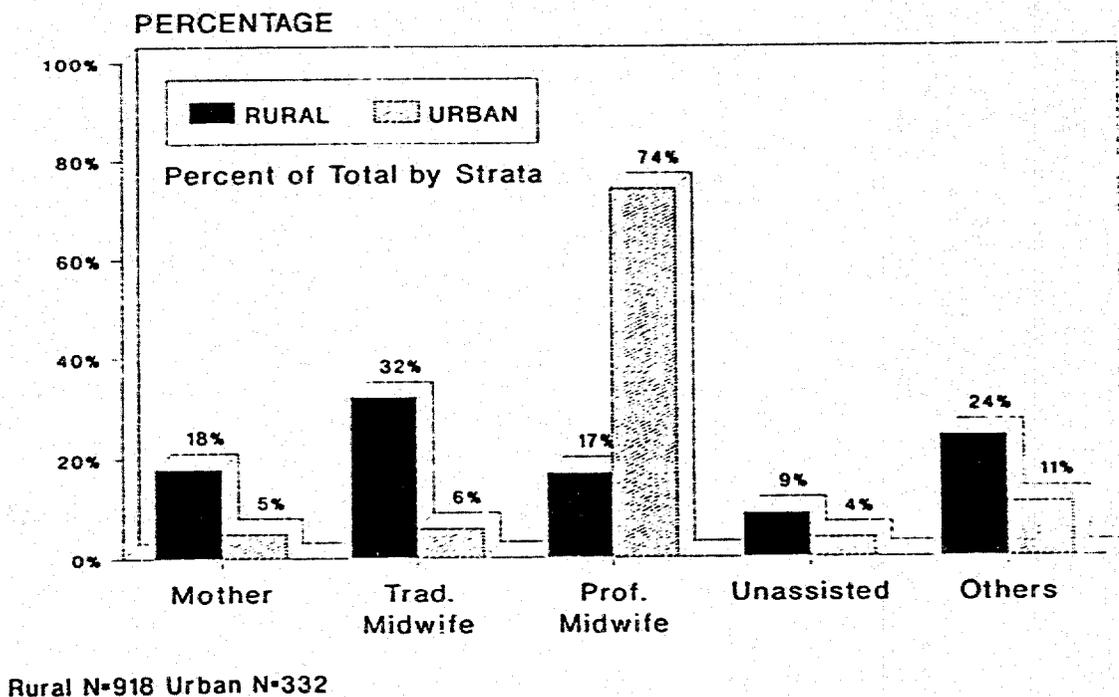
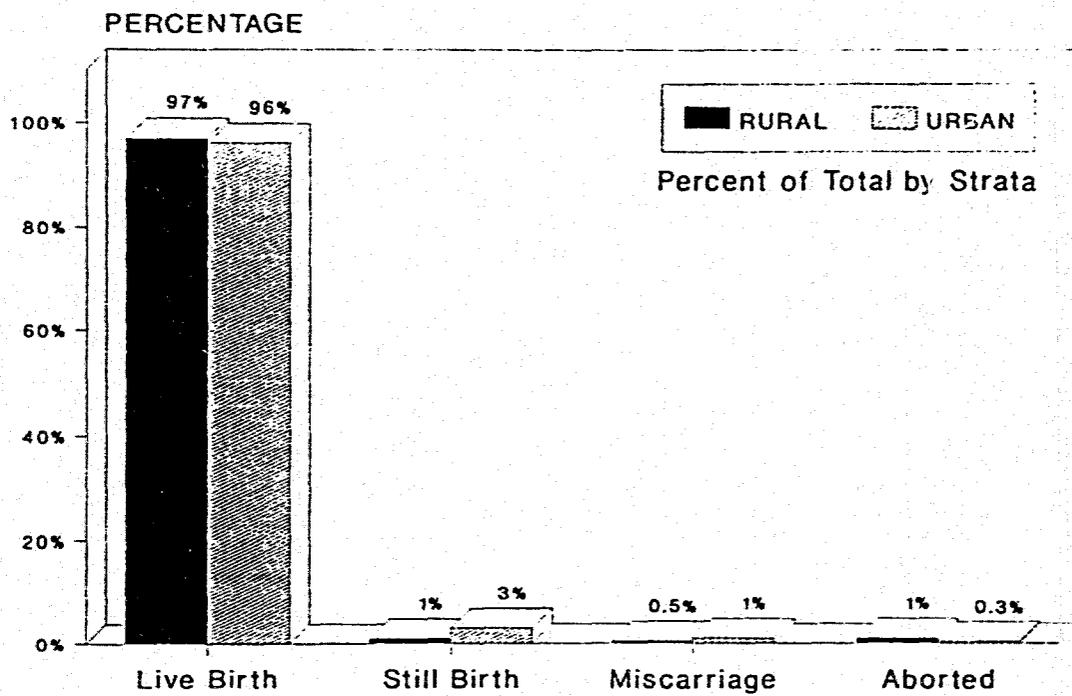


Figure 58  
RESULTS OF LAST PREGNANCY



RURAL N-932 URBAN N-337

#### 4. Last delivery

When 1,250 women in the Moyen Chari were asked where their last baby was born there was a great difference between the responses of the rural mothers who tended to deliver at home (81%), and the urban mother who went to the hospital (67%), (see Figure 56).

When asked to identify the person who assisted in the delivery, 74% of the urban women cited a trained midwife. In the rural area, most women said they were assisted by a traditional midwife or by their mother. Ninety-seven women delivered their last baby without assistance (see Figure 57). The results of these last pregnancies are shown in Figure 58.

#### 5. Postnatal visits

In the urban area 264 women (79%) made a postnatal visit to a dispensary in the month following childbirth. The majority of the urban visits were for infant immunizations (73%), followed by 16% for the mother's own illness. In the rural area, far fewer mothers (only 33%) made postnatal visits. Of these, 54% of the visits were for childhood vaccinations and 19% for maternal illness.

Table 9: Reasons for Postnatal Visits:

REASONS	RURAL	URBAN
Infant Immunizations	54%	73%
Illness of Mother	19%	16%
Illness of a Child	9%	6%
Removal of Sutures	4%	3%
PostNatal Examination	11%	7%
Others	10%	6%

*Note: multiple responses could be given by mothers.*

### G. Childhood Mortality

#### 1. Methodology

This survey was not designed to provide infant and child mortality rates since calculation of true mortality rates requires more specific information over time. However, using a method developed by William Brass, it was possible to get robust estimates of the probability of children dying by a given age, using the number of children ever born, the number of children

still surviving, the 5-year age interval of the mother and a multiplier to adjust for non-mortality factors which determine the proportion of children dying (such as parity and fertility patterns). The specific methodology used is described in Manual X, Indirect Techniques for Demographic Estimation, a United Nations publication.

2. Estimated child mortality rate

Table 10: Childhood Mortality Probabilities For Specific Age Groups

**URBAN**

Age Interval of Mother Used to Derive	Age of Death	Proportion Dying
20-24	2	.101
25-29	3	.138
30-34	5	.192
35-39	10	.234
40-44	15	.227

**RURAL**

Age Interval of Mother Used to Derive	Age of Death	Proportion Dying
20-24	2	.109
25-29	3	.175
30-34	5	.243
35-39	10	.250
40-44	15	.289

Using data from Table 10 it can be estimated that childhood mortality for children up to age 5 in recent years is approximately 19% in the urban area and 24% in the rural area. Although they are just estimates, these figures indicate exceedingly high rates of child mortality. These figures are very close to the ones reported in the SMI/BEF report from April 1992 which found an overall mortality rate for children under 5 of 21.9%. The slightly lower rate in the urban area might be an indication that prevention activities such as sanitation and vaccination campaigns are having a positive effect. But efforts to provide these types of services are hampered, particularly in the rural area, by financial crises and civil strife in Chad.

### 3. Assumptions

This method assumes the risk of a child dying is a function only of the age of the child and ignores factors such as birth order, survival of preceding child and mother's age.

Because these data were obtained from a cross-sectional survey, the method also assumes that fertility and childhood mortality have remained constant in the recent past.

Calculation of multipliers was based on the Trussel variant and the family of model life tables for the South.

### 4. Constraints

It is not possible to calculate risk of dying before age 1 using this method because women in the 15-19 year old age category would have to be used to derive that figure and children of women in that age group typically experience mortality risks well above average.

If childhood mortality has actually been declining or accelerating in the recent past, that fact will not be reflected.

### 5. Cause of death

Table 11: Cause of Death as Perceived by Child's Mother

DISEASE	FREQ	PERCENT
Measles	159	14.1%
Diarrhea	91	8.1%
Sorcery	91	8.1%
Malaria	83	7.4%
Sudden Death	39	3.5%
Tetanus	41	3.6%
Meningitis	29	1.2%
Cough/Bronchitis	33	2.9%
Yellow Fever	20	1.8%
Complications/Uvula	10	0.9%
Premature Birth	7	0.6%
"Eruptive Disease"	7	0.6%
Umbilical cord infection	3	0.3%
Famine	4	0.4%
Don't Know, others	506	52.7%

During the course of the interview the women were asked to give the cause of death for all her children who are no longer living. Since the recall period may be as great as thirty years in the

older women, these data should be used only as an indication of magnitude. The responses were recorded as closely as possible to what the mother said and certainly do not have a medical basis. They represent, rather, the cause of death as perceived by the mother. For instance, the category yellow fever unquestionably includes many cases of Hepatitis.

#### H. Illness of Mother

Of the 1270 women in the survey, 557 (44%), said that they were ill during the two preceding weeks. The list of complaints was exceedingly varied, which accounts for the large percentage of "other illness" seen in Figure 59. Abdominal pain was cited by 27% of the women in the rural area and 23% in the urban area. The list of complaints was similar in both rural and urban areas except for malaria/fever which was mentioned by 5% of the rural women and 16% of the urban women (see Figure 59). There was no difference by age on the type or frequency of illness reported by the mother.

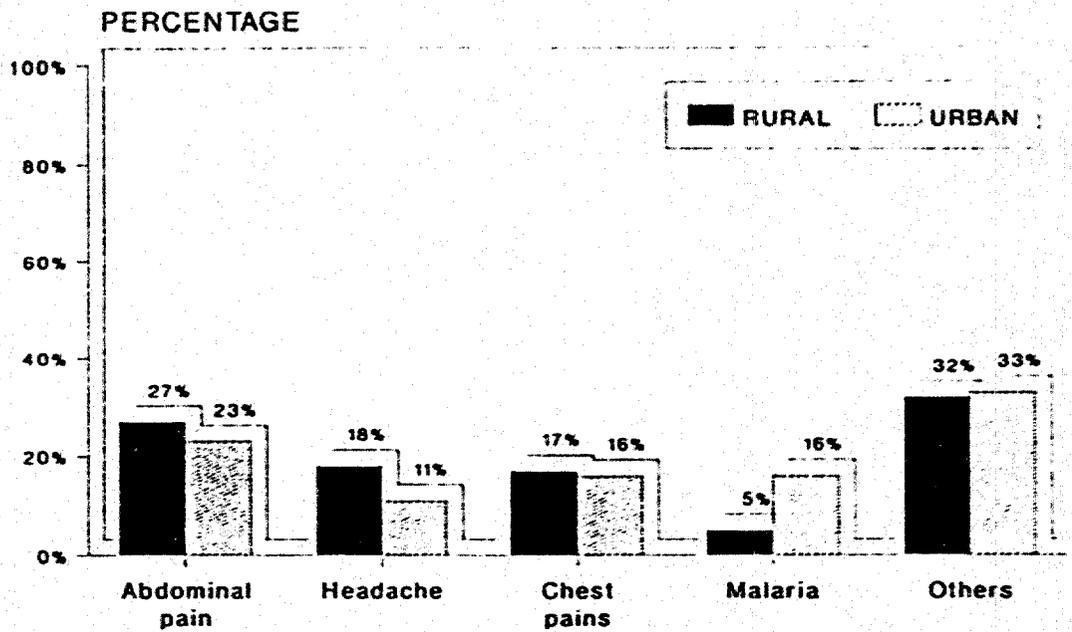
Roughly half (46%) of the sick mothers did not seek treatment at a hospital or dispensary during their last illness. The reasons given are presented in Figure 60, which shows that lack of money was the reason cited most often. The cost of treating the last illness ranged from 11% who incurred no cost to 1% who reported an expenditure of over 10,000 FCFA. Thirty-four percent reported that they spent 100 FCFA or less, and 80% spent less than 1,000 FCFA. The median amount spent in the rural area was the same as for the child's illness, 200 FCFA. However, in the urban area, the median amount spent was 895 FCFA, which was considerably higher than the median amount spent on the child's illness.

#### I. AIDS Knowledge

Figure 61 shows that 87% of the urban and 44% of the rural women had at least heard of AIDS at the time of the survey. The urban figure is up 9% from the figure that was reported in a paper by the PNLS (Programme National de Lutte Contre le SIDA), for Sarh, from a Knowledge, Attitudes and Practices (KAP) survey done in 1987. Among women who are literate, the proportion is even higher (Figure 62), 97% in the urban area and 76% in the rural area know about AIDS. Most women cite the radio as the place where they heard about AIDS, 56% in the urban area and 34% in the rural area. Most of the remaining women heard about AIDS from friends or from health staff. Fifteen percent of the women report having heard about AIDS from health personnel, 4 times more than what the PNLS study reported for urban areas.

