

PD-ABA-191
ISA 64073

Final Report On

The Use of Traditional and Modern Medicines
For the Same Illnesses in Selected Populations

In Zaire

(Grant No. DAN-5053-G-SS-5075-00)

Submitted to

U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT
Bureau of Science and Technology

Submitted by

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ABSTRACT

In developing countries, the use of traditional (indigenous) medicine continues even after Western (modern) medicines and health systems are introduced. The purpose of this report and the research project on which it is based was to study the conjunctive use of traditional and modern medicines for the same illness in selected populations in Zaire. The project, carried out between October, 1985 and September, 1987, centered on data collected from survey questionnaires applied by trained interviewers in a sample population of healthy adults in six regions and thirteen health zones of Zaire. Additionally, to explore the appropriateness of the use of identified plants, the Natural Products Alert (NAPRALERT) data base was used as the information source for the pharmacological descriptions and profiles of the plants.

The study results indicated that 58% of the 2,063 respondents reported using both systems for the treatment of diarrhea and 56.2% used both systems for the treatment of malaria or fever. For diarrhea, 67% reported knowing the names of plants as well as modern medicines used to treat that health problem. Only 49.7% of the respondents reported knowing the names of plant medicines used to treat malaria but 79.8% reported knowing the names of modern medicines used to treat that illness.

It is evident from this study that the study population in 13 health zones of Zaire have some knowledge about the two systems

of medicine available to them and that they use both systems, perhaps simultaneously. This could lead to the inadvertent adverse effect on the user's health. There may be a need to educate both traditional healers and Western health care providers to the dual systems to ensure the integration of both into a common health care structure. Further research should be conducted to examine the full patient care significance of the concomitant use of both the plants and modern medicines identified in this study.

1. INTRODUCTION

Populations in developing countries often use Western (modern), nontraditional medicine as well as traditional, indigenous medicine for the same illness. Although the effectiveness of some traditional medicines is questionable, their use continues even after Western medicines and health systems are introduced. The purpose of this report and the research project on which it is based is to study "the use of traditional and modern medicines for the same illness in selected populations in Zaire." The project's name, TRA/MOD for traditional and modern, reflects its purpose.

Traditional medicines are often used in conjunction with Western medicines for specific health problems such as diarrhoea and malaria. For these conditions, oral rehydration salts and chloroquine, respectively, are the nontraditional therapeutic modalities most commonly used. However, the use of these therapeutic modes and the effectiveness of the services incorporating them are influenced by the mix of modern and traditional services that a target population chooses.

The conjunctive use of both traditional and Western medicines could lead to nonproductive and/or toxic interaction between the two medicines. The simultaneous and often sequential use of the two systems increases the difficulty in ascribing mortality or morbidity reduction to either medicine; this is especially true when both types of medicines are used

simultaneously. This health care pluralism makes it difficult to assess the individual effectiveness of either system of health services.

The TRA/MOD Project investigated the use of traditional therapies and Western medications to treat malaria (often presented for care as fever) and diarrhea when both systems are available.

The overall aim of the study was to examine demographic and sociobehavioral factors that may be relevant to the concomitant use of both traditional and Western health care systems in a developing country. These factors could include, for example, the degree to which both systems are accessed for the same self-identified health problem, the nature of medicines taken, the perceived seriousness of the illness, the reasons for the choice of mixed services, and the cost and distance required to obtain each.

The specific objectives of the study were:

1. To assess users' knowledge of both traditional and Western medicines for the treatment of diarrhea and malaria.
2. To examine the extent and nature of the use of both traditional and Western health systems and medications.
3. To examine the health system selection preference of users of traditional and/or Western health care systems.
4. To examine the demographic characteristics of users of traditional and/or Western medicine.

The significance of this study is to provide demographic information and factors associated with the choice and the use of a mix of traditional and/or Western medicines for selected health problems. It is hoped that a better understanding of these factors will assist health planners and health program directors in structuring health care delivery systems for appropriate use and optimal effectiveness.

2. BACKGROUND ON ZAIRE

Zaire is a country located in central Africa which covers 2.345 million square kilometers, an area almost as large as western Europe. Zaire, at the time of the study, was divided into nine administrative regions: Kinshasa, Bas-Zaire, Bandundu, Kasai-Occidental, Kasai-Oriental, Shaba, Equateur, Haute-Zaire, and Kivu. It is neighbored by the Central African Republic, People's Republic of the Congo, Angola, Zambia, the Sudan, Rwanda, and Burundi.

Its capital is Kinshasa, and it is divided into savannah, rain forest, and highland areas (Encyclopedia of the 3rd World 1982). Most of Zaire's many waterways drain into the Atlantic Ocean. The core region of Central Zaire Basin (referred to as the "cuvette") constitutes about one-third of the territory. This low area has an average elevation of 400 meters and is covered with equatorial forest, some of it swampy, as are substantial portions of the country in uplands adjacent to the cuvette. Regions north and south of the cuvette are made up of higher plains covered with varying mixtures of savannah grasses and woodlands. The Eastern Highlands, rising to an elevation exceeding 5,000 meters in some places, lies along the eastern edge of Zaire and is bounded on the east by a series of lakes, portions of which lie in Zairian territory (Kaplan 1979).

The area of Zaire north of the equator has a dry season (early November to late March) that corresponds to the rainy season in the southern two-thirds of the country. Just north and south

of the equator, some areas have two wet and two dry seasons. Annual rainfall ranges from 100 to 220 centimeters, the highest rainfall occurring in the cuvette and in parts of the Eastern Highlands. Only in parts of Shaba in the southeast are there occasional droughts. Generally, both the temperatures and the humidity in Zaire are high. In southeastern Shaba, the winters are cool and dry; in the eastern mountains, the winters are fairly cool but very humid (Kaplan 1979).

Diversity in Zaire is evident in the residential patterns of the country. The regions are subdivided into urban and rural subregions, towns, and rural zones. The towns or urban zones are subdivided into localities; the rural zones are subdivided into villages. Two-thirds of the population live in rural areas.

A "village" in some parts of the country is an agglomeration of 200 to 5,000 inhabitants, with an average village having 1,000 inhabitants and being separated by 6 to 20 kilometers between villages. In other parts of the country, the average village contains 160 people, and there are no more than 3 kilometers between each village. In still other areas, it is difficult for an outsider to say where one village ends and another begins: individual houses or homesteads are scattered over the countryside in every direction, with little empty land between (Basic rural health II 1985). This situation is complicated by very poor roads, inadequate freight and passenger service, and poor communications.

2.1. Sociodemographic Profile

Zaire has a total population estimated at 30 million people

(Basic rural health II 1985). It is the most populous nation in central Africa, with the fourth largest population on the African continent. Approximately 20 percent of the population is under age 5, 26 percent is 5 to 14, and 56 percent is over 15. Approximately 75 percent of the population inhabits about one-third of the land, with the most dense populations in portions of Southern Uplands and Eastern Highlands.

There are about 200 ethnic groups in Zaire; many have combined over time. The important ethnic groups are the Kongo, the Luba, Lunda, Mongo, and Zande. Their official language is French; however, because of the diversity of groups, there are several "official" languages used to communicate between groups. These languages include Lingala, Swahili, Kikongo, and Tshiluba. Many individuals are bilingual, and trilingualism is not uncommon.

In 1984, the adult literacy rate was 70 percent in urban areas and 53 percent in rural areas. Literacy in French is 15 percent. However, the achievement of complete education of the population is difficult due to insufficient facilities, the numbers of proper instructional materials, and qualified teachers. There are 6 years of primary education, and secondary education may be vocational or college preparatory. Fees are charged for both primary and secondary courses. Since its independence, Zaire has expanded its provisions for higher education. There are three independent University campuses: in Kinshasa, Kisangani, and Lubumbashi.

