

RETROSPECTIVE, COMMUNITY BASED, COMPARATIVE STUDY OF
HOME AND HEALTH CENTRE DELIVERIES IN THREE COMPOUNDS
OF LUSAKA URBAN

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A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE
AWARD OF MASTER OF PUBLIC HEALTH OF THE
UNIVERSITY OF ZAMBIA

DECEMBER, 1995

(ii)

DECLARATION

I, Janet Precious Banda Sikasote, hereby declare that this dissertation has never been submitted, in part or in full, for a diploma or a degree in any other University.

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APPROVAL

This dissertation of Janet P. Banda Sikasote has been approved as fulfilling the requirements for the award of the degree of Master of Public Health by the University of Zambia.

SIGNATURE

DATE




14th October 1996

(iii)

DEDICATION

This piece of work is dedicated to my family and friends for all their help, advice and support - thank you and God bless you all.

ACKNOWLEDGEMENTS

I would like to acknowledge the following for their invaluable help and support:

- My supervisor Prof. P. Sims who patiently guided me through the preparation, implementation and writing up of this dissertation.
- Dr. K.S. Baboo for helping me with the preparation.
- Dr. Ngwengwe and Dr. Ng'andu for unveiling some of the mysteries of statistics for me.
- Mrs. Ndumba who tirelessly walked through the dusty and on occasion water-logged compounds with me and faithfully collected data.
- Mr. C. Mwakamui for assisting me with the data processing and analysis.
- Mrs. R. Soko and Mrs. S. Mulambo for doing an excellent job with the typing.
- The Directorate of Human Resource Development for their financial support, and finally but not the least I would like to thank the authorities and staff of Lusaka City Council and staff at the central statistical office for their help.

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SUMMARY

A descriptive, retrospective survey of home births and health centre births was conducted in three compounds of Lusaka urban from October to December, 1995.

A total of 164 women were interviewed. All these were women who had delivered a baby in the period from 1st August, 1994 to 31st August, 1995. 82 were home births and 82 were health facility births.

The specific objectives of the study were to compare the outcome of home and health centre deliveries and to determine factors influencing place of delivery and antenatal clinic attendance.

4,762 households were visited, this yielded a total of 1223 deliveries in the year under study with 137 home births.

A questionnaire was administered to all home births found, who fulfilled the inclusion criteria. The same questionnaire was also administered to the next closest health facility birth to each home birth. Of the 164 women interviewed, no difference was found in the outcome of home deliveries compared to that of health facility deliveries.

The women delivering at home tended to be of higher parity. Most of them also had a previous home birth.

Literacy did not seem to have an effect on place of delivery nor on antenatal clinic attendance. The majority of women appeared aware of the reasons for attending antenatal clinic but were unaware of the importance of early registration. Of all the home births, only 2.5% (2) were assisted by a trained person, the remainder were either delivered by an untrained person or were unassisted deliveries.

Charging for deliveries seems to influence choice of place of delivery since almost one quarter of the women delivering at home said they did so because it is cheaper. More than half the women interviewed would actually prefer not to be charged at all for deliveries.

Traditional birth attendants were found to be non-active.

Constraints of the study included small sample size and a questionnaire that failed to elicit certain information.

According to the findings, it is recommended that;

1. Health education be improved.
2. The problem of non-functional traditional birth attendants should be resolved.
3. Charging for deliveries should stop, or other feasible measures should be put in place to protect the less privileged.

4. A bigger study, going into more detail, is required to determine adequately the outcome of home births in comparison to health facility deliveries.

INTRODUCTION

The vast majority of births in the world today occur in developing countries. These countries also have the world's highest maternal mortality and infant mortality rates.

These rates are indicators of the quality of ante-natal care, delivery services and care of the newborn.

At the Nairobi conference on safe motherhood in 1987, the world community set itself the goal of halving maternal mortality by the year 2000¹. However, globally half a million women continue to die each year, the vast majority from preventable causes including inadequate health care¹.

