POST-TRAINING ASSESSMENT OF DIARRHOEA MANAGEMENT WITH SALT SUGAR SOLUTION BY COMMUNITY-BASED DISTRIBUTION WORKERS IN AKINYELE LOCAL GOVERNMENT AREA, OYO STATE

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DEDICATION

To the Glory of God Almighty;

My parents;

My nephew and nieces;

and my darling husband.

ABSTRACT

Studies in a number of pilot Community Based Distribution (CBD) programmes have shown that CBD workers can deliver modern contraceptives and safe maternal and child health services (including treatment or management of common childhood diseases such as diarrhoea) in their communities (Weiss, 1985). CBD workers have been active in Akinyele Local Government Area (LGA) and a high number of diarrhoea episodes have been managed by them. Most efforts have been on the general assessment of service delivery and also certain issues such as increasing availability of contraceptives have been addressed by CBD workers. One major problem is lack of specific post-training assessment of CBD workers' skill in preparing and use of some of the innovative training packages especially the use of salt sugar solution (SSS) in the management of children diarrhoea diseases.

A descriptive study was carried out in five CBD centres of Akinyele LGA between June 1990 and October 1990. All the CBD workers identified were 91 but after four visits to each home, a sample of 77 was found and was interviewed and observed.

Baseline information on CBD workers who had managed diarrhoea cases were obtained from records at CBD office. The

ammended final draft of the questionnaire after pretest at Ajia in Afijio Local Government Area was administered to the 77 workers. In addition observation with a checklist was used to assess workers' ability to prepare SSS.

The respondents were similar in age, occupation (other than CBD work) religion. Though while all Traditional Birth Attendants (TBAs) were female and aged above 45 years, Village Health Workers (VHWs) included both male and female and some aged less than 45 years.

All the workers, irrespective of either VHWs or TBAs recognised diarrhoea as a servere case and could relate the causes and management but only 9.1% (2 TBAs, 5 BHWs) could assert the correct preventive measures.

All the categories of workers asserted that they have heard of SSS but 14.3% (6 VHWs, 5 TBAs) of the workers could state the correct measurements of SSS though 72.7% used it in diarrhoea management, however 27.3% workers have never used it. More than one third (36.7%) of the workers stated that SSS stops diarrhoea rather than preventing dehydration which was mentioned by only 16.3%. All the workers (100%) mentioned that the ingredients - salt and sugar are expensive though they will continue to use it in future unless there is a new

technological reakthrough. However, the workers (97.4%) do not teach mothers who utilize their services.

Results from observation study revealed that all the workers (100%) did not have SSS corner and sugar was readily accessible in 48.1% of the homes. The workers' preparation of SSS revealed inadequacy in the skills.

The study has demonstrated that operation research can reveal hidden facts which could have been overlooked if research was on a general scope.

Based on findings, the researcher recommends that workers undergo refresher training which will emphasise measurements of SSS ingredients, SSS use and preparation. Workers should also have SSS corner in their homes where they can teach mothers and should be compensated financially or in kind as this will motivate workers to be dedicated. Specifically, future study should focus on the diarrhoea occurrence among under five children in the five CBD centres of Akinyele Local Government.

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CERTIFICATION

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE

INTRODUCTION

General Overview

A disproportionate number of deaths in developing countries occur among young children due to many health hazards children face before the age of five years (Population Report, 1984). In 1980, an estimated five million children under five years of age (about 10 every minute) died from diarrhoea diseases in the developing countries (WHO/UNICEF, 1985). This suggests that diarrhoea imposes a high burden of mortality and morbidity upon children in the developing world.

In Nigeria, it has been reported that diarrhoea occurs at a rate of 227.39 per 100,000 population (Statistics Division, 1989). In Oyo State, reports from Statistics Office (1977) indicates that dysentery and diarrhoea are the third-ranked presenting complaints after measles and malaria. This finding is further confirmed by results from a prospective study in an urban community of Nigeria (Ibadan) in which it was shown that on the average each child suffers from three diarrhoea episodes annually (Oyejide and Fagbami, 1986).

Many of these children who suffered from diarrhoea diseases eventually die of dehydration. WHO/UNICEF (1985) reported that approximately 70% of diarrhoea deaths are caused

by dehydration (the loss of large quantities of water and salts from the body).

It is therefore important that when salts and liquid are lost from the body they are replaced by either the mothers, the child caretaker, the health workers or whoever has the responsibility to take care of children, so as to prevent dehydration.

Salt sugar solution (SSS) is a new technology and offers important new possibilities for reducing the number of deaths in children. This solution can also be used at all levels of health care and can even be administered at home by parents and family members (WHO/UNICEF 1985). It is used as oral replacement of lost fluids and electrolytes and is sometimes referred to as Oral Rehydration Therapy (ORT).

Oral rehydration has been recognised as a strategy for Child Survival and Development Revolution (CSDR) in any country with a high incidence of diarrhoea diseases (Grant, 1985) and has been found to be the most cost effective of all medical technologies (UNICEF, 1987). This is also supported by Feachem et al, (1983) who agreed that oral rehydration delivered within the context of Primary Health Care (PHC) programme is an effective and relatively inexpensive intervention for the reduction of mortality due to dehydrating

diarrhoea. ORT is easy to prepare, safer than intravenous therapy and involves the mother in child's care. It is therefore important that all health personnel in Nigeria know and apply this simple solution for diarrhoea management.

Of recent in Nigeria, efforts were made by the government to train Voluntary Health Workers (VHWs) and Traditional Birth Attendants (TBAs) to serve the populace within their vicinity. The training became necessary because it was observed that the existing health care systems built around static delivery points is often not truly available to most people. In addition, the majority of these facilities, manpower (doctors, nurses and others) and funds are concentrated in the urban areas with a few sparse services to the rural areas. The ratio of the population to health care workers like doctors and nurses which is 1 doctor to about 10,292 people and 1 nurse to about 2,573 people have been reported (Federal Ministry of Health, 1990).

There is therefore imbalance in availability of medical personnel to deliver low cost health care services at the community level. It is in recognition of these imbalances in the health care delivery system that the Government of Nigeria adopted the concept of PHC as a means of increasing the provision of basic health care services to the populace.

Several PHC programmes have been initiated by both the Governmental and non Governmental agencies. These programmes focus on activities such as strengthening management capabilities, training health workers, increasing accessibility to PHC services, implementing revolving drug funds, immunising children and providing Oral Rehydration Therapy (ORT).

A specific project of this kind is the Oyo State Community Based Distribution (CBD) project involving the provision of low cost Maternal and Child Health services. This project was adopted from the innovative project of the Fertility Research Unit of Department of Obstetrics and Gynaecology in collaboration with Oyo State Ministry of Health, the Pathfinder Fund, Boston and the Centre for Population and Family, Columbia University both in United States. The Oyo State CBD programme was originally funded under a grant from United States Agency for International Development (USAID). It was designed to improve the health condition of rural people in Oyo State by making basic health services including Maternal and Child Health (MCH) and Family Planning (FP) accessible and affordable to them through a network of Village Health Workers (VHWs) and Traditional Birth

Attendants (TBAs). A tool of realising this aim was to train people who would provide these services.

However, a lot of background work was carried out by the Fertility and Research Unit in Akinyele Local Government Area (LGA) before the programme set off. Such background work included University College Hospital Staff and midwives from the Maternities, meeting with village elders and community leaders to discuss the selection of candidates for the positions of community agents. The number of agents selected was determined by the Village leaders so that all the Villages had equal representation. The selected representatives of the respective villages were trained as VHWs and TBAs (see Table 1).

This project was the first CBD effort established under governmental participation in Nigeria. Services were initiated in 1981 in Akinyele LGA (pilot area) North of Ibadan with a population of 85,900.

The specific guidelines in relation to diarrhoea management in the CBD curriculum are as follows:

1. Screen all patients on arrival
2. Refer all diarrhoea cases to ORT unit promptly
3. Assess all cases carefully using the assessment skills

TABLE 1

(TRAINEES) CBD AGENTS IN 1981 AT AKINYELE LOCAL GOVERNMENT AREA

CENTRES	POPULATION	NO. OF AGENTS	INITIATION OF SERVICES
ALADE	9,600	18	Feb. 4,1981
ARORO	10,500	50	May 8, 1981
IJAIYE	15,800	30	May 4, 1981
IKEREKU	12,700	31	May 21, 1981
IROKO (+Akinyele)	12,400	32	June 13, 1981
MELE	9,500	21	June 3, 1981
MONIYA (+Oke-igbagbo)	15,400	21	July 3, 1981
TOTAL	85,900	173	

Source: Proceedings: Conference of the Oyo State CBD Project: Community-Based Delivery of Health and Family Planning Services, University of Ibadan Conference Centre, January 14 - 16, 1985, Ibadan. Nigeria.

4. Prepare fresh SSS everyday
5. Rehydrate patients quickly following the right treatment plan
6. Educate mothers on: Home fluid + continued feeding, Salt Sugar Solution, Handwashing and other preventive methods.

7. Record data on patients

8. Clean ORT unit regularly

9. Ensure enough supplies are available at all times.

The specific behaviours expected to be exhibited by the workers include handwashing, levelling of the salt and sugar, water measurement and cleaning of ORT unit.

Statement of Research Problem

Community Based Distribution (CBD) workers (TBAs, VHWs) have been active in Akinyele LGA and a high number of diarrheoa episodes have been managed (see Tables 2 and 3). Studies in a number of pilot CBD programmes have shown that CBD workers can deliver modern contraceptives and safe maternal and child health services (including treatment or management of common childhood diseases such as diarrhoea) in their communities (Weiss, 1985). However, most efforts have been on the general assessment of service delivery especially contraceptive delivery.

One major gap however, is the absence of post-training evaluation of CBD workers' skills in the preparation and use of salt sugar solution (SSS) in the management of children diarrhoea diseases. This is important because if the

TABLE 2

CBD ILLNESS TREATMENTS JULY 1983 - JUNE 1984

TYPE OF ILLNESS	NUMBER OF TREATMENT	PERCENT OF TOTAL
Malaria	30,242	40.3%
Cough	15,619	20.8%
Dressing of Wounds	8,927	11.9%
Anaemia	8,781	11.7%
Worms	4,971	6.6%
Diarrhoea	4,936	6.6%
Other	1,507	2.0%
TOTAL	74,983	100%

Source:

Proceedings: Conference of the Oyo State CBD Project: Community Based Delivery of Health and Family Planning Services University of Ibadan Conference Centre January 14 - 16, 1985 Ibadan. Nigeria.

potentials of using salt sugar solution (SSS) to save the lives of millions of children is to be realised through Primary Health Care (PHC) the extent of knowledge about the new therapy and its application by trained CBD workers need to be assessed. Of importance are the extent of availability of SSS ingredients, use and non-use of SSS. Other questions of importance include the following:

- What are the facilitating and/or inhibiting factors contributing to the use of SSS in diarrhoea management of underfives by CBD workers?
- What are the characteristics of CBD workers users and non users?
- What are the beliefs of CBD workers with reference to SSS?

These and other questions become necessary as these workers form a vital link in health services delivery to rural populations at the Village level and their commitment to and correct use of SSS is crucial to its success. There is therefore a need to identify the factors (predisposing, enabling and reinforcing) relevant to the success or obstacles to the adoption of innovation - SSS by these CBD workers. Moreso, as many rural children do not have access to modern health facilities. The identification of such factors or

obstacles will enable one to make meaningful and relevant recommendation as to increasing CBD workers rate of SSS use for children with diarrhoea.

In addition, the study will furnish health planners with some of the important items of information necessary for the formulation of a good plan in PHC adoption of innovation. Some of these important items of information that may be revealed include knowledge of the relationship between programme objectives and characteristics of agents (such as agent's perception of SSS, beliefs, teaching mothers and others), identification of CBD worker performance requiring additional attention during training and ongoing supervisory visits. Also, the study will reveal a detailed understanding of the possible mechanisms of change among CBD workers brought about by the adoption of SSS in the management of childhood diarrhoea.

PURPOSE AND OBJECTIVES

The purpose of this study is to assess the knowledge and skills of CBD workers in the use of SSS for diarrhoea management and the service use appraisal by mothers of under five children.

The specific objectives included the following:

To:

- ascertain the post-training skills of CBD workers' in preparing SSS in relation to availability of materials for preparation and method of preparation.
- identify the characteristics of workers who use SSS and those who do not use it.
- identify the factors facilitating and inhibiting the use and non use of SSS.
- collect information from mothers on treatment practices given to their children by CBD workers in diarrhoea management.
- utilise findings in developing a guide to be used in service delivery.

SCOPE OF THE STUDY

This study is confined to finding out if TBAs and VHWs can demonstrate the simple skills needed in the preparation of Salt Sugar Solution (SSS). This inovlved acquisition of both motor and verbal skills (Munn, 1956, Elwell and Grindley, 1938).

The study consists of five chapters. Chapter one deals with the introductory part of the study which includes background information and statement of research problem and possible benefits from the study. Chapter two deals with the review of existing literature relevant to the study. Chapter three describes the materials and methods while the results of the study are presented in Chapter four. The discussion of the results are presented in Chapter five.

CHAPTER TWO

LITERATURE REVIEW

Diarrhoea is a major cause of mortality and malnutrition among children of developing countries (WHO, 1988). One of the strategies recommended to reduce mortality is oral rehydration using Salt Sugar Solution (SSS) (WHO, 1986). It is important that health personnel especially Community Based Distribution (CBD) workers adopt this strategy and apply SSS as first line management of childhood diarrhoea. This chapter begins with a brief outline of the historical development of Oral Rehydration Therapy (ORT) or Oral Rehydration Salts (ORS).

HISTORY OF THE DEVELOPMENT AND USE OF SALT SUGAR SOLUTION

Oral rehydration is one of the simplest of all diarrhoea therapies yet it took thousands of years to develop and perfect its formula.

One of the most ancient methods of treating diarrhoea was basically a solution of salt, sugar and water. The Indian physician Sushruta recommended that diarrhoea patients should drink large amount of tepid water dissolved with rock salt and molasses about 3,000 years ago (Novak, 1984). Although, Sushruta knew the basic ingredients but he did not know the correct proportions in which to mix them nor the physiological

reasons for the efficacy of the remedy. This remedy later faded into disuse as Western type medicine took over due to British migration to India.

An early documented use of oral rehydration therapy was discussed by O'Shaughnessy in the Lancet of 1832. He suggested that small amounts of oral alkali be given though he did not specify or demonstrate the effectiveness of this regimen. Sellards (1910) did demonstrate that oral alkali could alkalinize the acid urine of some patients indicating some degrees of absorption.

In the 1940s, Harrison at Johns Hopkins Medical School used electrolyte solutions with glucose added to treat mild diarrhoea and dehydration during late convalescence. The glucose was intended as a source of calories, its role as the substrate necessary to move sodium and water across the intestinal mucosa was not yet known. In 1953, Chatterjee reported favourable reports from the use of antiemetic and a herbal medicine in the treatment of cholera, fluid losses of patients receiving antiemetic were replaced both orally and rectally with a solution containing salt, water and glucose but no bicarbonate.

In 1950s, a renewal of intestinal absorption of sugars and amino acids laid down many of the scientific principles

later tested on diarrhoea patients. Fisher and Parsons (1953) demonstrated that there was increased intestinal absorption in the presence of glucose. Allfrey et al (1956 - 57) showed an association between sodium movement and amino acid uptake in thymic nuclei - a phenomena later seen in intestinal cells.

The first clear scientific demonstration of the use of oral therapy was made by Captain Robert Phillips and his colleagues at Naval Medical Research Unit (NAMRU) in Taiwan between 1962 - 1964. He demonstrated that glucose promoted net absorption and decreased net stool losses in cholera patients. Another major breakthrough to developing Oral Rehydration Therapy (ORT) was in 1965 by David Sachar, Jim Taylor and others at the Pakistan - SEATO Cholera Research Laboratory (PSCRL) demonstrated an increase in intestinal transmural potential when glucose was added to the electrolyte solution, bathing the small intestine. This clearly demonstrated that there was movement of electrolytes across the intestinal lumen, even during cholera, when glucose was added to the solution.

On oral rehydration therapy/salts use, Marsden, (1834) reported that salt water was used in the treatment of cholera patients as far back as 1834 in the United Kingdom. In the late 1940s/early 50s a carbohydrate (e.g. glucose) was added

to oral salt solutions being used to treat diarrhoea, to improve their taste and to provide calories (Darrow et al, 1949, Harrison 1954). The above relates to a brief development of ORT. Though, it shows that the development of most technologies does not usually follow a clear linear progression. There are starts and stops, serendipity and missed opportunities. The same applies to development of Oral Rehydration Therapy (Cash, 1987).

In Nigeria, the use of Oral Rehydration Therapy/Salt (ORT/ORS) has a long history. As far back as 1950s, Morley adopted an ORT for most of diarrhoea patients presenting to the clinic with mild to moderate dehydration. Morley was working in the rural communities of Imesi near Ilesa, Oyo State and noted high prevalence of diarrhoea associated with weaning. This high prevalence prompted him to adopt ORT. However, there was no concerted effort at the National level until 1984/85. The impact is being felt in health institutions where zonal oral rehydration therapy units have been established in the country namely Lagos, Enugu, Sokoto and Yola. The preliminary reports indicate a marked reduction in hospital case fatality rates due to diarrhoea and in the number of drips set up daily (Okeahialam, 1985).

HISTORICAL BACKGROUND OF COMMUNITY BASED DISTRIBUTION WORKERS

In Asia, Africa and Latin America, most births are attended by Traditional Birth Attendants (TBAs) (Verderese et al, 1975, Ghose 1968, Neumann et al, 1974). More than 80% of the people in the developing world use the services of traditional practitioneers (Okubagzhi, 1988).

In history, traditional midwifery is as old as creation and dated back into Genesis 35: 16-17. However, the world wide acclamation of traditional midwifery was reported in the WHO Technical Report Series No. 331.

> ....."For many women, in many parts of the World, assistance at child birth is provided only by traditional birth attendants".

The acceptance of traditional midwifery as a profession in Thailand was reported by Bryant (1972).

> ".... There could be no greater mistake than to consider her (traditional midwife) as a dirty handed granny with a slovenly and superstitious approach to a procedure that should be neat and sterile. She not only has important technical and domestic skills, she also insures the cultural and religious integrity of the event..".

The TBAs mostly work in villages where access to pregnant women is easy, but qualified physicians and/or hospital facilities are limited. These TBAs serve entire communities, whereas others serve only their own families and neighbours (Verderse, 1973). Such TBAs are mostly illiterate and post

menopausal rural women who are married, widow or divorced and have several children (Simpson - Hebert et al, 1980). They are actively engaged in agricultural or other activities and attend deliveries on part-time basis. They have no formal training on hygiene and their delivery practices are based entirely on customary knowledge (Simpson-Herbert et al, 1980).

In Nigeria, indigenous or traditional midwifery cannot be wiped out. The problem is not peculiar to Nigeria or other African countries. It is Worldwide. According to WHO health committee a midwife was defined as:

> "a person who is qualified to practise midwifery. She is trained to give the necessary care and advice to women during pregnancy, labour and the post-natal period, to conduct normal deliveries on her own responsibility and to care for the newly born infant" - (WHO Technical Report Seried No.331).

The indigenous midwives abound in nearly all the Nigerian villages because there are no adequate maternity hospitals, clinics, health centres or resident registered midwives in the locality (Laoye, 1975). Also the services of health workers would continue to be utilised because many Nigerian women and even men are still entrenched in superstitions, taboos and religious beliefs. Due to these beliefs, many women are sceptical of physicians, hospitals and even midwives and so would prefer traditional midwives (Laoye, 1975).

The untrained Traditional Midwives and Traditional Role

The untrained Traditional Birth Attendant (TBA) is defined as 'a person (usually a woman) who assists the mother at childbirth and who acquired her skills delivering babies by herself or by working with other TBAs (Verderese and Turnbull, 1975). This definition excludes the trained (formally) TBAs.

The TBA is usually an older woman, almost always past menopause and has borne one or more children herself. She lives in the community where she practices. Many of her beliefs and practices pertaining to the reproductive cycle are dependent on religious or mystic sanctions. They are reinforced by rituals that are performed with traditional ceremonies which are intended to ward off the causes of ill - health (Laoye, 1975).

She adheres to the diet of the community and assumes an important role in the transmission of ideas concerning the nature and effects of food. She is often an accomplished herbalist whose knowledge of herbs may be quite extensive. To common problems, she works out solution within a framework of values and beliefs shared with her client. She participates in the same cycle of cultural activity and is a recognised member of the same social universe.