2.2. Religion

Organized religion is present in diverse forms in Zaire. Most rural areas of Zaire long ago adopted Christianity, but the church structures vary greatly. Some are centralized, hierarchical systems (not necessarily in the ethnic areas with hierarchical political systems). Others have congregational organizations with strong local autonomy. The largest of the independent Christian churches is the Kimbanguist church. Some religious groups were started by missionaries from abroad and still have foreigners working within them, some once had missionaries but do not now, and some never had foreign participation. Approximately 1 percent of the people of Zaire are Muslims.

2.3. Economy

Although Zaire has a private enterprise economy, the role of the government in the economy is substantial through holdings in and ownership of private companies. All business operations conform to the same set of regulations. With the exception of mining, the country's abundant natural resources are inadequately developed. A comprehensive development plan is lacking, and the country's economy has seen severe problems because of excessive foreign borrowing, the lack of fiscal restraint, and poor export earnings (Kaplan 1979).

Plantations and modern farms produce export crops such as palm products, rubber, coffee, cocoa, and tea, while a large subsistence subsector grows cotton and food crops, including

cassava, maize, rice, bananas, beans, and peanuts. However, the country has experienced a low agricultural growth rate, a decline in commercial crops, and the inability to meet domestic food requirements.

Mining is the most highly developed sector of the economy, Zaire being the world's largest producer of cobalt and industrial diamonds and also producing copper and petroleum. The foreign trade balance fluctuates, affected strongly by world copper and other mineral prices.

Zaire's principal exports include copper, cobalt, diamonds, coffee, and palm oil. Principal imports include foodstuffs, consumer goods, raw and semiprocessed materials, and transport and electrical equipment.

2.4. Health

In 1974, the President of Zaire, Mobutu Sese Seko, created a National Council for Health and Welfare (text-ordinance 74-256) to address the health problems in Zaire. Some of the important health problems in Zaire are diarrhea, respiratory diseases, infectious diseases (tuberculosis, leprosy, and pneumonia), parasitic diseases (schistosomiasis and sleeping sickness), measles, and intestinal parasites associated with malnutrition.

In 1980, Zaire endorsed the charter for health development in Africa, based on primary health care as a strategy to improve the health of all its citizens. In 1987, the central council of the National Party (MPR) confirmed the adoption of the primary

health care strategy by decision 10/CC/87.

Zaire's first five-year National Health Plan (1980-1986) mandated the creation of health zones in an effort to decentralize. Accordingly, Zaire was divided into 306 urban and rural health zones; more than 100 were operational at the time of the study, and the others are planned to be operational by 1991. This system gives to the population (rural and urban) large-scale essential care, geographically and financially accessible, with the participation of the community in the spirit of self-responsibility and self-determination.

Each rural health zone covers the care of 60,000-150,000 people, is served by 15-25 health centers which serves 5-10 villages, each of which covers the care of about 5,000 people in rural areas and about 10,000 people in urban areas. Among other things, an operational health zone offers the following to the population:

- o Community health services at no cost, with health care workers recruited from the community;
- o 15-25 health centers each serving 5-10 villages with populations of 400-2,000 per village; and
- o Reference hospitals which includes the central administrative office.

At the time of the study, available data indicated that Zaire had an infant mortality rate of 174 per thousand, a crude mortality rate of 20 per thousand, a birth rate of 49 percent, a life expectancy of 48 years, and an annual population growth rate

of nearly 3 percent.

The crude birth rate is estimated at 48 infants per 1,000 live births, and the crude death rate is 16 per 1,000. The total fertility rate is 6.2 per woman of child-bearing age; that is, the average woman in her reproductive lifetime will bear approximately 6 children. The rapid population increase dictates a corresponding increase in the need for the delivery of health services, particularly to the most vulnerable groups, mothers, infants, and children (Basic rural health II 1985).

Malaria is the leading cause of death in Zaire. Health problems range from severe malnutrition to various communicable and parasitic diseases and include such problems as gastroenteritis, diarrhea, pneumonia, measles, tuberculosis, gonorrhoea, syphilis, leprosy, intestinal parasites, sleeping sickness, schistosomiasis, anemia, and complications of pregnancy.

An estimated 40 percent of the children under age 5 are chronically malnourished, while 6 to 10 percent are acutely malnourished. It is estimated by the National Nutrition Planning Center that more than 50 percent of the morbidity and mortality in Zaire is attributable, directly or indirectly, to malnutrition. Most children have had at least one attack of malaria before they reach the age of 10. It is generally assumed that the leading cause of death in infants under the age of 1 is malaria followed by diarrhea and/or pneumonia. Measles, pneumonia, and diarrhea are also major causes of morbidity.

The maternal morbidity rate is also high, the major contributing factors being childbirth complications, malnutrition, and malaria.

Many of the morbidity and mortality problems could be prevented through wider access to basic health services and improvements in the water supply, environmental sanitation, and health and nutrition education (Basic rural health II 1985).

Government health services may not be sufficient to reach all of the population. Financial, organizational and the need for more trained personnel limit the capacity of the health care system to provide essential services. However, projects have been launched to develop preventive, promotive, and basic curative services in the rural health zones. Accordingly, it is not uncommon for available modern facilities to be used for some illnesses while other conditions are considered to be treatable only by traditional methods.

Since 1975, efforts have been made to reorganize completely the health services in Zaire to reorient both the public and private sectors toward primary health care and to standardize the administration of health services (Basic rural health II 1985). A few pilot programs resulted in the establishment of decentralized satellite health centers from hospitals and the organization of preventive and health promotive activities in communities. The concepts of primary health care and health zones were demonstrated through these pilot programs; they later served as models for the development of a 5-year National Health Plan (1982-86) that included the provision of specific health services and the

expansion of health zones, particularly in the rural areas. The U.S. Agency for International Development (AID supported a 5-year (1982-86) Basic Rural Health Project in Zaire. The goal of that project was to improve the health status of the rural population by increasing the proportion of rural Zairians who have access to basic health services.

The 1982-1986 government health plan called for the establishment of 146 health zones for 60,000 to 200,000 people, each of which will contain a reference hospital, two reference health centers, six to twenty health posts, and village health care committees.

The Basic Rural Health Care Project provides technical assistance to fifty health zones in the form of technical advice; commodities; seminars and materials for training; construction of water sources; transportation; and fuel. As of the April 1984 project activity report, 72 percent (36) of the planned health zones had been created as well as 34 percent (85) of the health centers and 16 percent (155) of the 1,000 planned pharmacies (village health workers are trained to prepare a limited number of modern medicines) planned. The report of the July 1984 evaluation team recommended that the project be extended for 4 to 5 years and that it be extended to cover a total of 100 health zones.

The government of Zaire is implementing strategy for the provision of primary health care that is designed to combat the major diseases that can be controlled by preventive and basic curative methods. Primary health care activities may vary but

ideally should include maternal and child health care; health education; promotion of nutrition and agriculture; control of endemic diseases; water and sanitation improvements; basic curative care; and referrals to other services. However, to implement and sustain effective primary health care programs, three support elements are necessary.

1. Appropriate training and continuing education of personnel
2. Regular supportive supervision
3. Reliable provision of basic drugs and supplies

As was mentioned earlier, many health problems in Zaire are treated by indigenous, or traditional, methods. In Zaire, two systems of medicine exist. One is a traditional system "composed of a series of therapeutic acts performed by numerous practitioners...herbalists, ritual healers, and divine healers" who function unofficially and, to some extent, are simply tolerated by the authorities (AID 1984). The other is a system of modern medicine that was brought into Zaire from the developed countries of Europe and North America. The modern system is an officially approved system and is financially supported through public funding.

2.5. Practices of Traditional Medicine

Traditional medicine mainly focuses on curative practices but also includes measures to prevent illness or any other misfortune or to promote the happiness of affected individuals.

In Zaire, traditional healers are recognized by the community in which they live to be competent to engage in medical and nonmedical activities. It is estimated that there is one healer for every 500 inhabitants, whereas there is only one doctor for every 40,000 inhabitants (Mudibany 1980).