Thirty-nine percent of rural women and 23% of urban women who had heard of AIDS had no idea how it was transmitted. Fifty-five percent of the rural women and 74% of the urban women knew that AIDS was sexually transmitted, the latter being the same figure shown in the PNLS study. Few women were able to cite the other modes of transmission, i.e. through blood or through vertical transmission (from mother to child). The PNLS study reported a much higher percentage of women who know about vertical transmission (68% versus 5% in the comparable urban section of this survey). It is not known whether the method of asking the question was different. All responses in

Figure 59  
ILLNESS REPORTED BY MOTHERS DURING  
LAST TWO WEEKS



Rural N=425 Urban N=132

Figure 60  
WHY MOTHERS DID NOT VISIT  
DISPENSARY DURING LAST ILLNESS

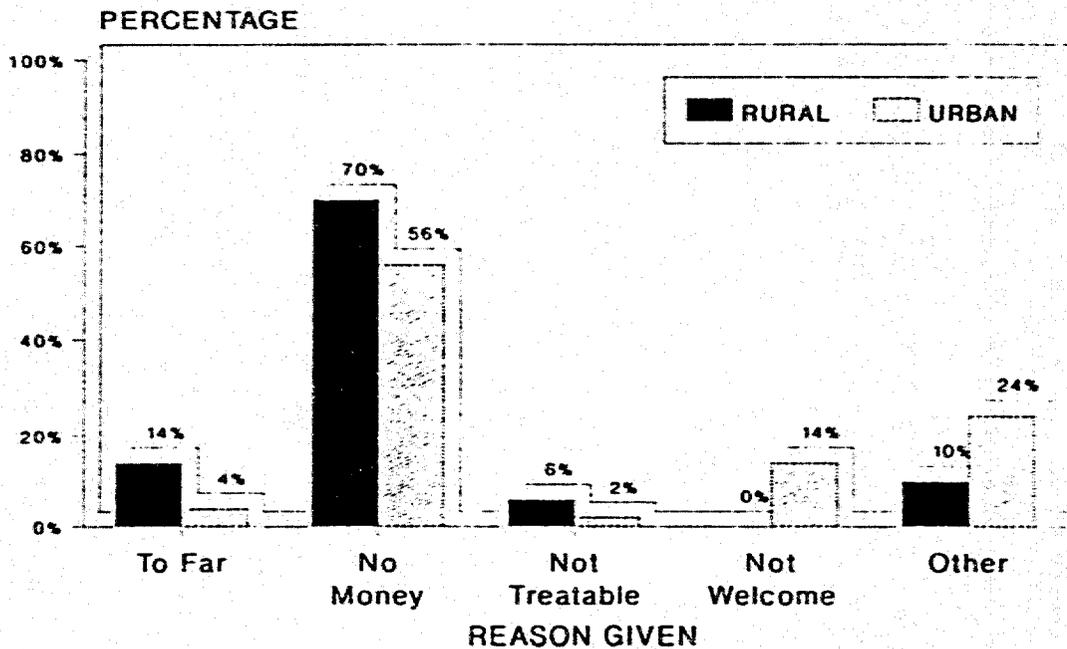
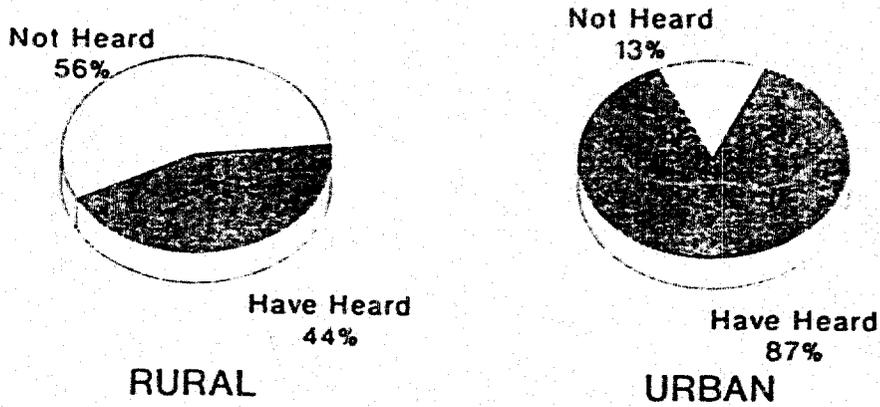
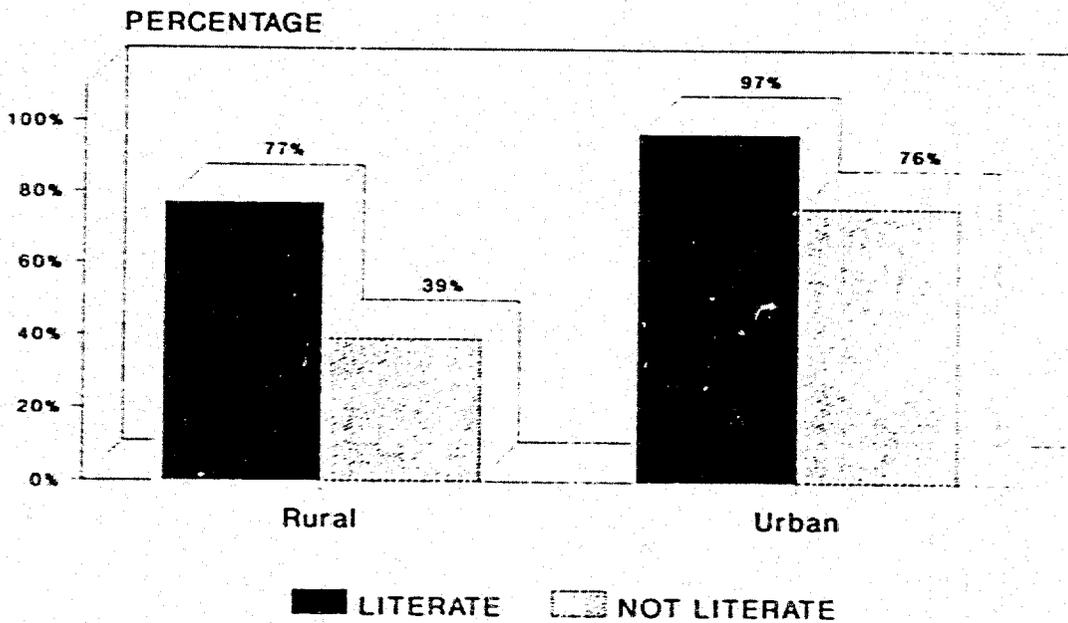


Figure 61  
WOMEN WHO HAVE HEARD OF AIDS



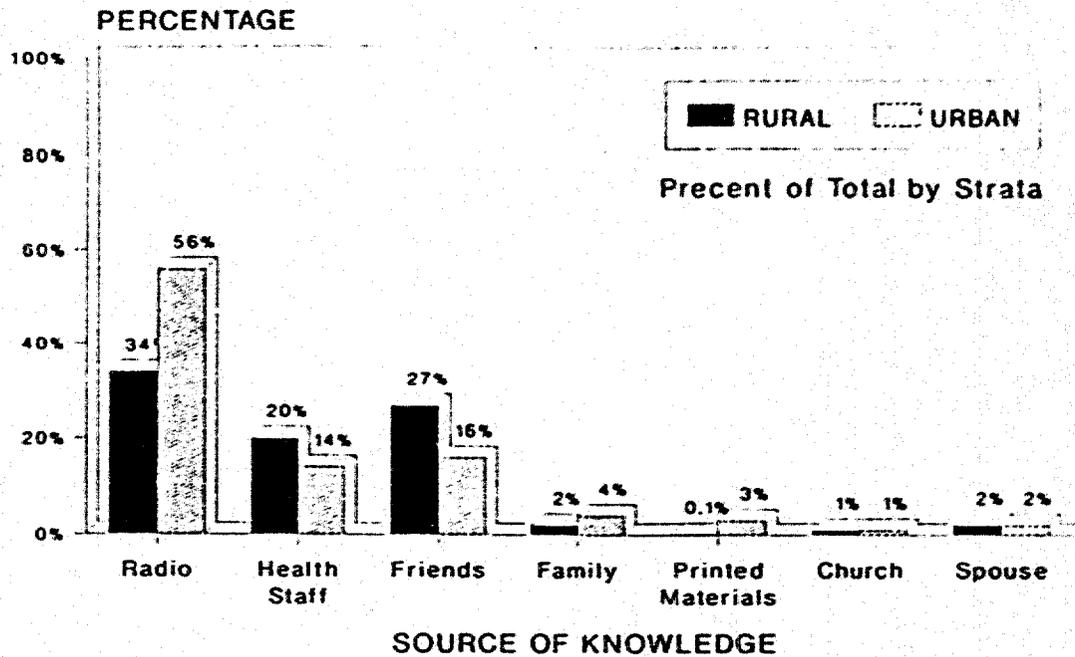
Rural N=932 Urban N= 338

Figure 62  
LITERACY AND KNOWLEDGE OF AIDS



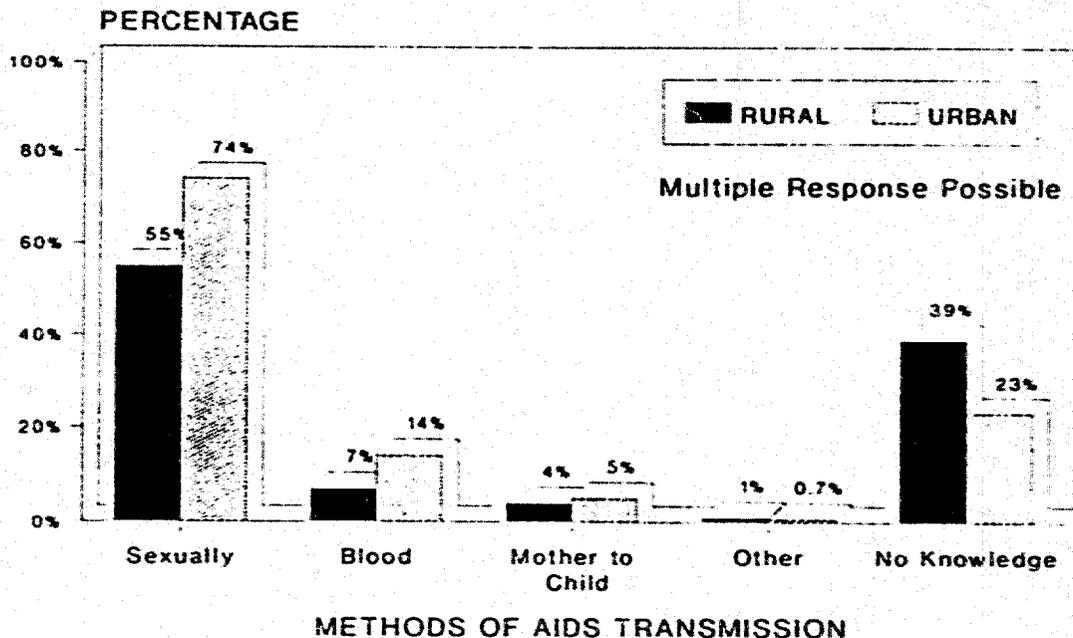
Rural N=932 Urban N=338

Figure 63  
 SOURCE OF KNOWLEDGE ON AIDS AMONG  
 WOMEN WHO HAD HEARD OF AIDS



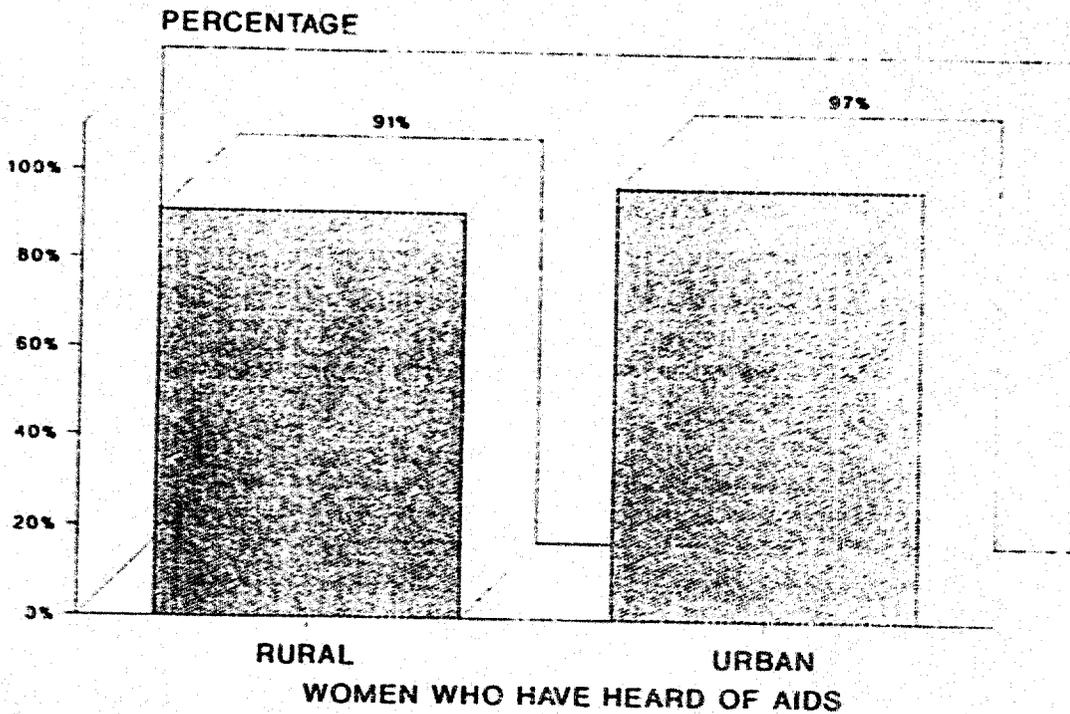
Rural N=408 Urban N=293

Figure 64  
 KNOWLEDGE OF AIDS TRANSMISSION AMONG  
 WOMEN WHO HAD HEARD OF AIDS



Rural N=408 Urban N=293

Figure 65  
KNOWLEDGE THAT AIDS IS FATAL



Rural N=408 Urban N=293

this survey were unprompted and multiple responses were possible. The overwhelming majority of the women who had heard of AIDS believed that it was fatal (see Figure 65).

## J. Family Planning

### 1. Knowledge and practices

#### a. Rural

The knowledge and practices of modern contraceptive methods is virtually nil in the rural area of Moyen Chari. Of the 931 rural women interviewed, only four (0.4%) had even heard of the contraceptive pill and only one of these actually took the pill. All four women were under 27 years old (see Figure 66).

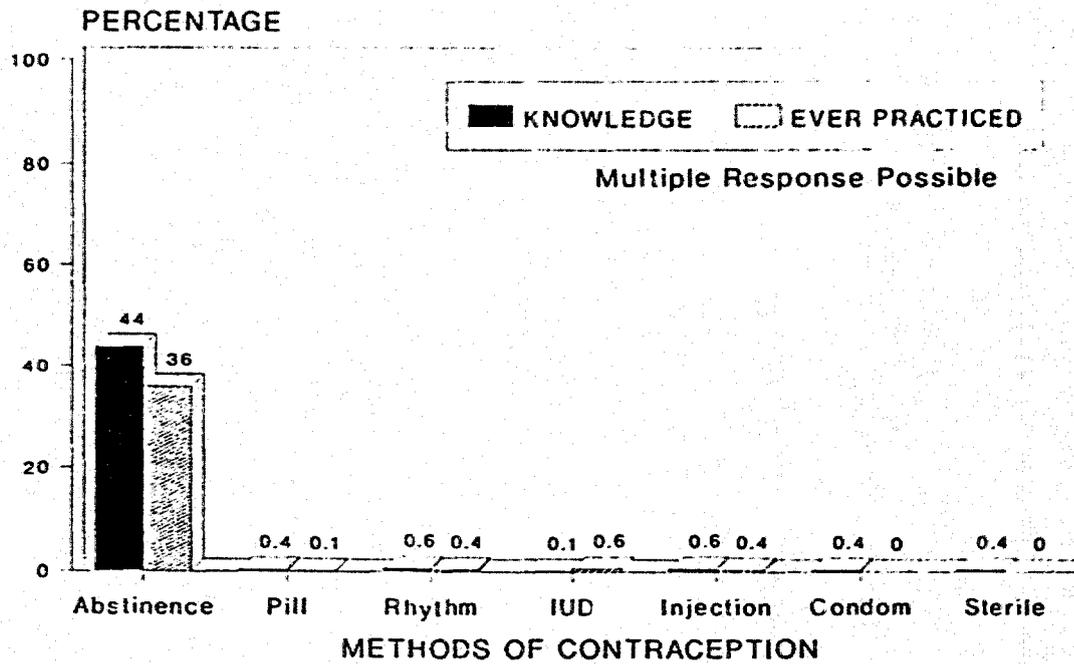
The following points of interest were noted about knowledge and practices of contraceptive methods among rural women:

- o One woman had heard of the IUD, none ever used it;
- o Six women knew of the rhythm method, four had actually practiced it at some time;
- o Six women had heard of an injection to prevent pregnancy, four had received such an injection;
- o Four women knew of condoms, none had ever used one; and
- o Four women knew of surgical sterilization and two were indeed sterilized; one from the 28-33 year old group and the other from the over 33 year old group. Both women reported having six children.