Of these deaths, all but about 4000¹, occur in developing countries. Maternal mortality ratios are highest in Africa. Such high figures, even in urban areas, indicate either that accessible and affordable maternal care services are unavailable, or that, where services exist, they are failing to provide women with appropriate care.

The safe motherhood initiative² has four objectives, under the umbrella of the Health for All Strategy, these are:

1. Adequate primary health care and an adequate share of the available food for girls from infancy to adolescence; and family planning universally available to avoid unwanted or high risk pregnancies.
2. After pregnancy begins, good prenatal care, including nutrition, with efficient and early detection and referral of those at high risk.
3. The assistance of a trained person for all women in childbirth, at home as in hospital.
4. Women at higher risk, and above all women in the emergencies of pregnancy, childbirth and puerperium, must all have effective access to the essential elements of obstetric care.

Lack of antenatal care and lack of attendance or attendance by non-trained personnel during childbirth are important contributory factors to obstetric causes of maternal and perinatal morbidity throughout the world³

Zambia covers an area of 752,610 km² in Central Southern Africa⁴. It has a population of 9.1 million (projected from 1990 census)⁵, and a growth rate of 3.6%⁴ per annum, among the highest in the region. 42%⁴ of the population live in urban areas (1990). Zambia is ranked among the least developed countries of the world⁶, it's GNP per capita is US\$290 (1992)⁷.

It has a maternal mortality rate of 500 per 100 000⁸ and an infant mortality rate of 107 per 1000 births⁴.

The crude birth rate in Zambia is 49.5 per 1000⁴. 90% of births are to mothers who had received ante-natal care during pregnancy⁴. 49% of births occur at home and the remaining 51% in health facilities⁴.

One third of births occurring at home are assisted by relatives, whereas, 7% are unassisted deliveries.

In Lusaka urban (population 1.2 million- projected from 1990 census)⁵, 99% of pregnant women attend ante-natal clinic. 76.2% of these deliver in a health facility⁴.

Of the 23.7% home deliveries, 5.5% are attended by traditional birth attendants (trained), 14.3% by an untrained person and 3.8% are unattended⁴.

Lusaka urban is served by 22 health centres all of which provide ante-natal care⁹. In 1982 the Lusaka Maternity Project (funded by Irish Aid) was initiated with the goal of reducing maternal morbidity and mortality, and pre-natal mortality by bringing delivery services closer to the community.

To date, 9 delivery centres have been built in Lusaka urban. The 22 health centres have been divided into 9 zones and each zone has one clinic with a delivery centre.

These delivery centres operate 24 hours a day on all seven days of the week. All these centres have a very effective referral system to the University Teaching Hospital to which they are linked by radio.

These centres send in statistics monthly to their supervisory office - the Department of Public Health at the Lusaka City Council. These statistics include, number of antenatal clinic attendants (first and subsequent visits), number of deliveries and their outcomes and number of referrals.