One major difference between the traditional and modern medicine systems is the strong incorporation of psychological and sociological dimensions of health in traditional medicine; these dimensions are taken into account to a lesser extent in the modern medicine system, which is dependent on sophisticated technology, specialized personnel, and a considerable financial investment. Traditional medicine encompasses religious concepts as well as the knowledge possessed by traditional healers. It has been described in Africa as "the body of knowledge, techniques for preparation and the use of substances and practices that are based on the sociocultural and religious fiber of the African communities; these practices are founded on personal experience and observations handed down through the generations, either verbally or written, and are used for the diagnosis, prevention, or elimination of physical, mental or social imbalances" (Mudibany 1980).

More than half of the population go to the traditional practitioners (healers) for the treatment of ailments. According to the report of the National Institute for Health and Science Research in Zaire, the traditional practitioners in Zaire can be divided into three professional groups: the herbalists, the ritualists, and the spiritualists.

The herbalists treat diseases with herbs or traditional plants. Their knowledge of this medicine is orally transmitted from father to son and from generation to generation. Each herbalist's method of diagnosing illness is different. They usually employ gadgets, mirrors, and gourds to detect diseases and their causes.

Ritualists always work in a group with one chief, or head of the group. Their method of diagnosing illness incorporates dance. During the dance, they enter in a transcendent state, speak other languages, and discover the causes of the disease and the remedy to be administered to the sick person. They are always surrounded by people who understand their language and memorize or note what they say while they are in transcendence. These people explain how and what herbs should be used for treatment. The ritualists forget everything once they come out of the transcendent state.

According to the ritualists and the herbalists, most diseases are caused by witches, sorcerers, magicians, or members of the family who are angry and put a curse on the sick person. Once the cause of the disease is determined, they psychologically prepare their patient and administer the herb. When they know that they cannot succeed in the treatment or that the sick person may die, they refuse to treat him or her and say that the witches will not let the person come out of their killing hands. There are very few pure herbalists or pure ritualists; most are herbalist ritualists or ritualist herbalists.

The last group, the spiritualists, are gaining more importance in the practice of traditional medicine. They treat their patients with blessed water or blessed oil or by reading the Bible and praying. Most of them create churches for spiritual recovery.

The practice of traditional medicine is also gaining popularity in urban areas because of the high cost of modern drugs in comparison to the buying power of the population and the proven efficacy of some traditional drugs. The Zairian authorities recognize the importance and the impact of traditional medicine to the health care of the population. For this reason, their scientists are encouraged to undertake and pursue research in this area. The authorities want to see traditional medicine valorized and used efficiently, safely, and rationally. Efforts are also being made to have a traditional pharmacopoeia for Zaire published (Comment le guerisseur exerce-t-il? 1981).

The traditional medicine system is used by more people than are the official health services of the country, and, often, patients take both traditional and modern medicines, either simultaneously or separately. On the basis of the studies conducted in the field by the National Institute for Health and Science Research of Zaire, it is now known that the traditional medicine system actually complements the primary health care system in Zaire. A collaborative structure between the two systems would help to alleviate the potential dangers of using dual systems.

3. PROJECT ADMINISTRATION

The use of both Western (or modern) and traditional medicines for the same illness is an area of concern in the delivery of health care. When both health care systems are available, people may switch back and forth from one type of provider to another or use both systems simultaneously. Such simultaneous or sequential use increases the difficulty of assessing the effectiveness of either system individually, as well as effectively planning and implementing health services. Furthermore, the use of both traditional and Western medicines could result in harmful drug interactions and adversely affect the user's health.

Little research has been conducted on the factors associated with the conjunctive use of both traditional and Western medicines. The study by Nnadi and Kabat (1984) found that in Nigeria important factors associated with the choice between traditional or Western health care providers were the perceived seriousness of illness, the perceived effectiveness of the provider, the cause of the health problem, and the cost and distance of services. The results showed that almost 45.9 percent of the 680 respondents had used both traditional and Western medicines for the same illness; almost three-fourths had used both systems more than once.

AID's current policy and strategy for health assistance encourages a broad access to cost-effective preventive and curative health services. Health program assistance of AID concentrates on

increasing the cost-effectiveness of health programs through improved program design, management, and implementation. AID will assist developing countries to reduce mortality, disease, and disability, especially among infants and children, and will assist countries to develop institutional capabilities, especially in health planning and management. For AID, a key element in its strategy for health assistance has been to focus on the control of selected diseases, such as malaria and diarrhea. It was these activities of AID that stimulated the development of this study.

The purpose of this study was to examine the use of both traditional therapies and Western medicines to treat malaria (often presented as fever) and diarrhea when both therapies are part of the treatment regimen for the same illness in a developing country. This study aims to provide information on factors associated with the choice and the use of a combination of traditional and Western medicines therapeutic modes and to initiate identification of the factors used in selecting one system over the other.

This research project fostered collaboration between three institutions: the Charles R. Drew University of Medicine and Science (Los Angeles, California), the University of Kinshasa (Kinshasa, Zaire) and the Florida Agricultural and Mechanical University (FAMU) (Tallahassee, Florida). Those who collaborated on this research project are: Drs. Bipi Mulumba, N. Kadima, L. Kapata, O. Penge, M. Lapika, K. Kabangu, M. Babadi, K. Kandjingu of the University of Kinshasa Faculties of Pharmacy, Anthropology and Medicine; Dr. E. Okolo of FAMU College of Pharmacy and

Pharmaceutical Sciences and Dr.R. King of the Charles R. Drew University of Medicine and Science International Health Institute, the Principal Investigator. This collaboration provided a basis for continued efforts in faculty exchange between health professionals at all three Universities.

Consultants were used to obtain detailed information on traditional practices in the health zones, to facilitate cooperation among ethnic groups, and to assist in selecting appropriate samples as well as computerizing data obtained.

The plan of work for the project consisted of four parts:

1. Preparation of research frame,
2. Selection of study sample,
3. Questionnaire development and administration,
4. Questionnaire analysis

The first phase, preparation of the research frame, consisted of several activities that were carried out in the host country: obtaining background information on rural health zones; drafting the bilingual questionnaire in conjunction with host country researchers; meetings with Zaire researchers to outline survey and presurvey activities, obtaining necessary faculty agreements and approvals, planning project tasks, and establishing an in-country administrative base; meeting with International Business Machines (IBM) suppliers; and preliminary planning of the Health Services Research seminar.

The second phase included determining the universe for the sample, selecting sample health zones and target populations, and

preparing criteria for selecting and training the interviewers. During this phase, consideration was given to the use of the NAPRALERT (Natural Products Alert) data base, a computerized data base on the chemistry and pharmacology of natural products.

In the third phase the questionnaire was developed and administered to a selected sample sufficient in number for statistical manipulation of the data obtained. Interviewers were selected and trained in this phase.

The fourth phase, data management, included the computerization and analysis of data obtained. The final report was produced during this phase. Various portions of each phase occurred in Zaire. It was during this phase that the competing responsibilities of the principal investigator shifted with the result that the full analysis of data was truncated.

The methodology for the execution of the TRA/MOD Project are summarized in the following pages, which further describe the project.

4. RESEARCH METHODS AND PROCEDURES

4.1. Preparation of Research Frame

To study the feasibility of the project in the field in Zaire and to implement it, Dr. Rosalyn King, the principal investigator, visited Zaire from 27 February to 17 March 1986. During this period, she met with Dr. Bipi Mulumba, the project administrator in Zaire, and with the officials from the School of Pharmacy of the University of Kinshasa and from the Department of Public Health.

In preparing the research frame, Dr. King met with many officials during her visit, including Dr. Mpeye Nyango, the former president of the University of Kinshasa; Dr. Mossanda Kansese, the Vice-Dean of the School of Pharmacy; and Dr. Mpunza Kapundu, Vice-Dean of the School of Pharmacy. Letters were exchanged at the School of Pharmacy between the President/Dean of Drew and the Dean of the School of Pharmacy of the University of Kinshasa. This exchange of letters made the agreement between the two institutions official and launched the TRA/MOD Project.