Breastfeeding was mentioned by 159 or 17% of the rural women as a method of birth control and 13% said that they had practiced breastfeeding for contraceptive reasons although the reasoning they use has nothing to do with knowledge of hormones but is based on a traditional belief that sexual intercourse "sours the milk" and is therefore bad for the child. Thus the women are abstaining from sexual activity because they are breastfeeding their babies.

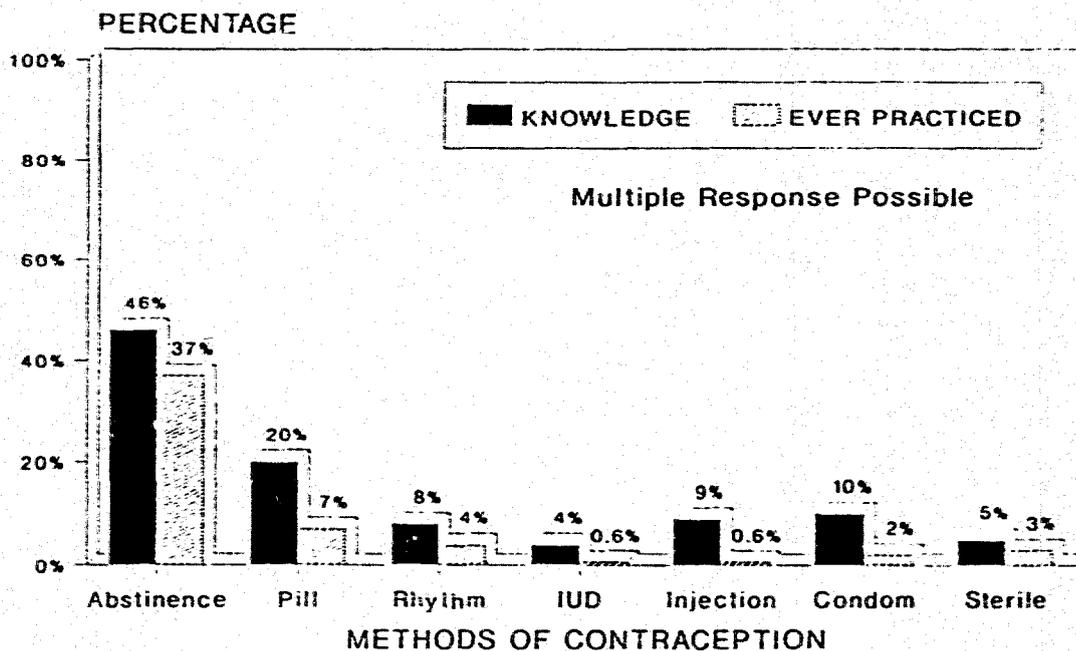
Abstinence was the only method mentioned by the rural women that had any significance. Forty-four percent mentioned abstinence and 36% had ever practiced it as a birth control method. The most common responses were "separation of the bodies" and "sending the woman away". While most women certainly knew that abstinence would prevent pregnancy, only 44% mentioned it during the course of the interview. It may have just been too obvious to mention.

Figure 66  
 KNOWLEDGE AND PRACTICE OF CONTRACEPTION  
 AMONG RURAL WOMEN



N-932

Figure 67  
 KNOWLEDGE AND PRATICE OF CONTRACEPTION  
 AMONG URBAN WOMEN



N-337

b. Urban

Even in the urban area, abstinence was only mentioned by 46% of the women and practiced by 37%, virtually the same as in the rural area. However, the knowledge and practices of modern methods of contraception were significantly higher in the urban area. Of the 337 respondents, 67, or 20% had heard of the pill. These women were found in all four age groups. Twenty-three women, or 7% of the urban women said that they had used the pill (see Figure 67).

The following points of interest were noted about knowledge and practices of contraceptive methods among urban women:

- o The rhythm method was mentioned by 27 women (8%) and tried by 14 women (4%);
- o Twenty-nine women had knowledge of an injection and two had used this method;
- o Thirty-four women knew of condoms (10%), but only seven (2%) had ever used them; and
- o Seventeen women in the urban area knew of surgical sterilization and of the eleven women in the survey who were sterilized, nine were from the urban area. Three of the sterilized women were in the 28 - 33 age group and the remaining six were age 33 and older. Two of the sterilized women reported six children and two claimed to have eleven children.

2. Age at first pregnancy

In the survey the range of age at first pregnancy was between 12 and 35 years. The survey found no real difference between the rural and urban women in the age at first pregnancy. In both groups the mode was sixteen years. The SMI/BEF report from April 1992 reports 11% of first pregnancies occurred before the age of 15 in the Moyon Chari. This survey found only 5% in the same age group and found that 88% of first pregnancies occurred between the ages of 15 and 20.

3. Avoidance of pregnancy

When asked whether they were "now trying to avoid a pregnancy", 46% answered yes in the rural area and 33% said yes in the urban area. This information suggests that there might be a sizable group of women who would readily except family planning services if they were available (see Figure 69).

Figure 68  
AGE AT FIRST PREGNANCY

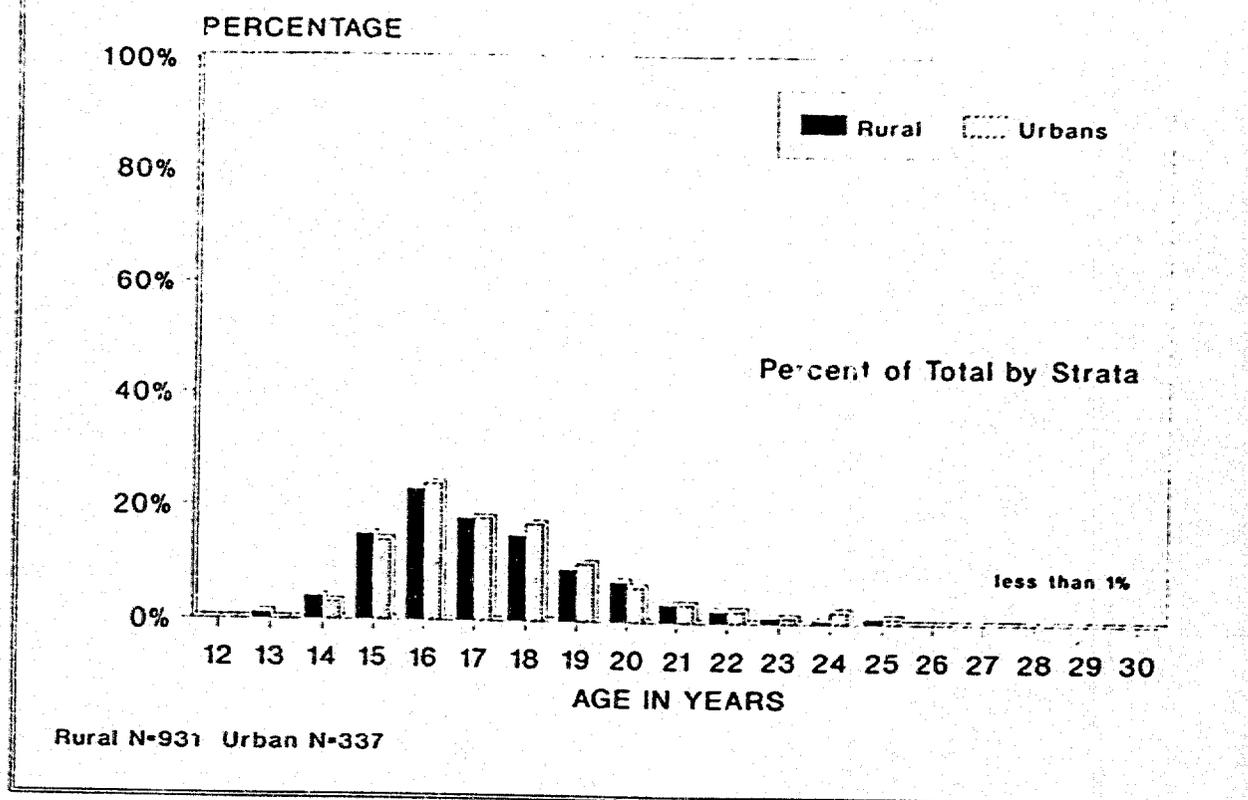
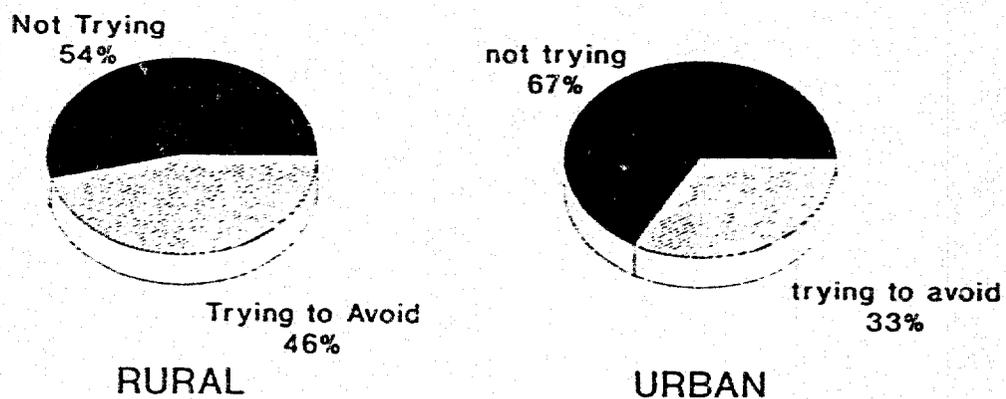


Figure 69  
PERCENTAGE OF WOMEN TRYING  
TO AVOID PREGNANCY



Rural N=932 Urban N=337

#### 4. Ideal family size

When asked what they thought was the ideal number of children for a women to have, 39% of rural and 43% of urban women answered that it depended on the will of God. Six percent, or 52 rural women said that a women should have as many as possible. But only five urban women (1.5%) gave a similar response. Figure 70 shows the distribution of answers from those mother who gave a numerical response. Twenty-six percent of the women said they thought the ideal number was between 5 and 7 children and 8.6% said ten or more.

#### 5. Ideal spacing between pregnancies

The vast majority of women said 2 or more years was the ideal space to have between pregnancies. Only 4% said a year or less was the ideal space.

#### 6. Advantages of having a large family

Figure 71 shows the advantages of a large family as expressed by the mothers. The most common response was that the children would take care of their aged parents, (32% rural and 43% urban). In the rural area 19% of the mothers declared "manpower" provided by the children as an advantage, while in the towns only 8% gave this response. Roughly the same percentage of women mentioned the joy which children bring into a home as an advantage, (rural 18%, urban 20%).

When questioned about the disadvantages of a large family the responses were too general to analyze. However they usually involved the economic aspect of caring for a large family and the difficulty of raising a large family. In the rural area 25% of the women saw no disadvantage to a large family; in the urban area it was 21%.

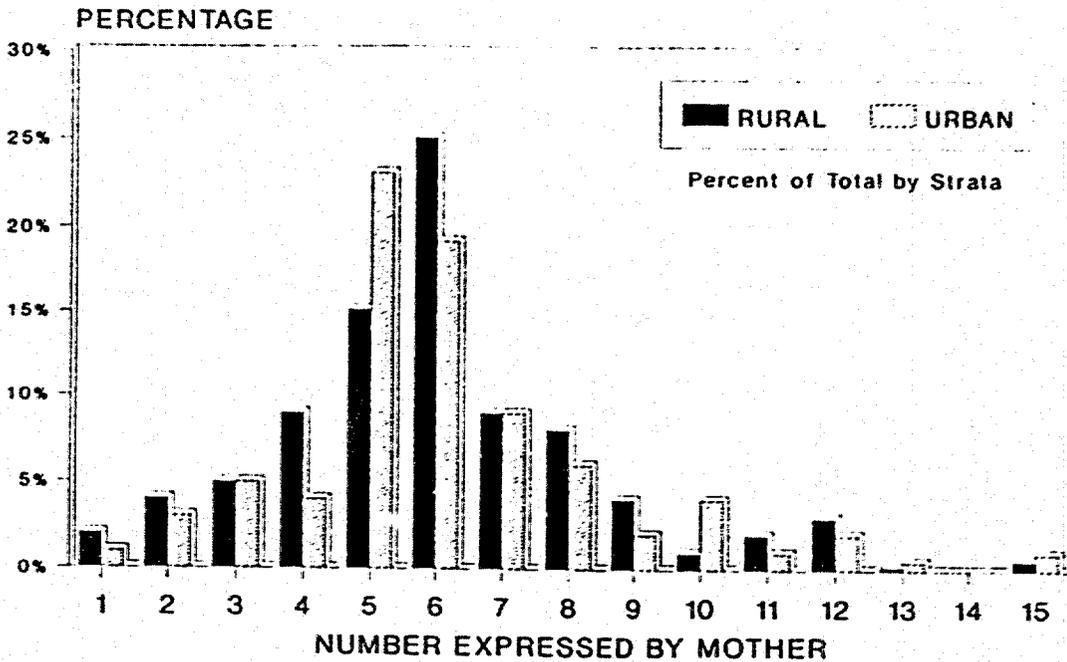
### K. Female Circumcision

In Chad, as well as in other parts of Africa, female circumcision is widely practiced. In the Moyen Chari female circumcision is particularly prevalent. It is associated with the rite of initiation for adolescent girls.