In most countries, she has no legal recognition and is unregistered. At the local level there seems to be no restriction and she has freedom to pursue her activities and readily accepted by her community

Her influence is sometimes felt in other aspect of community life. She may advise families on their health problems, look after children when ill, conduct rituals at weddings, circumcise female children, help with cooking and housework of her clients particularly during delivery and postnatal period. However, in this study, the focus is on trained TBAs and not untrained though the untrained serves as a background information on TBAs (Leedam, 1985).

ii. Trained TBAs

Based on suggestions from midwives, obstetricians, anthropologists and educators, WHO has issued guidelines, encouraged consultations, workshops and seminars which are designed to widen the acceptance and disseminate the knowledge available on both Traditional Birth Attendant and on the training needed to effectively utilise the traditional practitioners.

These suggestions, from formally trained health workers, were being used to improve the services rendered by untrained TBAs. Such improvement becomes necessary because these

Village Workers have become the distinguishing feature of many primary health care schemes. It has been described as 'bridges' between communities and health services (Ofosu-Amaah 1983) as 'pillars' of Health for All (WHO 1987) as 'the cornerstone of Primary Health Care' (Bender and Pitkin, 1987) as 'partners in Primary Health care' (Ramprasad, 1985), 'avenues for community participation' (Monekosso, 1986) and 'implementors of Primary Health Care' and 'promoters of development, 'liberators' and not 'lackeys' (Werner, 1981).

These workers have developed into a cadre of volunteer village health workers due to their inclusion in the provision of Village based services in the PHC scheme (Bamisaiye et al, 1989). These workers (males and females) are known as Community Based Distribution (CBD) Workers, Community Health Workers (CHW) or Volunteers Village Health Workers (VVHW).

DEHYDRATION IN DIARRHOEA

A person with acute diarrhoea begins to lose essential water and salts from the onset of illness. Unless these are adequately replaced, dehydration will develop. There is need therefore to prevent it. A dehydrated person needs to be treated in two phases:

1. the rehydration phase - replacement of the accumulated deficit due to fluid and salt losses in stools and vomitus.
2. the maintenance phase - replacement of ongoing abnormal losses due to continuing diarrhoea and respiration, sweating and urination which are particularly high in infants. (UNICEF/WHO, 1985).

Fluid replacement by injection into the veins (intravenous therapy) was first used for the treatment of dehydration from diarrhoea in the mid-nineteenth century. This technique (injection into the veins) requres sophisticated equipment, is costly and requires specially trained workers like doctors and nurses (WHO/UNICEF 1985). This could only take place in static and relatively sterile environments which are not accessible to majority of the people who need the services.

Oral rehydration consists of giving, by mouth a solution to replace the water and salts lost from the body during diarrhoea. Nalin (1982) pointed out that there is no justification for any other therapy other than oral rehydration in mild to moderate management of dehydration resulting from diarrhoea. Cases in which ORT may fail and would require intravenous therapy include situations when a child is semi-conscious or unconscious, in a state of shock, vomitting persistently or with profuse diarrhoea. However, the treatment may be continued with ORT subsequently.

The effectiveness of oral rehydration for the treatment of dehydration due to diarrhoea both in health facilities and at the community level has been well documented (Kumar et al, 1981, Rahaman et al, 1979). That salt sugar solution can be used successfully to maintain normal hydration status in the vast majority of cases following the treatment of dehydration suggests that it should also be effective for early use at home to prevent dehydration. When salt sugar solution was used by village health workers in Egypt (Kielmann et al, 1985) and Indian (Kielmann et al, 9177, McCord et al, 1978) for primary treatment of diarrhoea, diarrhoea associated mortality rates declined significantly.

Jintaganont et al (1987) in their experimental study in South Thailand on impact of salt sugar solution service delivery programme upon salt sugar solution utilisation found that the use of SSS by mothers in experimental aarea was four times greater than the increase incontrol area resulting in SSS treatment for over 80% of children under five years. The factors contributing to the effectiveness of this programme were the dramatic increase in service provider activities. 70% of mothers whose children under five years had diarrhoea treated their children with SSS received from village health worker or volunteer.

Allman and Allman (1986) on their treatment of childhood diarrhoea in rural and urban Haiti with regard to infant diarrhoea and use of both SSS and oral rehydration salts (ORS) packets in Port-au-Prince reported that there was increased use of SSS/ORS in rural areas where the use of SSS/ORS is much less widespread than the urban. It was also found that it prevented mortality from dehydration due to diarrhoea. Rohde, (1984) in his strategies for control of disease in the developing world identified oral rehydration to replace lost fluids and electrolytes among others as being the most effective and economical intervention currently available. Rohde (1984) introduced ORT in Port-au-Prince resulting in

reduction of case fatalities from more than 30% to less than one percent. Also in Bangladesh, when there was an outbreak of cholera during the civil war and there was shortage of intravenous fluid, Mahalanabis et al (1973) stated that over 80% of moderately and severely dehydrated were sufficiently rehydrated with SSS.

In Nigeria, reports from a multicentre study (1980) on efficacy and acceptability of oral rehydration salts for the treatment of diarrhoea showed that over 90% of children with dehydration can be effectively treated by ORT. Only 11 (5%) of the children who had presistent vomitting and were severely dehydrated required intravenous therapy (Okeahialam, 1985). Also, Seriki et al (1983), successfully rehydrated 90% of those who reported with mild to moderate cases of dehydration due to diarrhoea. Only 6% of the cases required intravenous therapy.

The above shows that ORT has brought about a decline in mortality rate resulting from dehydration due to diarrhoea in clinics and through village volunteers. The Village Voluntary Health Workers have been sueful in distribution of ORS packets and results in successful rehydration (Allman et al, 1986).

However, some health workers noted that availability of WHO/UNICEF recommended packets of ORS/ORT is a major constraint (WHO, 1986, Grange et al, 1985). Therefore, a home based sugar salt solution (SSS) which utilises locally available ingredients has been suggested as solution to the problem.

HOME MADE SOLUTION - SSS

a. Composition of Salt Sugar Solution (SSS)

From the assumption that SSS is effective in preventing dehydration, it would be useful to have information on the optimum concentrations of the sugar (glucose or sucrose) and salt (sodium). Santosham et al, (1981) demonstrated that solutions containing 30, 50 and 90 mmol/l of sodium were equally safe and effective in treating diarrhoea cases with mild or moderate dehydration. Islam et al (1980) compared serum sodium concentrations in adults receiving ORS and those receiving labon gur (common salt and brown sugar) molasses solution containing 90mmol/l of sodium for primary treatment of diarrhoea in a community-based study in Matlab, Bangladesh and found very low rates of electrolyte abnormalities in both groups. The WHO/UNICEF recommended that home made fluids should have sodium and glucose concentrations of 50 - 100mmol/l (WHO/UNICEF 1985). The lower limit was considered

to be the minimum concentration required to prevent most cases of dehydration and to treat mildly dehydration cases and the upper limit was felt to be at the highest level of safety. Though some have argued that well nourished infant with diarrhoea could develop hyper-natraemia when given the solution which contains 90mmol/litre Finberg, et al (1980) suggested that the WHO ORS composition should be reserved only for children for the third World Countries while Woodward, (1980) objected to Finberg et al and advocated for a single universal ORS composition. However, in a study carried out by Grange et al (1985) to identify a simple reproducible composition of SSS. The solution so obtained from the preparation would be 650ml and would contain 45-70mmol/litre of sodium and about 83mmol/litre of sucrose. It was recommended that it is a safe and effective mixture for the prevention of dehydration at the onset of diarrhoea and for the treatment of mild cases of dehydration.

b. Preparation of Salt Sugar Solution (SSS)

Church (1972) recognized the need for a simple method to enable mothers to prepare SSS at home thus recommending two "thumb and 2-finger pinches of salt and one" 4 - finger scope of sugar in a pint of water which gives a solution containing 34mmol/litres of sodium and 175mmol litres of glucose.

Many other recipes have been proposed along with various simple measuring instruments (e.g. teaspoons, bottle caps). Many of these recipes are outside the 50 - 100mmol/litres range. About one-third of the recipes include recommendation to add lemon or orange juice, coconut water or potassium chloride tablets (as a source of potassium)or baking soda (as a source of bicarbonate).

Potential difficulties in using the "pinch and scoope" method were initially demonstrated in a study in which the mean weight of a pinch of refined salt was recorded as 0.42 (+ 0.12) for mothers in United Kingdom, 0.96kg (+ 0.52) for mothers in Trinidad and Tobago and 2.27kg (+ 1.65) for mothers in India (numbers in parentheses are + standard deviation).

However, the Bangladesh Rural Advancement Committee (BRAC) reported a consistently acceptable range of cocentration of sodium (30-100mmol/litre) and glucose (40-178mmol/litre) using the pinch and scoop method when training and supervision were intensive, the salaries of trainers were related to the quality of the performance of trainees and the fluids were prepared in containers provided for mixing (Ellerbrook, 1981).

Due to the differences in sizes of available teaspoons and amounts delivered by pinches and scoops, Hendrata (1978)

designed a double ended plastic spoon to measure salt and sugar for mixing in a cup (200ml) of water yielding a concentration of 77mmol/l of sodium and 58mmol/l of glucose. Morley (1978) has also promoted the use of similar spoon of durable plastic through Teachings At Low Cost (TALC) on which instructions have been writter in nine different languages.

In India (Vellore) Steinhoff et al, (1985) in a study on Village Health Workers use of both the pinch and scoop method and the double ended plastic spoon found solutions ranging from 25-120mmol/l of sodium and 25-140mmol/litre of glucose. However, results were acceptable to investigators.

In a study in Zimbabwe by De Zoysa et al, (1984) mothers were taught to prepare SSS by mixing 6 level teaspoons of sugar and half a level teaspoon of salt in 750ml of water. The fluid prepared had salt and sugar concentrations within the range of 30-100mmol/l of sodium and 50-149 mmol/l of glucose. The investigator found result more reliable when domestic teaspoons other than double ended spoons were used.

In Nigeria, Ransome Kuti et al (1978) observed that only 34% of 217 Nigerian women could prepare SSS correctly using teaspoons and proposed the use of simple measuring device which if manufactured on a large scale would be inexpensive.

However, in order to have a standard for Nigeria, Grange et al, (1985) carried out a study on "Standardisation of Home made SSS for the Treatment of Acute Diarrhoea Diseases of Childhood in Nigeria" proposed a method for preparing SSS. The formula for a standard SSS is

- One level teaspoon salt
- Ten level teaspoons granulated sugar or five cubes of sugar
- One beer bottle or two standard soft drink bottles of water. This has been widely accepted in Nigeria.

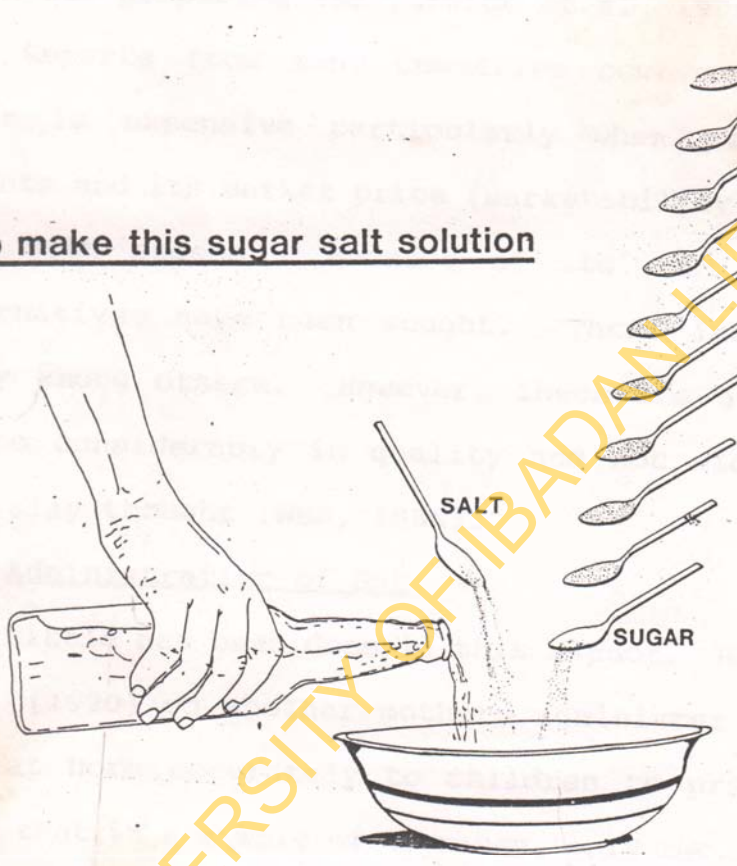
c. Availability of Ingredients and Materials

There are few published reports on this but surveys and informal enquiries in some Asian and African Countries (e.g. Bangladesh, India, Mali, Nigeria, Senegal) have revealed that non-availability of salt and sugar or mixing utensils (e.g. spoons) can create operational problems in use of SSS (WHO, 1986)

In Nepal, a study carried out by Poudayl et al, (1980) found that less than 50% of the homes were found to have sugar and any kind of teaspoon. There was free distribution of the salts but the spoons could be found in only 17 of 50 homes two weeks after free distribution.

How to prepare sugar-salt water solution at home;

To make this sugar salt solution



MIX	1 Beer bottle of WATER	+	1 Level teaspoon of SALT	+	10 Level teaspoons of SUGAR

The appropriate containers found in most homes in Nigeria are the standard beer bottle or soft drink bottle. Either can be used to measure water in preparing the solution. The beer bottle (650 ml.) has approximately twice the volume of the soft drink bottle, so use one beer bottle full of water or two soft drink bottles full.

In Nigeria however, mothers are being informed in the national programme to use a widely available plastic 3-ml spoon for preparing SSS (Grange et al, 1985).

Reports from many countries however highlighted that sugar is expensive particularly when purchased in small amounts and its market price (marketability) and availability vary with season. Because of its cost and variability, alternatives have been sought. These include sugar cane, honey among others. However, these are general expensive, varies considerably in quality and not widely available as generally thought (WHO, 1986).

d. Administration of SSS

Little has been done in this aspect. However, Touchette et al (1990) on whether mothers administer oral rehydration salt at home accurately to children to prevent dehydration found that in a sample of 44 cases, only two children received more than 90ml-kg per day. The mean observed value was 44ml kg per day (SD - 28.4) well below the recommended dosage.

In Nigeria, it has been observed that different methods of administration of salt sugar solution are adopted. Varieties used include teaspoon, tablespoon, cups (of various sizes) and others. It could be inferred from the observation

that while some children were given accurate solutions some were given more or less than the required solution.

The above relates to the effectiveness of home made solution in reference to its composition, preparation and administration. Effectiveness in preventing dehydration from diarrhoea cannot be achieved unless there is adequate/perfect preparation of the solution. Perfect preparation would not be achieved unless the necessary skills in preparation are acquired. Acquisition of skills necessary in preparing SSS are not hereditary but has to be learned. A training process is necessary to enable CBD workers with little or no previous training to acquire a high degree of proficiency in preparation and use of salt sugar solution.

TRAINING PROGRAMS FOR COMMUNITY DISTRIBUTION WORKERS IN OYO STATE NIGERIA

Community Based Distribution workers were selected by the Communities they are representing. The communities were encouraged to form village health committees. These Village health committees nominate the health workers for training (Bamisaiye, et al, 1989). The nomination of Volunteers health workers for training are in accordance with certain criteria which include maturity, permanent residence in their communities, active engagement in agriculture, trading, among others. A total of 173 agents were selected in Akinyele Local Government Area of Oyo State (Ladipo, 1985 - See Table 1).

The objectives of the training include the following:

To:

- reduce maternal, infant and child morbidity and mortality.
- ensure that preventive services are easily and readily available to the people in the rural areas.
- encourage and promote community participation
- reduce the incidence and prevalence of many communicable diseases.

- increase awareness and to reduce the rural population on the concept of self help reproductive health and provide services for such.

All training in the project was competency based. Competency based training requires trainers (University College Hospital staff and midwives from Ministry of Health and Maternity Centres) to analyse the tasks necessary for the trainees (CBD workers) to perform his or her job and categorise as knowledge, skills or attitudes. The tasks were made explicit, training sessions addres each task and assessment is based on performance (Ladipo, 1985). The training lasted three weeks and were in phases. The first phase dealt on management of the new born and management of minor ailments including diarrhoea. The second phase dealt on Family Planning methods and environmental sanitation (Appendix one for detail). The CBD workers were trained in 1981. The workers were asked to manage diarrhoea with UNICEF oral packets. Since these packets became scarce, a need arose for teaching them on the new innovation - SSS.

In-service Training for CBD Workers

In-service training was organised for the CBD workers. This training involved teaching CBD workers new skills in their service locations. The training became necessary as

FIGURE 2b

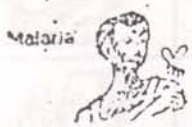
COMMUNITY BASED M C H / F P

T B A / V H W Project

Dept. of O. & G. U. C. H.

REFERAL CARD

Kindly accept this Patient for Treatment

			
 Malaria			
 Cough			
 Diarrhoea			
 Worms			
 Vomiting			
 Ante Natal Care			
 Delivery			
 Family Planning			
 Child Welfare Clinic			

CBD MONTHLY TALLY SHEET

Field work Reports Of **TBAs & VHWs** (Circle One)

oruko name			
aba village			
ile ibimo maternity			
ojo ti o ti iwe re sile date turned in			
agbegbe zone			
Treatment (Itoju)	Adult  Agbalagba	 School Child Omo Ile Iwe	 Infants & Under Five  omo owo, omo irakoro at ti koti le lo si ile iwe
Malaria  Iba			
Cough  Iko			
Diarrhoea  Igbe Gbuuru			
 Worms Aran			
 Anaemia Eje Koto Lara			
 Dressing Egbo			
Others Awon Arun Yoku 			

HOME VISIT (*without treatment*) but Health Talk
IBEWO SI ILE (*Lai fun ni Logun*) sugbon gbigba ni ni 'yanju nipa Iler

~~Fig~~
~~104~~

FIGURE TWO

Community Based Distribution workers have to acquire certain skills to perform the task required in preparing SSS.

The training which lasted three days (1986) was organised by midwives working with the Ministry of Health, Secretariat, Ibadan in collaboration with University College Hospital staff and health workers in the respective CBD centres. The teachers were also the organisers. They were senior health workers who have been trained as Trainers. Though the CBD workers were reminded of the curative and preventive services rendered, much of the time was devoted to teaching of the new idea - SSS. All training in the in-service was competency based in which trainers (senior health workers) analysed the tasks necessary for the CBD workers to perform his or her job and categorized them as knowledge, skills or attitudes. Skills cannot be learned through lectures and demonstrations alone but there is need for practice. CBD workers needed to learn three different kinds of skills in successful management of diarrhoea. These skills include manual, thinking and communication skills.

Manual skill involved the ability of CBD workers to wash hands before preparing salt sugar solution, to record cases managed and availability of materials to prepare salt sugar solution (SSS).

Thinking skill involved CBD workers ability to identify a dehydrated child and assess the severity, whether to use referral system or not and also ability to state the correct measurement of the ingredients - salt, sugar and water.

Communication skills involved CBD workers ability to inform mothers on the causes, management and prevention of diarrhoea. Also, the ability of the CBD workers to tell mothers how to prepare and administer SSS.

Teaching of skills was done in three ways including Description of skills, Demonstration and Practising of Skills. The workers were taught in the language understood by CBD agents which was Yoruba.

Description of Skills

The trainer described the signs, causes, symptoms, management and preventive measures of diarrhoea to the CBD workers. The CBD workers were told the reasons for managing diarrhoea at the early stage so as to prevent dehydration.

- Specifically the trainees - CBD workers were required to acquire the following in a lecture method:
- Definition of diarrhoea in a way appropriate to his/her setting.

- Distinguish between mild to moderate and severe diarrhoea
- Ask, look and feel for signs of dehydration and check for problems other than dehydration.
- Preparation of SSS correctly
- Give SSS to dehydrated children
- Referral system - (children with severe dehydration)
- Record data on patients
- Clean SSS unit regularly

The trainer in the lecture also described the above task and skills using visual aids such as posters and blackboard. Songs were also taught to help the workers remember the constitutents of SSS.

Demonstration of Skill

After describing and explaining the tasks necessary, the trainers demonstrated the skills involved in SSS preparation. First, all the necessary materials needed for SSS preparation were assembled, followed by proper handwashing with soap and water and which were later dried. Next, the ingredients were measured correctly while reminding them that it should be levelled. This was demonstrated clearly by the trainers to the trainees. The sitting position allowed for face to face

interaction which gave the CBD workers opportunity to observe the trainers well.