A seminar/workshop was held in which researchers outlined survey activities and drafted the bilingual questionnaire. At this time, Dr. Luvuvila Kapata, the Secretary General of the Department of Public Health, stressed the importance and the impact of the expected results of such a study to the health of the population. The department hoped that the results of the study would help it in its strategy for implementing primary health care throughout

Zaire.

It is important to note that the staff of the University of Kinshasa led the discussion on organization and functioning of both the traditional and modern care health systems at the time. They also led the development of the research administration procedures as well as the survey questionnaire.

4.2. Selection of Sample

This study was designed to be cross-sectional; that is, data collection occurred at one point in a target population. The target population was composed of the population of those health zones in Zaire where there had been a relatively recent introduction or strengthening of a modern (or Western) health infrastructure and there also was the likelihood that traditional medicine was still being practiced. The selected health zone populations also were those that made use of oral rehydration salts and chloroquine or its analogs.

The sample consisted of healthy adult males and females in the southern regions of Zaire. The individuals had to meet the following criteria:

- o Have had diarrhea, malaria, and/or pneumonia personally or in the family to assure experience with the diseases or symptoms of interest
- o Had both traditional and Western health care systems for the treatment of diarrhea, malaria, and/or fever available to them

- o Be a significant part of the decision making process in seeking family health care

The geographic areas used in the study were selected based on accessibility, the presence of both traditional and Western health care systems, the possibility of providing sufficient sample size, and representation of a good ethnic mix. As a result, six southern regions were chosen for study: Kinshasa, Bas-Zaire, Bandundu, Kasai-Occidental, Kasai-Oriental and Shaba.

A random sample of health zones was then made from each region using a 1 to 10 ratio; one of every 10 health zones across the six regions was studied. An alternate health zone was selected for each region to serve as a backup if necessary. Approximately 150 respondents were surveyed in each of the 14 selected health zones. The optimum sample size for most surveys should be at least 200 respondents (Kerlinger 1973). The sample size was set at 2,100.

4.3. NAPRALERT

One of the objectives of this study was to examine the nature of the plants identified in traditional methods of health care delivery. Several items of the questionnaire asked respondents to name plants used to treat malaria, fever, and diarrhea as well as to provide samples for botanical identification. Over 50 different plants were identified by University of Kinshasa consultants and the National Institute for Research in Health and Science (INRSS). To examine the

pharmacological nature of the identified plants, the Natural Products Alert (NAPRALERT) data base was used as the information source for the pharmacological descriptions and profiles of the plants.

NAPRALERT is a computerized data base on the chemistry and pharmacology of natural products. The data base is maintained as an activity of the Program for Collaborative Research in the Pharmaceutical Sciences of the Department of Pharmacology, College of Pharmacy, University of Illinois at Chicago. Verification through the literature of the value of plants as real therapeutic agents provides a basis for substantiating the alleged effectiveness of a plant used in traditional medicine.

The NAPRALERT data base uses Chemical Abstracts, Biological Abstracts, Index Medicus, and over 200 current scientific periodicals as sources of information. About 50,000 of the more than 75,000 scientific articles and/or books in this data base are from the post-1975 literature and about 25,000 are from the pre-1975 literature.

NAPRALERT can provide a three-part profile consisting of (1) ethnomedical information, (2) results of biological tests carried out on extracts of plants, microbes, and/or animals, and (3) secondary chemical constituents reported to be in plants, microbes, and/or animals. The ethnomedical information includes synonymous and common names for the plant, ethnomedical uses for the plant, and a list of literature citations.

4.4. Instrument Development and Administration

In this study, sociodemographic and health behavior data were collected by using a pretested questionnaire administered through personal interviews. The survey interview approach was used because it offers the advantage of being able to facilitate a wide range of questioning, while studying a population large enough to examine the relative distribution and interrelationships of demographic, sociopsychological, and behavioral variables.

The questionnaire was developed in both French and English. Most of the items were fixed response questions that allowed the respondents to answer in minimal time with minimal imposition. The final questionnaire consisted of 62 items.

The questionnaire was developed in collaboration with researchers in the host country, Zaire, and consideration was given to, but not limited to, the following factors: length of questions, unidimensionality of questions, specificity of questions, social and cultural appropriateness of the questions, clarity, and readability.

The instrument was designed to be self-administered by those with the ability to read and write French. However, in cases where this was not possible, the questionnaire was read to respondents in their native languages by trained interviewers. The questionnaire was administered to respondents in their natural environment, such as at home or in some other acceptable place.

The questionnaire was pretested by using a sample of 28 respondents from the areas selected for study. The pretest was

conducted by trained interviewers and was conducted to address any unanticipated problems with administration of or completion of the questionnaire. The pretest allowed any such problems to be resolved prior to the final administration of the questionnaire.

Some of the problems raised in the pretest included difficulty in understanding the intent of the question; too many choices of responses given for a question; and wording of questions to accommodate cases in which the respondent filled out the questionnaire or in which a parent had a child answer the questionnaire for him or her. Most of the pretest problems were addressed with either a change in wording or the deletion of excess response choices.

The final version of the questionnaire is given in appendix A.

4.5. Interviewer Selection and Training

The interviewers were required to meet the following qualifications:

- o Be a graduate pharmacist or university student, preferably in the area of health care
- o Have the ability to interact with the public
- o Live or have lived in the geographic area to be surveyed and be able to speak the local language
- o Be able to work on the project for two consecutive weeks
- o Be able to speak and understand some English
- o Have accessibility to the area to be surveyed

- o Be able to work independently

A pool of 25 prospective interviewers were preselected on the above criteria. These prospective interviewers were required to participate in a 2-day training session on questionnaire administration, take a written examination, and have a personal interview. The final interviewers were selected from those candidates who satisfactorily completed the written examination and personal interview. Eighteen interviewers were selected with 2 alternates. (Appendices B, C, and D are the list of selectees and health zone to which assigned, the outline for the interviewers' training and their written examinations.)

It was estimated that an interviewer could complete 15 questionnaires a day; therefore, 150 questionnaires could be completed in approximately 10 days. To avoid interviewer fatigue and the resultant increase in errors and omissions, each interviewer was allowed to survey only one health zone.

The interviewers were given detailed instructions on the procedures to follow from the time of arrival in the assigned health zone to the selection of villages and respondents to the completion of data collection. Upon completion of data collection and before returning the questionnaires, each interviewer completed a form verifying that the questionnaires had been administered (appendix E). Interviewers were then paid for their work. One interviewer did not return.

4.6. Data Management

Questionnaire data were collected from 13 of the 14 health zones since once interviewer did not return as scheduled. After the questionnaire data were collected, a data-coding scheme was developed through the collaborative efforts of the principal investigator, researchers at the University of Kinshasa, and a data management consultant. Questionnaire data were entered into an IBM PC-XT system. This computer equipment was purchased by Drew, donated to the University of Kinshasa, and installed with the assistance of the data management consultant. Additionally, a scheme for data verification was developed.

Of the 2,095 questionnaires collected, 32 were discarded for reasons of incomplete responses. A University of Kinshasa research assistant conducted the major portion of the data entry of the 2,063 completed questionnaires into the computer. Every data entry was "key" verified; that is, each datum was rechecked for accuracy of entry. The data management consultant made the following additional data verification checks.

The consultant performed an exact hand count by region and by health zone of collected questionnaires that had been entered into the computer. A total of 2,063 questionnaires had been entered; the original copies of the completed questionnaires are stored in the Natural Sciences Building at the University of Kinshasa. The physical count of the questionnaires exactly matched the count of responses in the computer files.

The consultant also installed SPSS/PC+ software that edited

every record of entered data for accuracy. Out of a total of 127,906 pieces of datum (2,063 questionnaires times 62 data items per questionnaire) only two errors were found. Several questionnaires were additionally spot-checked, using the unique line number corresponding to that given to each questionnaire.