Since a physical examination was not possible, no attempt was made to determine the extent of the mutilation. Because of the personal nature of the questions on excision, they were asked at the end of the interview, when the woman was already at ease. The female interviewers asked two simple questions on circumcision, "Are you circumcised?" and if yes, "At what age was it done?". Figure 72 shows the percent of women who said they were circumcised by strata and religion. Rural Christians had higher rates with the highest found in the Catholic population at 96%. Only among muslims was the rate higher in urban than rural women.

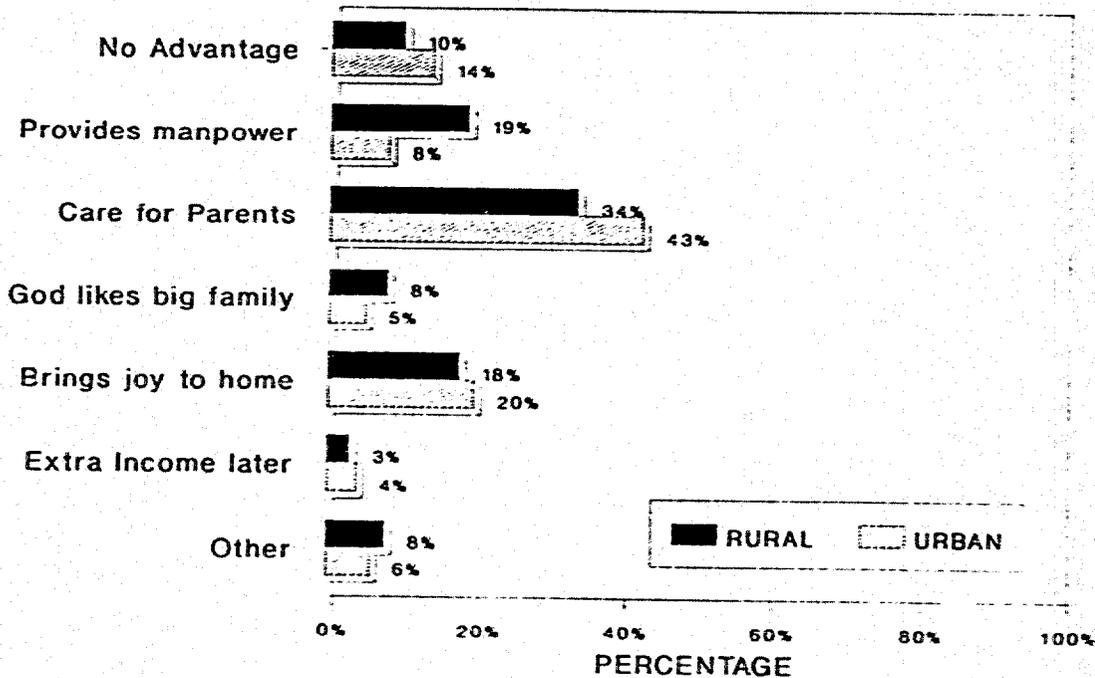
The youngest age reported by a women for circumcision was four and one women reported that she was circumcised at age twenty. However, the majority were initiated between the ages of eight and twelve, with a peak age of ten years as seen in Figure 73. An analysis of the age groups

Figure 70  
 IDEAL NUMBER OF CHILDREN



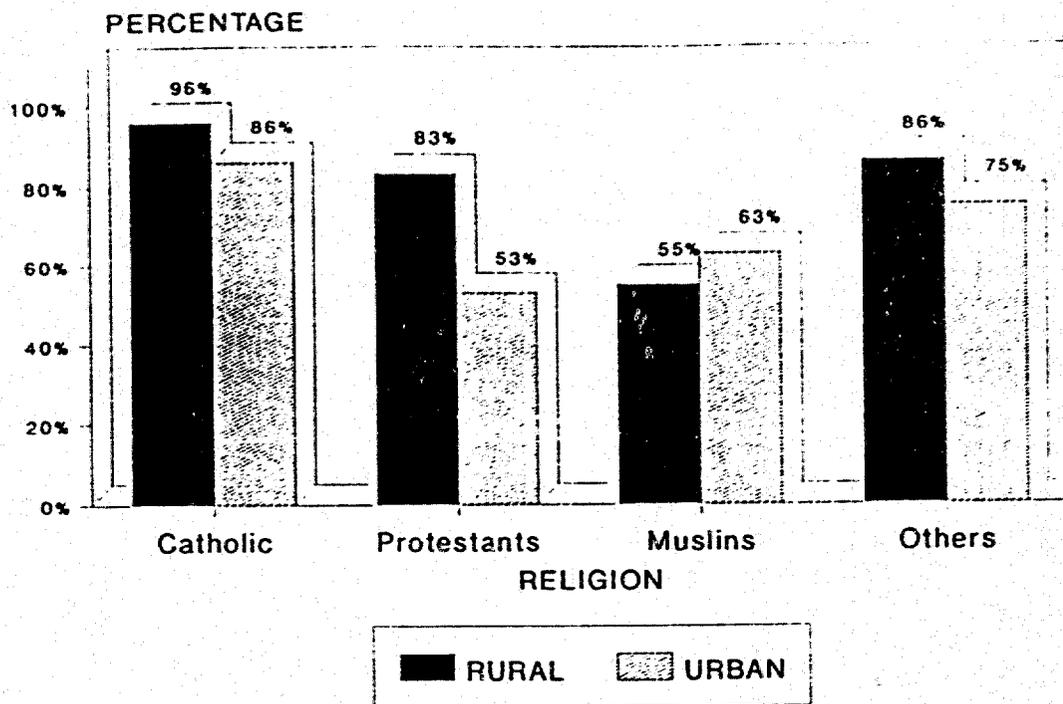
Rural N=483 Urban N=177  
 Women who mentioned "Will of God" are not included

Figure 71  
 ADVANTAGES OF HAVING A LARGE FAMILY



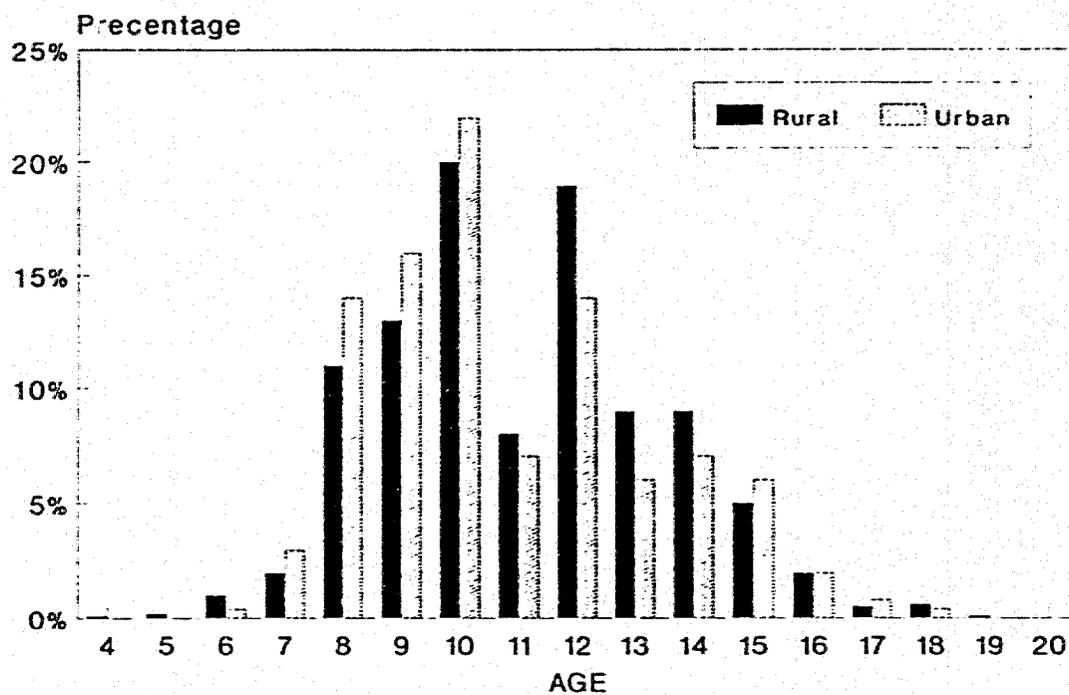
Rural N=932 Urban N=338

Figure 72  
CIRCUMCISED WOMEN BY RELIGION



Rural N=932 Urban N=337

Figure 73  
AGE AT CIRCUMCISION



Rural N=833 Urban N=239

showed no appreciable difference, 80.3% of the youngest women and 84.9% of the women in the oldest group had been circumcised, indicating that the practice has not diminished during the past thirty years. In addition, no substantial difference was noted between literate and non-literate women (literate 78%, non-literate 86%).

#### L. Literacy and Selected Indicators

There is evidence from other studies that level of education is a good indicator of child survival status (Cleland, Roth, Streatfield). Figures 74 and 75 demonstrate this concept concretely. Particularly in the rural area, it is apparent that literate women are more likely to have had prenatal care, vaccination of mother and child and knowledge of how to prepare ORT. The phenomenon is seen also in the urban area, but to a lesser degree.

Figure 74  
LITERACY AND SELECTED  
INDICATORS IN THE URBAN AREA

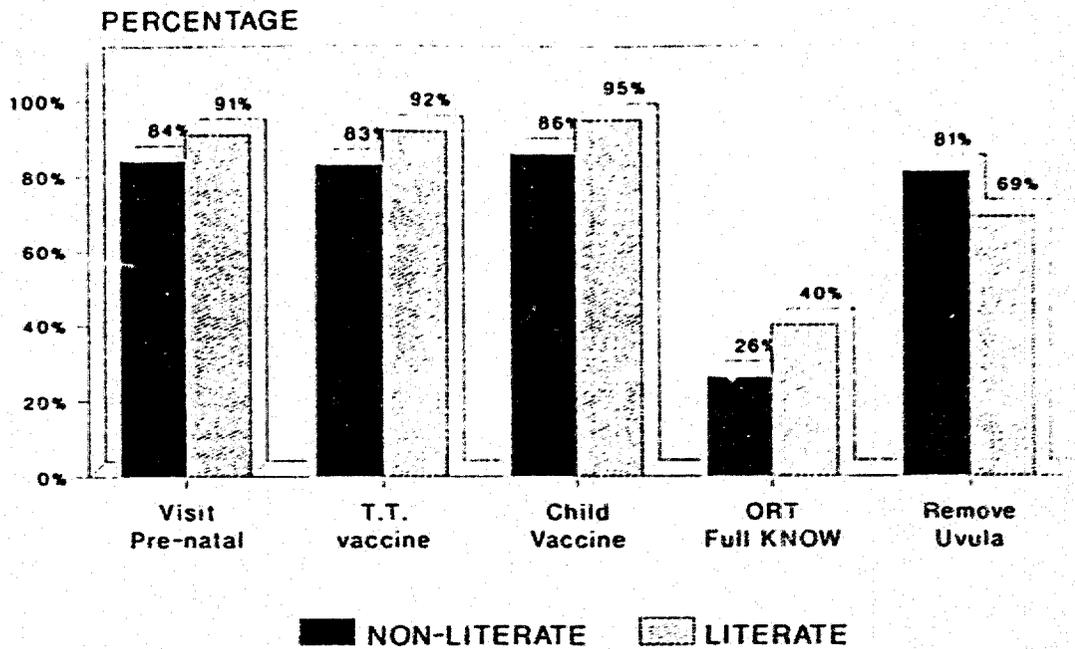
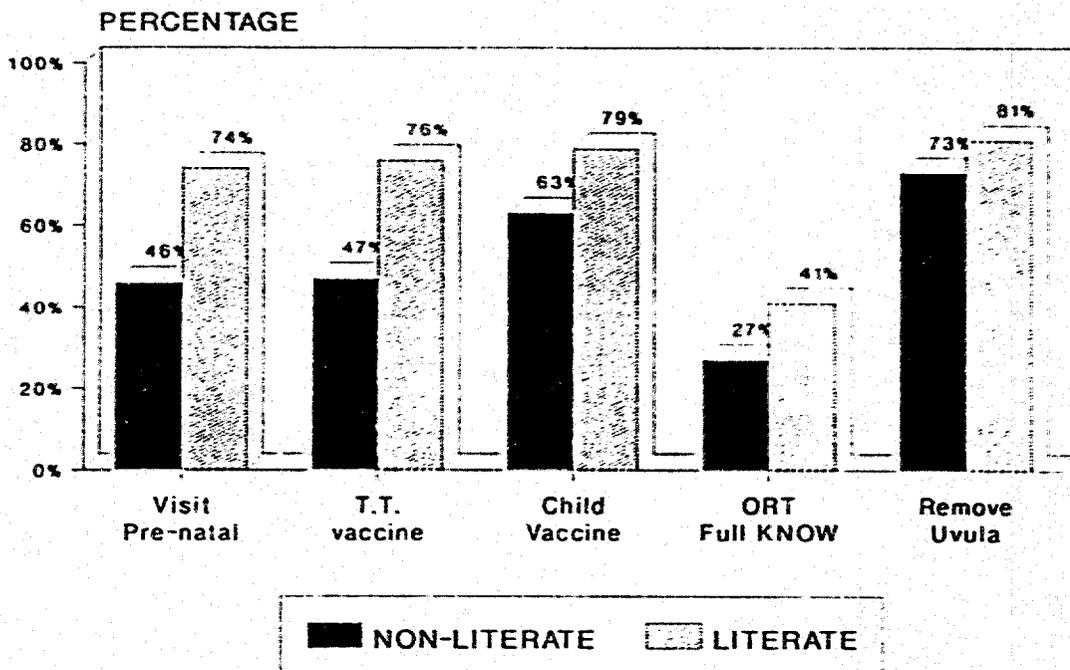


Figure 75  
LITERACY AND SELECTED  
INDICATORS IN THE RURAL AREA



## V. CONCLUSIONS

The purpose of this survey was to provide baseline data which can be used for future evaluations. The CCSP Project Paper presents specific expected achievements for various project components. Some of the evaluation benchmarks defined in the project paper were addressed in the survey. The current status of those benchmarks that were pertinent are discussed in the section that follows.

### A. ORT

- o "90% of the mothers will have heard of ORT..."

According to the survey, this goal has already been achieved in the urban area where 91% of the mothers have heard of ORT. In the rural areas only 64% of the mothers knew of ORT

- o "60% of the mothers and other child caretakers can list the components of effective case management of diarrhea and explain how to practice ORT..."

The survey shows that currently 30% of the rural and 33% of the urban mothers can correctly list the ingredients and explain how to prepare ORT solution.

- o "20% of the mothers, who reported children under five as having diarrhea during the previous two weeks will have used ORT".