Practising of Skill

After the trainers had demonstrated the skill, the CBD workers were asked to re-demonstrate to the class the SSS preparation. However, in the practising session, only four of the workers were allowed to practise return demonstration. This however is the most important part of learning process. It is only by practising the tasks on their own that the trainees (CBD workers) would develop the confidence necessary to do the tasks independently in the community.

Practising the skill acquired during training is very important because it shows how much the CBD worker has learnt. Unfortunately, this aspect of training is not always given enough attention because practise sessions are difficult to arrange and are time consuming (WHO, 1986).

However, there is a monthly supervisor, usually a senior health sister and two community health assistants from the CBD office, Ministry of Health, Secretariat, Ibadan who supervise CBD workers activities and review treatment of illnesses including management of diarrhoea diseases with the CBD workers. During such visits opportunities abound for the CBD workers to ask questions on any area of their work. It is

also during this monthly visits that the workers replenish their boxes by buying drugs which they would use before the next monthly visit and would also collect a new tally sheet each on which the workers record cases treated or managed or referred.

CBD Post-Training Assessment

At the end of the in-service training course in 1986 the CBD workers were asked to describe what to use for SSS preparation and how to mix the solution. However, the record of performance would not be located or traced by the trainers. The author made vigorous efforts to obtain this vital information but without fruition.

However, regardless of this problem, it is important to know whether the CBD workers can describe the tasks correctly and demonstrate the skills acquired during their in-service training after three years.

POST-TRAINING EVALUATION OF SSS BY CBD WORKERS

Training CBD workers is not an end in itself, but there is need to assess the performance of individual worker so trained, in the knowledge, use and preparation of SSS (Foster, 1983). The results from evaluation helps in identifying outcomes of a programme in reference to achievements and problems. Specifically, it helps in identifying inadequate or incorrect knowledge of assessment of dehydration and appropriate therapy or inadequate skill in communicating such knowledge to mothers. This can help to highlight programmes that are beneficial to the society and those that are not.

Though, ORT has been adopted Worldwide with many individual efforts reported, there are a few post-training studies that clearly describe SSS utilisation by CBD workers.

A post-training evaluation carried out by the Gambian National Program for Control of Diarrhoea Diseases in Gambia (1986) to assess the level of knowledge and practice of the use of SSS by VHWs and TBAs revealed that 18 (94.7%) of 19 VHWs recommended SSS, taught mothers on the recipe and how to administer SSS. Fourteen (73.7%) VHWs prepared the solution for mothers and correctly recite the recipe for SSS but only one (5.3%) could give the correct administration relating to quantity to be given, frequency and duration. On renewal of

SSS 9 VHWs (47.4%) told mothers to replenish solutions daily until diarrhoea stops. On reasons for giving SSS, 17 (89.5%) stated that SSS is used to replace body fluids lost during diarrhoea and 2 (10.5%) to stop diarrhoea. Four (23.5%) of the 17 who answered correctly said SSS also prevented diseases and eventually stopped diarrhoea. One (5.9%) said it gives power.

On availability of materials at home, sugar and salt were observed to be available in the villages visited though sugar was more expensive. Sometimes in the home of 13 (64.4%) of the 19 VHWs, Julpearl bottles and caps were difficult to find. Eight (42.1%) of 19 VHWs kept bottles and caps on hand for mothers to borrow but 5 (26.3%) used and recommend the 1 litre cup measure which was claimed to be more widespread than the julpearl bottle.

Further results revealed that 12 (80%) out of 15 TBAs treat diarrhoea and 9 (75%) of this 12 recommended SSS while 3 (25%) talked on hygiene only. In addition 3 (20%) of the TBAs were able to recite correct recipe for SSS and 2 (13.3%) knew nothing about SSS (had forgotten). Eight (80%) of the 10 who recited incorrect recipe were concerned with the amount of water to use, and 6 with the quantity of sugar and salt.

Only one TBA (6.7%) stated correctly all the three aspects of administration with reference to quantity, frequency and duration. Two (13.3%) gave the child with diarrhoea as much as needed and 3 (20%) had no idea. Nine (60%) gave various answers. Only one TBA (6.7%) mentioned that SSS is to replace lost fluids while 14 TBAs (93.3%) mentioned various reasons depicted on Table 4. However, 13 TBAs (86.7%) claimed mothers in their village accept and use SSS, 4 TBAs (26.7%) prepared SSS for mothers and said that SSS is effective. These results showed that post-training assessment indicated the level of knowledge retention and skill performance and could possibly suggest areas of improvement.

In another study in Brazil where traditional healers were trained to deliver ORT as part of their healing ritual for children, results revealed that the healers were both competent and dependable as frontline providers of ORT during the 12 month intervention. This information was infered from observation and records keeping (Nations et al 1988)

TABLE 3

FREQUENCY DISTRIBUTION OF RESPONSES ON WHAT SSS DOES BY TBAS IN GAMBI

WHAT SSS DOES	NO. OF TBA
Replaces lost fluids	1 (6.7%)
To prevent worms	1 (6.7%)
Stops Diarrhoea	10 (66.7%)
No idea	3 (20%)
TOTAL	15 (100%)

Source: Publication by Gambian National Program for Control o Diarrhoea Diseases in Gambia in 1986.

Nations et al (1988) in their study in Pacatuba on mobilising traditional healers to deliver ORT used participatory method between researchers and traditional healers to involve traditional healers in the promotion and use of ORT. 46 traditional healers were trained in Pacatuba to correctly prepare and administer ORS and to teach mothers how to give the solution to their children at home. The healers were provided with basic equipment necessary, measuring utensils , containers and water filters. After 12 months of activity, a post-test evaluation of responses of 226 mothers with children less than five years showed a highly significant increase in mothers who know about home made ORS from 3% to 72%. Traditional healers have demonstrated that they are capable of delivering safe SSS through introduction of ORT though the healers did not change village beliefs of diarrhoea causation. A cost analysis of intervention showed that the costs of incorporating traditional healers into ORT delivery is quite low since the healers work without salaries.

Gayemittes and Ward (1986) in their study of community organisation in promoting effective use of ORT in Haiti in a post-test household knowledge, attitude and practice (KAP) survey showed that 43% of the households indicated that one or more of the trained leaders had discussed using ORT with them

in home visits or at community meetings. This study demonstrated that a variety of village leaders could be mobilised and trained to serve as volunteers in a way that could reach a large percentage of a given target population.

Kumar et al, (1989) in their study in rural areas of Haryana, India on the effect of training on management of acute diarrhoea in a primary health care setting carried out an evaluative study using observation method after a year of training programme. It was a study involving many health workers including physicians, multipurpose health workers and Anganwadi (child care volunteers). Results showed that Anganwadi workers assessed dehydration in 45% of patients ($P < 0.05$), ORS was used in all diarrhoea related cases but only 43% of patients were taught ORS preparation by Anganwadi workers. However, continuation of breastfeeding during treatment was advised by the Anganwadi workers.

Also Kumar et al (1989) in rural villages of India trained health volunteers to deliver and teach ORT to mothers as part of their services in diarrhoea management using home made solution - SSS. ORT was introduced in 47 villages - in 25 by health workers and in 22 villages by health volunteers. The 22 villages served as control group. Impact was assessed by interviewing 200 mothers initially and 210 each, one and

two years after initiating the programme. Dehydration was perceived as a complication of diarrhoea by 67.2% of the mothers in the health worker group as compared to 71.4% in the volunteer village of intervention P<0.01). The intervention area 88.6% mothers had ORT as compared to 22.8% mothers in control villages though no significant change regarding understanding of cause of diarrhoea or knowledge in use of home available fluids in increased amounts.

Pugh (1989) reported that the number of dehydrated children presenting for treatment has reduced in Zimbabwe. This resulted from Zimbabwe National Campaign for home treatment of diarrhoea with SSS introduced in 1980. This success was recorded due to the support of all health workers including Traditional Birth Attendants (TBAs) and Voluntary Health Workers (VHWs). The reduction was obtained from the existing records.

Dunn et al, (1986) in their study on development of appropriate methods for sustaining rural health motivators in rural Swaziland revealed that field test post training evaluation using community survey and interview with trained Rural Health Motivators (RHMs) showed that Primary Health Care skills training for the RHMs had served to broaden the community's perception of the role of the RHM in relation to

children's health, for example RHM were perceived to be the primary source of information on ORT and mothers compiled well when the RHM referred their children for immunisation and others.

Mtango (1986) in their study addressing problem of inadequate supervision of VHWs in Bagamoyo and Hanang districts in Tanzania. Various methods of data collection were used including extensive participation of villages, village governments, VHWs, supervisors through group discussion, questionnaire, monthly reports. It was found that VHWs in determining their performance levels in 10 essential PHC activities signified seeing average of 3.6 diarrhoea patients per fortnight per VHW.

In a formative evaluation by Rasmuson et al, (1983) on Mass Media for Infant Health Project in the Gambia, Red Flag Volunteers trained as village diarrhoea treatment "experts" by rural health staff in 1982 were assessed through questions asked sampled rural mothers, health staff and small sample of Red Flag Volunteers. It was reported that 74.3% mothers knew a Red Flag Volunteers in the immediate vicinity but only 31.8% had ever visited one for advice. 92.3% of the volunteers could name the correct amounts of all three ingredients in the SSS. Only 53.8% knew the correct volumes of solutions to

administer in all three age categories (under six months, 6 - 18 months, 18 months). 53.8% Volunteers said they told mothers the purpose of SSS was to prevent dehydration 38.5% told mothers it stopped diarrhoea, while 15.4% said that it cleans the stomach.

Although, the Volunteers were trained to teach mothers 76.9% reportedly did so while 23.1% said they mixed the solution for the women and gave it to them to take home. However, many Red Flag Volunteers expressed satisfaction at being a Red Flag Volunteer and expected compensation of some sort for their community service.

Cole (1986) in a study in Liberia on Diarrhoea Disease Intervention used KAP to identify the diarrhoea problem and then modified a preference matrix to train 3 VHWs and 2 TBAs as educators and motivators for the caretakers. A period of 8 months after, post training evaluation was carried out on the 3 VHWs and 2 TBAs by checking through their record in simple ledgers including names and ages of patients treated for diarrhoea, length of treatment with ORT and outcome. TBAs and VHWs reported a total of 94 children and adults treated (though a small number) but researchers believe ORT is gaining acceptance in the study villages and more caretakers became aware of its utility in saving lives.

In Nigeria, Bamisaiye et al (1989) carried out a study on VHW programme in Nigeria using a semi-structured interview to obtain information from 75 (91.5%) of the 82 VHWs. Results revealed that VHWs effectiveness of outreach services such as immunisation, ORT has increased greatly due to the liaison provided by VHWs. They (VHWs) undoubtedly contribute significantly to the delivery of these preventive and promotive services at village level.

Steinhoff et al (1985) in their study on fingers or spoons to make ORS on the accuracy and variability of the composition of ORS prepared by VHWs using finger measurement technique and a special ORS measuring spoon were compared. The sodium and sucrose concentrations were measured in 130 ORS prepared by each technique. It was found that the variability of sodium and sucrose levels was significantly greater with the finger measurement technique. All the spoon measured ORS had acceptable sodium levels and sucrose compared with 93% of the finger measured ORS. Only 23% of finger measured ORS had hypertonic sodium levels.

CHAPTER THREE

MATERIALS AND METHODS

This chapter describes the study area and the characteristics of study subjects. Efforts are also made to give a detailed analysis of the procedures involved in sample selection and the methodology used in collecting information for the assessment.

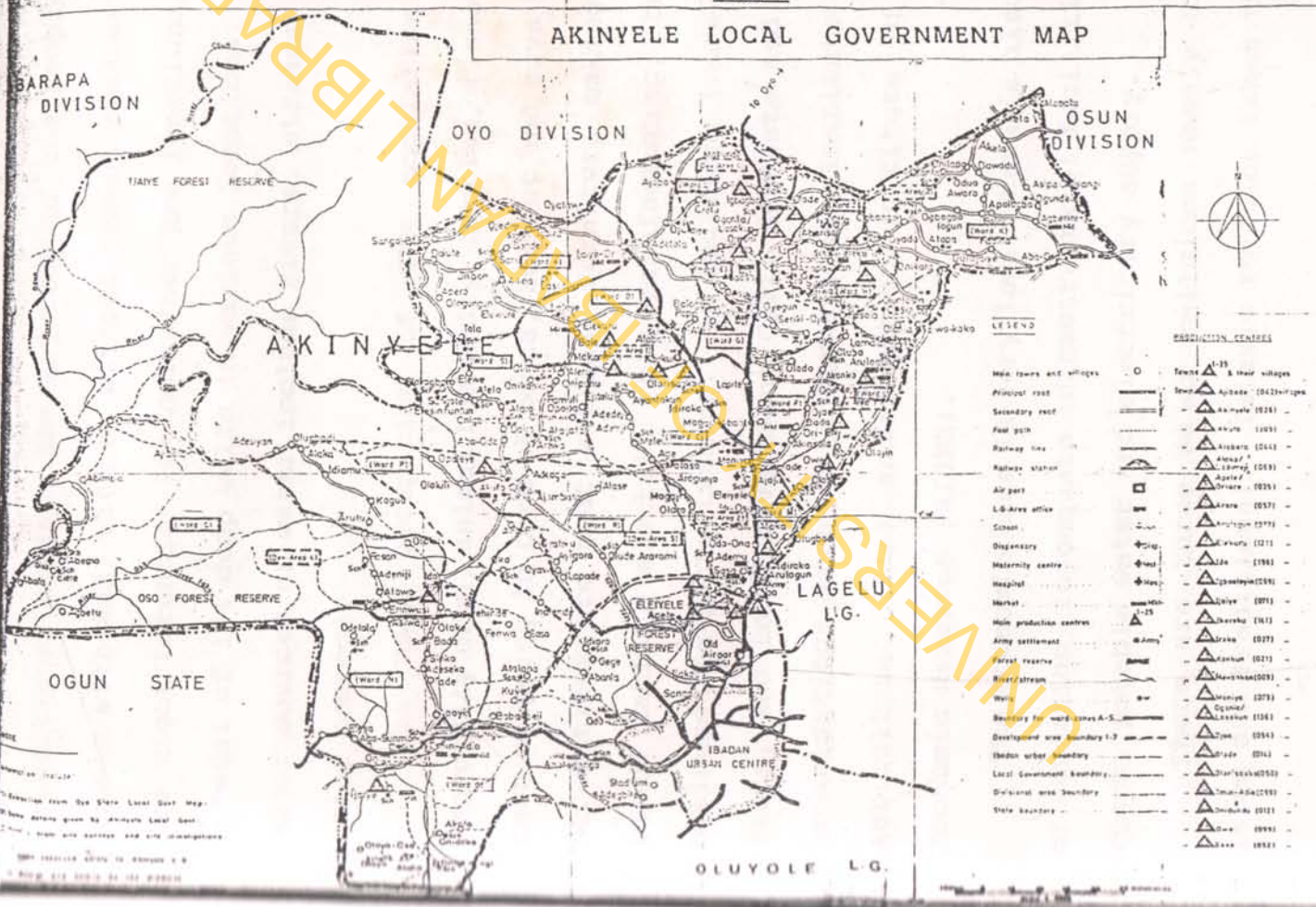
Description of Study Area

The study was carried out in the five CBD centres of Akinyele North LGA of Oyo State being the pilot project areas. These CBD centres include Alade, Aroro, Ijaiye, Ikereku and Mele groups of villages. Akinyele LGA occupies a central position of Oyo State, covering a land space of 1292.75sq kms. The Local Government is bounded on the North by Afijio LGA, South by Oluyole LGA, North West by Iddo LGA and South East by Ibadan Municipal Government.

The projected population of Akinyele LGA is 450,768. This population shows that the present health facilities are grossly inadequate to meet the demand of the people in the LGA in terms of human and material resources (1990 projection by Division of Statistics, Oyo State Ministry of Health).

FIGURE 4

AKINYELE LOCAL GOVERNMENT MAP



It is predominantly a rural settlement with few transitional areas. The majority of the people build their houses with mud, with or without cement plasterings. There are eight boreholes but only four are functional. There are a total of 174 deep wells in various locations. However, the major sources of water include rivers, streams, rain (during rainy season).

The main occupation of the population is farming especially crop, animal husbandry, hunting, fisheries and mild cash cropping in form of cocoa, kolanut and soya beans. Other occupations are meat selling, furniture making, tailoring, block making, electric pole manufacturing, baking, hotel business and petty trading. In addition, there are Federal, State, and Local Government Civil Servants and employees of Organisations such as International Institute of Tropical Agriculture (IITA) and Nigerian Institute of Social and Economic Research (NISER).

The economic base is very low. There is also a low level of education, inadequate infrastructural facilities like good roads, potable water and electricity supply.

There are three major religions namely Christianity, Islam and Traditional. Islamic religion takes the lead with

about 60%, Christianity 35% and 5% Traditional (Primary Health Care Project on Akinyele LGA, 1988).

The health facilities are located in various locations of the LGA. There are 44 health institutions specified as follows:

Federal government health institutions	- Two
State government	- One
Local government	- 21
Private	- 20

(PHC Report, 1988)

The services offered in the health institutions include immunisation, maternal and child health with family planning, nutrition and food supply, health education, environmental health, general treatment of minor ailment, oral rehydration therapy and home visits. There are other health institutions like village traditional healers, the total population of which is not known.

The people are mainly Yorubas though there are other ethnic groups such as the Hausas, Ibos, Eguns.

Ijaye Centre

Ijaye is the largest of a cluster of villages (18) in the CBD centres of Akinyele LGA. Other villages include Isioye, Fekete, Idi-roko Ajobo, Atan, Adaa, Ijaiye, Obidiran, Onibonla

and others. The estimated population is 82,911 (projection from 1963 census). The people are mainly Yorubas originating from Ibadan. There are a few Eguns. Eguns are from Badagry LGA.

Aroro and Ikereku Centres

These two centres are next to Ijaiye in terms of its size and clusters of villages (15 each). Other villages in Aroro centre include Alaaru, Kolobo, Iroju, Denlokun, Ibitunde, Akingbola among others while some of the villages in Ikereku centre include Ikereku, Ekeola, Apapa-odan, Labode, Osanyinde, Iya-Offa, Ogbongan and others.

The estimated population for Aroro is 55,099 while that of Ikereku is 66,644 (1963 population census).

Alade and Mele Centres

Alade and Mele centres each has a cluster of 13 and 12 villages respectively. Other villages in Alade centre include Olunlosin, Moseju, Oboda, Alapepe, Duduyemi, Ogunranti, Ogunjinmi among others while some of the villages in Mele Centre include Mele, Agbopa, Alaka, Mokankan, Age, Osho, Akanti, Onila, Olojo and others. The estimated population of Alade is 50,376 while that of Mele is 49,852 (populaiton from 1963 census).

It must be noted that each of the five centres has a maternity centre where CBD workers can refer cases. They also have a traditional head known as Baale. Each village in the clusters has at least a VHW or TBA or both.

Study Subjects and Methods of Selection

In order to understand the practice of diarrhoea management among CBD workers, a study of both providers and consumers was needed.

Selection of CBD Workers

Before the selection exercise, the CBD monthly supervisor introduced the Investigator to the workers. The investigator explained the purpose of her visit and the workers responded favourably.

The investigator then asked for the register of the CBD workers. All the CBD workers identified in all the five centres were included in the study.

Providers/CBD Workers

CBD workers included TBAs and VHWs. The total number of CBD agents/workers trained in the pilot area of Akinyele LGA in 1981 were 173 in seven centres (See table 1). By 1985, the number was reduced to 158 workers. Of these 158 workers, there were 89 TBAs and 69 VHWs. At the commencement of this

study in March 1990, the population of CBD workers was 91 in the existing five centres. There were 40 TBAs and 51 VHWs.

However, a response rate of 84.8% was obtained. 14 workers (15.2%) were not included for these reasons:

Ill health - 3 TBAs

Travelled - 2 TBAs and 2 VHWs

Migrants (left the village) - 1 TBA and 1 VHW

Lost interest due to child's health - 1 TBA

Lost interest due to disagreement between members - 1 TBA and 1 VHW

Lost interest due to husband's death - 1 TBA

Nursing grandchild - 1 TBA

Mothers/Consumers

All the 85 identified mothers/consumers who have utilised CBD services for diarrhoea management between 1987 - 1990 (source: CBD records) were included in the study. They were chosen because the workers were able to recollect the names of their consumers.