Because of sound data entry techniques, the fact that each questionnaire was key verified after data entry, and the use of an additional data verification software product, the accuracy of the survey data entry is assured to be 99.9 percent. Complete questionnaire data entry packages are available and readily retrievable at both the University of Kinshasa and the Drew International Health Institute.

The data management consultant conducted basic statistical analysis (for example, frequencies) and cross-tabulations of selected questionnaire items. This activity served as training for the University of Kinshasa research assistant on the operation of a personal computer operation and on statistical analyses using computer software.

5. STUDY RESULTS

A total of 2,063 questionnaires were analyzed. About 46 percent of the questionnaires were completed by the respondents and about 54 percent were completed by the interviewers.

5.1. Demographics

Table 1 presents demographic characteristics of the study sample. The majority of the respondents were male, representing 74.5 percent of the total sample. Over 85 percent of the respondents were between the ages of 21 and 49.

Nearly 75 percent of the respondents reported being married; only 18 percent of those married are polygamous. The education, occupation, and religion of the respondents varied. Most of the respondents completed either primary (27 percent) or secondary (56.5 percent) education, and less than 7 percent attended or completed college. The occupations of the respondents varied: 16.8 percent are teachers; approximately 9 percent are in the civil service or are housewives; and over 18 percent are unemployed. Over 50 percent of the respondents are Catholic, compared to 29 percent who are Protestant.

The monthly income of those who were employed by the government (52.4%) had a monthly income less than or equal to 1,000 Zairian dollars. (The exchange rate at the time of the study was 1 USD = approximately 110 Zairian dollars.)

5.2. Drug Product Knowledge

Only 49.7 percent of the respondents reported knowing the names of plants used to treat malaria, compared to 79.8 percent who reported knowing the names of modern medicines used to treat the same illness (Table 2). For diarrhea, 67.4 percent of the respondents reported knowing the names of plants used in treatment and 67.8 knew the names of modern medicines used for treatment. Approximately 61 percent of the respondents reported knowing the names of plants used to treat fever.

5.3. Use of Both Systems (Traditional and Modern)

In this study, the use of plants and herbs is an expression of preference for the use of the traditional mode of therapy and the use of western tablets and formulations is an expression of preference for modern health care modalities.

Fifty-eight percent of the respondents reported using both systems for the treatment of diarrhea, and 56.2 percent reported using both systems for the treatment of malaria or fever (Table 3). Modern medicine is used most often ("always") by 57.4 percent of the respondents compared to 12.6 percent who reported using traditional medicine with the same frequency; interestingly, 38.4 percent reported "rarely" using traditional medicine, compared to 8.2 percent who "rarely" used modern medicine (Table 4). Table 5 presents the percentage of respondents who had used both traditional and modern medicines for the treatment of diarrhea and malaria/fever in relation to selected demographic characteristics.

When both systems of medicine were used to treat the same illness, in 74.7 percent of the cases, modern medicine was used first. Generally, the respondents are similarly "satisfied" with both modern and traditional medicine (64.5 and 69.4 percent, respectively) (Table 6). Nearly a third of the respondents reported being "very satisfied" when they used modern medicine.

5.4. Choice of System

When respondents were asked what treatment modality would be first sought, over 80 percent would choose the modern medicine mode first for both malaria/fever and diarrhea/dysentery. Table 7 presents the results of responses to the question "Where do you go first for...". This tendency held for most of the diseases listed in Table 7 and was confirmed when interviewees were asked to name where they would go (hospital/clinic or traditional doctor) in a life or death situation. (See Table 8.)

When asked to rank in order of importance the factors used in deciding where to go for health care, "seriousness of the problem" and "the effectiveness (of the treatment)" were ranked almost equally as the first and second most important factors; "cause of the health problem" was ranked third by the highest percentage of respondents; and "cost" was ranked fourth (Table 9).

5.5. NAPRALERT Search Results

Common names of plants identified in the interview were submitted to the National Institute for Research in Health Sciences in Kinshasa for botanical identification. Fifty-two scientific names of plants were submitted to NAPRALERT to be searched in connection with this study.

Some information (ethnomedical information and/or biological activities for extracts of the product) was available for 31 plants (Table 10). The reported ethnomedical information and biological activities, however, was reported on plants found in various African countries, including Ivory Coast, Sierra Leone, East Africa, Nigeria, Mozambique, Guinea, the People's Republic of the Congo, and Ghana, to name a few. In some cases, however, where no information was available from any African country, information was provided on the use of the plant in countries such as China, Japan, India, or Thailand.

Information was available for only one plant specifically found or collected in Zaire. This plant was Ageratum conyzoides, reportedly used in Zaire for sleeping sickness and uterine problems.

For 24 of the 31 plants for which information was available, the following biological activities were reported:

1. Antibiotic--including antibacterial, antifungal, antimalarial, and antiamebic
2. Smooth muscle stimulant (oxytotic and spasmogenic)
3. Antihypertensive

4. Antihyperglycemic
5. Smooth muscle relaxant; antispasmodic
6. Others--antitumor, anticonvulsant, molluscicidal, analgesic, central nervous system depressant, hemolytic, emetic, and skeletal muscle relaxant.

6. STUDY CONCLUSIONS AND IMPLICATIONS

It is evident from this study that inhabitants of Zaire have some knowledge about the two systems of medicine available to them and that they use both systems.

Although the literature on the use of traditional medicine suggests that the traditional system is more popular and pervasive than the modern system, the results of this study show evidence of the popularity of the modern medical system in the study zones especially for the focus illnesses - malaria/fever and diarrhea/dysentery. However, this study indicates that indigenous, or traditional, treatment is the first choice for conditions such as convulsions, infertility, and stomach problems. This preference seems to be consistent with the observations that symptoms and conditions that may have more of a social or psychological dimension than a biological one are more likely to be treated, at least initially, by a traditional healer.

In spite of programs designed to further modern health care practices in Zaire, traditional medicine is deeply rooted in the culture of the people and it is unlikely to disappear quickly. Efforts have been initiated to recognize traditional medicine as a complement to modern medicine. Results of this study indicate persons in the study health zones do use both the traditional and modern systems for treating the same episode of illness. Yet, the simultaneous use of traditional and modern medicines could possibly adversely affect the user's health. In some cases the

pharmacological properties of the plants identified could be useful used singularly or in combination with modern medicines but in other cases conjunctive use could be hazardous due to combined use or plant pharmacognosy.

This poses educational implications for primary care in Zaire. It suggests that health personnel in modern health care systems should question patients about the use of multiple modern medicines as well as begin to note therapeutic effects and trends associated with the use of selected traditional therapies used in conjunction with modern medicines.

There may also be the need to educate Western health care providers to the dual systems to ensure the integration of both into newly developing health care structure in many settings in Zaire. Modern health care providers, especially those supported by donor agencies, should consider increasing their familiarity with the documented pharmacological effects of the active ingredients in herbs and plants commonly used to treat health problems being addressed in a target community. These data on plants can then be compared to the documented effects of modern medicines to determine the likelihood, if any, of adverse effects with the conjunctive use of both therapies. In this manner, the inadvertent occurrence of adverse effects can potentially be reduced and/or the likely effectiveness of modern medicines not altered by concomitant phytotherapy.

A limitation of this study was that the data were cross-sectional and not longitudinal; therefore, it was not possible to

measure responses over time and derive any indications of causality between variables. It is still necessary, however, to conduct additional analyses of the questionnaire data to test for any correlation between the traditional use of plant products identified by questionnaire respondents and the biologically observed effects and traditional uses reported from the NAPRALERT data base search. Further, the reported biological effects of plants identified in this study was not compared to the documented pharmacological effect of ingredients included in the modern medicines named to determine the likelihood of physical and or therapeutic incompatibilities. Nor were correlations made between the traditionally accepted and observed effects of plant products named. Further research should be conducted to examine issues cited as limitations on this study.