The question of whether the mother used ORT to treat her child's diarrhea was not asked because of the system of open response. Instead, if the mother had a sick child during the past two weeks, after stating what the sickness was, she was asked "what treatment did you give the child?" Thirty-nine percent of urban women and 48% of rural women whose child had diarrhea, reported having given "modern treatment" at home. ORT is thought of as a modern treatment, although this category includes other treatments as well.

### B. Malaria

- o "Fifty percent of pregnant mothers who present themselves to health centers take malaria prophylaxis".

In the rural area, 56% of the women reported that they took anti-malaria drugs at least once during their last pregnancy. In the urban area, the figure was 75%. This survey did not distinguish between curative and prophylactic use of anti-malarial drugs. However, it appears from the data mentioned here as well as the type of treatment given to children with malaria (57% and 64% of rural and urban women respectively used modern treatment at home for children with malaria) that use of anti-malaria drugs are well-known and utilized.

### C. Prenatal Care

- o "Sixty percent of pregnant women register for prenatal care (up from the current level of 47%.)"

Data from this survey show that 51% of rural women and 88% of urban women went for prenatal visits during their last pregnancy. Judging from this data, it appears that this target may already have been met. High coverage rates for tetanus toxoid indicated on the mother's cards (details in results section) confirm the high level of prenatal visits. It remains for the CCSP to work on improving the quality of prenatal care.

### D. Postnatal Care

- o "Forty percent of the women who recently delivered will return to the health center within three weeks of delivery for a postnatal visit."

Data from the survey shows that 33% of rural women and 80% of urban women visited a dispensary within the first month after their last pregnancy. Fifty-four percent of rural and 73% of urban women gave immunization of the child as the reason for the visit. 11% of rural and 7% of urban women cited postnatal examination as the reason for the visit. (Details are in Table 9).

### E. Child Spacing

- o "Contraceptive prevalence rate increases from less than 1 to 3 percent"

Contraceptive prevalence rate was not measured in this survey, however, the above figure of 1 percent appears to be viable considering the extremely low level of knowledge and/or use of any contraceptive methods.

- o "Forty percent of the women and 25% of the men in the target zone can name at least 2 modern contraceptive methods".

Data from the survey show that reaching this target is a long way off. Virtually none of the women in the rural area could mention even one modern method of contraception.

**ANNEX A**

**Questionnaire**

A remplir par la superviseuse avant de remettre le questionnaire

ZD

Habitation

Section

Nom de l'enquêtrice \_\_\_\_\_

Nom de l'enquêtée \_\_\_\_\_

Dans le cas où l'enquête ne peut pas être réalisée, expliquer les raisons.

Signature de la superviseuse \_\_\_\_\_  
(Après contrôle)

1. Avez-vous une carte d'identité/acte de naissance?

- 0 - Non (Si "non" passez à la question 3)
- 1 - Oui

2. Ecrivez l'année de naissance pour ceux qui ont la carte d'identité/acte de naissance. 19

3. Quand êtes-vous née (Pour ceux qui n'ont pas une carte) 19

OU

Quel âge avez-vous?  ans

4. Où êtes-vous née?

- 1 - Même village/ville
- 2 - Même canton
- 3 - Même sous-préfecture
- 4 - Même préfecture
- 5 - Autre préfecture du Tchad
- 6 - Autre pays \_\_\_\_\_

5. Combien d'années avez-vous passée là-bas (dans la région d'origine)?

6. Depuis quand habitez-vous ici? Depuis l'année 19
- OU
- depuis
- années.
7. Est-ce que vous savez lire et écrire?
- 0 - Non (Si "non", passez à la question 9)  
1 - Oui
8. Quel niveau avez-vous?
- |                       |                |
|-----------------------|----------------|
| 1 - Ecole primaire CP | 5 - CEG        |
| 2 - Ecole primaire CE | 6 - Lycée      |
| 3 - Ecole primaire CM | 7 - Université |
| 4 - Ecole Coranique   | 8 - Autre      |
9. Quelle religion pratiquez-vous?
- |                 |                 |
|-----------------|-----------------|
| 1 - Aucune      | 4 - Musulmane   |
| 2 - Catholique  | 5 - Bahai       |
| 3 - Protestante | 6 - Autre _____ |
10. Maison construite en:
- |                           |            |
|---------------------------|------------|
| 1 - Ciment/briques cuites | 3 - paille |
| 2 - Potopoto              | 4 - autre  |
11. Toiture faite de:
- |                  |                 |
|------------------|-----------------|
| 1 - Paille       | 3 - Tôle        |
| 2 - Paille/terre | 4 - Autre _____ |
12. D'où vient votre eau à boire d'hier?
- |                                |                       |
|--------------------------------|-----------------------|
| 1 - Robinet à la maison        | 4 - Puits public      |
| 2 - Fontaine ou pompe publique | 5 - Fleuve ou marigot |
| 3 - Puits à la maison          | 6 - Autre             |
13. Qu'est ce que vous utilisez pour vos besoins?
- |   |                 |
|---|-----------------|
| 1 - Toilette à l'intérieur<br>de la maison, avec chasse d'eau | 3 - La brousse  |
| 2 - Latrine   | 4 - Autre _____ |
14. Avez-vous l'électricité à la maison?
- 0 - Non                      1 - Oui

15. Avec quelle fréquence écoutez-vous la radio?

- 0 - Jamais (passez à la question 17)
- 1 - moins d'une fois par semaine
- 2 - une fois par semaine
- 3 - 2 à 3 fois par semaine
- 4 - chaque jour

16. Quelle(s) station(s) écoutez-vous? , , ,

- 1 - N'Djaména
- 2 - Sarh
- 3 - Radio Centrafricaine - Bangui
- 4 - Garoua
- 5 - Autre \_\_\_\_\_

17. Est-ce que quelqu'un dans le concession a un(e):

- 0 - Non
- 1 - Oui

Poste de radio	<input type="checkbox"/>	Charrette	<input type="checkbox"/>
Magnétophone	<input type="checkbox"/>	Pousse-pousse	<input type="checkbox"/>
Lampe à pétrole	<input type="checkbox"/>	Moto	<input type="checkbox"/>
Tapis	<input type="checkbox"/>	Voiture/Camion	<input type="checkbox"/>
Bicyclette	<input type="checkbox"/>	Réfrigérateur	<input type="checkbox"/>

18. Combien d'animaux avez-vous?

Poules	<input type="checkbox"/>	Chèvres	<input type="checkbox"/>
Poussins	<input type="checkbox"/>	Moutons	<input type="checkbox"/>
Boeufs	<input type="checkbox"/>	Anes	<input type="checkbox"/>
Vaches	<input type="checkbox"/>	Chevaux	<input type="checkbox"/>
		Autre	<input type="checkbox"/>

19. Que faites-vous pour gagner de l'argent pour vos propre dépenses?

0 - Non                      1 - Oui

- |  |                          |
|--|--------------------------|
| Fabrication des boissons locales                 | <input type="checkbox"/> |
| Petit Commerce                                   | <input type="checkbox"/> |
| Main d'oeuvre agricole                           | <input type="checkbox"/> |
| Fabrication des nattes, paniers, autres articles | <input type="checkbox"/> |
| Culture de rentes (coton, tabac)                 | <input type="checkbox"/> |
| Culture vivrière                                 | <input type="checkbox"/> |
| Autre _____                                      | <input type="checkbox"/> |

20. Combien d'argent avez-vous gagné le mois passé par ces activités?

<input type="checkbox"/>	CFA
---	-----

21. Combien avez-vous dépensé au marché la semaine passée pour des achats?

Alimentaires	<input type="checkbox"/>	CFA
--------------	---	-----

Des Combustibles (petrole, charbon à bois, etc.)	<input type="checkbox"/>	CFA
---	---	-----

Du Savon	<input type="checkbox"/>	CFA
----------	---	-----

22. Est-ce que la semaine passée vous avez dépensé:

- 1 - Moins d'argent qu'on dépense d'habitude pendant la semaine
- 2 - à peu près la même somme qu'on dépense d'habitude
- 3 - plus d'argent qu'on dépense d'habitude

23. Au cours de l'année passée, (depuis le début de la saison des pluies) combien avez-vous dépensé pour:

Vêtements

CFA

Soins Médicaux

CFA

Articles  
scolaires

CFA

Cérémonies  
(Baptême, Mariage,  
Funérailles, etc.)

CFA

Autres dépenses  
importantes  
(Explique: \_\_\_\_\_)

CFA

24. Est-ce que l'année passée vous avez dépensé:

- mois/ans Moins d'argent qu'on dépense d'habitude pendant le  
2 - à peu près la même somme qu'on dépense d'habitude  
3 - plus d'argent qu'on dépense d'habitude

25. Etes-vous membre d'une tontine (ou autre société d'épargne)?

0 - Non (Si "non" passez 27)

1 - Oui

26. Combien cotisez-vous? (L'enquêtrice doit encercler soit semaine ou mois)

par semaine ou mois

CFA

27. Avez-vous épargné d'autres sommes (à part la tontine) depuis le début de la saison des pluies?

0 - Non (Si "non", passez à la question 29)

1 - Oui

28. Combien depuis ce moment?

CFA

29. Que fait votre mari pour gagner de l'argent?

- 0 - pas marié (Passez à la Q 31)
- 1 - rien (Passez à la Q.31)
- 2 - agriculteur
- 3 - fonctionnaire salarié
- 4 - salarié - privé
- 5 - ouvrier non-salarié
- 6 - grand commerçant
- 7 - petit commerçant
- 8 - militaire

30. A-t-il reçu de l'argent de cette activité depuis le début de la saison des pluies?

- 0 - Non
- 1 - Oui

SECTION POUR LES ENFANTS DE MOINS DE SIX ANS

31. Est-ce qu'il y a un enfant de moins de six ans?

- 0 - Non (Si "non" passez à la question 64)
- 1 - Oui

32. Quand est-ce que cet enfant était malade pour la dernière fois?

- 1 - Moins de 2 semaines
- 2 - Plus de 2 semaines (Passez à la question 48)
- 9 - Ne sait pas (Passez à la question 48)

33. L'âge de l'enfant qui est malade (S'il y a deux enfants qui sont malades, choisir le plus jeune)

- 1 - 0 à 6 mois
- 2 - 7 à 12 mois
- 3 - 13 à 18 mois
- 4 - 19 à 24 mois
- 5 - trois ans
- 6 - quatre ans
- 7 - cinq ans

34. Quelle maladie?

- 1 - diarrhée
- 2 - paludisme
- 3 - fièvre
- 4 - rhume
- 5 - toux
- 6 - dermatite/éruption
- 7 - maux de dents
- 8 - angine/mal de l'oreille
- 9 - autre \_\_\_\_\_

35. Durée de la maladie   jrs

36. Quel traitement a-t-on donné à l'enfant (premier traitement)?

- 0 - rien (passez à la question 42)
- 1 - soins traditionnels (à la maison)
- 2 - soins traditionnels chez un guérisseur ou autre personne
- 3 - soins "modernes" (médicaments, etc.) à la maison
- 4 - soins "modernes" (médicaments, etc.) chez quelqu'un d'autre
- 5 - soins au dispensaire / hôpital
- 6 - autre \_\_\_\_\_

37. Après combien des jours de la maladie est-ce que vous avez commencé le premier traitement?   jrs

38. Qui a décidé de le faire?

- 1 - mère de l'enfant
- 2 - père de l'enfant
- 3 - mère avec consentement de son mari
- 4 - autre parent
- 5 - autre \_\_\_\_\_

39. Quel traitement a-t-on donné à l'enfant (deuxième traitement)?

- 0 - rien (passez à la question 42)
- 1 - soins traditionnels (à la maison)
- 2 - soins traditionnels chez un guérisseur ou autre personne
- 3 - soins "modernes" (médicaments, etc.) à la maison
- 4 - soins "modernes" (médicaments, etc.) chez quelqu'un d'autre
- 5 - soins au dispensaire / hôpital
- 6 - autre \_\_\_\_\_

40. Après combien des jours est-ce que vous avez commencé le deuxième traitement?   jrs

41. Qui a décidé de le faire?

- 1 - mère de l'enfant
- 2 - père de l'enfant
- 3 - mère avec consentement de son mari
- 4 - autre parent
- 5 - autre \_\_\_\_\_

42. Qu'est-ce qui a provoqué cette maladie?

1 - rien de spécial	5 - quelque chose mangé par l'enfant
2 - froid/fraîcheur	6 - autre _____
3 - microbes	7 - ne sait pas
4 - sorcellerie	

43. Combien a-t-on dépensé pour le traitement?      CFA  
(Premier traitement plus deuxième traitement)
44. L'enfant a-t-il été guéri?   
0 - Non                      1 - Oui
45. Enquêteuse - Est-ce que l'enfant est amené au dispensaire ou à l'hôpital?   
0 - Non (Si "non" passez à la question 47)  
1 - Oui
46. Ecrivez le nom du dispensaire ou hôpital \_\_\_\_\_  
Kilometrage de la maison (à ajouter plus tard)    Km  
(Passez à la question 48)
47. Pourquoi n'avez-vous pas amené l'enfant au dispensaire / hôpital?   
1 - trop loin  
2 - pas d'argent  
3 - maladie qu'on ne traite pas au dispensaire/hôpital  
4 - personnel du dispensaire/hôpital pas accueillant  
5 - autre \_\_\_\_\_  
9 - ne sait pas

- 
48. Est-ce que vos enfants sont vaccinés?   
0 - Non  
1 - Oui (Passez à la question 50)
49. Pourquoi pas?   
1 - Pas de raison  
2 - Dispensaire/hôpital trop loin  
3 - équipe n'est pas venue  
4 - vaccinations ne sont pas nécessaires  
5 - enfant malade lors de la visite de l'équipe  
6 - autre \_\_\_\_\_  
(Passez à la question 64)

50. Les enfants ont été vaccinés où

- 1 - dispensaire/hôpital
- 2 - équipe mobile
- 3 - dispensaire/hôpital et équipe mobile
- 4 - autre \_\_\_\_\_

ENQUETEUSE: Remplissez le tableau suivant pour tout enfant en-dessous de l'âge de 6 ans en consultant leur carte de vaccination.

Nom de l'enfant \_\_\_\_\_

51. Age:

- 1 - 0 à 11 mois
- 2 - 12 à 23 mois
- 3 - 2 ans et plus

52. A t-il une carte de vaccination?
- 0 - Non (Si "non" passez à la question 64)
  - 1 - Oui

Vaccinations reçues?