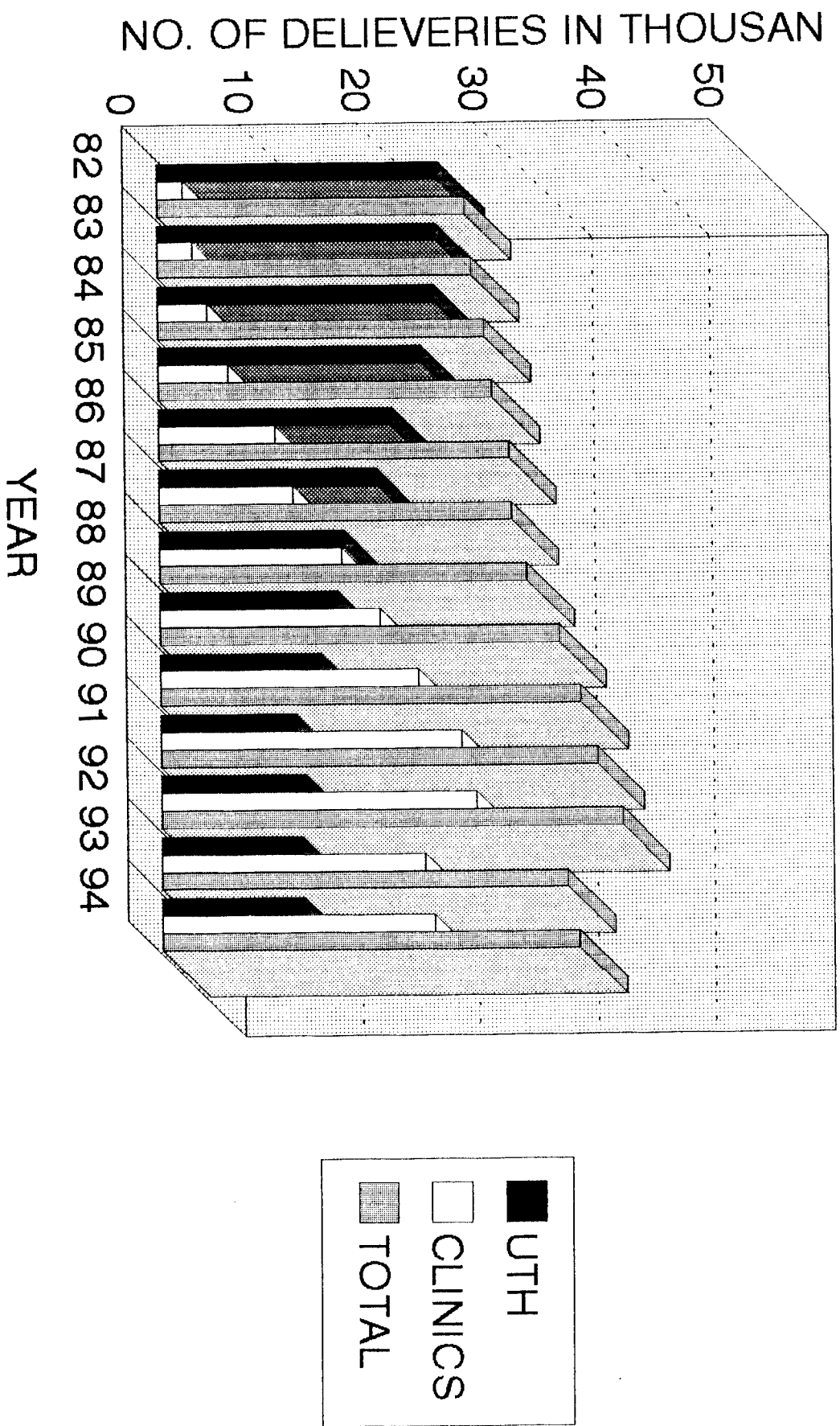
Table 1 shows how these centres have progressively taken on the larger proportion of deliveries in Lusaka urban since 1982.

Table 1 : Deliveries at UTH and Maternity Clinics 1982 - 1994

Year	UTH	%	Clinics	%	Total
1982	23,946	92	2,200	8	26,149
1983	23,747	89	2,981	11	26,728
1984	23,553	85	4,177	15	27,730
1985	22,448	79	5,944	21	28,392
1986	19,865	67	9,867	33	29,743
1987	18,540	63	11,408	38	29,948
1988	15,711	50	15,500	50	31,211
1989	15,129	45	18,740	55	33,869
1990	13,687	34	21,985	66	35,672
1991	11,500	31	25,550	68	37,050
1992	12,370	31.6	26,773	68.4	39,143
1993	12,000	35	22,426	65	34,426
1994	12,201	34.4	23,227	65.6	35,428

The Histogram on the following page shows the same information. The perinatal mortality rate in these centres is reported to be 8.8 per 1000 births⁹. The centres have reported only 5 maternal deaths since the project began in 1982.