Selection Procedure of Mothers who utilised CBD Workers Services for Diarrhoea Management

The first step in the selection exercise was to identify the number of diarrhoea episodes ever managed by the CBD workers (See Table 4). This was made possible by going

TABLE 4

FREQUENCY DISTRIBUTION OF DIARRHOEA CASES MANAGED BY CBD WORKERS, 198[illegible] - JUNE 1990

NAME OF CENTRES	NUMBER OF DIARRHOEA CASES AMONG UNDER FIVE YEARS
Alade	20
Aroro	16
Ijaiye	28
Ikereku	3
Mele	18
TOTAL	85

through the records in the CBD office at the Ministry of Health, Ibadan, Oyo State. This led to the identification of the specific workers who managed diarrhoea cases at each centre.

Next, each of the workers was then asked to identify and give names of mothers who brought their children for diarrhoea management since the completion of the inservice training of CBD workers on SSS preparation and use in 1987.

A total of 85 mothers were identified through the above procedures. These identified mothers were then interviewed to verify that they had utilised the CBD workers services in the management of childhood diarrhoea. They admitted to utilising the CBD services for childhood diarrhoea management. All these mothers were included in the study sample for consumers of CBD childhood diarrhoea management services.

Instruments and Procedures for Data Collection

In this study, three methods of data collection were used.

These included:

i. Review of record

ii. Interview using questionnaire

iii. Observation with a checklist

i. Review of Record

Information were collected from existing records on the number of times CBD workers managed diarrhoea. This information was recorded in the tally sheet submitted by each and every worker to their monthly supervisor. This information was then filled in the Ministry's form in which all diseases treated or managed by every worker in each centre is stated. This was necessary to identify the CBD workers who actually managed diarrhoea cases and those who did not. The Investigator then verified from some of the patients/consumers. This enabled the Investigator to collect information relating to objective four of this study.

ii. Interview using a Questionnaire

Separate questionnaires were drawn up for the CBD workers and mothers of preschool children. The questionnaire was based on information collected from records, researcher's observation of the training of VHWs in Eleiyele, the training curriculum used for the Akinyele CBD workers, literature review and excerpts from ADDR Disease Control Questionnaire.

The questionnaire was used to elicit information from the CBD workers (See Appendix II and III). It consisted of five sections. Each section sought the following information:

SECTION A - the demographic characteristics of CBD workers in relation to age, sex, occupation, religion, education, suitability and acceptability of the training arrangement (place, duration, time, number of refresher training, last refresher training, last refresher training).

SECTION B - CBD workers post-training knowledge and practice of diarrhoea including definition of diarrhoea, causes, symptoms, severity, treatment and preventive measures.

SECTION C - CBD workers knowledge of SSS such as source of information of SSS, measurements, administration, duration of SSS, decision not to use SSS and others.

SECTION D - Beliefs of CBD workers in relation to SSS use, preparation, efficacy and accessibility of ingredients.

SECTION E - General questions relating to whether CBD workers teach mothers SSS or not and reasons, factors facilitating and/or inhibiting use of SSS, keeping records of patients.

The second questionnaire (See appendix iv and v) administered to mothers or consumers reflected demographic

characteristics (sex, age, education, occupation), mother's knowledge of SSS (ingredients, measurements, preparation, administration and duration), last diarrhoea episode of the child stating age, sex, duration of episode and management, mother's knowledge, attitude and practice of CBD workers and mother's general comment.

a. Administration of Questionnaire

The data were collected in the study villages by the investigator. The CBD workers and mothers were not interviewed in the Maternity Centres during the supervisory meetings as such interviews within a group setting might alter their responses.

The homes of the CBD workers were identified through the help of the key informants in the villages. In some occasions, the CBD worker took the investigator to another worker's place.

In respect to the consumers, their names and villages as given by the CBD workers were utilised in locating them. When a house was found, the investigator introduced herself to the occupant and asked for the particular mother who utilised the *CBD* services. Customary greetings were exchanged and the purpose of visit explained. In most cases, mothers easily recalled their visit to the CBD workers.

iii. Observation Checklist

In addition to the questionnaire addressed to CBD workers, an observation checklist on availability and preparation of SSS was included (see appendix vi and vii). The observation checklist comprised of a set of practical steps which each CBD worker was expected to demonstrate to the investigator. These steps were observed as to whether they were correctly performed or not. Areas covered by the observation checklist included:

- the availability of materials for the preparation of SSS.
- the measurement of the ingredients
- the skill demonstrated in the preparation
- the method of preparation.

It must be noted that observational method with a checklist was used to collect information on the study's first objective while interview using a set of questionnaire was used to collect information an objectives two to four.

Pretesting of Instruments

A pretest of the two sets of questionnaires was conducted on 10 CBD workers and 12 mothers at Ajia in Oluyole LGA of Oyo State. Before pretesting, the questions were open ended but

after the pretest, most questions were closed because similar responses were obtained and considered more appropriate for coded responses. In addition, the contents were restructured to remove ambiguity. The amended questionnaires were finally administered to the workers and mothers of preschool children in study villages.

Other changes that were made on the CBD worker questionnaire included the following: two questions were added to the CBD worker's questionnaire. One of such questions related to the duration of time that SSS can offer protection against further diarrhoea occurence. The question stated thus, 'if a child is given SSS today, for how many days/weeks will such a child be protected from future occurence of diarrhoea'. This question was added in response to the pretest analysis in which respondents said that SSS stops diarrhoea (some of CBD workers response). The second question relates to the quantity of SSS to be administered to each child. Specifically, questions 19 and 26 were added after pretest (See Appendix ii and iii).

There was also a change in the terminology used before and after pretest. During pretest, SSS was translated to mean "omi-iye" (survival water) whereas it was referred to as "omi-

idagbe" (water to stop stooling). Therefore, SSS was translated to "omi-idagbe".

On the mothers' questionnaire, no question was added but three were restructured. These were questions 8, 11 and 12 (See Appendix iv and v). Question 8 was restructured to reflect the number of under five children alive instead of number of children.

Question 11 was restructured to be more specific refering only to "in the last three months", and not "how often", while question 12 was changed to reflect "the last three months instead of "six months".

There was no change in the observation checklist.

Validity and Reliability

Generally, the investigator solely conducting the interview lended continuity and consistency. The investigator also translated questionnaire from English to Yoruba. This enhanced consistency in the wordings of the questions which would eliminate awkward and confusing questions. Although, the questionnaire items were close ended, only the questions were read during interviews. The options in the questionnaire were not given or read to the respondents. The questions were simply asked and the response of the workers and mothers were

identified among the option by the investigator and appropriately ticked.

Specifically certain issues highlighted during pretesting positively contributed to the reliability and validity of the data. Concerning enhancement of reliability, questions that elicited two different responses from individuals were restructured to bring about sameness in meaning. Such question includes the respondent's and investigator terminology for SSS which varied between respondents and researcher. This was standardised during pretesting which enhanced consistency.

Also the pretesting took place in a village with similar demographic and socio economic characteristics with the study villages. Concerning enhancement of validity, questions that were awkward or confusing to the responses were highlighted during pretesting and the questions were either removed (when appropriate) or modified to suit the respondents. This resulted in asking clear concise questions so as to ensure validity. Such question includes responses to the preventive measure for diarrhoea. A follow up question was added to clarify respondents position.

The documents used in developing the questions had been tested and retested in a number of trials in environments

similar to the study sites. Specifically, questions relating to Sections A and B in the questionnaire (See Appendix II) were inferred from literature review. However, there were overlapping in the sources of documents relating to questions in the sections. Some parts of Sections B, C and D were taken from ADDR developed research questions on diarrhoea. Other sources included questions which emanated during pre-testing, and contributions from researchers during investigator's presentation.

Observations also enhanced validity and reliability as the investigator observed the same event and recorded respondents performance on the appropriate place in the observation checklist.

DATA MANAGEMENT

Before leaving the community at the end of each interview day, every questionnaire was checked for missing information or errors. Such missing informations detected were corrected.

The investigator constructed a coding protocol for the questionnaire which was used in compiling the data. The coded results were arranged into frequency tables. Using a pocket calculator, the investigator carried out statistical test of association using the chi square test of association (X^2) and the Z test for comparison of proportion where appropriate.

The qualitative analysis of the observation for practical performance involved using a scoring method. Scores were assigned to each step in the performance checklist. For correct answer, a score of 1 was given and a score of zero for a wrong answer. However, a maximum of 13 and minimum of zero could be scored by each worker. For purposes of comparison, the scores of each worker in the performance checklist were added together to find his mean score. Also in order to know the step the workers found difficult, scores for each step were added together and expressed as percentages of the possible total score. The purpose of manual computation of results was to provide the investigator with some experience in data analysis.

LIMITATIONS

Although the investigator rigorously searched for the CBD workers' pre-training assessment scores for use as baseline data for the group, however, she could not find any record of the pre-test scores. Those who conducted the training also said they could not find them. This, therefore made it impossible to compare the baseline knowledge and skills with the post-training ones embarked upon in this study.

Some questions such as that relating to the last diarrhoea episode sought information on past event and action. The information reported by respondents could not be verified by the investigator. Also the occurence of diarrhoea episodes were so few that the investigator had to make reference to events that happened two or three years before.

The limited time and resources for this study affected the scope of the study. Though analysing the SSS would have added validity to this study. However due to inadequate facility at Akinyele LGA and financial constraint of investigator, the chemical constitution of the SSS prepared by the CBD workers could not be analysed. However, Grange et al (1985), Chirwa (1987) have shown that using available teaspoons and types of salt and sugar found in the local

market, the range of sucrose and sodium concentration in the resulting SSS are within acceptable limits.

CHAPTER FOUR

RESULTS

This chapter presents the results of analysis of the data collected. This would be discussed in four parts. The first part describes the demographic characteristics of CBD workers and consumers (mothers/caretakers of under five children). The second part describes the post training knowledge of CBD workers definition, causes, prevention of diarrhoea and the use of SSS. The third part describes the observation analysis while the fourth part includes the consumers' responses on CBD workers use of SSS, in diarrhoea management of under five.

PART A - DEMOGRAPHIC CHARACTERISTICS OF CBD WORKERS

Location of CBD Workers and Population

A total of 77 (100%) CBD workers were interviewed. Of these 15 (19.5%) were located in Alade centre, 12 (15.6%) in Aroro centre, 17 (22.1%) each in Ijaye and Ikereku centres while 16 (20.8%) was found in Mele (see Table 5).

Table 6 shows that 9 (60%) of Alade CBD workers were Voluntary Health Workers (VHWs) while 6 (40%) were Traditional Birth Attendants (TBAs). In Aroro, 6 (50%) each were TBAs and VHWs. At Ijaye 11 (64.7%) were VHWs and 6 (35.3%) TBAs.

TABLE 5

FREQUENCY DISTRIBUTION OF CBD WORKERS IN THE CBD CENTRES SEPTEMBER 1990

NAME OF CBD CENTRES	NO. OF CBD WORKERS
Alade	15 (19.5%)
Aroro	12 (15.6%)
Ijaye	17 (22.1%)
Ikereku	17 (22.1%)
Mele	16 (20.8%
TOTAL	77 (100%)

TABLE 6

FREQUENCY DISTRIBUTION OF TYPE OF CBD WORKERS IN THE CBD CENTRES SEPTEMBER 1990

TYPE OF CBD AGENTS	CENTRES					
	ALADE	ARORO	IJAYE	IKEREKU	MELE	TOTAL
Voluntary Health Volunteer (VHW)	9 (60%)	6 (50%)	11 (64.7%)	13 (76.5%)	10 (62.5%)	49 (63.6%)
Traditional Birth Attendant (TBA)	6 (40%)	6 (50%)	6 (35.3%)	4 (23.5%)	6 (37.5%)	28 (36.4%)
TOTAL	15 (100%)	12 (100%)	17 (100%)	17 (100%)	16 (100%)	77 (100%)

Ikereku centre has 13 (76.5%) VHWs and 4 (23.5%) TBAs while Mele centre has 10 (62.5%) VHWs and 6 (37.5%) TBAs. On the whole, the CBD workers were made up of 49 (63.6%) VHWs and 28 (36.4%) TBAs. The above showed that there were more VHWs than TBAs. All the 28 (36.4%) TBAs were women, however there were 33 (67.3%) males and 16 (32.7%) females among the VHWs.

Age and Educational Distribution of CBD Workers

The age distribution of the workers revealed that 17 (22.1%) were in age range of 45 - 49 years, 16 (20.8%) were within 50 - 54 years, while 26 (33.8%) were more than 55 years. (See Table 7). The above showed that the CBD workers were fairly old people with very few 9 (11.7%) younger ones (less than 40 years). However, TBAs were found to be older than VHWs. Fifteen (15) of the 28 TBAs were more than 55 years as compared with 11 of the 49 VHWs.

Concerning the educational level of CBD workers, majority 57 (74.02%) had no formal education, 13 (16.9%) had primary education, 6 (7.8%) had adult education while only 1 (1.3%) had secondary education (See Table 8). It must be emphasised however that Alade CBD centre seemed to have more CBD workers with formal education. Only 8 (14%) of the 57 (74.02%) CBD workers with no formal education were in Alade centre.

Furthermore, the educational level of CBD workers showed that VHWs were more educated than TBAs. Only 1 (16.7%) of the 6 TBAs in Alade centre had primary education while 1 (16.7%) of the 6 TBAs in Ijaye centre had Adult Education. Therefore only 2 of the 28 TBAs in contrast to 18 of the 49 VHWs had formal education while 26 of 28 TBAs and 31 of 49 VHWs had no formal education.

TABLE 7

FREQUENCY DISTRIBUTION OF CBD WORKERS BY AGE
SEPTEMBER, 1990

AGE	CENTRES					
	ALADE	ARORO	IJAYE	IKEREKU	MELE	TOTAL
30 - 34	-	-	1(5.9%)	-	1(6.3%)	2 (2.6%)
35 - 39	1(6.7%)	2(16.7%)	2(11.8%)	1(5.9%)	1(6.3%)	7 (9.1%)
40 - 44	1(6.7%)	1(8.3%)	3(17.6%)	1(5.9%)	3(18.8%)	9 (11.7%
45 - 49	3(20%)	2(16.7%)	4(23.5%)	3(17.6%)	5(31.3%)	17 (22.1%
50 - 54	5(33.3%)	1(8.3%)	4(23.5%)	3(17.6%)	3(18.8%)	16 (20.8%
55+	5(33.3%)	6(50%)	3(17.6%)	9(52.9%)	3(18.8%)	26 (33.8%
TOTAL	15(100%)	12(100%)	17(100%)	17(100%)	16(100%)	77 (100%)

TABLE 8

FREQUENCY DISTRIBUTION OF CBD WORKERS BY EDUCATION
SEPTEMBER 1990

EDUCATION	CENTRES					
	ALADE	ARORO	IJAYE	IKEREKU	MELE	TOTAL
No formal education	8 (53.3%)	10 (83.3%)	11 (64.7%)	14 (82.3%)	14 (87.5%)	57 (74.02%)
Primary	2 (13.3%)	2 (16.7%)	4 (23.5%)	3 (17.7%)	2 (12.5%)	13 (16.9%)
Secondary	1 (6.7%)	-	-	-	-	1 (1.3%)
Adult Education	4 (26.7%)	-	2 (11.8%)	-	-	6 (7.8%)
TOTAL	15 (100%)	12 (100%)	17 (100%)	17 (100%)	16 (100%)	77 (100%)

Number of Children of CBD Workers, Working Experience and Number of Training Ever Had

A total of 58 (75.3%) CBD workers had between 4 - 9 children, 1 (1.3%) had less than four children while 18 (23.4%) had more than ten children. This showed that majority - 58 had between 4 - 9 children.

Of the 77 (100%) CBD workers interviewed majority of them 74 (96.1%) had 8 - 10 years practical experience while 3 (.9%) had practised for less than five years. These 74 (96.1%) were trained by University College Hospital and Oyo State Ministry of Health, while the 3 (3.9%) were trained by CBD maternity centre staff. These three who were VHWs were made up of two males and 1 female and located in Alade, Araro and Ikereku CBD centres (1 VHW in each of the three CBD centres).

CBD workers' responses on the number of refresher training ever done revealed that 56 (72.7%) have undergone training courses at least twice, 10 (13%) mentioned once while 11 (14.3%) said they could not remember, (see fig. 5). Furthermore, majority 28 (36.4%) had forgotten the time of the last refresher training while 49 (63.6%) mentioned various years (See Table 9).

On the duration of refresher trainings, majority 25 (32.5%) mentioned 3 days while 20 (26.0%) had forgotten (see Table 10).

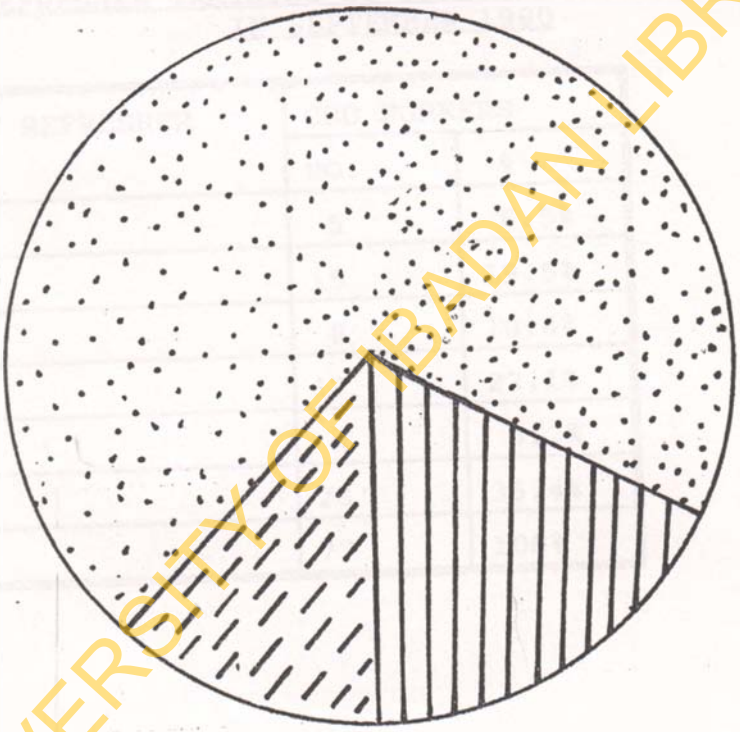


Fig. 5: Pie chart showing CBD workers responses on the number of refresher training, September 1990.

TABLE 9

TIME OF REFRESHER TRAINING BY CBD WORKERS IN 5 CBD CENTRES IN SEPTEMBER 1990

YEAR OF LAST REFRESHER TRAINING	CBD WORKERS	
	NO.	%
1986	5	6.5%
1987	15	19.5%
1988	8	10.4%
1989	17	22.1%
1990	4	5.2%
Forgotten	28	36.4%
TOTAL	77	100%

TABLE 10

DURATION OF REFRESHER TRAINING DISTRIBUTION BY CBD WORKERS IN 5 CBD CENTRES IN SEPTEMBER 1990

DURATION	CBD CENTRES					
	ALADE	ARORO	IJAYE	IKEREKU	MELE	TOTAL
1 day	4 (26.7%)	-	-	1 (5.9%)	4 (25%)	9 (11.7%)
2 days	-	-	-	1 (5.9%)	-	1 (1.3%)
3 days	5 (33.3%)	4 (33.3%)	8 (47.1%)	7 (41.2%)	1 (6.3%)	25 (32.5%)
4 days	1 (6.7%)	-	-	-	2 (12.5%)	3 (3.9%)
1 week	1 (6.7%)	1 (8.3%)	2 (11.8%)	1 (5.9%)	-	5 (6.5%)
3 weeks	1 (6.7%)	-	-	1 (5.9%)	2 (12.5%)	4 (5.2%)
Others	-	3 (25%)	4 (23.5%)	3 (17.6%)	-	10 (13%)
Don't know about duration	3 (20%)	4 (33.3%)	3 (17.6%)	3 (17.6%)	7 (43.8%)	20 (26%)
TOTAL	15 (100%)	12 (100%)	17 (100%)	17 (100%)	16 (100%)	77 (100%)

Demographic Characteristics of Consumers (Mothers) of CBD Services

A total of 70 (100%) mothers were interviewed. Of these, 23 (32.9%) were within 30 - 34 years, 11 (15.7%) were within 25 - 29 years and 40 - 44 years respectively while only 5 (7.1%) were more than 45 years (see fig. 6). The above showed that younger mothers used the CBD workers services more than the older ones or grandmothers.

With regard to religion, more than half of the mothers 40 (57.1%) practised Islam while 30 (42.9%) practised Christianity.