0 - Non

1 - Oui

- |   |                          |                          |                          |
|---|--------------------------|--------------------------|--------------------------|
| 53. BCG                                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 54. Polio 0                                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 55. Polio 1                                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 56. Polio 2                                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 57. Polio 3                                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 58. DTC 1                                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 59. DTC 2                                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 60. DTC 3                                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 61. FIEVRE JAUNE                            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 62. ROUGEOLE                                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 63. ENQUETEUSE: Est-il complètement vacciné | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |



71. A quel âge est-ce que vous lui avez donné quelque chose d'autre à manger que du lait?

- 1 - 0 à 4 mois
- 2 - 5 à 6 mois
- 3 - 7 à 9 mois
- 4 - 10 à 12 mois

- 5 - 13 à 18 mois
- 6 - 19 à 24 mois
- 7 - après l'âge de 2 ans

72. Quelles sont les types de diarrhées que vous avez vus chez vos enfants? Comment soigne t-on un enfant qui souffre de ce type de diarrhée? Est-ce que ce type de diarrhée peut tuer un enfant (si la maladie continue)?

ENQUETEUSE: Remplissez le tableau suivant selon les réponses de la femme à ces questions.

0 - Non 1 - Oui

Type de diarrhée

Soins

Peut-il tuer?

|\_\_|  
|\_\_|  
|\_\_|

\_\_	,	\_\_	,	\_\_
\_\_	,	\_\_	,	\_\_
\_\_	,	\_\_	,	\_\_

|\_\_|  
|\_\_|  
|\_\_|

Types CODE:

Soins CODE:

- 1 - Sanglante
- 2 - Selles vertes
- 3 - Selles jaunes
- 4 - Avec glaire
- 5 - Selles blanchâtres
- 6 - Selles très liquides
- 7 - Autre \_\_\_\_\_

- 1 - Enfant ne devrait pas manger
- 2 - Enfant ne devrait pas boire
- 3 - Enfant devrait manger bouillies  
ou autres aliments speciaux
- 4 - Enfant devrait boire beaucoup
- 5 - Donner des médicaments
- 6 - Amener au dispensaire/hôpital
- 7 - Amène au guerisseur
- 8 - Autre \_\_\_\_\_
- 9 - Ne sait pas

73. Est-ce qu'il y a un enfant qui se nourrit au sein actuellement?

0 - Non (Passez à la question 76)

1 - Oui

Nom de l'enfant \_\_\_\_\_

74. La dernière fois que cet enfant (nourrisson) a eu la diarrhée, est-ce que le nombre de tétée qu'il a pris: |\_\_|

- 1 - a diminué
- 2 - a été à peu près le même qu'auparavant
- 3 - a augmenté
- 4 - il a refusé le sein
- 5 - autre \_\_\_\_\_

75. Est-ce qu'il a pris d'autres aliments ou boissons? |\_\_|  
(0 - non; 1 - oui)

(A poser par rapport au plus jeune enfant qui n'est plus au sein; écrivez son nom ici \_\_\_\_\_:)

Passez à la question 78

76. La dernière fois que cet enfant a eu la diarrhée, la quantité de nourriture absorbée est: |\_\_|

- 1 - moins que ce qu'il mange d'habitude
- 2 - même quantité que ce qu'il mange d'habitude
- 3 - plus que ce qu'il mange d'habitude
- 4 - il n'a pas mangé pendant sa diarrhée

77. Est-ce que ce qu'il a bu est: |\_\_|

- 1 - moins que ce qu'il boit d'habitude
- 2 - même quantité que ce qu'il boit d'habitude
- 3 - plus que ce qu'il boit d'habitude
- 4 - il n'a pas bu pendant sa diarrhée

78. Avez-vous entendu parler de la TRO(SSS/SRO) |\_\_|

- 0 - non (Si "non", passez à la question 81)
- 1 - oui

79. Où en avez-vous entendu parler? |\_\_|

- 1 - radio
- 2 - dispensaire/hôpital
- 3 - centre social
- 4 - maternité
- 5 - amis, voisins, parentés
- 6 - autre \_\_\_\_\_

80. Comment se prépare-t-elle? |\_\_|

- 1 - Elle le sait, avec ingrédients et quantité.
- 2 - Sait ingrédients mais pas quantité.
- 3 - Sait préparer en utilisant le sachet SRO seulement.
- 4 - Autre \_\_\_\_\_
- 9 - Ne sait pas

81. ~~En~~fança? est-ce qui peut provoquer le paludisme chez les |\_\_|

- 1 - froid ou fraîcheur
- 2 - la pluie
- 3 - enfant marche pieds nus
- 4 - piqûres des moustiques
- 5 - autre \_\_\_\_\_
- 9 - Ne sait pas

82. Quels sont les symptômes du paludisme chez les enfants:

|\_\_|, |\_\_|, |\_\_|

- 1 - diarrhée
- 2 - vomissements
- 3 - fièvre
- 4 - frissons
- 5 - manque d'appétit
- 6 - mal partout
- 7 - somnolence
- 8 - autre \_\_\_\_\_
- 9 - ne sait pas

83. Comment soigne t-on un enfant qui souffre du paludisme?

|\_\_|, |\_\_|, |\_\_|

- 1 - nivaquine ou autre comprimés
- 2 - aspirine
- 3 - injections
- 4 - bien couvrir l'enfant
- 5 - boissons ou aliments spéciaux
- 6 - autre \_\_\_\_\_
- 9 - ne sait pas

84. Quels types de toux avez-vous vus chez vos enfants? Pour chaque type, comment soigne t-on l'enfant qui en souffre? Est-ce que cette toux peut tuer un enfant?

0 - Non 1 - Oui

Type de toux

Soins

Peut-il tuer?

|\_\_|

|\_\_|, |\_\_|, |\_\_|

|\_\_|

|\_\_|

|\_\_|, |\_\_|, |\_\_|

|\_\_|

- 1 - Toux de rhume
- 2 - Toux de coqueluche
- 3 - Toux du temps frais
- 4 - Autre \_\_\_\_\_
- 1 - Médicaments/comprimés
- 2 - Injections
- 3 - Boissons ou aliments spéciaux
- 4 - Massage avec produit spécial
- 5 - Atomiseur spécial
- 6 - Autre \_\_\_\_\_
- 9 - Ne sait pas

85. Si un jeune enfant (pré-scolaire) tousse pendant plus d'une

semaine, respire très rapidement, et ne veut rien boire, comment peut-on le soigner?

|\_| , |\_|

- 1 - Médicaments/comprimés
- 2 - Injections
- 3 - Boissons ou aliments spéciaux
- 4 - Massage avec produit spécial
- 5 - Atomiseur spécial
- 6 - Hospitaliser
- 7 - Autre \_\_\_\_\_
- 9 - Ne sait pas

\*\*\* ENQUETEUSE: Expliquez à celle qui répond que nous nous intéressons aussi à ses propres problèmes de santé aussi bien que ceux de ses enfants. \*\*\*

86. Quand est-ce que vous étiez malade pour la dernière fois?

- 1 - Moins de 2 semaines
- 2 - Plus de 2 semaines (Passez à la question 92)
- 9 - Ne sait pas (Passez à la question 92)

87. De quelle maladie avez-vous souffert?

- 1 - Maux de ventre
- 2 - Maux de tête
- 3 - Douleur à la poitrine
- 4 - Paludisme
- 5 - Suite à l'accouchement
- 6 - Autre \_\_\_\_\_

88. Qu'avez-vous fait pour vous faire soigner?

|\_| , |\_|

- 0 - rien (passez à la question 92)
- 1 - soins traditionnels (à la maison)
- 2 - soins traditionnels chez un guérisseur ou autre personne
- 3 - soins "modernes" (médicaments, etc.) à la maison
- 4 - soins "modernes" (médicaments, etc.) chez quelqu'un

d'autre

- 5 - soins au dispensaire / hôpital
- 6 - autre \_\_\_\_\_

89. Combien avez-vous dépensé pour cela? |\_|\_|\_|\_|\_| CFA

90. ENQUETEUSE: Est-ce que la femme est partie au dispensaire ou à l'hôpital pour se faire soigner? |\_|\_|\_|

0 - Non

1 - Oui (Si "oui", passez à la question 92)

91. Pourquoi n'êtes-vous pas allée au dispensaire? |\_|\_|,|\_|\_|

1 - trop loin

2 - pas d'argent

3 - maladie qu'on ne traite pas au dispensaire

4 - personnel du dispensaire pas accueillant

5 - autre \_\_\_\_\_

92. Avez-vous entendu parler du SIDA? |\_|\_|

0 - Non (Si "non", passez à la question 98)

1 - Oui

93. Comment avez-vous entendu parler du SIDA? |\_|\_|

1 - radio

2 - personnel de la santé

3 - époux

4 - voisins / amis

5 - personnes parentées

6 - journaux

7 - affiches

8 - à l'église

9 - autre \_\_\_\_\_

94. Comment se transmet le SIDA? |\_|\_|, |\_|\_|, |\_|\_|

1. Voie sanguine (transfusion, objets tranchants, scarification, excision, circoncision)

2. Voie sexuelle

3. Mère à l'enfant

4. Autre

9. Ne sait pas

95. Quelqu'un qui a le SIDA, peut-il être guéri? |\_|\_|

0 - Non (Si "non", passez à la Question 97)

1 - Oui

96. Comment? |\_|\_|

1 - Par des soins médicaux

2 - Prières

3 - Autre \_\_\_\_\_

97. Le SIDA peut-il être une maladie mortelle? |\_|

- 0 - non
- 1 - oui
- 9 - Ne sait pas

ENQUETEUSE: Expliquez à celle qui répond que cette enquête précède un projet qui pourrait inclure la formation de personnel de la santé sur la santé maternelle et infantile mais aussi dans le souci des personnes qui veulent prolonger la période entre les naissances de leurs enfants ou qui veulent éviter des grossesses.

98. Quels sont les avantages d'avoir une grande famille (c'est-à-dire beaucoup d'enfants)? |\_|

- 0 - Aucun avantage
- 1 - Enfants fournissent de la main-d'oeuvre.
- 2 - Enfants s'occupent de leurs parents âgés.
- 3 - Dieu aime de grandes familles.
- 4 - Enfants amènent de la joie au foyer.
- 5 - Enfants plus âgés gagnent de l'argent pour la famille.
- 6 - Autre \_\_\_\_\_
- 9 - Ne sait pas

99. Quels pourraient être des désavantages d'avoir beaucoup d'enfants? |\_|

- 0 - Aucun désavantage.
- 1 - Si un mari ne s'occupe pas des enfants, il est difficile d'en avoir beaucoup.
- 2 - Si une femme a déjà assez d'enfants, en avoir beaucoup pourrait être difficile.
- 3 - Autre \_\_\_\_\_
- 9 - Ne sait pas

100. A votre avis, quel est le nombre idéal d'enfants qu'une femme devrait avoir? |\_|\_|

(Mettre le nombre d'enfants donné \_\_\_\_\_)

OU

- 88 - autant qu'elle puisse avoir
- 89 - le nombre que Dieu donne
- 99 - Ne sait pas

101. A votre avis, quelle est la durée idéale de la période entre la naissance d'un enfant et une nouvelle grossesse?

|\_|\_|  
années

99 - Ne sait pas

102. Connaissez-vous des moyens (ou méthodes) d'éviter une grossesse? Lesquels? Pour toute méthode mentionnée spontanément par la femme, demandez-lui si elle ou son mari n'a jamais employé cette méthode.

[Remplissez le tableau suivant selon les réponses données.]

0 Non 1 = Oui

<u>Méthode</u>	<u>Connue?</u>	<u>Employées?</u>
103. Abstinence générale	__	__
104. Femme envoyée ailleurs	__	__
105. Allaitement du bébé	__	__
106. Coït interrompu	__	__
107. Préservatif (Condom)	__	__
108. Pilule	__	__
109. Injection	__	__
110. Stérilet	__	__
111. Abstinence période fertile	__	__
112. Ligature des trompes/vasect.	__	__
113. Autre _____	__	__

114. Où avez-vous appris (ou entendu parler de) ces méthodes? |\_\_|, |\_\_|

0 - Jamais entendu parlé

1 - radio

2 - agent sanitaire

3 - époux

4 - voisine/amie

5 - personnes de la famille

6 - journaux

7 - à l'église

8 - autre \_\_\_\_\_

115. Essayez-vous d'éviter une grossesse actuellement? |\_\_|

0 - non (Si "non", passez à la Q.117)

1 - oui

116. Par quelle méthode? |\_\_|

1 - Abstinence générale

2 - Femme envoyée ailleurs

3 - Allaitement du bébé

4 - Coït interrompu

5 - Préservatif

6 - Pilule

7 - Injection

8 - Stérilet

9 - Abstinence période fertile

10 - Ligature des trompes/vasect.