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Table 1. Demographic Characteristics of the Study Sample

Region		1	2	3	4	5	6	Total
Global sample n=		425	323	354	335	326	300	2063
Sex	Males	% 77.6	69.0	65.0	77.1	76.4	82.5	74.5
	Females	22.4	31.0	35.0	22.9	23.6	17.5	25.5
Marital status	n=							2060
	Married	% 73.1	62.1	69.4	84.5	77.9	79.3	74.3
	Single	19.1	32.9	28.0	6.0	15.6	18.3	20.0
	Widowed	4.7	3.4	1.4	6.8	2.8	1.0	1.6
	Divorced/Sep.	3.0	1.5	1.1	2.7	3.7	1.4	2.3
	Polygamists	17.3	17.4	14.5	32.1	9.4	15.7	18.8
Religion	n=							2049
	Catholics	% 66.5	34.4	54.3	56.8	46.0	53.8	52.7
	Protestants	26.4	57.3	19.8	17.5	25.9	28.4	28.9
	Muslims	0.2	0.6	6.3	0.9	0.6	1.3	1.6
	Others	6.9	7.7	19.6	24.8	27.5	16.4	16.7
Education	n=							2056
	None	% 8.7	12.1	7.4	17.2	5.5	3.4	9.1
	Primary	22.6	23.2	29.9	31.0	34.0	21.4	26.9
	Secondary	61.9	60.6	56.7	48.8	49.1	65.2	57.2
	College	8.8	4.1	6.0	3.0	11.4	10.0	6.8
Occupation	n=							2050
	Clerks	% 11.5	4.0	7.4	9.2	12.0	6.0	8.5
	Teachers	18.8	10.5	17.3	17.5	5.8	31.9	16.9
	Medical pers.	6.1	6.8	12.2	4.6	2.1	4.4	6.1
	Tradit. healer	0.2	0.0	0.3	7.7	0.3	0.0	1.4
	Housewife	7.5	8.7	18.7	5.2	7.1	3.7	8.6
	Unemployees	14.4	16.1	9.6	23.4	32.8	19.5	18.9
	Others	41.5	53.9	34.5	52.4	38.8	34.5	39.5
Inome/month	n=							870
	<1,000 Z	% 66.9	64.6	47.4	59.7	36.2	37.5	52.4
	1- 3,000	21.1	16.5	22.6	19.4	29.1	12.5	20.5
	3- 10,000	10.3	16.5	28.5	15.1	21.9	19.1	19.7
	>10,000	1.7	2.4	1.5	5.8	2.8	30.9	7.5

1=Bandundu, 2=Bas-Zaire, 3=Kasai-occidental, 4=Kasai-oriental
5=Kinshasa, 6=Shaba // 1\$ US=110 Z.

Table 2. Respondents' Knowledge of Traditional and Western Medicines

	Malaria	To Treat Fever	Diarrhea
Traditional Medicines			
Knew names of plants	1,024 (49.7)	1,250 (60.7)	1,385 (67.4)
Did not know names of plants	1,038 (50.3)	808 (39.3)	670 (32.6)
Modern Medicines			
Knew names of modern medicines	1,633 (79.8)		1,389 (67.8)
Did not know names of modern medicines	414 (20.2)		661 (32.2)

The results are in numbers of responses, with the percentage of responses given parenthetically.

Table 3. Use of Both Traditional (Indigenous) and Western (Hospital/Clinic) Health Care Systems

System Used	To Treat	
	Diarrhea	Malaria/Fever
Both systems used	1,197 (58.1)	1,155 (56.2)
Only one system used	864 (41.9)	899 (43.8)

The results are in numbers of responses, with the percentage of responses given parenthetically for each pattern of use.

Table 4. Frequency of Use of Traditional and Modern Medicines

Frequency	Traditional	Modern
Always	258 (12.6)	1,183 (57.4)
Sometimes	807 (39.3)	686 (33.3)
Rarely	789 (38.4)	169 (8.2)
Never	200 (9.7)	23 (1.1)

The results are in numbers of responses, with the percentage of responses given parenthetically for each frequency.

Table 5. Percentage of Respondents who had Used Both Traditional and Modern Medicine for the Subject Conditions in Relation to Selected Demographic Characteristics

Characteristic		Diarrhea		Malaria/Fever	
		Yes	No	Yes	No
Sex					
	Males	59.2	40.8	58.7	41.3
	Females	54.0	46.0	48.5	52.5
Marital status					
	Married	54.4	45.6	52.2	47.8
	Single	58.4	42.6	56.6	43.4
	Widow	63.4	36.6	60.7	39.4
	Divorced/Sep.	63.6	36.4	66.7	33.3
	Polygamists	68.0	32.0	67.2	32.8
Religion					
	Catholics	54.6	45.4	53.3	46.7
	Protestants	63.6	36.4	61.3	38.7
	Muslims	67.6	32.4	70.6	29.4
	Worshippers	56.0	44.0	58.6	41.4
Occupation					
	Clerks	62.3	37.7	62.3	37.7
	Teachers	66.5	33.5	60.1	39.9
	Medical Persons	48.9	51.1	49.2	50.8
	Healers	44.1	55.9	42.9	57.1
	Housewives	60.6	39.4	40.0	60.0
	Unemployees	59.8	40.2	55.0	45.0
Salary					
	Very low	64.5	35.5	60.4	39.6
	Low	64.0	36.0	59.1	40.9
	Middle	51.9	48.1	59.0	41.0
	High	69.2	30.8	52.3	47.7
Entire population		57.9	42.1	55.8	43.8

Table 6. Satisfaction with Modern and Traditional Medicines

Level of Satisfaction	Modern	Traditional
Very Satisfied	644 (31.3)	347 (17.3)
Satisfied	1,327 (64.5)	1,392 (69.4)
Dissatisfied	71 (3.4)	223 (11.1)
Very Dissatisfied	16 (0.8)	45 (2.2)

The results are in numbers of responses, with the percentage of responses given parenthetically for each level of satisfaction.

Table 7. Responses to the Question: "Where Would You Go First for the Following?" (in percentages)

	Traditional Doctor	Hospital	Other*
Diarrhea/dysentery	12.8	84.4	2.8
Malaria	10.6	87.6	1.8
Worms	9.7	88.9	1.4
Convulsions	43.4	54.0	2.7
High fever	13.2	82.6	4.3
Stomach problems	26.9	70.7	2.3
Infertility	44.5	51.6	3.8

* Other includes prayer, ancestor demands, self-treatment

Table 8. Responses to the Question: "In A Life or Death Situation, Where Do You Go For Care?"

System	Number (Percent)
Traditional Doctor	135 (6.6)
Hospital/Clinic	1,853 (89.9)
Other	57 (2.7)
No Place	18 (0.9)

Table 9. Respondents' Ranking of Factors Used in Deciding Where to go for Health Care (Number/Percentage)

	1st	2nd	3rd	4th	5th
Cost	420 (21.0)	317 (15.8)	287 (14.3)	963 (48.1)	14 (0.7)
Seriousness of Health Problem	587 (29.2)	624 (31.1)	573 (28.5)	219 (10.9)	5 (0.2)
Perceived Effectiveness of Treatment	564 (28.1)	601 (30.0)	580 (28.9)	259 (12.9)	2 (0.1)
Causes of Health Problem	464 (23.2)	454 (22.7)	545 (27.3)	535 (26.8)	2 (0.1)
Other					

Table 10. Plants for Which Information was Found Through NEPRALERT

1. Ageratum conyzoides
2. Albizia adianthifolia
3. Alchornea cordifolia
4. Bridelia ferruginea
5. Brillantaisia vogeliana
6. Cassia alata
7. Cassia occidentalis
8. Cissus cordifolia
9. Combretum racemosum
10. Crossopteryx febrifuga
11. Croton (various species)
12. Cyathula prostrata
13. Cymbopogon citratus
14. Dichrostacys cinerea
15. Euphorbia hirta
16. Gardenia jovis-tonantis
17. Hymenocardia ocida
18. Imperata cyclinorica
19. Lantana camara
20. Luffa cyclindrica
21. Momordica charantia
22. Morinda lucida
23. Ocimum gratissimum
24. Persea americana
25. Phytolacca dodecandra
26. Piliostigma thonningu
27. Piper umbrellatum
28. Plumbago zeylanica
29. Rauwolfia vomitoria
30. Veronia amygdalina
31. Vitex madiensis

APPENDICES

- A: Questionnaire (Final Version) (in French)
- B: Selected Interviewers and their Health Zones
- C: Questionnaire Administration Training Outline
- D: Interviewers' Written Examination (in French)
- E: Interviewer Questionnaire Verification Form (in French)

UN QUESTIONNAIRE POUR L'ENQUETE FINALE SUR LES HABITUDES (ou COMPORTEMENT)
DANS LA RECHERCHE DES SOINS.