GRAPH SHOWING DELIVERIES AT UTH AND MATERNITY CLINICS 1982 - 1994



The number of referrals to the University Teaching Hospital have remained constant at 8 - 10% since the project began.

There is a total of 22⁹ trained traditional birth attendants in Lusaka, distributed unevenly in 11 compounds. At present only 50% of these are known to be active⁹.

Problem Statement and Rationale

As can be seen from the foregoing statement, there is no reason really why any pregnant woman in Lusaka urban should be delivered by an untrained person. This is particularly true in those compounds in close proximity to a delivery centre.

Almost all pregnant women in Lusaka urban attend antenatal clinic, but a quarter of these deliver at home with the majority being assisted by untrained persons.

Currently, statistics are collected on health facility deliveries, so there is information available on what is happening in these centres. On the other hand, there is no information available on home deliveries - reasons and outcome, since no follow-up of these women is conducted. It is a well known fact that the type of assistance a woman receives during delivery has health implications for the mother and child^{2,3,4}. This study attempted to answer the following questions:

1. What is it that is preventing these women, who have taken the trouble to attend antenatal clinic, from delivering in the health centre?
2. What is the outcome of these home deliveries?

In the socio-economic environment of Lusaka urban, there are a number of factors that may be influencing the choice of place of delivery. These factors include: service factors, socio-cultural factors and economic factors.

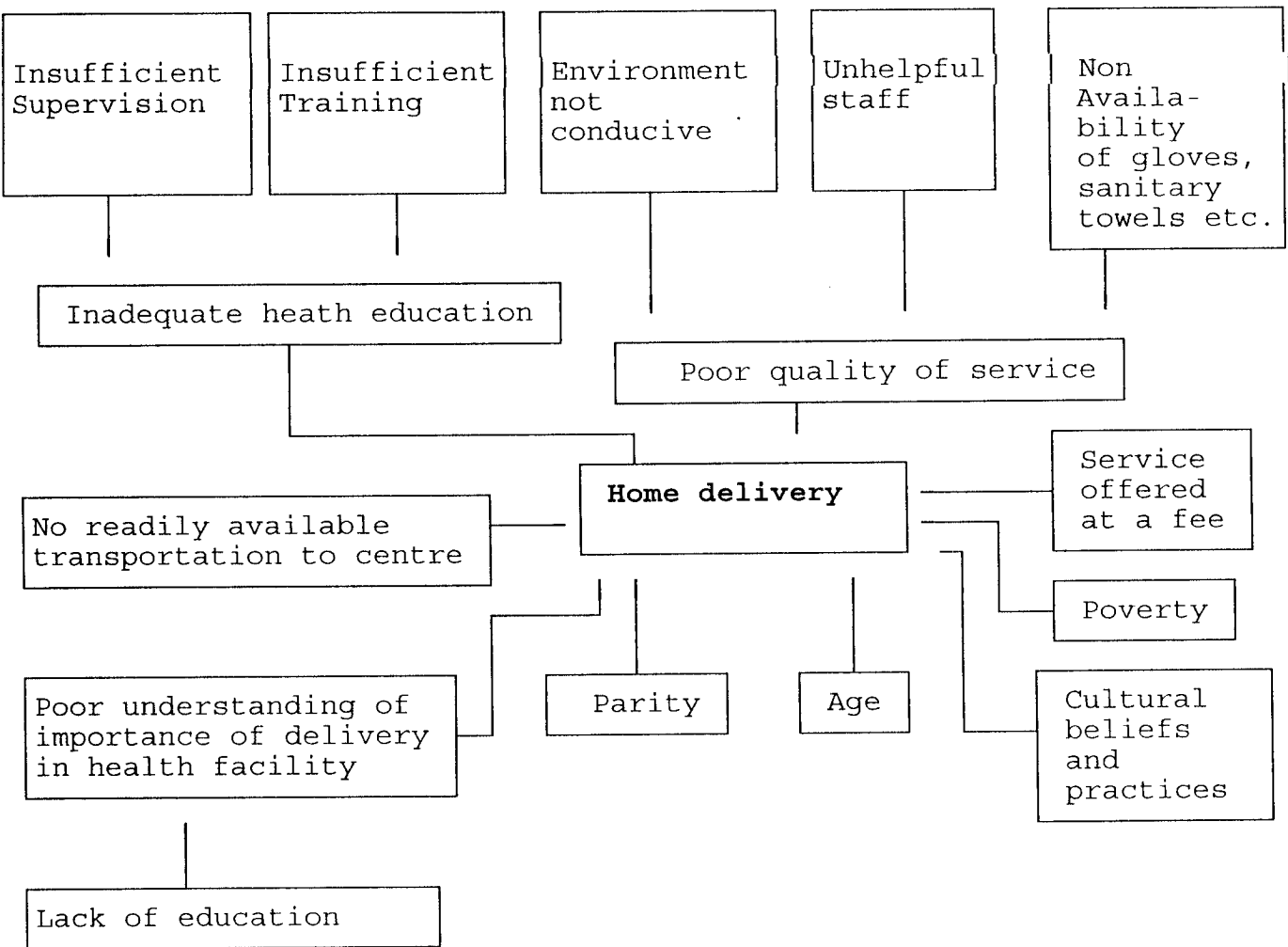
Service factors may include; poor quality of service, inadequate health education, lack of readily available transportation to health centre and the service being offered at a fee.