11 - Autre \_\_\_\_\_

Passez à la question 118

117. Etes-vous enceinte actuellement?
- 0 - Non  
1 - Oui  
9 - Ne sait pas
118. Etes-vous mariée actuellement?
- 0 - Non  
1 - Oui (Si "oui", passez à la Q.121)
119. N'avez-vous jamais été mariée?
- 0 - Non (Si "non", passez à la Q.123)  
1 - Oui
120. Comment est-ce que votre mariage a été terminé?
- 1 - divorce  
2 - décès du mari  
3 - autre \_\_\_\_\_
- (Passez à la question 122)
121. Combien de co-épouses avez-vous?
122. A quel âge est-ce que vous vous êtes mariée?    ans
123. Avez-vous été enceinte pendant les 5 dernières années?
- 0 - Non  
1 - Oui (Si "oui", passez à la Q.125.)
124. Pourquoi n'êtes-vous pas tombée enceinte?
- 1 - n'a pas été avec un homme  
2 - pas de règles  
3 - essaie d'éviter une grossesse  
4 - stérilité  
5 - Dieu n'a pas voulu que je sois enceinte  
6 - Autre \_\_\_\_\_  
9 - ne sait pas

Les questions qui suivent sont posées par rapport à la dernière grossesse terminée (125 à 140)

125. Etes-vous allée aux consultations pré-natales?

0 - Non (Si "non" passez à la Q. 127)

1 - Oui

126. Combien de fois? (Passez à la Q.128)

127. Pourquoi pas?

1 - trop loin

2 - pas d'argent

3 - consultations ne sont pas nécessaires

4 - je n'ai pas eu le temps

5 - autre \_\_\_\_\_

128. Quel était le résultat de cette grossesse?

1 - enfant vivant (Passez à la question 130)

2 - mort-né (Passez à la question 133)

3 - fausse couche (Passez à la question 129)

4 - avortement (Passez à la question 129)

129. L'enfant a été perdu en quel mois de la grossesse?

(Passez à la Q. 140)

130. Enfant est toujours en vie?

0 - Non

1 - Oui (Passez à la question 132)

131. Quel âge avait-il au moment de sa mort? \_\_\_\_\_

(Enquêteuse - Ecrivez ce que la mère dit)

1 - hrs

2 - jrs

3 - mois

4 - ans

132. Nom de l'enfant né de cette grossesse: \_\_\_\_\_

133. Où avez-vous accouché?

1 - A la maison

2 - Dispensaire

3 - Hôpital/Centre Médical

4 - Sur la route

5 - Autre \_\_\_\_\_

134. Qui vous a aidé à accoucher? |\_|, |\_|  
1 - mère  
2 - sage femme traditionnelle  
3 - accoucheuse (de formation)  
4 - autre personne de la famille  
5 - personne  
6 - autre \_\_\_\_\_

135. Avez-vous eu des problèmes d'accouchement? |\_|  
0 - Non (Si "non", passez à la Q.137)  
1 - Oui

136. Quel(s) problème(s)? \_\_\_\_\_

137. Avez-vous pris des médicaments contre le paludisme |\_|  
pendant cette grossesse?  
0 - Non 1 - Oui

138. Avez-vous eu la vaccination anti-tétanos pendant cette grossesse?  
0 - Non |\_|  
1 - Oui (Sans carte de vaccination)  
2 - Oui (Avec carte de vaccination)

(Si "2" le dernier VAT est le premier, 2<sup>me</sup>, 3<sup>me</sup>, 4<sup>me</sup>, 5<sup>me</sup> |\_|)

139. Est-ce que vous êtes allée au dispensaire pendant le premier mois |\_|  
après votre dernier accouchement?  
0 - Non (Si "non", passez à la 141)  
1 - Oui

140. Pourquoi y êtes-vous allée? |\_|, |\_|  
1 - vaccination de l'enfant  
2 - enlever les sutures  
3 - examen post-natal  
4 - maladie d'un autre enfant  
5 - j'étais malade  
6 - autre \_\_\_\_\_

141. A quel âge avez-vous été enceinte pour la |\_|\_| ans  
première fois?

142. De combien d'enfants vivants avez-vous accouché? |\_|\_|

143. Combien des mort-nés avez-vous eu au total? |\_|\_|

144. Combien de fausses couches plus avortements? |\_|\_|

145. Combien de grossesses avez-vous eu au total     
 (sans inclure une grossesse actuelle)?  
 (142 + 143 + 144 = 145)

146. Des enfants nés vivants, combien sont toujours en vie?

147. Combien de vos enfants nés vivants sont décédés     
 par après?  
 (146 + 147 = 142)

148. N'avez-vous jamais mis au monde des jumeaux?    
 0 - Non      1 - Oui

\*\*\* ENQUETEUSE: Si au moins un enfant est mort après avoir été né vivant, remplissez le tableau suivant. Précisez l'unité de l'âge en soulignant l'unité que la femme mentionne. \*\*\*

	Age au moment du décès	Sexe	Cause du décès
Enfant 1	<input type="text"/> <input type="text"/> <input type="text"/> hrs/ jrs/ mois/ ans	<input type="text"/> <input type="text"/>	_____
Enfant 2	<input type="text"/> <input type="text"/> <input type="text"/> hrs/ jrs/ mois/ ans	<input type="text"/> <input type="text"/>	_____
Enfant 3	<input type="text"/> <input type="text"/> <input type="text"/> hrs/ jrs/ mois/ ans	<input type="text"/> <input type="text"/>	_____
Enfant 4	<input type="text"/> <input type="text"/> <input type="text"/> hrs/ jrs/ mois/ ans	<input type="text"/> <input type="text"/>	_____
Enfant 5	<input type="text"/> <input type="text"/> <input type="text"/> hrs/ jrs/ mois/ ans	<input type="text"/> <input type="text"/>	_____

149. Etes-vous excisée?    
 0 - Non (Sautez la question 150)  
 1 - Oui

150. A quel âge?

151. Est-ce que vous avez fait enlever la lchette au moins à un de vos enfants?  
 0 - Non      1 - Oui

REMERCIEMENTS: Je vous remercie beaucoup de nous avoir aidé en répondant à ces questions. Je vous assure encore une fois que ces renseignements resteront confidentiels. Nous espérons que cette enquête aidera le personnel du ministère à mieux établir des activités de santé maternelle et infantile.

COMMENTAIRES: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## ANNEX B

### Sampling Methodology

## SAMPLING METHODOLOGY

### A. Sampling Stages

A multi-stage stratified sampling plan was used to select eligible respondents. Sampling was separate for rural and urban strata and within each strata the following sampling stages were utilized.

- o Enumeration Districts (ED) - geographic districts within cantons containing an average of 800 population in rural areas and 1000 population in urban areas.
- o Sections - subdivisions of EDs of a standard segment (cluster) size. The standard segment size was 50-125 population in rural segments and 75-150 population in urban segments.
- o Sub-Sections - When the smallest section size available was larger than the standard segment size, a predetermined number of splits was performed in the field to divide the section into standard segments. The number of splits was based on the estimated population size.
- o Eligible Respondents - the ultimate sampling units which were selected from a list of all potentially eligible women in a cluster.

### B. Sample Design

#### 1. Design Objectives

Survey data was to be used to describe demographic and socio-economic characteristics of the target population as well as knowledge and behaviors related to treatment of childhood illnesses, beliefs about the causes of diarrheal disease, acute respiratory infection (ARI), malaria and family planning, and utilization of dispensaries and vaccination coverage.

The survey was to provide separate estimates for rural and urban strata for the above characteristics, with a 10 percent margin of error and a 95 percent confidence level.

#### 2. Target Population

The target area for the survey was the area to be covered by the initial phase of the CCSP.

Prefecture: Moyen-Chari  
Sous-Prefectures: Koumra, Maro and Sarh

The urban strata consisted of towns with more than 5000 inhabitants. The rest of the target area made up the rural strata.

The total population in the target area according to the census bureau estimates was 504,710. Of this, approximately 80 percent was rural and 20 percent was urban. Rather than use proportional allocation to select a stratified sample, the urban strata was over sampled to provide the needed precision for this domain. Therefore, the urban strata makes up 25 percent of the overall sample.

### 3. Eligible Respondent

The target group for the baseline survey was mothers aged 45 and under. Mothers were chosen, as opposed to all women of childbearing age because much of the questionnaire was not relevant to women without children. Women up to and including the age of 45 were included so as to obtain information from older mothers as well as younger ones.

### 4. Respondent Rules

In any given cluster, all eligible women were listed and a random sample was selected to be interviewed. In order to be included on the list, a woman had to meet the following criteria:

- o She had to have given birth to at least one child, either stillborn or alive. Women with a history of a miscarriage or abortion but no other children ever born were excluded.
- o She had to reside permanently in the area defined as the cluster. Visiting relatives were excluded, even if the visit was long-term.

### 5. Selecting the Sample

Sample size is determined by the level of precision and confidence desired for estimates of parameters in the target population. In this survey, the usual parameter of interest was the proportion. For example, the proportion of women who know what oral rehydration solution is, or the proportion of women who know how AIDS is transmitted. The ability to measure these parameters accurately depends on their true values in the target population and also on the sampling design used to collect the data, i.e. simple random sampling vs. cluster sampling.

## 6. Cluster Sampling

Ideally, in order to obtain the most accurate estimates with the smallest sample size, it would have been best to take a simple random sample of everyone in the target area. However, the cost and time involved in doing this would have been prohibitive, given that there was no available list of eligible respondents and vehicles for traveling throughout the target area were limited. The next best solution was to use a cluster design, thereby cutting down on travel distances, cost and time. Since sampling error increases when a cluster design is used, the overall sample size had to be increased to compensate for the cluster effect.

The cluster effect is measured by the rate of homogeneity, sometimes called intraclass correlation, which is a value ranging between zero and one reflecting the amount of variability between the clusters. High rates of homogeneity indicate higher variance between clusters than within clusters. Survey items that may vary greatly between communities, such as distance to the nearest dispensary, source of water, level of knowledge due to exposure to educational interventions and vaccination coverage, can have fairly high rates of homogeneity, i.e. .3 or higher. Examples of items that generally have low rates of homogeneity, i.e. close to 0, are morbidity during the last two weeks (unless there's an epidemic), marital status and mortality in rural areas.

## 7. Precision and Design Effect

In a cluster design, such as the one used for this survey, precision of the estimates depends upon the sample size, the amount of clustering and the item whose value is being measured. The design effect is a factor by which the error term should be multiplied to adjust for the cluster effect. Design effect takes into account the rate of homogeneity and the size of the cluster. Failure to account for the design effect generally results in an error term which is too small so that there is over confidence in the survey results.

The two things that drive up cost in a cluster sample are traveling distance to the clusters and the listing operation of eligible respondents within the cluster. The more clusters you have, the more traveling is involved. This can become expensive if roads are bad and teams have to stay overnight in villages, etc. On the other hand, having less clusters means each individual cluster must be bigger, so the listing operation takes longer. In general, given a constant sample size, a large number of small clusters will lead to less design effect than a small number of large clusters. A balance must always be struck between precision and cost when deciding the optimal size and number of clusters to use. In this survey, the sample size is large enough and the cluster size is small enough (size 10) to achieve fairly good precision. Table 12 shows that for variables where the design effect is relatively small i.e.  $\approx 2$ , and the estimated proportion is .5, (the most conservative estimate), the margin of error is  $\pm 4$  percent in the rural strata and  $\pm 8$  percent in the urban strata. For variables where the design effect is larger, i.e.  $\approx 4$ , the margin of error is  $\pm 6$  percent in the rural strata and  $\pm 11$  percent in the urban strata. Calculating exact design effects for each variable is labor intensive, but one should keep the margins of error in mind when interpreting results.

**Table 12: Sampling Error Associated With Design Effect**

Strata	Estimated Proportion	Design Effect	Absolute Error
Rural	.2	1.0	± 2.7 %
	.2	1.9	± 3.7 %
	.2	2.8	± 4.5 %
	.2	3.7	± 5.1 %
Urban	.2	1.0	± 4.5 %
	.2	1.9	± 6.2 %
	.2	2.8	± 7.6 %
	.2	3.7	± 8.7 %
Rural	.5	1.0	± 3.3 %
	.5	1.9	± 4.3 %
	.5	2.8	± 5.6 %
	.5	3.7	± 6.4 %
Urban	.5	1.0	± 5.7 %
	.5	1.9	± 7.8 %
	.5	2.8	± 9.5 %
	.5	3.7	± 10.9 %

**C. Stages of Sample Selection**

The first two stages of sample selection, i.e. enumeration districts and sections were done in the office using materials provided by the BCR.

**1. Enumeration Districts**

EDs were selected separately for rural and urban strata using probability proportionate to size (PPS) sampling. Forty-three districts in the rural strata and 30 districts in the urban strata were selected.

**2. Sections**

As mentioned earlier, the selected Eds were divided into sections of standard size (50 - 125 population in rural zones and 75 - 150 population in urban zones) using the population estimates for villages provided by the BCR. Two sections in each rural zone and one section in each urban zone were then selected using PPS sampling. Two sections were selected in each rural zone because of the close proximity of villages within a zone. That

way, one team could work on two sections simultaneously, thereby cutting down on travel cost and time. It was difficult to finish a section in one day, because of callbacks, (having to return to interview women who were not home the first day), so it was convenient to have two sections close enough together in the rural areas so that the chauffeur could shuttle the interviewers back and forth.

The second two stages of sample selection, i.e. sub-sections and eligible respondents were done in the field by the team supervisor with the assistance of her team members.

### 3. Sub-Sections

In some instances, the information available from the census bureau did not permit the zone to be broken up into small enough sections to satisfy the standard segment size. When a section was chosen that surpassed the standard segment size, the village was split until the proper segment size was attained. The number of splits was predetermined in the office, based on estimated population size, but if the supervisor found that the selected section was much bigger or smaller than expected, she would adjust the number of splits in the field. The sub-section that was ultimately chosen for the listing operation was randomly selected through the toss of a coin.

A complete list of villages broken down by strata, sous-prefecture and canton is contained in Annex D.

### 4. Eligible Respondents

The final stage of sampling was to list all the women in the cluster (which was the section or sub-section selected) who met the selection criteria. The optimal cluster size chosen was 10 women, which was a number that could conveniently be interviewed in one day by one team. However, the cluster size was inflated to 12 in anticipation of non-response, so that the total sample size would not be compromised. As it turned out, non-response was very insignificant, so instead of a total sample of 1160 women (860 rural and 300 urban), the final sample size was 1270 women (932 rural and 338 urban). Once all the women in the cluster were listed, the sample of 12 was selected using systematic random sampling (SRS).

## D. Design Constraints

Because of the random nature of the sample selection, all areas of the target area had to be covered, including those that were remote. Some of the roads were in poor condition or even non-existent, which made travel to certain villages difficult. Travel to remote areas drives up the cost of the survey.

ANNEX C

Code Guide to Sampling Frame

## CODING SCHEME FOR SAMPLING

The codes used in the sampling methodology are the same codes used by the BCR for their pilot survey in 1992. All codes were kept the same in the interest of helping the Moyen-Chari Child Survival Project reuse the sampling frame in the future. All the materials obtained from the BCR, i.e. canton maps, lists of villages and localities by canton along with population estimates, village sketches, etc. are in the possession of the Prefecture Sanitaire in Sarh. Theoretically it should be possible to do a follow-up evaluation survey in the same villages (rural) and quartiers (urban) in which the baseline survey was done.

### A. Codes

#### 1. Sous-Prefectures

- |    |        |   |
|----|--------|---|
| a. | Koumra | 1 |
| b. | Maro   | 3 |
| c. | Sarh   | 5 |

#### 2. Cantons

##### a. Koumra Sous-Prefecture

- |      |                 |    |
|------|-----------------|----|
| (1)  | Bangoul         | 01 |
| (2)  | Bebo Pen        | 02 |
| (3)  | Bedaya          | 03 |
| (4)  | Bedjondo        | 04 |
| (5)  | Bekamba         | 05 |
| (6)  | Bessada         | 06 |
| (7)  | Dobo            | 07 |
| (8)  | Goundi          | 08 |
| (9)  | Koumra-Rural    | 09 |
| (10) | Koumra-Urban    | 10 |
| (11) | Mahim-Toki      | 11 |
| (12) | Matekaga        | 12 |
| (13) | Mouroum Goulaye | 13 |
| (14) | Nderguigui      | 14 |
| (15) | Ngangara        | 15 |
| (16) | Peni            | 16 |
| (17) | Yomi            | 17 |

b.	Maro Sous-Prefecture	
	(1) Maro	01
c.	Sarh Sous-Prefecture	
	(1) Balimba	01
	(2) Banda	02
	(3) Djoli	03
	(4) Kokaga	04
	(5) Korbol	05
	(6) Koumogo	06
	(7) Moussafoyo	07
	(8) Niellim	08
	(9) Sarh-Urbain	09

**B. Village/Quartier Names and Selection Probabilities**

The final sample consisted of 86 rural clusters and 30 urban clusters. A cluster was the penultimate sampling unit from which the ultimate sampling units (the respondent's) were chosen. As described in the sampling methodology, 12 women were selected from each cluster, with the goal of interviewing at least 10 of them. In most clusters, it was possible to interview all 12 women. Annex D shows the name of each village if rural or quartier if urban in the sample along with its canton code number, ED code number, section code number and selection probability. It should be kept in mind that the urban and rural strata were sampled separately and each has its own set of selection probabilities. The total estimated population in the rural strata was 400,981 and in the urban strata it was 103,729.