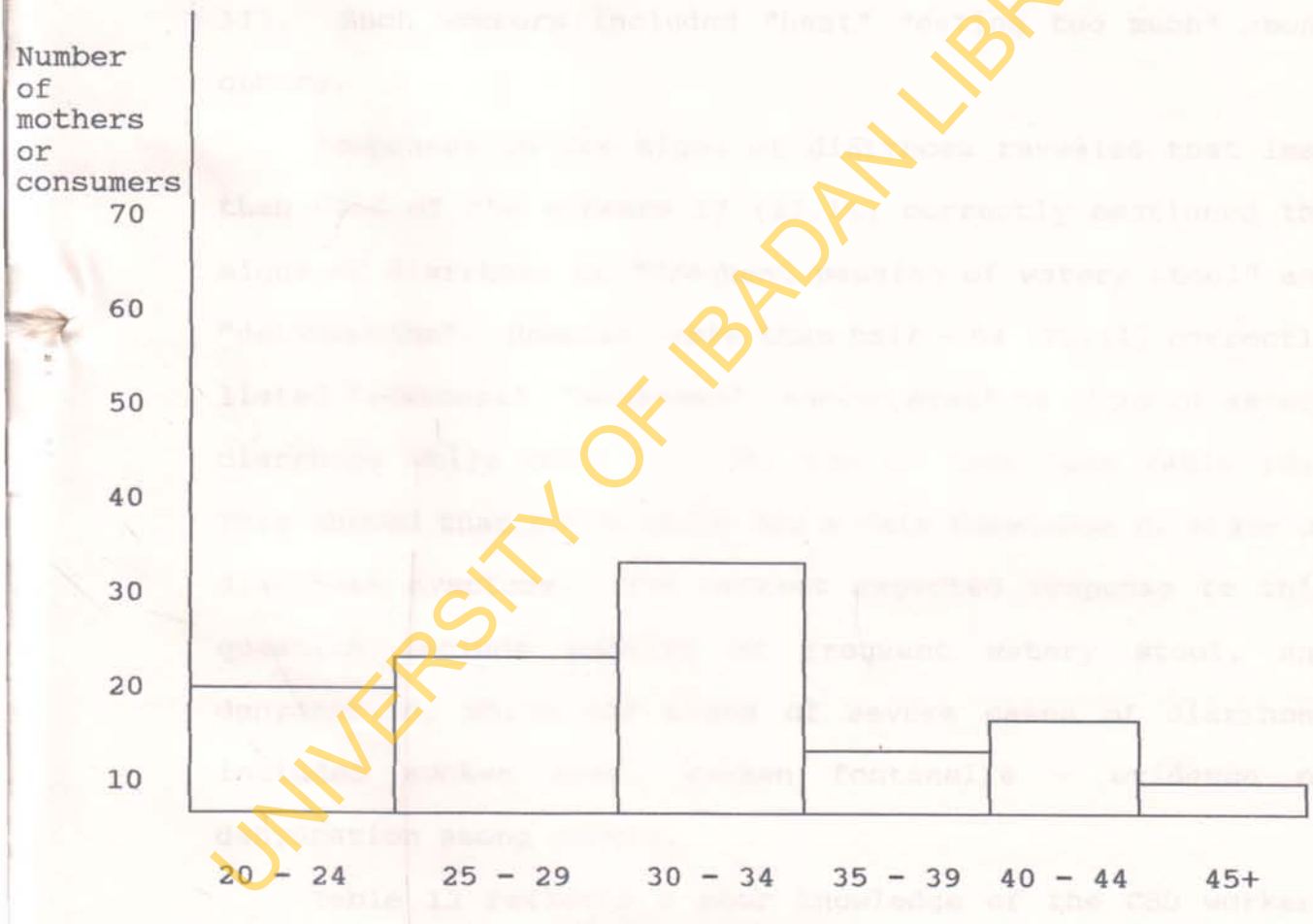
Concerning the Educational pattern, about two thirds, 42 (60.0%) had some form of formal Education with most of this number having primary Education. However 28 (40%) had no formal education.

PART B - POST TRAINING KNOWLEDGE OF DIARRHOEA BY CBD WORKERS

Definition, Causes, Symptoms, Home Treatment and Prevention of Diarrhoea

Majority of the CBD workers - 60 (77.9%) gave correct definition of diarrhoea as passing watery stool; while 17 (22.1%) workers in Ikereku centre gave incorrect answer. However, all the workers - 77 (100%) classified diarrhoea as a severe disease that could lead to death.

FIG. 6: HISTOGRAM OF AGE DISTRIBUTION OF MOTHERS IN FIVE CBD CENTRES OCTOBER 1990



On CBD workers' knowledge of causes of diarrhoea, more than half, 44 (57.2%) of the respondents gave correct answers of lack of personal hygiene, dirty feeding utensils and bad food and water while only 2 (2.6%) had no idea. However, about one-third gave multiple incorrect answers (See Table 11). Such answers included "heat" "eating too much" among others.

Responses on the signs of diarrhoea revealed that less than half of the workers 17 (22.1%) correctly mentioned the signs of diarrhoea as "frequent passing of watery stool" and "dehydration". However, more than half - 54 (70.1%) correctly listed "leanness", "weakness", sunken eyes" as signs of severe diarrhoea while only 1 (1.3%) had no idea (see Table 12). This showed that CBD workers had a fair knowledge of signs of diarrhoea symptoms. The correct expected response to this question include passing of frequent watery stool, and dehydration, while the signs of severe cases of diarrhoea included sunken eyes, sunken fontanelle - evidence of dehydration among others.

Table 13 reflects a poor knowledge of the CBD workers ideas on the preventive measures of diarrhoea. Only 7 (9.1%) comprising 2 TBAs and 5 VHWs gave the correct answer of "personal hygiene" while majority of the workers - 39 (50.6%)

TABLE 11

CAUSES OF DIARRHOEA MENTIONED BY CBD WORKERS IN 5 CBD CENTRES IN SEPTEMBER, 1990

CAUSES OF DIARRHOEA AS TAUGHT BY CBD WORKERS	CBD WORKERS					
	ALADE	ARORO	IJAYE	IKEREKU	MELE	TOTAL
Lack of personal hygiene	3 (20%)	2 (16.7%)	9 (53%)	3 (17.7%)	6 (37.5%)	23 (29.9%)
Dirty feeding utensils	-	1 (8.3%)	1 (5.9%)	-	-	2 (2.6%)
Bad food and water	3 (20%)	5 (41.7%)	4 (23.5%)	4 (23.5%)	3 (18.8%)	19 (24.7%)
Multiple response	9 (60%)	4 (33.3%)	3 (17.7%)	10 (58.9%)	5 (31.3%)	31 (40.3%)
No idea	-	-	-	-	2 (12.5%)	2 (2.6%)
TOTAL	15 (100%	12 (100%)	17 (100%)	17 (100%)	16 (100%)	77 (100%)

TABLE 12

SIGNS OF DIARRHOEA MENTIONED BY CBD WORKERS IN 5 CBD CENTRES IN SEPTEMBER 1990

SIGNS OF DIARRHOEA	CBD CENTRES					
	ALADE	ARORO	IJAYE	IKEREKU	MELE	TOTAL
Watery stool	2(13.3%)	3(25%)	1(5.9%)	4(23.5%)	7(43.8%)	17 (22.1%)
Sunken eyes	3(20%)	2(16.7%)	7(41.2%)	1(5.9%)	2(12.5%)	15 (19.5%)
Leanness	1(6.7%)	2(16.7%)	4(23.5%)	5(29.4%)	2(12.5%)	14 (18.2%)
Weakness	1(6.7%)	-	1(5.9%)	2(11.8%)	3(18.8%)	7(9.1%)
Lean and Sunken	3(20%)	4(33.3%)	4(23.5%)	3(17.7%)	-	14 (18.2%)
Weak and Sunken	3 (20%)	-	-	1(5.9%)	-	4(5.2%)
Others	1(6.7%)	1(8.3%)	-	1(5.9%)	2(12.5%)	5(6.5%)
No idea	1(6.7%)	-	-	-	-	1(1.3%)
TOTAL	15(100%)	12(100%)	17(100%)	17(100%)	16(100%)	17(100%)

TABLE 13

PREVENTIVE MEASURES OF DIARRHOEA BY CBD WORKERS IN SEPTEMBER 1990

PREVENTIVE MEASURES FOR DIARRHOEA	CBD WORKERS		
	TBA (%)	VHW (%)	TOTAL
Medical Practitioners	3(10.7%)	2(4.1%)	5(6.5%)
Oralite	14(50%)	25(51.02%)	39(50.6%)
Salt Sugar Solution	7(25%)	7(14.3%)	14(18.2%)
Herbs	1(3.6$)	7(14.3%)	8(10.4%)
Personal Hygiene	2(7.14%)	5(10.2%)	7(9.1%)
Don't know	1(3.6%)	3(6.1%)	4(5.2%)
TOTAL	28(100%)	49(100%)	77(100%)

mentioned "Oralite". Other responses included "herbs", "modern practitioneer" among others. More than two thirds of the diarrhoea correctly mentioned SSS as a home treatment for diarrhoea.

CBD Workers' Knowledge of SSS and its Use

Basically all the CBD workers - 77 (100%) irrespective of type have heard of SSS, although the first time of hearing differed among the workers. More than one - fifth - 17 (22.1%) reportedly heard of it in 1989 followed by 15 (19.5%) in 1987 and twenty six (33.8% about one third) had forgotten.

Forty-nine (63.6%) of the CBD workers first heard of SSS through their trainers during one of the refresher trainings while 22 (28.6%) had forgotten.

All the CBD workers - 77 (100%) correctly stated the ingredients and materials used in the preparation of SSS but the knowledge of the measurements and mixing differed among workers irrespective of category.

In respect of CBD workers knowledge of sugar measurement 33 (42.9%) comprising of 20 (40.8%) VHWs and 13 (46.4%) TBAs correctly stated 10 level teaspoons or five cubes. Four (14.3%) TBAs and 1 (2.04%) VHW claimed to have forgotten.

The response pattern for salt measurement revealed that 30 (38.96%) of the CBD workers had correct knowledge of 1 level teaspoon while 4 (5.2%) claimed to have forgotten.

As to the quantity of water required to make SSS, 31 (40.3%) of the workers described it correctly as one beer bottle or two soft drink bottles (29cl) or 2 stout bottles and

6 (7.8%) had forgotten (see Tables 14, 15 and 16). The above showed that the CBD workers had a fair knowledge of the correct measurement of the ingredients except for salt measurement. Salt measurement was however considered very important since solutions with high sodium content can be dangerous, especially in children who may already be dehydrated.

The above finding revealed no significant difference in the knowledge of correct measurement of SSS ingredients between TBAs and VHWs. This showed that CBD workers cadre did not influence correct knowledge of the ingredients (See Table 17).

The educational qualifications and number of refresher training attended by each worker were not significant in CBD workers correct knowledge of the measurements. It was found that CBD workers who attended refresher training less than three times were as knowledge-able as those who attended more than six times (See Tables 18 and 19).

However, use of SSS by CBD workers has been found to be a significant factor in correct knowledge of SSS measurement (Table 20). Also Table 21 showed the summary of the CBD workers knowledge of SSS measurement according to the centres.

TABLE 14

KNOWLEDGE OF SUGAR MEASUREMENT IN THE PREPARATION OF SSS BY CBD WORKERS 5 CBD CENTRES, SEPT. 1990

SUGAR MEASUREMENT	CBD CENTRES					
	ALADE	ARORO	IJAYE	IKEREKU	MELE	TOTAL
*10 level teaspoon	7 (46.7%)	8 (66.7%)	9 (53%)	2 (11.8%)	7 (43.8%)	*33 (42.9%)
10 teaspoon	-	-	1 (5.9%)	-	-	1 (1.3%)
teaspoon	1 (6.7%)	-	1 (5.9%)	-	-	2 (2.6%)
8 teaspoon	2 (13.3%)	1 (8.3%)	1 (5.9%)	4 (23.5%)	2 (12.5%)	10 (13%)
7 teaspoon	-	-	1 (5.9%)	2 (11.8%)	4 (25%)	7 (9.1%)
5 teaspoon	-	-	2 (11.8%)	-	-	2 (2.6%)
4 teaspoon	1 (6.7%)	-	-	4 (23.5%)	-	5 (6.5%)
2 teaspoon	1 (6.7%)	-	-	2 (11.8%)	2 (12.5%)	5 (6.5%)
1 table spoon	1 (6.7%)	2 (16.7%)	-	1 (5.9%)	1 (6.3%)	5 (6.5%)
10 cubes	-	-	1 (5.9%)	1 (5.9%)	-	2 (2.6%)
Forgotten	2 (13.3%)	1 (8.3%)	1 (5.9%)	1 (5.9%)	-	5 (6.5%)
TOTAL	15 (100%)	12 (100%)	17 (100%)	17 (100%)	16 (100%)	77 (100%)

*Correct response = 33(42.9%)

TABLE 15

SALT MEASUREMENT IN THE PREPARATION OF SSS BY CBD WORKERS IN 5 CBD CENTRES IN SEPT. 1990

SALT MEASUREMENT	CBD CENTRES					
	ALADE	ARORO	IJAYE	IKEREKU	MELE	TOTAL
*1 level teaspoon	6 (40%)	4 (33.3%)	9 (53%)	7 (41.2%)	4 (25%)	30 (38.96%)
1 teaspoon	2 (13.3%)	5 (41.7%)	2 (11.8%)	3 (17.7%)	2 (12.5%)	14 (18.2%)
1 tablespoon	3 (20%)	1 (8.3%)	3 (17.7%)	1 (5.9%)	3 (18.8%)	11 (14.3%)
2 tablespooons	-	1 (8.3%)	3 (17.7%)	3 (17.7%)	6 (37.5%)	13 (16.9%)
3 level teaspoons	1 (6.7%)	-	-	-	-	1 (1.3%)
4 tablespoons	1 (6.7%)	-	-	-	-	1 (1.3%)
9 tablespoons	-	-	-	-	1 (6.3%)	1 (1.3%)
Pinch	-	-	-	2 (11.8%)	-	2 (2.6%)
Forgotten	2 (13.3%)	1 (8.3%)	-	1 (5.9%)	-	4 (5.2%)
TOTAL	15 (100%)	12 (100%)	17 (100%)	17 (100%)	16 (100%)	77 (100%)

* Correct response = 30 (38.96%)

TABLE 16

WATER MEASUREMENT BY CBD WORKERS IN THE 5 CBD CENTRES IN SEPTEMBER 1990

WATER MEASUREMENT	CBD CENTRES					
	ALADE	ARORO	IJAYE	IKEREKU	MELE	TOTAL
*1 beer bottle	1(6.7%)	1(8.3%)	8(47.1%)	-	1(.3%)	*11(14.3%
*2 stout bottles	2(13.3%)	4(33.3%)	3(17.6%)	2(11.8%)	2(12.5%)	*13(16.9%
*2 [illegible]eral bottles	-	2(16.7%)	-	4(23.5%)	-	*6(7.8%)
3 stout bottles	7(46.7%)	3(25%)	4(23.5%)	7(41.2%)	8(50%)	29(37.7%)
*1 big cup	1(6.7%)	-	-	-	-	*1(1.3%)
1 stout bottle	-	-	-	2(11.8%)	4(25.0%)	6(7.8%)
1 tumbler	1(6.7%)	1(8.3%)	-	-	-	2(2.6%)
4 fanta bottles	-	-	1(5.9%)	-	-	1(1.3%)
3 Cocacola bottles	-	-	1(5.9%)	-	-	1(1.3%)
2 medicine bottles	-	-	-	1(5.9%)	-	1(1.3%)
Forgotten	3(20%)	1(8.3%)	-	1(5.9%)	1(6.3%)	6(7.8%)
TOTAL	15(100%)	12(100%)	17(100%)	17(100%)	16(100%)	77(100%)

*Correct response

TABLE 17

SUMMARY OF COMPARISON OF TBAS AND VHWS KNOWLEDGE OF CORRECT MEASUREMENT OF SSS INGREDIENTS

Type of CBD Worker	Sugar Measurement		Total	Salt Measurement		Total	Water Measurement		Total
	Correct	Incorrect		Correct	Incorrect		Correct	Incorrect	
TBA	13 46.4%	15 53.6%	28 100%	12 42.9%	16 57.1%	28 100%	9 32.1%	19 67.9%	28 100%
VHW	20 40.8%	29 59.2%	49 100%	18 36.7%	31 63.3%	49 100%	22 44.9%	27 55.1%	49 100%
TOTAL	33 42.9%	44 57.1%	77 100%	30 38.9%	47 61.0%	77 100%	31 40.3%	46 59.7%	77 100%

$x^2 = 0.230$ $x^2 = 0.281$ $x^2 = 1.197$

$n = 1$ $0.5 < P < 0.70$ $n = 1$ $0.5<P<0.70$ $n = 1$ $0.2<P<.30$

TABLE 18

SUMMARY OF COMPARISON OF NUMBER OF REFRESHER TRAINING AND KNOWLEDGE OF CORRECT MEASUREMENT OF SSS INGREDIENTS BY CBD WORKERS

NUMBER OF REFRESHER TRAINING	SUGAR MEASUREMENT		TOTAL	SALT MEASUREMENT		TOTAL	WATER MEASUREMENT		TOTAL
	Correct	Incorrect		Correct	Incorrect		Correct	Incorrect	
More than 3 times	19	20	39 50.6%	16	23	39 50.6%	20	19	39 50.6%
Less than 3 times	14	24	38 49.4%	14	24	38 49.4%	11	27	38 49.4%
TOTAL	33 42.9%	44 57.1%	77 100%	30 38.96%	47 61.0%	77 100%	31 40.3%	46 59.7%	77 100%

$X^2 = 1.1086$ $x^2 = 0.1412$ $x^2 = 3.9917$

n = 0.2<P<.3 n = 1 5<P<.7 n = 1 .05<P<.1

TABLE 19

SUMMARY OF THE COMPARISON OF THE CBD WORKERS EDUCATIONAL QUALIFICATION AND CORRECT KNOWLEDGE OF SSS MEASUREMENTS

EDUCATIONAL STATUS	SUGAR MEASUREMENT		TOTAL	SALT MEASUREMENT		TOTAL	WATER MEASUREMENT		TOTAL
	Correct	In-correct		Correct	In-correct		Correct	Incorrect	
Some formal education	8	12	20 26%	6	14	20 26%	10	10	20 26%
No formal education	25	32	57 74%	24	33	57 74%	21	36	57 74%
TOTAL	33 42.9%	44 56.1%	77 100%	30 38.96%	47 61.0%	77 100%	31 40.3%	46 59.7%	77 100%

$x^2 = 0.901$
$n = 1$ $.7<P.8$

$x^2 = 0.9123$
$n = 1$ $.3<P<.5$

$x^2 = 1.0657$
$n = 1$ $.3<P<.5$

TABLE 20

SUMMARY OF THE COMPARISON OF USE OF SSS AND CORRECT KNOWLEDGE OF SSS MEASUREMENT

USE OF SSS BY CBD WORKERS	SUGAR MEASUREMENT		TOTAL	SALT MEASUREMENT		TOTAL	WATER MEASUREMENT		TOTAL
	Correct	Incorrect		Correct	Incorrect		Correct	Incorrect	
Used	28	28	56 72.7%	22	34	56 72.7%	23	33	56 72.7%
Not used	5	16	21 27.3%	8	13	21 27.3%	8	13	21 27.3%
TOTAL	33 42.9%	44 57.1%	77 100%	30 38.96%	47 61.0%	77 100%	31 40.3%	46 59.7%	77 100%

$x^2 = 4.278$ $x^2 = 0.00910$ $x^2 = 0.0561$

n = 1. $02<P<.05$ n = 1 $.90<P<.95$ n = 1 $.8<P<.90$

TABLE 21

SUMMARY OF THE COMPARISON OF CBD CENTRES AND WORKERS CORRECT KNOWLEDGE OF SSS MEASUREMENTS

CBD CENTRES	SUGAR MEASUREMENT		TOTAL	SALT MEASUREMENT		TOTAL	WATER MEASUREMENT		TOTAL
	Correct	Incorrect		Correct	Incorrect		Correct	Incorrect	
Alade	7 46.7%	8 53.3%	15 100%	6 40%	9 60%	15 100%	4 26.7%	11 73.3%	15 100%
Aroro	8 16.7%	4 33.3%	12 100%	4 33.3%	8 66.7%	12 100%	7 58.3%	5 41.6%	12 100%
Ijaye	9 53%	8 47%	17 100%	9 53%	8 47%	17 100%	11 64.7%	6 35.4%	17 100%
Ikereku	2 11.8%	15 88.3%	17 100%	7 41.2%	10 58.9%	17 100%	6 35.4%	11 64.7%	17 100%
Mele	7 43.8%	9 56.3%	16 100%	4 25%	12 75%	16 100%	3 18.8%	13 81.2%	16 100%
TOTAL	33 42.9%	44 56.1%	77 100%	30 38.96%	47 61.0%	77 100%	31 40.3%	46 59.7%	77 100%

This would reveal the area of emphasis in each of the CBD centres.