I N S T R U C T I O N .

Veillez lire attentivement le texte suivant:

Mettez un signe (V) à côté de la réponse la plus appropriée pour vous.

Choisissez uniquement une réponse la plus correcte à chaque question.

Veillez répondre avec autant d'exactitude que possible. Il n'y a pas de vraie ou fausse réponse.

N'écrivez pas votre nom sur ce papier, parce que nous ne voulons pas connaître la personne qui répond aux questions.

Veillez répondre à toutes les questions.

Votre coopération sera hautement appréciée.

Posez des questions si vous ne comprenez rien.

Merci pour votre participation.

La famille directe = les parents, socurs, frères, femme/mari et vos enfants.

Veillez cocher (V) uniquement une réponse pour chaque question.

Indiquez qui remplit ce questionnaire:.....soi-même

.....enquêteur.

1. Connaissez-vous les noms des plantes que vous avez utilisées pour traiter la malaria?

.....Oui

.....non

2. Si oui, nommez quelques-unes.

.....
.....
.....
.....

3. Si vous avez déjà utilisé les médicaments modernes quand vous étiez malade, en général quel était le niveau de votre satisfaction?

.....très satisfait

.....satisfait

.....deçu

.....très deçu

4. Avez-vous déjà utilisé les deux médecines (le guérisseur et l'hôpital) pour la diarrhée?

.....Non

.....Oui

5. Si oui, Combien de fois?

.....une fois

.....quelques fois

.....plusieurs fois

6. Connaissez-vous les noms des plantes dont vous avez besoin pour traiter la fièvre?

.....Oui

.....Non

7. Si oui, nommez quelques-unes.

.....
.....
.....

16. Diriez-vous que votre âge est de

- 21 à 34 ans
- 35 à 49 ans
- 50 à 65 ans
- plus de 65 ans.

17. Si vous n'êtes pas satisfait du traitement traditionnel reçu quand vous étiez malade, que faites-vous ?

- aller à l'hôpital
- rentrer chez le même guérisseur
- aller chez un autre guérisseur
- autres (précisez).

18. Quelle est votre religion ?

- Catholique
- Protestant
- Musulman
- Kimbanguiste
- autre (spécifier p. ex. écrire le nom).

19. Où habitez-vous pour le moment ?

- Cité ou Ville
- Village.

20. Connaissez-vous les noms des médicaments modernes utilisés pour traiter la malaria ?

- Oui
- Non.

21. Si oui, nommez quelques-uns.

-
-
-
-

22. Quel est le moyen de transport vous utilisez régulièrement?

-Véhicule
-motocyclette
-vélo
-à pied
-autre(précisez)

23. Quelle est la qualité d'eau que vous buvez?

-de robinet
-des puits
-bouillie
-rivières

24. Si vous avez déjà utilisé les deux médecines(traditionnelle et moderne) en même temps pour une même pathologie,quelle est la réaction que vous avez connue?

-allergie ou démangeaison
-vomissements
-décès
-autres(spécifiez.....)

25. Est-ce que vous-même ou un proche,ou un membre de famille ou un ami travaille dans un hôpital,clinique ou maternité?

-Oui
-Non

26. Si vous êtes marié,êtes-vous polygame(p.ex.avoir plus d'une femme)

-Oui
-Non

27. Combien de fois avez-vous utilisé la médecine traditionnelle quand vous étiez malade?

-toujours
-parfois
-rarement
-jamais

28. Quelle est votre tribu?

-Luba
-Kongo
-Mongo/Gbwaka
-Lunda
-Tetela
-Zanda
-autres(spécifiez).....

29. Quand vous tombez malade, qu'est-ce que vous semblez probablement faire?

-trouver immédiatement quelqu'un pour vous soigner
-attendre un peu et voir si votre état s'améliore
-autre(spécifiez).....

30. Combien d'enfants y-compris vous-même, ont vos parents?

-1 à 4 enfants
-5 à 12 enfants
-plus de 12 enfants

31. Si vous avez les enfants, pouvez-vous dire si la plupart de vos enfants sont:

-moins de 10 ans d'âge(nés après 1976)
-10 à 20 ans d'âge(nés entre 1966 - 1976)
-21 ans ou plus

32. En général, quand vous utilisez plus de 1(2)médecines pour la même maladie, laquelle utilisez-vous d'abord?

-traditionnelle
-moderne

33. Rangez les raisons suivantes en commençant par la chose la plus importante qui vous aide à décider où aller pour les problèmes de santé. Utilisez le nombre 1 comme le plus important et le nombre 2 comme le deuxième plus important, le nombre 3 comme le 3è plus important et le nombre 4 comme le 4è plus important.

-le coût
-la gravité du problème de santé
-l'efficacité(possibilité de guérison)du traitement
-la cause de la maladie
-autres, spécifiez.....

34. La plupart de temps vous vous habillez de

-façon traditionnelle
-façon moderne

35. Quelle est la méthode de soigner une maladie que vous croyez être la moins chère?
-Hôpital ou Clinique
 -guérisseur
 -autre, spécifiez.....
36. Si vous avez déjà utilisé plus d'une médecine pour une même maladie, Comment les avez-vous prises?
-en même temps
 -l'une après l'autre
37. En général, en cas d'urgence, pour le cas de vie ou de mort, où iriez-vous pour les soins?
-guérisseur
 -hôpital ou clinique
 -nulle part
 -autre (où).....
38. Si vous avez déjà utilisé les médicaments traditionnels quand vous étiez malade. En général comment étiez-vous satisfait?
-très satisfait
 -satisfait
 -déçu
 -très déçu.
39. Si vous avez déjà utilisé les médicaments modernes contre la diarrhée, avez-vous connu certains de ces problèmes (vous-même ou un membre de votre famille?)
-mort
 -éruptions ou démangeaison
 -vomissements
 -vertiges
 -autres (spécifiez)
 -pas de problème
40. Pourquoi avez-vous utilisé plus d'un médicament pour une même maladie? Est-ce parce que:
-utiliser plus d'un médicament traditionnel travaille le ou guérit mieux ou
 -utiliser plus d'un médicament moderne travaille ou guérit mieux. ou
 -combiner un médicament moderne et un médicament traditionnel travaille ou guérit mieux ou
 -quelqu'un m'a dit de le faire ou
 -autres (spécifiez:.....)

41. De qui ou de quel de ce qui suit vous vivez plus près?

-hôpital (clinique) ou maternité
-guérisseur

42. Si vous êtes marié, combien d'enfants avez-vous?

-aucun
-1 à 4 enfants
-5 à 12 enfants
-plus de 12 enfants.

43. Quand vous tombez malade chez qui vous allez en premier lieu?

-guérisseur
-parents
-votre mari (épouse)
-quelqu'un qui travaille dans un hôpital
-hôpital pour la médecine moderne
-autres (qui)

44. Connaissez-vous quelques médicaments modernes que vous avez utilisés pour traiter la diarrhée?

-Oui
-Non

45. Si oui, citez quelques-uns.

-
-
-
-

46. Etes-vous

-célibataire
-marié(e)
-divorcé(e)
-veuf(veuve)
-séparé(e)

47. Combien de fois avez-vous utilisé la médecine moderne quand vous étiez malade?

-Toujours
-parfois
-rarement
-jamais.