Socio-cultural and economic factors include; age, parity, education, cultural beliefs and practices and poverty.

Figure 1 shows a problem analysis diagram of factors that may be responsible for home deliveries.

Figure 1: Problem analysis diagram of factors related to home deliveries

SERVICE FACTORS



SOCIAL-CULTURAL AND ECONOMIC FACTORS

CHAPTER 2

LITERATURE REVIEW

Today the majority of women in urban areas deliver in a health facility⁴. If a patient is to deliver in her own home, it is necessary to have a trained person conduct the delivery.

No labour is certainly normal until the third stage is safely conducted. Danger, especially to the fetus, can arise suddenly and unexpectedly. Therefore to secure the greatest safety of the mother and baby, labour is best managed by a trained person. It is a common feature of many developing countries in Africa, that some women do not attend ante-natal clinic yet come to the health centre or hospital to deliver. Others attend antenatal clinic but for some reason or other deliver at home. The declaration of Alma - Ata in 1978 identified eight essential elements of Primary Health Care, the vehicle being used to achieve Health For All. Among these eight, is maternal and child health Care.

One of the oldest components of health care in the world is certainly midwifery; assistance at delivery, whether performed by a relative or by an elderly village woman, is a feature of practically every culture.

A world health organisation (WHO) review of traditional birth practices showed that many are physiologically sound and beneficial, others are however at best harmless and on occasions dangerous¹¹. "Professionalization" of the delivery process began in the late 19th and early 20th century¹¹. The desire for an aseptic environment and more specialised care gradually moved deliveries away from the home or village to the clinic or hospital. While enhancing the technological aspects of delivery and making it easier for the professional health worker, this began the long process of removing many of the personal and familial aspects of childbirth. Only in recent years has the important concept of family bonding, with its socio-cultural implications been "rediscovered" and re-introduced in developed countries¹¹. It is to be hoped that this aspect of the uncomplicated delivery can be maintained where it is still common, while other improvements are introduced.

During the decade 1960 to 1969, perinatal mortality rates in Newcastle upon Tyne (Britain) fell in parallel with national trends¹². In an analysis of home and hospital confinements during this period, it was found that mortality fell in both categories. The authors felt that the most probable explanation for this was a combination of many improvements in the quality of care and improved supervision and management throughout.