CBD workers were asked about the materials used in giving SSS to children less than 1 year and to those under five years. Materials correctly reported for both under one and five years included cup, spoon, cup and spoon while only 2 (2.6%) CBD workers mentioned force feeding which was not correct (see Table 22). The two (2.6%) workers included one each in Ikereku and Mele centres.

Results on frequency of administration of SSS to the child with diarrhoea revealed that majority of the CBD workers 50 (64.9%) correctly stated that the solution should be administered after each bowel motion while 17 (22.1%) stated that SSS should be administered thrice daily and 5 (6.5%) said anytime 'child feels thirsty' (See Table 23).

CBD workers were asked to state the life span of SSS before discarding it to prepare another solution. The workers were trained to discard unused SSS after 24 hours and prepare a new one. The results showed that 46 (59.7%) of the workers, correctly stated that SSS should be discarded every 24 hours, 22 (28.6%) stated that SSS should be discarded every 12 hours and 4 (5.2%) said SSS should not be discarded (see Table 24).

TABLE 22

UTENSILS USED BY CBD WORKERS TO ADMINISTER SSS TO UNDER FIVES

UTENSILS USED TO GIVE SSS	N = 77% (100%)
Baby cup	56 (72.7%)
Gin cup	28 (36.4%)
Teaspoon and cup	43 (55.9%)
Tablespoon	10 (13%)
[illegible]m-wine cup	4 (5.2%)
Force-feeding	2 (2.6%)
Others	20 (26%)
TOTAL	N = 77 (100%)

TABLE 23

FREQUENCY OF SSS ADMINISTRATION BY CBD WORKERS

CBD AGENTS	WHEN SSS IS ADMINISTERED						
	Thrice daily	More than three times daily	After each bowel motion	Anytime child feels thirsty	Hourly	Don't know	Total
TBA	8 (28.5%)	2 (7.1%)	16 (57.2%)	1 (3.6%)	-	1 (3.6%)	28 (100%)
VHW	9 (18.4%)	1 (2.04%)	34 (69.4%)	4 (8.2%)	1 (2.04%)	-	49 (100%)
TOTAL	17 (22.1%)	3 (3.9%)	50 (64.9%)	5 (6.5%)	1 (1.3%)	1 (1.3%)	77 (100%)

TABLE 24

EXPIRATION OF SSS BY CBD WORKERS

TYPE OF CBD AGENTS	EXPIRATION OF SSS							
	6 hours	12 hours	24 hours	Don't know	Don't discard	Till SSS finishes	3-4 days	Total
TBA	1 (3.6%)	8 (28.5%)	16 (57%)	1 (3.6%)	2 (7.1%)	-	-	28 (100%
VHW	-	14 (28.5%)	30 (61.2%	1 (2.04%)	2 (4.1%)	2 (4.1%)	1 (2.04%	49 (100%
TOTAL	1 (1.3%)	22 (28.6%)	46 (59.7%	2 (2.6%)	4 (5.2%)	1 (1.3%)	1 (1.3%)	77 (100%

On the function of SSS, results revealed a poor knowledge of CBD workers. Only 13 (18.9%) correctly stated that it replaces lost body fluids or prevents dehydration. Incorrect responses included, 'SSS stops diarrhoea' mentioned by 20 (26.8%) of the workers (see Table 25). A Z test of the reasons for using SSS by the CBD workers revealed a low correct response rate among workers (see Table 25a).

The response pattern of CBD workers utilisation of SSS in diarrhoea management of under five revealed that about three quarters - 56 (72.7%) of the workers had used SSS at one time or the other and 21 (27.3%) had never used it (see Table 26).

TABLE 25

FUNCTIONS AND REASONS FOR USING SSS BY CBD WORKERS, SEPTEMBER, 1990

REASONS AND FUNCTIONS	NO.	%
Stops diarrhoea	20	26
Replaces body fluid	13	16.9
Gives energy	5	6.5
Trained	10	13.0
Don't know	16	20.8
Others	13	16.9
N	77	100%

TABLE 25A

REASONS FOR USING SSS BY CBD WORKERS

REASONS	TYPE OF CBD AGENT		TOTAL
	TBA (%)	VHW (%)	
Stops Diarrhoea	32.1%	36.7%	35.1%
Replaces body fluid	25.0%	16.3%	19.5%
Gives Energy	21.4%	14.2%	15.6%
Trained to use it	14.3%	16.3%	15.6%
It works	3.6%	6.1%	5.2%
Don't know	14.3%	24.5%	20.8%
TOTAL	28(100%)	49(100%)	77(100%

TABLE 26

SSS USE BY CBD WORKERS

SSS USE	CBD CENTRES					
	Alade	Aroro	Ijaye	Ikereku	Mele	Total
Ever Used	11 (73.3%)	8 (66.7%)	13 (76.5%)	9 (53%)	15 (93.7%)	56 (72.2%)
Never Used	4 (26.7%)	4 (33.3%)	4 (23.5%)	8 (47.1%)	1 (6.3%)	21 (27.3%)
Total	15 (100%)	12 (100%)	17 (100%)	17 (100%)	16 (100%)	77 (100%)

Those who had never used it stated that they still have Oralite packets or have not managed diarrhoea episodes since SSS was introduced.

A comparison of the different category of CBD workers and use of SSS revealed that 34 (69.4%) of the 49 VHWs and 22 (78.6%) of the TBAs had used SSS (Table 27). Likewise a comparison of education of CBD workers and use of SSS revealed that 18 (90%) of 20 educated workers had used SSS while 38 (66.7%) of 57 non literate workers had used SSS for under five diarrhoea management. The differences were not significant. It was found that both the type and educational qualifications of CBD workers did not influence their use of SSS.

Respondents were asked to state the last time each managed a diarrhoea case stating the age, sex of the child as well as the duration of diarrhoea. Results revealed that 25 (32.5%) of the CBD workers managed a case or more of diarrhoea in the last three months.

With regards to SSS use in managing diarrhoea, 43 workers (18 TBAs, 25 VHWs) reportedly used SSS for all diarrhoea cases brought to them. However 34 workers (44.2%) - 10 TBAs and 24 VHWs) used other anti diarrhoea remedies and drugs such as Oralite, Herbs, Capsules and Thalazole (See Table 28). It was noted that those who used herbs were mainly VHWs.

TABLE 27

COMPARISON OF CBD WORKERS AND USE OF SALT SUGAR SOLUTION (SSS)

USED SSS	CBD WORKERS		
	VHW	TBA	TOTAL
Yes	34 (69.4%)	22 (78.6%)	56 (72.7%)
No	15 (30.6%)	6 (21.4%)	21 (27.3%)
TOTAL	49 (100%)	28 (100%)	77 (100%)

$x^2 = 0.758$, d.f = 1, $P < 0.40$

TABLE 28

DIFFERENT ANTI-MALARIA DRUGS USED BY CBD WORKERS

TYPE OF CBD AGENTS	ANTI-DIARRHOEA DURGS OTHER THAN SSS						TOTAL
	Herbs	Capsule	Thalazole	Oralite	Not applicable	Oralite and Herbs	
TBA	-	2 (7.1%)	2 (7.1%)	6 (21.4%)	18 (64.3%)	-	28
[illegible]W	8 (16.3%)	2 (4.1%)	1 (2.04%)	6 (12.2%)	25 (51.02%	7 (14.3%)	49
TOTAL	8 (10.4%)	4 (3.2%)	3 (3.9%)	12 (15.6%)	43 (15.8%)	7 (9.1%)	77 (100%)

Respondents were asked to state the reasons for using other anti diarrhoea remedies apart from SSS. The reasons which were shown on table 29 included perceived availability and effectiveness of the remedy - 14 (18.2%) which was followed by availability of Oralite packets, 6 (7.8%), high cost of sugar - 4 (5.2%) among others. However, majority of the workers 43 (55.8%) (18 TBAs and 25 VHWs) relied solely on SSS for diarrhoea management.

While majority of the workers 56 (72.7%) started using SSS immediately after their training for management of diarrhoea and vomitting cases, some - 21 (27.3%) have not used SSS on any patients.

Belief of CBD Workers in Relation to SSS

Majority of the CBD workers 56 (72.7%) believed that SSS is very effective in stopping diarrhoea. However, community approval of SSS use was signified by all workers - 77 (100%) as a positive factor in SSS use, which was closely followed by ease of SSS preparation mentioned by 73 workers. It could be inferred from the table that the CBD workers would use SSS because of its effectiveness and accessibility among other factors (Table 30).

TABLE 29

CBD WORKERS REASONS FOR USING OTHER ANTI-DIARRHOEA DRUGS OTHER THAN SSS, SEPTEMBER 1990

REASONS FOR USING ANTI-DIARRHOEA	CBD WORKERS		TOTAL
	TBAS	VHWS	
Available and effective	5 (17.8%)	9 (18.4%)	14 (18.2%)
Fat people	-	2 (4.1%)	2 (2.6%)
Expensive Sugar	2 (7.1%)	2 (4.1%)	4 (5.2%)
Cold Season	-	1 (2.05%)	1 (1.3%)
Still has Oralite	2 (7.1%)	4 (8.2%)	6 (7.8%)
Prefers anti-diarrhoea drugs	-	1 (2.05%)	1 (1.3%)
Cholera	-	1 (2.05%)	1 (1.3%)
Not Applicable	18 (64.3%)	25 (51.02%)	43 (55.8%)
Cannot rely on one medicine	-	2 (4.1%)	2 (2.6%)
Emergency Cases	1 (3.6%)	2 (4.1%)	3 (3.9%)
TOTAL	28 (100%)	49 (100%)	77 (100%)

TABLE 30

BELIEF OF SSS USE BY CBD WORKERS

REASONS FOR USING SSS	CBD AGENTS			TOTAL
	YES	NO	DON'T KNOW	
Cheap	50 (65%)	24 (31.2%)	3 (3.9%)	77 (100%)
Ingredients are accessible	56 (72.7%)	19 (24.7%)	2 (2.6%)	77 (100%)
Reduces severity of diarrhoea	56 (72.7%)	-	21 (27.3%)	77 (100%)
Colleagues use it	10 (13%)	46 (59.7%)	21 (27.3%)	77 (100%)
Effective than other anti-diarrhoea	31 (40.3%)	25 (32.5%)	21 (27.3%)	77 (100%)
Members of Community approval	77 (100%)	-	-	77 (100%)
SSS causes other diseases	2 (2.6%)	54 (70.1%)	21 (27.3%)	77 (100%)
Preparation too complex	-	73 (94.8%)	4 (5.2%)	77 (100%)
Easy to prepare	73 (94.8%)	-	4 (5.2%)	77 (100%)
Trained to use it	23 (29.9%)	54 (70.1%)	-	77 (100%)
Stops diarrhoea	56 (72.7%)	-	21 (27.3%)	77 (100%)

General Comments on Training of Service Users (Mothers) on SSS Preparation by CBD Workers

It was surprising to identify that only 2 (2.6%) of all CBD workers - 2 TBAs taught mothers who patronised them the method of preparing and administering SSS for diarrhoea management. Of these 2 TBAs (2.6%), only 1 (1.3%) taught any mother or caretaker that came to her while the other 1 (1.3%) taught only her relatives. The other CBD workers - 75 (97.4% - 26 TBAs and 49 VHWs) did not teach mothers/caretakers. The reasons adduced were that the trainers did not inform or train them to teach mothers, also teaching mothers meant disclosing their secret. This would contribute to consumers "disrespecting" them.

39 (50.6%) CBD workers disclosed that mothers would not understand the techniques involved in the preparation of SSS.

Other Comment

The workers stated that mothers were always satisfied with their management of childhood diarrhoea.

The workers bought SSS ingredients at Ibadan city or any other major market in the CBD Centres on their respective market days. There were some villages where salt and sugar were available.

The workers kept records of cases managed but the record sheet excluded demographic characteristics such as age, sex, name of child among others.

PART C: ANALYSIS OF OBSERVATION ON CBD WORKERS PREPARATION OF SSS

The CBD workers were asked to prepare SSS in the presence of the investigator. This was to ascertain whether the CBD workers truly possessed the skills needed in SSS preparation.

It was observed that all the workers did not have "SSS corner" in their homes. Furthermore 45 (58.4%) had teaspoons in their kit though only 42 (54.5%) of the 45 (58.4%) brought forward a 3ml teaspoon while 32 (41.6%) had to search for a teaspoon in their homes. 43 (55.8%) CBD workers had bottles available in their bedrooms while the remainder - 34 (44.2%) searched for bottles everywhere in the house before coming up with one. It was observed that salt and water were readily available in all CBD workers' homes while sugar was available in 37 (48.1%) homes.

Table 31 showed the steps undertaken by the CBD workers. It was evident that the second step - use of soap in handwashing was demonstrated by only 21 (27.3%) of CBD workers. This was identified as a problem. Another problem is on the correct measurement of ingredients as only 31

(40.3%) and 40 (51.9%) of the 77 workers respectively correctly measured water and salt. In addition, only 9 (11.7%) tasted the solution after preparation.

On comparison of mean SSS preparation checklist scores, it was found that the mean score for VHWs was 8.35 while that of TBAs was 8.61. However, these differences were not significant showing that correct preparation of SSS is not associated with being a TBA or VHW.

Educational differences among the workers was not significantly associated with ability to correctly prepare SSS (Table 32).

TABLE 31

FREQUENCY DISTRIBUTION OF WORKERS KNOWLEDGE OF SSS PREPARATION

STEPS	N = 77	%
Wash hands with water only	57	74.0
Use soap	21	27.3
Obtain Bowl	74	96.1
Clean Bottles	74	96.1
Clean water	74	96.1
easure water	31	40.3
Obtain spoon	74	96.1
Obtain salt	74	96.1
Measure salt	40	51.9
Obtain sugar	74	96.1
Measure sugar	34	44.2
Mix Ingredients	74	96.1
Taste	9	11.7

TABLE 32

COMPARISON OF MEAN SSS PREPARATION CHECKLIST SCORES

Group	Number	Mean Score	S.D.	t Value	P value
VHW	49	8.35	2.32	0.393	0.50
TBA	28	8.61	3.035		
Educated	20	8.75	2.07	0.712	0.40
Not Educated	57	8.33	2.75		

PART D – MOTHERS' KNOWLEDGE AND USE OF SSS

All the 70 mothers interviewed had utilised CBD services for diarrhoea management at one time or the other. However none of the mothers could state all the measurements of ingredients used in the preparation of SSS.

All the mothers - 70 (100%) defined diarrhoea as frequent passing of watery stool which is a severe disease that could lead to death if immediate action was not taken.

Results revealed that mother's knowledge on causes of diarrhoea was very poor. Only 5 (7.1%) stated "dirtiness". Incorrect responses included teething (see Table 33). On the preventive measures for diarrhoea, only 5 (7.1%) mothers mentioned "cleanliness". Other preventive measures that were mentioned include avoiding eating too much food.

On home management of diarrhoea, while many stated that a colourless solution could be used, only 12 (15.6%) mothers specifically named the solution.

When the mothers were asked to mention the source of first knowledge of SSS, results showed that majority of the mothers 40 (57.1%) said that they had not heard of SSS. Sources mentioned included CBD workers, maternity centres among others. When mothers were asked to state the measurements of all the three ingredients, 40 (57.1%) could

TABLE 33

MOTHERS' KNOWLEDGE ON CAUSES OF DIARRHOEA

Causes of Diarrhoea	Number	%
Teething	20	28.6
Eating too much	32	45.7
Dirtiness (poor hygiene)	5	7.1
Others	13	18.6
Total	70	100

not state any measurement while 30 (42.9%) gave answers. Specifically, 5 (16.7%) mentioned correct measurement of sugar, 3 (10%) mentioned correct measurement of salt and 6 (20%) mentioned correct measurement of water. Of those who heard only from CBD worker, three of five mothers got sugar measurement correctly, one of three got salt measurement correctly.

On the size of spoon to be used, 23 (32.9%) of the mothers mentioned teaspoon while the others mentioned tablespoon.

On the expiration of SSS (span of life of SSS) 10 (33.3%) out of 30 mothers gave a correct response of twenty four hours.

On the mode of administration of SSS, many mothers mentioned giving children with cup and spoon, cup only. None mentioned force-feeding.

The mothers (70 - 100%) stated that SSS is effective in managing diarrhoea.

Summary

The findings revealed that the CBD workers had a fair knowledge of SSS ingredients and measurements though a poor knowledge of diarrhoea preventive measures. However, the consumers/mothers exhibited a poor knowledge of SSS

ingredient's measurement. This might have resulted from the fact that CBD workers did not teach them SSS preparation.

The results from the observation revealed a poor demonstration of the skills by the CBD workers. Only few of the workers could exhibit the necessary skills required in SSS preparation.

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

The results presented in Chapter Four are discussed in this chapter, covering four broad areas: demographic characteristics of CBD workers and mothers of under-fives, post-training knowledge of diarrhoea by CBD workers, ability to prepare SSS and mother's knowledge and use of SSS.

Recommendations for improving the CBD health service delivery and research on such programmes will conclude the chapter.

Demographic Characteristics

The data on age, marital status, ethnic group and occupation of CBD workers revealed slight differences between the TBAs and the VHWs, while it was noted that there were more VHWs than TBAs, TBAs were older in age than the VHWs. TBAs older age could be attributed to the fact that they had been practising as TBAs before undergoing a formal training. The findings of Swaminathan et al (1986) in their evaluation of DAI training in India, Williams et al (1986) in their

evaluation of training and performance of TBAs in Sierra-Leone, Cosminky, (1986) in his evaluation of Traditional Birth Practices in the Americas and Wolfheim (1986) in the report on the Gambia, Islam et al (1984) on the characteristics and practices of Traditional Birth Attendants in Matlab, Bangladesh are all similar to the demographic characteristics (such as age, sex, occupation, marital status) findings of this present study. Also Bamisaiye et al (1989) study near Lagos found difference in the characteristics of village health workers (such as age, sex, education and religion).

The demographic characteristics of the mothers who utilised CBD services revealed some differences by centres. For instance mother interviewed in Alade centre shared similar demographic characteristics with those in Ijaye and Ikereku but not in Mele. Ikereku however had the smallest number of consumers (two).

Furthermore, CBD workers and mothers of under fives differed in age. Majority of mothers were younger compared to the CBD workers, majority of who are in the older generation. These differences might have been due to the fact that the study limited itself to mothers of under-fives which made such mothers automatically in the child bearing age group.

Post-training knowledge of diarrhoea by CBD workers

The knowledge level of CBD workers were found to be high in respect to diarrhoea definition, severity and home treatment. This finding is similar to those of Wolfheim (1986) evaluation study of skills and use of SSS by TBAs and VHWs in which the respondents were said to recognise diarrhoea and its consequences. However, the workers exhibited poor knowledge of the preventive measures of diarrhoea and only a fair knowledge of the causes and symptoms.

The findings might have been due to poor recall of the knowledge impaired during training. De Zoysa et al (1984) in their study on "Home based ORT in Zimbabwe" concluded that the ability to recall tends to descrease over time. It must be emphasised that some of the workers mentioned 'Oralite' as a management therapy for diarrhoea. Their belief in the efficacy of Oralite might have been as a result of knowledge imparted during previous training before SSS was officially sanctioned for diarrhoea management.

Although CBD workers' awareness of SSS was considered to be very high, however their knowledge of SSS recipe is only fair. It appears that majority had forgotten what they were taught. Similar finding to this study was reported by

Ransome-Kuti et al (1978) who stated that less than 50% of the women who were aware of ORT knew the correct proportions of the ingredients and that use of salt was a common error. However, this finding is in contrast to that of Ellerbrock (1981) in which he concluded that trained village women in Bangladesh prepared oral replacement therapy correctly. In addition PRICOR (1987) reported that traditional healers in Pacatuba, Brazil trained to deliver ORT actually prepared SSS correctly after the healers were provided with the basic equipment needed to prepare ORT including measuring utensils, containers and water filters. However it must be emphasised that the above findings were reported after a short term evaluation which could not be compared with retention of knowledge in a long term evaluation such as this study. Likewise the motivating factor which accompanied traditional healers ORS preparation in PRICOR (1987) reports were lacking among CBD workers in this study.