48. Pouvez-vous dire si le chef de votre famille immédiate est:

-un homme
une femme

49. Quelle est votre occupation?

-Fonctionnaire = Département de.....
Enseignant
personnel médical (p.ex. infirmier) technicien de labo
accoucheuse, ...)
femme de ménage
guérisseur
fermier
commerce (homme d'affaires, femme d'affaires)
sans emploi
autres (spécifiez).....

50. Est-ce que l'un de vos relatifs, membres de la famille ou un ami est un guérisseur?

-Oui
Non

51. Etes-vous de sexe

-mâle
femelle

52. Si vous avez utilisé les médicaments modernes contre la diarrhée, étiez-vous guéri?

-oui
Non

53. Où irez-vous en premier lieu pour les maladies suivantes?

- Diarrhée ou Dysenterie

.....guérisseurs.....hôpital.....autres (spécifiez)

- Malaria

.....guérisseurs.....hôpital.....autres (spécifiez)

- Vers intestinaux

.....guérisseurs.....hôpital.....autres (spécifiez)

- Convulsions

.....guérisseurs.....hôpital.....autres (spécifiez)

- guérisseurs hôpital autres (spécifiez)
- Problèmes d'estomac (de ventre)
..... guérisseurs hôpital autres (spécifiez)
- Infertilité
..... guérisseurs hôpital autres (spécifiez)

54. A quelle distance vivez-vous d'un hôpital ou clinique
..... très près
..... près
..... pas près.

55. Quel est votre niveau d'études le plus élevé ?
..... aucun (pas avoir suivi l'école)
..... école primaire (élémentaire)
..... école secondaire, commerciale, ou technique
..... niveau supérieur
..... universitaire
..... maîtrise ou doctorat
..... autres (spécifiez).

56. Au cours de deux années passées, combien de décès avez-vous connus dans votre famille immédiate dus à la malafia, diarrhée ou pneumonie :
..... 0
..... 1 à 2 décès
..... 3 à 4 décès
..... 5 ou plus de décès.

57. A quelle distance vivez-vous d'un guérisseur :
..... très près
..... près
..... pas près.

58. Etiez-vous guéri de la malaria quand vous aviez pris les médicaments modernes?

-Oui
-Non

59. Qu'est-ce que vous faites d'habitude quand vous trouvez que le médicament moderne dont vous avez besoin n'est pas dans le stock?

-Revenir encore et vérifier
-chercher ailleurs pour le médicament moderne
-utiliser un médicament traditionnel
-autres(spécifiez).....)

Selected interviewers and their Health zones

<u>Region</u>	<u>Health zone</u>	<u>Interviewer</u>
KINSHASA	a) KIKIMI	1. KABEMBA KAYEMBA
		2. MANGULU NIANGI
		3. MUMBIM ETAPA
	b) NGABA	1. SHOMBA DIKANDJA
2. MULANGU BINZAMBAL		
(3. NZOLO)		
Bas-Zaire	a) KINKONZI	1. TAMBA VANGU
		2. LELO NZITA
	b) KIMPESE	1. MB ALA MALONGA
BANDUNDU	a) KAHEMBA	1. KONDA KUMBUTA
	b) BULUNGU	1. MAKWA MBULOLA
	c) IPAMU	1. NZOLO (or MUMBIM ETAPA)
KASAI-OCC.	a) KALONDA	1. MBUYI MBINGILATE
	b) DEMBA	1. MWAMBA KANYANGA
KASAI-Or.	a) GANDAJIKA	1. NGOMBO MUKENDI
	b) KABINDA	1. MBUYU MUTEBA YAMBELE
SHABA	a) KABALO	1. KITENGE MUYEMBE
	b) KASENGA	1. KASUMPA KAOMA
	c) MALEMBA NKULU	1. KASONGO NAKUZE

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QUESTIONNAIRE ADMINISTRATION

TRAINING OUTLINE

PHASE I

I PURPOSE

2. THE SURVEY QUESTIONNAIRE (MAJOR TYPES)

- KEY ADVANTAGES AND DISADVANTAGES OF EACH

3. SELF ADMINISTERED QUESTIONNAIRE VS

4. PERSONAL INTERVIEW (FOR THOSE WHO CAN'T WRITE AND READ)

- Bias
- Misunderstanding, clarifications etc.
- Interruptions

5. IMPORTANCE OF CONFIDENCIALITY

6. IMPORTANCE OF BEING CURTEOUS

7. DEALING WITH POTENCIAL PROBLEMS

8. CRITERIA FOR RESPONDANTS

9. PROCEDURE FOR QUESTIONNAIRE ADMINISTRATION

- Prior
- During
- After

10. HANDLING OF COMPLETED QUESTIONNAIRE

Return completed questionnaire to Dr Mulumba or Dr. Kadima Only.

11. SAMPLE COLLECTION PROCEDURE OF MEDICINAL PLANTS

Dr. Penga and Dr. Kadima

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TRAINING CONTINUED (PHASE II)

EVALUATION OUTLINE

- I INTRODUCTION
2. THE EXAM
3. EXAM PROCEDURE
4. GRADING
5. RESULTS
6. INTERVIEW
7. INTERVIEWERS FINAL SELECTION

TRAINING CONTINUED (PHASE III)

- I. DEMONSTRATION EXCERCISE
2. PRACTICE EXCERCISES
3. BRIEFING
4. OTHER INFORMATION

TRAINING CONTINUED (PHASE IV)

1. POST - PRE-TEST
2. PROBLEMS
3. QUESTIONS
4. REVISION OF QUESTIONNAIRE INTO FINAL FORM.

Nom:

Répondez toutes les questions:

1. Dans une courte phrase quel est l'objet principal de ce projet de recherche
(4 points)

Pour les questions 2 à 8 (7 points)

Répondez Vrai ou Faux. Pour Faux marquez W en face de la question dans l'espace laissé. Pour True mettez X.

2. Introduire biais (erreur) est mauvais quand c'est un grand biais mais un petit biais n'est pas mauvais.
3. C'est bon de répondre pour un répondant s'il ne connaît pas quoi répondre.
4. Vous devriez mener les interviews personnelles individuellement, ça veut dire une personne à la fois même si vous trouvez les répondants en groupe.
5. Si vous trouviez quelqu'un qui répond aux critères comme un bon candidat pour l'interview mais il refuse d'être interviewé, vous devez le forcer pour être interviewé.
6. La confidentialité est importante mais vous pouvez discuter les réponses avec un ami proche en qui vous avez confiance.
7. Si vous êtes interrompu pour un petit temps pendant l'interview vous pouvez continuer l'interview quand le répondant revient.
8. Être courtois est important mais si un répondant vous insulte, vous devriez l'insulter aussi un peu.
9. Chez qui vous devriez retourner les questionnaires complétés immédiatement dès votre retour - (1 pt).

11. Citez trois majeurs types d'enquêtes (6 points)

1°.

2°.

3°.

TRA/MOD PROJECT.

LA LISTE DE CONTROLE (OU VERIFICATION) AVANT DE RETOURNER LES QUESTIONNAIRES.

NOM de l'ENQUÊTEUR
(imprimer)

NOM du FACILITATEUR

NOM de la ZONE DE SANTE.....

Nombre des questionnaires reçus.....Signature.....
de l'Enquêteur.

Nombre des questionnaires complètement remplis.....

Nombre des questionnaires annulés à cause des erreurs ou d'autres
raisons.....

Nombre total des questionnaires retournés.....

Je certifie par ceci que tous les questionnaires ont été administrés
par moi (sauf) ceux auto-administrés) et que tous les questionnaires ont
été contrôlés et vérifiés par moi et ont été remplis suivant les ins-
tructions reçues au cours de la formation.

Signature:

Adresse :

Date :

Nombre des personnes qui ont refusé d'être interviewées.....

Combien parmi eux sont:

- les hommes.....âges approximatifs.....

Combien parmi eux sont:

- les femmes.....âges approximatifs.....