Other factors however, such as the general improvement in the standard of living, fertility control, plus access to legal abortion , may also have played a part in reducing perinatal mortality.

A number of studies have been done in the West to try and assess the advantages and disadvantages of home deliveries.

A study conducted in Germany by Berg D. and Suss J. (1994)¹³ looked at 103 current publications on perinatal mortality of home delivery in the Netherlands concerning their possible usage for statistics. Only few could meet the necessary statistical requirements. All publications which were in favour of home delivery showed statistical faults; therefore they could not give clear evidence of advantages and disadvantages of home delivery. The group of described home deliveries was compared with a statistically comparable group of hospital deliveries. The authors found that the risk for children to die during or after birth was between 3 and 23 times higher for home born children than for those born in hospitals. They also found that the frequency of operatively terminated deliveries was about 40% in the group of secondarily transferred patients. The Netherlands have about 30% home deliveries, and their perinatal mortality rate of 0.96% is the highest of all comparable highly developed countries (Germany 0.6%). Considering these factors the authors concluded that home delivery is irresponsible.

On the other hand, analysis of the published results of national surveys and specific studies, as well as of the official stillbirth statistics in Britain¹⁴ were found to consistently point to the conclusion that perinatal mortality is significantly higher in consultant obstetric hospitals than in general practitioner maternity units or at home.

Studies have also been done in developing countries showing the dangers of home deliveries particularly when conducted by untrained persons^{15,16}.

Yalcin I et al in Turkey (1992)¹⁵ found that of 43 patients admitted to a hospital in Istanbul with a diagnosis of neonatal tetanus from 1982 to 1989, 39 (90.7%) were unhygienic home deliveries. Only 2 of these cases were delivered by a midwife.

Another study conducted in Conakry/Guinea by Balde M.D. et al concluded that home deliveries were contributing to the high rate of uterine rupture in the region¹⁶.

C.O. Akpala (1993)¹⁷ in Rural Northern Nigeria interviewed 1481 mothers who accounted for all singleton births over a period of nine months. 92% of the women had their deliveries at home while only 7.9% of the births occurred in a health facility. 24% of the mothers had initially attended the health centre for antenatal care.

The authors found that perinatal mortality rates were higher in health facility deliveries than in home deliveries.

Their suggested explanation for these findings was that women were seeking medical assistance only when complications had already set in.

In Malawi, a study was conducted at Nankumba Health Centre, Mangochi district, looking at intention to deliver and delivery outcome.³ It had been noticed that many mothers attended the antenatal clinic, but less than one quarter of them actually delivered at the health centre. The authors followed up a sample of mothers attending antenatal clinic at the centre to find out why this was happening. 90 women completed the questionnaire, 37 of these had delivered at home and their reasons were as follows:

1. 62% of them realised too late that they were in labour
2. 27% said the health centre was too far
3. 8% said it was night time and
4. 3% were sent back home because dates were not due.

This study did not find any difference in perinatal mortality between home and health centre deliveries.

The authors felt that the sample size was probably too small to show a difference in labour outcome between mothers delivering at home, in a health facility or at a trained traditional birth attendant. But, they also felt it was possible that the trained traditional birth attendants could have been more selective in the choice of their patients and insisting on sending the problem cases to the health facilities.

They concluded that health education on the signs of the onset of labour and the benefits of delivering in a health facility must be re-emphasised.

Another study in Malawi by Schultz L.J et al¹⁸ on 809 women who had carried a pregnancy past the second trimester within the past 5 years found the following: approximately half (51%) reported delivering in a hospital, 5% delivered in a clinic, 13% delivered at home with a trained birth attendant and 28% delivered at home with only family attending. This study also found that women at increased risk for delivery complications (e.g primigravidas and grand multigravidas) were no more likely to attend antenatal clinic or deliver in hospital than women without increased risk.

It was found that the woman's level of education was the only significant predictor of initiating antenatal care and delivery in hospital.