Correct measurements are essential for the preparation of SSS in order for it to be safe and effective. One could therefore infer that majority of CBD workers prepared solutions of high or low concentration due to the variability of measuring items used. This type of error can lead to use of over concentrated fluids. A similar conclusion was made by

Islam et al (1984) that indiscriminate ORS use, in the absence of adequate training may expose infants to the risk of hypernatremia. Since in this study the actual concentration of the salt was not measured, the issue of hyper-concentration of salt is merely speculative. The solutions prepared by CBD workers needed to be tested in the laboratory before one could state categorically that the solution had low or high concentration of sodium.

The CBD workers understanding of the correct administration of the solution in relation to quantity, frequency and duration was fair. Responses on correct mode of administration was mentioned by 57.1% (under 5 years), frequency - 64.9% and duration - 59.7%. Similar findings were recorded by Moran in 1976 in ORT management in the home and the hospital when infants were fed ORS with cup and spoon. This fairly satisfactory knowledge areas also reported in a post-test knowledge of correct administration of ORS in Haiti where the magnitude of change in the Intervention Communities was significantly greater than in the control communities. The level of correct answers on administration increased from 47.6% to 70.5% (Cayemittes et al 1986). Likewise Nations et al (1988) reported that Traditional healers have demonstrated that they are capable of preparing safe SSS and can

effectively use it. In contrast, Wolfheim (1986) in an assessment of current ORT educational materials and knowledge attitude and practice of VHWs and TBAs found that less than 50.0% of VHWs gave correct response to the administration of SSS in terms of quantity, frequency and duration.

The findings also indicated that CBD workers accepted and used SSS as a diarrhoea management though few had never used SSS. Similar findings on workers acceptance of SSS were recorded by Egemen and Bertan (1980) in their study on ORT administration by midwives in rural area near Ankara where ORT was accepted as a major diarrhoea therapy than the use of antibiotics. In addition, Rahaman et al (1979) findings in two Bangladesh Villages after a two year surveillance showed that ORS consumption rater after diarrhoea was increased to 80% in Shamlapur (where community based points were instituted by trained volunteers) and 38% in Bordil (where there was no multiple community based points). The increase of ORS consumption rate up to 80% showed that it was accepted by the trained volunteers. Thane-Toe et al (1984) concluded that ORS was readily accepted and administered by mothers in 96.0% episodes in a study on acceptability and effectiveness of ORT given by mothers at home under village conditions in 6 (2 control and 4 test) communities near Rangoon, Burma.

In this study, more than half of the CBD workers used SSS when diarrhoea cases were brought to them. Some practitioners still used herbs, antibiotics which should be discouraged. Morrison (1981) had pointed out that anti-diarrhoea drugs such as Lomotil and Kaolin should be discouraged and that proper diarrhoea case management consists solely of replacement and maintenance of fluid and electrolytes. However, it was observed that use of SSS was significant in CBD workers knowledge of correct recipe of SSS. Though there were few workers who had never used SSS and could still recite the correct recipe. Similar findings were reported by Wolfheim (1986), Kumar, et al (1981).

CBD workers reportedly used SSS probably because of its effectiveness in diarrhoea management. The workers also started using SSS immediately after the training because they were willing to apply the knowledge gained in their daily activities. This in - essence supports the conclusion of several authors that SSS is an effective therapy for management of dehydration resulting from diarrhoea (Kielmann et al 1977, McCord et al 1978, Ransome-Kuti, 1980, Cutting 1979, Kumar et al 1981, Roberts, 1979, Roberts, 1988).

However, the Community of practice and sex of the CBD worker seemed to have a significant role in workers use of

other diarrhoea management therapy other than SSS. It was observed that workers in Ikereku centre used other diarrhoea management therapy other than SSS as compared with workers in other centres. Likewise more men than women used other anti-diarrhoea drugs for managing diarrhoea. Only a woman (TBA) was found to use anti-diarrhoea drug and incidentally she had a husband (VHW) who also used anti-diarrhoea drugs for diarrhoea management.

It was striking to note that few CBD workers correctly knew the function of SSS (that is replacing body fluid or preventing dehydration). The common response was that SSS stops diarrhoea. Similar finding was reported by Wolfheim (1986) in her report on TBAs. In contrast however Wolfheim (1986) in the Gambia found that 6.7% of the TBAs mentioned that SSS prevents dehydration while 89.5% VHWs mentioned that SSS prevents dehydration. It appears that given the results of this study, the CBD workers had forgotten what they were taught during the training. Also the investigator found that in these communities the Yoruba translation of the term SSS means a fluid medicine to stop diarrhoea. The primary health care workers should try and modify this terminology, to reflect the true function of SSS.

The workers responses to what they told mothers about SSS was surprising as most workers did not teach mothers SSS (only two TBAs did it). This finding was in contrast to those of Wolfheim, (1986), Rasmuson et al (1983), Ellerbrock (1981), Shields et al (1981), Kumar et al (1981), Synder et al (1982), Tekce (1982).

It was also noted from the result that CBD workers' belief in SSS was solely based on the observation that community members, approved its use and was found to be effective and acceptable and not because their colleagues used it. They further stated that they would continue to use SSS until it was no more effective or until the introduction of another innovation or until diarrhoea is eradicated. That people use SSS because of its effectiveness had been supported by many authors such as Egemen and Bertan (1980), Mawardi et al (1981) and Mahalanabis et al (1973).

It was also noted that these care providers expressed satisfaction at being CBD workers and expressed the need to receive additional training from the government health staff. This seems to suggest that the CBD programme is seen as fulfilling the needs of these workers and their communities.

Ability to Prepare SSS

Observation of CBD workers' preparation of SSS was necessary to identify whether the workers could interprete or apply theory to practice because 'knowing is one thing and doing is anothers' (Health Education Principle). Adequate preparation of SSS implied that workers must exhibit two basic skills namely: "manual and thinking". Acquisition of manual skills implied that CBD workers must exhibit handwashing before SSS preparation, assembling of materials necessary for SSS preparation and recording cases managed with the prepared SSS.

Thinking skills involved the ability of CBD workers to measure the correct ingredients - sugar, salt and water.

Considering the manual skills, observations revealed that majority of the CBD workers did not exhibit all the necessary skills. For instance 57 (74.0%) carried out the handwashing step but only 21 (27.3%) completed the function by washing hands with soap and water. This means that only 21 (27.3%) exhibited the correct manual skills. Furthermore, although the CBD workers did not exhibit "a SSS corner" in their homes but 74 (96.1%) CBD workers assembled all the necessary materials needed in the preparation. However, there were variations in the size of teaspoons assembled as 42 (54.5%)

brought a 3ml spoon and 25 (32.5%) had and showed the teaspoons given by the trainers to the workers. This finding contrasted with what Poudayl (1980) found in Nepal where spoons could be found only in 17 of 50 homes two weeks after their free distribution. The reason for this could be due to the fact that CBD workers kept their teaspoons in their delivery kit.

On availability of ingredients, 37 (48.1%) of the CBD workers had sugar available at home, salt was readily available in 74 (96.1%) of the homes due to availability of cooking salt and bottles were readily available in 43 (55.8%) of the homes. This finding was supported by Poudayl (1980) study in Nepal where less than 50% of the homes were found to have sugar. This could be due to the fact that sugar is sometimes expensive because of its variations according to seasons.

Regarding the exhibition of manual skills, it appeared that the CBD workers had forgotten few of the acquired skills.

Concerning the thinking skills, the workers appeared to have forgotten the correct measurement of the following ingredients - sugar, salt, water. The correct exhibition of this skill was done by only nine workers (11.7%) but only 5

(6.5%) exhibited all the skills involved in the preparation of SSS analysed in the observation checklist (See Appendix vi).

In conclusion, it is surprising that CBD workers exhibited low acquisition of manual and thinking skills. One probable factor may be related to Hull's (1952) assertion that during one's course of learning, an individual may acquire much potentially useful information as workers were taught the measurements of SSS ingredients and were given the opportunity to observe SSS preparation by trainers. However, whether or not this information results in skilled performance depends upon motivating conditions. Such conditions include availability of SSS ingredients (salt, sugar, water), effectiveness of SSS, incidence of diarrhoea occurence and rewards in terms of money and praise.

Another factor may be related to the issue of post training retention of knowledge over a period of time. De Zoysa et al in 1984 reported that ability to recall tended to decrease over time. In her study the respondents' recall of the standard method of SSS preparation was considered 11 to 26 days post-training as 84% of respondents prepared a solution having both sucrose and sodium concentration in the safe and effective ranges.

Mothers/Caretakers Knowledge and use of SSS

It was noted from the results that many mothers could define diarrhoea but only few could state the correct causes and prevention of diarrhoea. This showed that there is poor knowledge of causes and prevention of diarrhoea. This finding is similar to those of Cutting et al (1981) in which respondents incorrectly stated causes of diarrhoea as "diet or bad food" (30%), "teething and teeth" (15%), infection (12%), breastmilk (10%),"evil eye" (8%), weather (3%) and God's will (2%).

Furthermore mothers's knowledge of SSS was also found to be low as only 42.9% of them had heard of SSS and none could state the measurement of the three ingredients correctly. This finding was in contrast to what was obtained by the International Study Group (1981) in their studies in seven rural villages in which it was found that almost all the mothers could repeat the directions for mixing the oral solution correctly. Ellerbrock (1981) in his study of oral replacement therapy in rural Bangladesh with home ingredients had concluded that village women can learn oral therapy including how to make oral solutions correctly from locally available substances using finger measurements. In Ellerbrock study, after 39 days of field work, 98% of 1,079 sample women

interviewed knew 7 or more of the 10 points of the health message on how to make SSS correctly. Likewise De Zoysa et al (1984) in their study of 'Home based oral rehydration therapy in rural Zimbabwe' found that 64% of the respondents remembered the correct recipe for ORT after 11 to 26 days post training.

On mixture and administration of SSS, it was also noted in this study that mothers had poor knowledge of the measurements. Only 16.7% of the mothers mentioned the correct measurement of sugar, 10% correct salt measurement and 20% for correct water measurement. This finding differs from those obtained by Rasmuson et al (1983) in which it was found that 47.3% of the mothers correctly identified the volume of water used to make the solution, 64.9% knew the correct amount of sugar and 68.9% the correct amount of salt, 33.8% knew the correct amount of all three ingredients.

Furthermore, regarding the size of spoon to be used, only 23 (32.9%) mentioned the correct type of teaspoon. The finding also differed from what Levine et al (1981) recorded in their study in which 16 (80%) of the 20 mothers brought correct teaspoons for the preparation of SSS.

However, it should be noted that 90.0% of mothers in the present study were not taught SSS by CBD workers unlike the

mothers in other studies who were specifically taught SSS preparation and their memory recall evaluated on short term basis.

CONCLUSION

In conclusion, the study has revealed the following:

1. That CBD workers have not exhibited the three skills namely - manual, thinking and communication skills adequately.
2. Furthermore, CBD workers who used SSS shared some characteristics with non-users in terms of age, centre, religion and number of refresher training attended.
3. Some CBD workers in Ikereku have not used SSS due to factors identified as lack of diarrhoea cases (cholera), availability of oralite packets and use of other anti-diarrhoea drugs. However, it must be emphasised that non-use of SSS was not limited to Ikereku only but the largest number of CBD non-users were found there. It should also be noted that more male than female were among the non-users of SSS. Likewise, there were many non-users among VHWs than TBA and majority of the non-users had no formal education.
4. The level of awareness and stated use of SSS by VHWs and TBAs is evidently high, however there are difficulties in the understanding of the recipe, administration and purpose of SSS.

5. The mothers/caretakers who utilised CBD workers disclosed that a colourless solution that is tasty was used in managing their children diarrhoea. Although very few mentioned being taught SSS preparation, the other mothers maintained that they were not taught by CBD workers.

6. Although many of the mothers have heard of SSS from other sources than through the CBD workers, none of them could state the correct measurement of all SSS ingredients.

RECOMMENDATIONS AND GUIDE

Based on the findings and the conclusions above, there is need for:

a. More periodic retraining of CBD workers on management of diarrhoea with oral rehydration salt (ORS). The refresher course should focus on identification of appropriate recipe and mixing of SSS (with practical demonstration) the proper administration of the solution and a thorough understanding of what it is used for. The workers must be informed and encouraged to educate mothers on various ways to prevent diarrhoea with greater emphasis on hygiene behaviours. The refresher course should be performance based hinged on a clear definition of the tasks and providing only the skills and knowledge required to perform the task so as to ensure that resources required for development and implementation are kept to a minimum.

b. CBD workers should be provided with SSS materials and ingredients by their local government areas so

that workers would have a SSS corner. The SSS materials should include a standardized spoon to enable them have correct measurement of salt and sugar. This could motivate workers to prepare and use SSS on a greater scale in managing childhood diarrhoea.

c. The Traditional healers in the communities should be involved in the management and demonstration of SSS. They should also be trained like the present CBD workers in this study so that there is a larger proportion of primary health care workers managing diarrhoea effectively with SSS.

d. Supervisors should be more active during supervisory meeting by asking questions from workers and supplying information where needed.

e. CBD workers should be grouped to operate in smaller zones because of transportation problems often experienced by workers who lived in far away villages.

f. End of the year activities for the CBD workers should be revived and members should be encouraged in all centres to send representatives to attend workshops, conferences.

g. Based on these findings, future study should focus on the diarrhoea occurence among under-five children in the five CBD centres of Akinyele Local Government so as to verify the CBD workers assertion of low incidence of diarrhoea occurence.

h. There is need for future studies to identify practicable factors facilitating the sustainability of CBD workers in the PHC programme. Ultimately this will in effect reduce the attrition rate of CBD workers.

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APPENDIX 1

TRADITIONAL BIRTH ATTENDANTS AND VOLUNTARY HEALTH WORKERS CURRICULUM FOR TRAINING

General Objectives

The aim of the curriculum is to be able to develop knowledge and skill in the promotion of health and management of minor ailments by giving these extension workers a health oriented family and community participation role.

The trainee will be expected to be able to function reasonably well and knowing his or her limitation under the supervision of the health personnel in their different areas and referring cases as needs arise.

Specification: Objective

After the completion of the training the agents will be able to.

1. Describe the male and female reproductive system, diagnose pregnancy. Give Antenatal care. Apply modern technique for delivery of baby and Management of 3rd stage of labour.
2. To explain the importance of nutrition
   Advantages of breast Feeding
   Give food demonstration

Weaning foof.

3. Give treatment for minor ailments and detect early signs and symptoms of deterioration.

4. Management of Minor ailments

Causes, signs, symptoms and treatment of vomitting, worms, malaria, cough, parasites, common cold, wound and diarrhoea. How to mix and use oralyte.

Guide to successful TBA/VHW Training.

It is suggested that only.

1. Interested, experienced, respectful, understanding and matured health personnel preferably a public health Nurse or Midwife should be selected as TBA/VHW Trainers or Supervisors.
2. Training should be conducted when it is convenient for the Trainees.
3. Numbers of trainers should depend on numbers of Trainees.
4. Training should be carried out in small group.
5. Trainers should be flexible and move at Trainees pace.
6. Finally Trainers should make sure that the needs of Trainees are met.

APPENDIX II

DEPARTMENT OF PREVENTIVE AND SOCIAL MEDICINE

COLLEGE OF MEDICINE, UNIVERSITY OF IBADAN

TITLE: "A POST-TRAINING ASSESSMENT OF COMMUNITY BASED DISTRIBUTION WORKERS SKILL IN PREPARATION AND USE OF SALT SUGAR SOLUTION (SSS) IN DIARRHOEA MANAGEMENT OF UNDER FIVE IN AKINYELE LOCAL GOVERNMENT OF OYO STATE".

QUESTIONNAIRE FOR CBD WORKERS

SECTION A:

DEMOGRAPHIC CHARACTERISTICS

2. Identificiation Number .....

2. Area Community:

1. Ajaiye
2. Araro
3. Alade
4. Ikereku
5. Mele

3. Religion

1. Islam
2. Christianity
3. Traditional
4. Others (Specify)

4. Age:

1. 25 - 29
2. 30 - 34
3. 35 - 39
4. 40 - 44
5. 45 - 49
6. 50 - 54
7. 55

5. Educational Qualification:

   1. No formal education
   2. Primary
   3. Modern
   4. Others (specify)

6. Number of children alive:

   1. 2
   2. 3
   3. 4
   4. 5
   5. 6
   6. 7
   7. Others (specify)

7. Occupation (other than CBD):

   1. Farming
   2. Trading
   3. Others (specify)

8. What year did you attend the training programme.

   1. Year
   2. Month
   3. Day

9. How long was the training programme (becoming TBA) (specify in weeks).

   1. 3 weeks
   2. 4 weeks
   3. 5 weeks
   4. 6 weeks
   5. More than six weeks

10. How many refresher's programme have attended

   1. 0 time
   2. 3 times
   3. 4 times
   4. 5 times
   5. 6 times
   6. Others (Specify)

11. What year was the last refresher programme

1. 1988
2. 1989
3. 1990
4. Others (specify)

12. What was the duration of each refresher programme

1. 1 days
2. 3 days
3. 5 days
4. 15 days
5. Others (specify)

13. When did you start practising your profession. As a TBA .....
Month year (specify)

SECTION B: CBD WORKERS POST-TRAINING KNOWLEDGE AND PRACTICE OF DIARRHOEA

14. What is diarrhoea

1. Watery stool
2. Mucuous stool
3. Frequent passing of watery stool
4. Others specify

15. Classify into whether severe or not

1. Severe
2. Not severe

16. State causes of Diarrhoea

1. Heat
2. Eating too many things (food)
3. Lack of personal hygiene
4. Housefly infesting foods
5. Dirty utensils (cooking)
6. Dirty feeding utensils
7. Others (specify)

17. State the symptoms accompanying Diarrhoea (tick more than 1 option if aplicable)

    1. Sunken eyes
    2. Learners
    3. Weakness
    4. Others (specify)

18. State the preventive measures of Diarrhoea (tick more than one if applicable)

    1. Oralite
    2. SSS
    3. Personal hygiene
    4. Clean cooking utensiles
    5. Clean feeding utensils
    6. Others (specify)

b. For those who say SSS or Oralite can prevent occurence of diarrhoearn operation. How is it to be used. How is it to be used.

    1. Hourly
    2. Thrice daily
    3. Weekly
    4. Monthly
    5. Others (specify)

19. What is the duration of such protection i.e. if a child is given SSS today for how many days weeks will he be protected from future occurence diarrhoea.