- o The canton code shown has three digits instead of two because it is combined with the sous-prefecture code. So all cantons that begin with the number 1 are from Koumra, those that begin with 3 are from Maro and those that begin with 5 are from Sarh. All cantons may be referenced by the above list of canton codes.
- o ZD (Zone de Denombrement) was the first stage of the sampling frame. Forty-three rural zones and 30 urban zones were chosen PPS, and from those, the ultimate clusters were chosen. Two clusters were chosen from each rural zone to cut down on travel time and 1 cluster was chosen from each urban zone. ZD codes were assigned by the BCR.
- o Sections are synonymous with clusters. Section numbers are unique identifiers for the cluster, as opposed to ZD numbers which are repeated within cantons. All urban sections begin with the number 1. Since there are 30 urban clusters, they are numbered from 101 to 130. All rural sections begin with the number

They are numbered from 201 to 286. There were supposed to be 86 rural clusters, but section 245 was eliminated because the village was abandoned. It was not replaced because the sample was already big enough.

- o The final selection probability is the product of the selection probabilities at each sampling stage. The inverse of the selection probability is the weight for analysis.

**ANNEX D**

**List of Sample Villages**

VILLAGE NAME	CANTON NO.	ZD NO.	SECTION NO.	SELECTION PROB.	WEIGHT	STD WEIGHT
<b>RURAL STRATA</b>						
Logolo	101	208	201	0.00020	4950.38	0.088658
Logolo	101	208	202	0.00017	5811.32	0.113538
Bessama	102	210	203	0.00013	7763.10	0.151671
Behongo	102	210	204	0.00017	6038.87	0.117984
Gotikedi	102	220	205	0.00018	5647.62	0.082755
Gotekedi	102	220	206	0.00016	6331.28	0.103081
Guirgodja	103	209	207	0.00013	7570.60	0.147910
Boubo	103	209	208	0.00009	10674.26	0.208548
Bedjondo	104	205	209	0.00019	5276.07	0.085901
Bedjondo	104	205	210	0.00027	3681.32	0.071924
Kokabri	104	215	211	0.00013	7530.16	0.147120
Kokabri	104	215	212	0.00008	12086.31	0.236135
Bedan	104	226	213	0.00018	5520.75	0.107861
Bedan	104	226	214	0.00014	7224.88	0.141156
Narbanga	105	207	215	0.00011	8733.49	0.170630
Narbanga	105	207	216	0.00016	6425.98	0.125547
Markala	105	217	217	0.00009	10552.13	0.206161
Markala	105	217	218	0.00012	8495.36	0.165977
Moudjibe	106	208	219	0.00028	3517.38	0.062994
Moudjibe	106	208	220	0.00011	9234.71	0.165387
Goro-Ndila	107	202	221	0.00016	6382.66	0.124701
Ngondja	107	202	222	0.00009	10837.32	0.211733
Manguelle	107	213	223	0.00012	8592.45	0.167874
Moissiyara	107	213	224	0.00010	10024.53	0.179532
Kankimadji	108	209	225	0.00012	8353.77	0.163211
Goundi-Baguimi	108	209	226	0.00015	6537.73	0.085154
Bemadja	108	220	227	0.00019	5207.55	0.067828
Betani	108	220	228	0.00020	5098.30	0.107908
Goundi	108	231	229	0.00014	7006.39	0.136887
Goundi	108	231	230	0.00022	4621.23	0.090287
Doro	109	209	231	0.00006	16942.86	0.331020
Doro	109	209	232	0.00010	10169.81	0.198692
Moskilim	109	219	233	0.00010	10024.53	0.081606
Moro	109	219	234	0.00018	5418.66	0.097044
Namadja	111	203	235	0.00011	9113.20	0.163211
Mbakassa	111	203	236	0.00010	10125.78	0.197832
Kagdouite	112	203	237	0.00018	5422.73	0.097117
Moulekale	112	203	238	0.00017	5796.49	0.113249
Kemogo	113	201	239	0.00018	5680.96	0.101742
Mboh	113	201	240	0.00013	7796.85	0.152330
Kokode	113	211	241	0.00010	10151.42	0.148749
Ngandele	113	211	242	0.00011	9482.66	0.185267
Ngouroumti	114	209	243	0.00011	9010.81	0.161377
Ngouroumti	114	209	244	0.00018	5639.68	0.082639
Boudobo	115	208	245	0.00024	4176.89	0.061204
Ngouroumdi	116	208	247	0.00015	6683.02	0.130569
Ngouroumdi	116	208	248	0.00014	6913.47	0.112559
Ngara	116	219	249	0.00021	4807.93	0.093934
Ngara	116	219	250	0.00016	6321.77	0.123511
Yomi-Kode	117	208	251	0.00008	12530.66	0.244817

VILLAGE NAME	CANTON NO.	ZD NO.	SECTION NO.	SELECTION PROB.	WEIGHT	STD WEIGHT
Yoni-Kode	117	208	252	0.00019	5164.15	0.092486
Mandeye II	501	210	253	0.00010	10370.20	0.185723
Maimana	501	210	254	0.00024	4196.31	0.081985
Mande	501	220	255	0.00022	4608.98	0.090048
Mande	501	220	256	0.00015	6683.02	0.130569
Goro-Goro	502	207	257	0.00015	6854.38	0.100438
Badara	502	207	258	0.00025	4050.31	0.079133
Kodebri	502	216	259	0.00009	11074.27	0.198333
Kodebri	502	216	260	0.00008	11858.15	0.212371
Mabano	503	202	261	0.00015	6663.42	0.119337
Morko	503	202	262	0.00015	6545.22	0.127877
Ndoumabe	504	203	263	0.00019	5346.41	0.043523
Kemguiri	504	203	264	0.00020	5062.89	0.098916
Maigoro	506	205	265	0.00007	13571.66	0.220963
Goundi	506	205	266	0.00008	12017.41	0.215224
Ngandjoubou	506	216	267	0.00028	3548.50	0.069329
Ngandjoubou	506	216	268	0.00020	4967.91	0.080883
Goro-Ndila	506	227	269	0.00023	4406.38	0.050219
Goro-Ndila	506	227	270	0.00020	4909.97	0.079940
Maimana	507	204	271	0.00012	8257.43	0.161329
Maimana	507	204	272	0.00008	12707.14	0.248265
Kokaga	507	214	273	0.00018	5569.18	0.072538
Kokaga	507	214	274	0.00024	4133.82	0.074034
Djahag	508	204	275	0.00011	8716.98	0.141923
Djahag	508	204	276	0.00018	5660.91	0.092166
Gourourou	301	202	277	0.00032	3132.66	0.061204
Gourourou	301	202	278	0.00014	7239.93	0.117875
Bemadji	301	214	279	0.00022	4614.28	0.082639
Bemadji	301	214	280	0.00017	5728.30	0.111916
Keinodjo	301	224	281	0.00012	8313.80	0.148894
Mordji	301	224	282	0.00014	7034.75	0.125988
Bendana	301	235	283	0.00011	8775.68	0.157166
Kemngoh	301	235	284	0.00026	3874.21	0.056769
Danamadji	301	245	285	0.00020	4880.85	0.095359
Danamadji	301	245	286	0.00017	5728.30	0.093264
<b>URBAN STRATA</b>						
Baguirmi - Bloc A	110	104	101	0.00096	1037.29	0.342262
Goulaye - Bloc A	110	108	102	0.00059	1706.07	0.562931
Nderguigui	110	111	103	0.00080	1249.75	0.343637
Quinze Ans	110	114	104	0.00106	946.43	0.312283
Benodjo	110	118	105	0.00109	920.18	0.253016
Representant - Bloc A	110	121	106	0.00060	1664.10	0.503327
Madan A	110	125	107	0.00074	1347.13	0.444496
Kassai - Carre 18	509	101	108	0.00085	1178.74	0.356523
Kassai - C25	509	104	109	0.00120	836.52	0.230015
Kassai - C10	509	107	110	0.00054	1845.37	0.608893
Kissimi	509	110	111	0.00110	909.90	0.250192
Maingara - C2	509	113	112	0.00076	1307.51	0.431423
Paris-Congo C11-13	509	116	113	0.00103	969.43	0.319871
Quinze Ans - C10-C11	509	119	114	0.00116	864.41	0.285218
Quinze Ans - C40	509	122	115	0.00103	975.23	0.268154

VILLAGE NAME	CANTON NO.	ZD NO.	SECTION NO.	SELECTION PROB.	WEIGHT	STD WEIGHT
Quinze Ans - C23	509	125	116	0.00080	1252.77	0.413360
Kamati - C14	509	129	117	0.00103	969.43	0.293215
Maroc C2	509	132	118	0.00137	728.62	0.180310
Paris-Sara C25	509	135	119	0.00118	850.24	0.280543
Baguirmi - C18	509	138	120	0.00090	1110.25	0.366336
Bomou C1-2	509	141	121	0.00089	1127.49	0.372024
Residentiel - Bloc B	509	145	122	0.00068	1467.86	0.484333
Gardolet C105-110	509	148	123	0.00042	2357.48	0.777868
Gardolet - C89	509	151	124	0.00077	1296.61	0.427828
Tatala - C72	509	154	125	0.00039	2593.23	0.855655
Sara-Kaba - C154	509	158	126	0.00080	1249.75	0.309273
Tombalbaye - C1	509	161	127	0.00154	648.31	0.213914
Niellim C15	509	164	128	0.00100	995.38	0.328433
Banda - C9	509	167	129	0.00105	955.73	0.289073
Kemkian - C141	509	170	130	0.00099	1007.08	0.276911

ANNEX E

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ANNEX F

Recommendations for Follow-Up Survey

## RECOMMENDATIONS FOR FOLLOW-UP SURVEYS

Overall, any future version of the questionnaire should be as similar as possible to the current version. Questions that are very different are difficult to compare in terms of evaluating changes over time. However, the questionnaire could be shortened since several questions did not yield useful information and the questionnaire in its present form is too lengthy. If a similar survey with a similar sample size in the same target villages is performed in the future, power and precision for detecting even relatively small changes should be quite good.

If the survey is repeated for evaluation purposes, it should be done at the same time of the year, i.e. April/May, to insure that the results will be comparable. It would be very difficult to conduct this survey during the rainy season.

Recommendations regarding specific questions (refer to questionnaire in Annex A):

- o There was no question on ethnic or language group of the mother, or on the language the interview was conducted in. Both of these questions should be added.
- o Distance to and name of the nearest dispensary should be coded on each questionnaire.
- o Question 9 on Religion. Include code for animist.
- o Question 12 on Water Source. A better definition of the distinction between public and private wells and fountains is needed.
- o Question 13 on Toilet types. The latrine category should be further broken down by quality. There was little variation in the responses. Eighty percent of urban people had "latrines", but these are known to vary widely in quality. A visual verification by the interviewer of the latrine type and quality would be helpful.
- o Question 23 and 24 on expenses since the beginning of the last rainy season. (Questions 27 and 64 had the same problem). In general, questions where the recall period was since the beginning of the rainy season were misunderstood. Also, a 12-month recall period appears to be too long.

- o Question 33 on age of sick child. Age should not be categorized but rather continuous by month to avoid. In this survey, the category 13-18 months was disproportionately low compared to 7 to 12 months. There was a tendency to put 1 year olds in the latter category instead of the former.
- o Question 35 on duration of illness was poorly understood. If included, it needs to be more carefully defined.
- o Questions 36 should have ORT as a separate category, so that it will be possible to measure the percent of women who treat diarrhea with ORT.
- o Questions 39-41 on second treatment was poorly misunderstood by some interviewers, who thought that if the same treatment was used but at a later date, that it need not be mentioned again. This series of questions should either be dropped or carefully reformulated.
- o Question 48 on vaccination should be dropped. Instead, in the table on vaccination coverage, questions 51 and 52 should be filled in for ALL CHILDREN UNDER THE AGE OF SIX. The rest of the table should be filled in only for children with cards. The reason for using ALL children is to provide a denominator for the percentage of children who have cards.
- o Question 50 could not be used because the codes were unclear. Code number 3 should be dropped.
- o Question 64 should be dropped. The recall period is too long to be useful.
- o The section for only children under the age of 6 should be extended to include questions 65 to 71.
- o Questions 69 and 71 should also record the child's age as a continuous variable by month.
- o Question 72 - The table on diarrhea types was difficult for the interviewers to fill in. It should be presented in another format. ORT and traditional remedies were missing as coded responses.
- o Questions 74-77 could be dropped. They were not particularly useful.
- o Question 79 - Multiple responses should have been possible.
- o Question 84 - the table on types of coughs had the same problems associated with it as question 72 on types of diarrhea. Also, hospital,

traditional care and gueurisseur are missing as codes.

- o Question 87 on type of illness of the mother did not provide any useful information.
- o Questions 98 and 99 on advantages and disadvantages of a large family had an unsatisfactory choice of responses. They were too general so nothing could really be learned from them.
- o Question 114 on where they heard about contraceptive methods should have a category added for "common knowledge" to cover abstinence and breastfeeding and others. Most people generally can't remember where they learned about these.
- o Question 115 - Are you trying to avoid a pregnancy at this time? Apparently this is a difficult question to ask in the local language and there is a lot of room for error. Perhaps a focus group would help determine the correct formulation for this question.
- o Question 117 should not be skipped so that it may be known how many women who are pregnant might have been trying to avoid a pregnancy.
- o Question 135 and 136 were not useful. They need to be reformulated if they are to be reused.
- o Only the questions on number of children ever born alive and number of children surviving were used to come up with an estimate of infant mortality. Apparently it worked well, because it yielded similar figures to other sources. If more specific information on infant mortality rates is required, a more detailed study will have to be done. However, adding questions on the outcomes of the two previous births would give information on infant mortality on children under 2 and children under 5 using the Brass method.