20. what treatment can be given at home to a child with diarrhoea

    1. SSS
    2. Oralite
    3. Herbs
    4. Capsule
    5. Others (specify)

SECTION C: CBDs WORKERS KNOWLEDGE OF SSS AND ITS USE

21. Have you heard of SSS

    1. Yes

2. No.

22. If yes, source of information
(tick more than one if applicable)

1. Trainer
2. Health Worker
3. Radio
4. Colleagues
5. Friends
6. Others (Specify)

23. When did you first hear of SSS

1. During first training
2. During Refresher training
3. Other (specify)

24. What are the ingredients in this drink and how do you mix it Yes No

1. Spoons sugar
2. Spoon salt
3. Bottle(s) water
(type and No)

1. Describes correctly
2. Describes incorrectly

25. How is SSS administered to the child

Under 1 year	Under 5 years
1. Teaspoon	1. Baby cup
2. Baby cup	2. Palnwine cup
3. Hot drink glass	3. Tablespoon
4. Force-feeding	4. Forcefeeding
5. Others (spcify)	5. Others (specify)

26. How often should one give the solution to a child with diarrhoea

1. Once daily
2. Twice daily
3. Thrice daily
4. More than three times daily

5. After each bowel motion
6. Anytime the child feels thirsty
7. Other (specify)

27. How long should one store the mixture before discarding it

1. Up to 6 hours
2. Up to 12 hours
3. Up to 18 hours
4. Up to 24 hours
5. Other (specify)

28. What does SSS do

1. Stops diarrhoea
2. Replaces lost fluids
3. Gives energy
4. Others (specify)

29. When was the last time you managed a diarrhoea case

1. In the last 3 (three) months
2. In the last 6 months
3. More than 12 months
4. 12 months
5. Other (specify)

30a. For those who have managed diarrhoea specify the sex of child

1. Male
2. Female

30b. specify age:

1. under one year
2. under 5 years
3. Above 5 years
4. Other specify

31. After training did you try SSS as a treatment on your patients.

1. Yes for a few of diarrhoea patients
2. Yes for all patients having diarrhoea

3. No I'm still unsure of its efficiacy
4. No it is not relevant to my idea of diarrhoea management

32. When did you start making use of SSS

1. Immediately after training
2. About 12 weeks after training
3. About 6 months after training
4. I have just started using it
5. I have not used it
6. Others (specify)

33. For those who have not used it, why have you not used SSS

1. Still has oralite packets
2. No diarrhoea case
3. Other specify

34. For those who use SSS; why did you decide to use SSS on your patients.

1. It stops diarrhoea
2. It replaces lost fluids
3. It gives energy
4. Other (specify)

35. Do you still use SSS to treat children and adult having diarrhoea

1. Yes
2. No

36. If yes, what type of patients do you use it for

1. adults
2. Children (specify)
3. Both adults and children
4. Others (specify)

37. Why do you still use SSS for the category mentioned

1. It is effective in stopping diarrhoea
2. It (SSS) acts fast
3. Other (specify)

38. What other anti-diarrhoea drugs do you use apart from Oralite or SSS

39. State the category of patients you use any of the above medicines for (refer to question 38)

1. Adult
2. Pregnant women
3. Under 3 months
4. Patients who should abstain from eating salt or sugar
5. Other (specify)

39b. Why do you use it for the category mentioned

1. It cures all symptoms
2. It is very effective
3. It is used when salt or sugar is very expensive or not accessible
4. Other (specify)

SECTION D: BELIEFS OF CBD WORKERS IN RELATION TO SSS

40. Since the end of your training as CBD worker, what are your beliefs in respect of SSS

		Yes	No
a.	SSS is relatively cheap	Yes	No
b.	Ingredients are accessible	"	"
c.	Reduces severity of diarrhoea	"	"
d.	Effective than other anti-diarrhoeal drugs		
e.	Members of my community approve of SSS		
f.	Method of preparation is too complex.		
g.	SSS causes other diseases		
h.	Method of preparation is too complex		
i.	SSS is easy to prepare		

SECTION E: GENERAL QUESTIONS

41. Do you teach mothers how to prepare SSS

1. Yes
2. No
3. Other (specify)

42. 1. By demonstration
2. By teaching without demonstration

3. Teaching with demonstration
4. Other (specify)

43. If No, why

1. CBD workers were the trained ones not mothers
2. Mothers will make jest of the whole thing
3. CBD workers were not asked to train mothers
4. Mothers will not understand the techniques
5. Other (specify)

44. Where do you buy your SSS ingredients

1. In the market on Market days
2. In the village
3. Other (specify)

45. What factors will contribute to your using SSS that you have not used immediately after training

1.
2.
3.

46. What factors will contribute to your stopping the use of SSS that you have started using immediately after training.

47. Do you keep records of cases you treat

1. Yes
2. No

Comment freely.

APPENDIX III

IBERE FUN AWON OSISE AGBEBI ALAPOTI

APA KINI - AWON OHUN MEREMERE OSISE AGBEBI ALAPOTI

1. Nomba: .....

2. Adugbo/Agbegbe

   1. Ijaye
   2. Aroro
   3. Alade
   4. ikereku
   5. Mele

3. Esin

   1. Musulumi
   2. Igbagbo
   3. Aborisa
   4. Omiran (so)

4. Ojo Ori

   1. 25-29
   2. 30-34
   3. 35-39
   4. 40-44
   5. 45-49
   6. 50-54
   7. 55

5. Iwe ti eka

   1. Ko lo si ile iwe
   2. a Alakobere
   3. Moda
   4. Omiran (so)

6. Iye omo ti o waa Laye?

   1. Meji
   2. Meta
   3. Merin
   4. Marun

5. Mefa
6. Meje ati bebe lo
7. Omiran (so)

7. Ise ti o nse yato si awon alapoti tabi agbebi:

1. Agbe
2. Oja tita
3. Omiran (so)

8. Odun wo ni e lo fun eko agbebi

1. Odun
2. Osu
3. Ojo

9. Ose melo ni e fi keko

1. Ose Meta
2. Ose merin
3. Ose marun
4. Ose mefa
5. Omiran (so)

10. Awon atunyewo eko melo ni e ti lo fun lehin eko akoko

1. 0
2. meta
3. merin
4. marun
5. mefa
6. omiran (so)

11. Odun wo ni e se atunyewo eko kehin

1. Odun 1988
2. Odun 1989
3. Odun 1990
4. Omiran (so)

12. Ojo melo ni atunyewo yi gba

1. Ojo kan
2. Ojo meta
3. Ojo marun
4. Ojo meedogun

5. Omiran (so)

13. Igba wo ni e bere ise gege bi agbebi alapoti?

..... osu

..... Odun

14. APA KEJI - IMO LORI IGBE GBURU LEHIN EKO

14. Kini igbe gbuuru?

1. Igbe sisan (omi)
2. Igbe ikun
3. Igbe omi nigbagbogbo
4. Omiran (so)

15. Nje aisan yi le tabi ko le

1. O le
2. Ko le

16. Kini o nfa igbe gbuur? (So ju okan lo ti e ba fe)

1. Ooru
2. Ajeju
3. Aini imototo
4. Esin sin lori ounje
5. Idoti (awon nkan ti a fi nse ounje)
6. Idoti (awon nkan ti a fin tabi okunfa jeun)

17. Kini awon nkan eri ti o so po mo igbe gbuuru?

1. Oju kiko sinu
2. Riru
3. Rire
4. Omiran (so)

18. Kini awon nkan it a fi le dena igbe gbuuru

1. Oralite
2. Omi idigbe
3. Imototo
4. Eelo ounje sise it o mo
5. Abo ounje mimo
6. Omiran (so pato)

18b. Fun awon ti won so pe Oralite le dena aisan igbe gbuuru, bawo ni a se le lo

1. Wakati wakati
2. Eemeta lojumo
3. Ose kookan
4. Osoosu
5. Omiran (so)

19. Fun igba wo ni a le lo da fun idena igbe omi fun apeere, ti a ba fun omo ni omi idagbe loni, fun ojo melo ni omo yi yio fi wa ni aabo kuro ninu igbe gburru.

20. Kini itoju ti a le fun omo ti igbe gbuuru ba nse ni ile

1. Oomi diagbe
2. Oralite
3. Agbeo
4. Ogun capsulu
5. Omiran (so pato)

<u>APAKETA - IMO LORI OMI IDAGBE ATI LILO</u>

21. Nje a ti gbo nipa omi idagbe

1. Beeni
2. Beeko

22. Bi beeni, nibo lo ti gbo (so ju okan ti o ba sese)

1. Olukoni
2. Osise iwosan
3. Asoromagbesi
4. awon ara
5. Awon ore
6. Omiran (so)

23. Nibhabwo ni a koko gbo nipa omi idagbe

1. Nigba ikeko akoko
2. Nigba atunyewo eko
3. Omiran (so)

24. Kini awon eelo omi idagbe ati bawo ni a se npo

	Beeni	Beeko
..... sibi sugar	------	------

..... sibi iyo ------ ------

..... igo omi (iru igo wo) ------ ------

b. 1. Alaye muna doko
2. Alaye ko muna doko

25a. Bawo ni omi idagbe ti omo ma mu se ma po si

1. Sibi omode kan
2. Sibi agba meji
3. Iye ti omo ba le mu
4. Omiran (so)

25b. Kini ohun elo ti a fi nfun omo mu

Omo ojo kan si odun kan

1. Sibi kerere
2. Ife omode
3. Ife otin oyinbo
4. Riro
5. Omoran (so)

Omo odun kan si marun

1. Ife omode
2. Ife emu
3. Sibi agba
4. Riro
5. Omiran (so)

26. Igba melo lo ye ki a fun omo ti o nse aisan igbegbuuru

1. eekan lojumo
2. eemeji lojumo
3. eemeta lojumo
4. Ju eemeta lo
5. Lehin igbe kan gbuu
6. Igbakigba ti omo ba fe mu omi
7. Omiran (so)

27. Igba wo lo ye ki a da omi idagbe mu ki a to po omiran

1. Wakati mefa
2. Wakati mejila
3. Wakati mejidinlogun
4. Wakati merinlelogun
5. Omiran (so)

28. Iru ise wo ni omi idagbe nse

1. dawo igbe duru
2. da okun pade sara
3. o nfun ni ni agbara

4. o ndena ara gbigbe
5. Omiran (so)

29. Nigbawo ni e toju omo ti o nya igbe gbuuru gbehin

1. Osu meta sehin
2. Osu mefa sehin
3. odun kansehin
4. Ju odun kan lo
5. Omiran (so)

30. Fun awon ti won toju igbe gbuuru_ se obinrin ni tabi okunrin

1. Okunrin
2. Obinrin

30b. Kini ojo ori omo naa

- ko pe odun kan
- odun kan si marun
- Ju odun marun
- Omiran (so)

31. Lehin eko agbebi, nje eyin lo omi idagbe fun awon alaisan igbe gbuuru

1. Beeni fun die ninu awon alaisan igbe gbuuru
2. Beeni fun gbogbo alaisan igbe gburru
3. Beeko, ise sise re ko ti dani loju
4. Beeko, ko ba eto iwosan ti mo mo fun igbe gbuuru lo

32. Igbawo ni e bere si lo omi diagbe

1. were ti a pari idanileko
2. Ose mejila lehin idani leko
3. Osu mefa lehin idanileko
4. Mo sese bere si lo
5. Nko tii lo rara
6. Omiran (so)

33. Fun awon ti ko ti lo, kini idi re

1. Mo sisi ni Oralite
2. Ko si aisan igbe gburru mo
3. Omiran (so)

34. Fun awon ti won nlo, kini idi re ti e fi nlo fun awon omo ti o nya igbe gbuuru

1. O da igbe duro
2. O da omi pada sara
3. O fun ni lagbara
4. Omiran (so)

35. nje e si nlo omi idagbe fun omode ati agba ti won be nya igbe gburru

1. Beeni
2. Beeko

36. Bi beeni, iru awaon alaisan wo ni e nlo fun

1. Agbalagba
2. Omode (so pato)
3. Agba ati omode
4. Omiran (s)

37. Kini idi re ti e fi nlo omi idagbe fun awon to e so yi

1. O maa nda igbe duro
2. O nsise kiakia
3. Omiran (so)

38. Iru awon itoju wo le ma nfun eni ti o ya igbe gbuuru yato si omiidagbe tabi oralite

1. Agbo
2. Oogun capsule
3. Thalazole
4. Omiran (so)

39. Iru awon alaisan wo ni e nlo iru awon ogun yi fun (lo si ibeere 38)

1. Agba
2. Aboyun
3. Omo ojo kan si osu meta
4. alaisan ti mo ko nki nje iyo tabi suga
5. Omiran (so)

39b. Kini did re ti e fi nlo fun awon wonyi

1. O pa gbogbo okunfa aisan
2. O muna doko
3. A maa nlo nigba ti iyo tabi suga ba won
4. Omiran (so)

APA KERIN - IGBAGBO AWON OSISE LORI OMI IDAGBE

4. Lati igba ti e ti pari idanileko lori omi idagbe kini awon igbagbo yin lori omi idagbe

Beeni Beeko

a. Omi idagbe ko won
b. awon eelo wa laworoto
c. O ma ndin owo lile igbe gbuuru ku
d. Awon egbe mi nla
e. O sise jy awon oogun igbe gbuuru yoku lo
f. Awon ara ilu mi fi owo si lilo re

APA KARUN - AWON IBEERE

41. 1. Beeni
2. Beeko
3. Omiran (so)

42. Bi beeni, bawo ni e se maa nko awon iya

1. Pipo loju won
2. Kiko lai po
3. Kiko ati pipo
4. Omiran (so)

43. Bi beeko, kini idi re

a. Awon osise ni won ko kiise awon mama
b. Awon obi a fi wonse yeye
c. Awon oluko osise ko ni ki won ko awon iya
d. Pipo ko le ye awon iya

44. Nibo ni e ti ma nra awon eelo ogun idagbe

1. Ni oja lojo oja
2. Ni abule
3. Omiran (so)

45. Kini awon nkanti o le ma mu yin lo omi idagbe ti eyin ko lo tele

46. Kini awon nkan ti o le mu yin ma lo omi idagbe ti eyin ti nlo tele

47. Nje e ma nko awon alaisan igbe gburru ti e ba toju sile Eo so ohun ti a ri si eto osise alapoti ye.

APPENDIX IV

DEPARTMENT OF PREVENTIVE AND SOCIAL MEDICINE
UNIVERSITY OF IBADAN, IBADAN, NIGERIA.

TITLE: "A POST-TRAINING ASSESSMENT OF COMMUNITY BASED DISTRIBUTION WORKERS SKILL IN PREPARATION AND USE OF SALT SUGAR SOLUTION (SSS) IN DIARRHOEA MANAGEMENT OF UNDER FIVES IN AKINYELE LOCAL GOVERNMENT OF OYO STATE"

QUESTIONNAIRE FOR MOTHERS

1. Identification No .....

2. Religion:

   1. Islam
   2. Christianity
   3. Traditional Religion
   4. Others (specify)

3. Area/Community

   1. Ijaiye
   2. Aroro
   3. Mele
   4. Alade
   5. Ikereku

4. Age:

   1. 20-24
   2. 35-29
   3. 30-34
   4. 35-39
   5. 40-44
   6. 45-49
   7. 50

5. Ethnic Group:

   1. Yoruba
   2. Ibo
   3. Hausa

4. Other

6. Educational Qualification:

1. No formal education
2. Primary
3. Modern
4. Secondary
5. Other (specify)

7. Occupation:

1. Farming
2. Teaching
3. Trading
4. Business
5. Other (specify)

8. No of under five children alive:

1. 1
2. 2
3. 3
4. Other (specify)

9. State the health facilities in your Community:

1. Maternity
2. TBA
3. VHW
4. Traditional healer
5. Other (specify)

10. Have your children been treated by a CBD worker for Diarrhoea

1. Yes
2. No

11. In the last three months, how many times did you take an under 5 yerar child to a CBD worker for treatment of diarrhoea.

..... times in a month

..... times in three months

12. In the last three months, state the following:

Episodes of diarrhoea	where treated	Treatment Given	Age of child (in months)
1st Episodes	.....	.....	.....
2nd "	.....	.....	.....
3rd "	.....	.....	.....
4th "	.....	.....	.....

13. After treatment, what other information about management of diarrhoea were you given by TBA

1. Preparation os SSS
2. health Talk on hygiene
3. Other (specify)

14. Have you heard of SSS (special drink) to make for children with diarrhoea.

1. Yes
2. No

15. If yes, source(s) of information (tick more than one if applicable)

1. TBA/VHW
2. Health worker
3. Friends
4. Radio
5. Maternity
6. Other (specify)

16. If source is TBA/VHW, did the TBA/VHW just mention it to you or did he/she actually prepare ti in your presence of none.

1. Mention
2. Prepare
3. None
4. Other (specify)

17. Mention the ingredients needed to mix SSS and their measurements

- 10 level tsps sugar
  1 level tsp salt
  1 beer bottle or 2 bottles of mineral (excluding coke)

1. Describes correctly
2. describes incorrectly

18. If cup is used for measuring the water, what size of cup

1. Any cup
2. Baby cup
3. Palmwine cup
4. Other (specify)

19. How do you give the solution to the child

1. Teaspoon
2. Tablespoon
3. Hot drink glass
4. Tumbler
5. Any cup
6. Any cup
6. Force feeding
7. Other (specify)

20. How often should one give the solution to a child

1. Once daily
2. Twice daily
3. Thrice daily
4. After each bowel motion
5. Whenever child feels thirsty
6. Other (specify)

21. How long should one store the mixture before discarding it

1. 6 hours
2. 12 hours
3. 18 hours
4. 24 hours
5. Other (specify)

22. Comment freely on the services of TBA/VHW.

APPENDIX V

IBEERE FUN AWON IYA

1. Nomba: .....

2. ESIN:

   1. Musulumi
   2. Igbagbo
   3. Iborisa
   4. Omiran (so)

3. Agbegbe:

   1. Ijaye
   2. Aroro
   3. Mele
   4. Alade
   5. Ikereku

4. Ojo ori:

   1. 20-24
   2. 25-29
   3. 30-34
   4. 35-40
   5. 41-44
   6. 45-49
   7. 50+

5. Eya:

   1. Yoruba
   2. Ibo
   3. Hausa
   4. Omiran (so)

6. Iwe ti e ka

   1. Ko lo si ilie iwe
   2. Alakobere
   3. Moda
   4. Girama
   5. Omiran (so)

7. Ise - Owo:

   1. Agbe
   2. Oluko
   3. Oja tita
   4. Onisowo
   5. Omiran (so)

8. Iye omo ti o wa laaye

   1. Okan
   2. Meji
   3. Meta
   4. Omiran (so)

9. Omo melo ni won wa larin ojo kan si odun marun

   1. Okan
   2. Meji
   3. Meta
   4. Omiran (so)

10. Daruko oristirisi eto ilera ti o wa ni ilu re

    1. Ile Agbebi
    2. TBA
    3. VHW
    4. Adahunse tabi Babalawo
    5. Omiran (so)

11. Nje ti toju omo re lodo awon agbebi alapoti fun aisan igbe gbuuru

    1. Beeni
    2. Beeko

12. Larin osu meta sehin, eemelo ni o ti gbe omo re (ojo kan si odun marun) lo si odo osise agbebi alapoti fun aisan igbe gbuuru

    ..... Iye ni osu kan

    ..... Iye ni osu meta

13. Se alaye lori igbe gbuuru ti omo re ni ni osu meta sehin

Igbe gbuuru	Ile Itoju	Iru Itoju	Ojo ori omo (ni osu)
Ikini	-------	-------	----------
Ikeji	-------	-------	----------
Iketa	-------	-------	----------

13. Lehin itoju, amoran wo ni osise alapoti gba lori itoju igbe gbuuru

    1. Pipo omi idagbe
    2. Oro Iyanju lori imotoro
    3. Omiran (so)

14. Nje o ti gbo nipa omi idagbe fun omo ti o ya igbe gbuuru

    1. Beeni
    2. Beeko

15. Bi beeni, nibo ni o ti gbo (mu ju ikan ti o ba se sees)

    1. TBA/VHW
    2. Osise ilera
    3. Asoromagbesi
    4. Ile Agbebi
    5. Omiran (so)

16. Ti o be se pe TBA/VHW ni, se won kan so ni abi won po fun yin

    1. Won kan so
    2. Won po
    3. Won ko see nkankan
    4. Omiran (so)

17. Daruko awon elo omi idagbe ati iuwon

---------- sibi suga	beeni	beeko
---------- sibi iyo	"	"
---------- igo omi	"	"

    1. alaye ti o muna doko

2. Alaye ko muna doko

18. Ti o ba se ife ni a fi won omi, iru ife woo ni

1. Eyikeyi
2. Ife momode
3. Ife emu
4. Omiran (so)

19. Bawo ni o se nfun omo ni omi idagbe mu

1. Sibi omode
2. Sibi agba
3. Ife oti oyinbo
4. Ife omi
5. Ife kife
6. Riro
7. Omiran (so)

20. Igba melo ni o ye ki a fun omo ni omi idagbe mu

1. Eekan Lojumo
2. Eeemeji Lojumo
3. Eemeta Lojumo
4. Lehin igbe gbuuru kan
5. Nigbakigba ti orugbe ba ngbe omo
6. Omiran (so)

21. Igbawo ni omi idagbe le pe to ki a to po omiran

1. Wakati mefa
2. Wakati Mejila
3. Wakati mejidinlogun
4. Wakati merinieleogun
5. Omiran (so)

22. So iriri re nipa ise awon osise agbebi alapoti.

APPENDIX VI

OBSERVATION GUIDE

1. Wash hands
2. Use soap in washing
3. Obtain bowl in mixing
4. Obtain clean bottle(s) beer (1) Mineral (2)
5. Obtain clean water
6. Pour one or 2 full bottle(s) of water into mixing bowl
7. Obtain 3ml tsp
8. Obtain salt
9. Measure 1 level tsp salt into mixing bowl
10. Obtain sugar
11. Measure 10 level tsp sugar into mixing bowl
12. Mix until ingredients dissolved
13. Taste to ensure not too salty

APPENDIX VII

ITONA AWOSE

1. Owo fifo
2. Nje o fi ose fo owo
3. Nje o mu k nkan (abo) ti won ma fi po
4. Nje won mu igo mimo lati won omi (beer - 1, mineral - 2)
5. Nje won bu omi mimo
6. Nje won bu omi igo - 1 beer, 2 mineral sinu abo ti won a fi po
7. Nje won mu sibi omode (3dml)
8. Nje iyo wa
9. Nje won won ipereju sibi kan iyo sinu abo ti won fe fi po
10. Nje sugar wa
11. Nje won won ipereju si bi suga mewa sinu abo