A study conducted in a rural district of Zambia¹⁹ (Katete) attempted to determine the reasons for the drop in institutional deliveries in the area noticed over a period of three years. Data was collected on a sample of 100 women of childbearing age by interviews and focus group discussions. There were 57 home deliveries and the reasons given for delivering at home were as follows:

1. Health institution was too far
2. Availability of traditional medicine to facilitate labour at home.

There is apparently a paucity of studies on home deliveries in urban areas in Africa.

CHAPTER 3

OBJECTIVES, HYPOTHESIS, VARIABLES AND DEFINITIONS

OBJECTIVES

GENERAL OBJECTIVES

To gather information that will assist in ensuring that every pregnant woman in Lusaka urban has access to trained assistance at delivery.

SPECIFIC OBJECTIVES

1. To find out what factors influence antenatal clinic attendance
2. To see what factors influence choice of place of delivery
3. To ascertain factors influencing choice of assistant during labour.
4. To compare the outcome of home deliveries to that of health centre deliveries.
5. Suggest recommendations based on the findings.

HYPOTHESIS TO BE TESTED

1. The women choosing to deliver at home are doing so mostly due to personal preference than because of poor service at the health centre.
2. The outcome of home deliveries is worse than that of health centre deliveries.

VARIABLES

The variables included are as follows:

1. age
2. parity
3. literacy level
4. preference for familiar person to assist during delivery
5. distance to health centre
6. payment for delivery services at health centre
7. place of delivery
8. person conducting delivery

DEFINITIONS

1. Age was defined as age at last birthday. In cases where the respondent did not know her date of birth, an estimate of her age was made by adding 18 to the age of the first child. (This is assuming that most women have their first child at age 18).
2. Parity was defined as the total number of pregnancies a woman had carried.
3. Literacy was defined as the ability to read and write in English. The grading was as follows:

Illiterate = unable to read or write english

Literate = able to read and write in english

If the respondents said they are able to read and write English, they were given a reading test and graded further as follows:

poor	-	reading with difficulty
fair	-	moderately fluent
good	-	fluent

4. Delivery outcome was measured by the survival status of the neonate at one week post delivery.
5. Abortions - fetus delivered before the 7th month of gestation.

EXCLUSION CRITERIA

1. All non-Zambian females
2. Abortions
3. All mothers who had a delivery in the period under study but were no longer alive at the time of the study.
4. All women who had delivered outside the study area.

CHAPTER 4

METHODOLOGY

STUDY DESIGN

This was a retrospective, community based, descriptive study which involved the collection of both qualitative and quantitative data.

STUDY AREA

The research was carried out in three compounds in Lusaka urban. Lusaka is the capital city of Zambia and is located in Lusaka province. Lusaka province is to be found in the South of the country. It is one of the nine provinces of Zambia. It shares borders with Zimbabwe to the South, Mozambique and the eastern province to the east and south east, central province to the north and north west and southern province to the south west. (see map 1).

Lusaka province is divided into two districts, Lusaka urban and Lusaka rural.

Lusaka urban has a large migrant population both as a result of internal migration and immigration from neighbouring countries. It is conceived as a city with countless job and business opportunities.

This has led to the sprouting of numerous squatter compounds all around the city and the council usually has no choice but to upgrade these, by the provision of certain amenities, to the status of legal compounds or townships. At present there are 103 compounds in Lusaka urban and more than 35 of these are said to be squatter compounds.

23%⁴ (276,000) of the city's population of 1.2 million is estimated to be of women in the reproductive age group i.e 15 - 49 years.

The Zambia Demographic and Health Survey (ZDHS - 1992)⁴, reported that the total fertility rate (TFR) in Zambia is 6.5, i.e if fertility were to remain constant at the levels measured in the ZDHS, a Zambian woman in the age group 15 - 49, would bear 6.5 children in her lifetime.

The TFR for Lusaka province was estimated at 5.5 and the crude birth rate at 43 per 1000 population (National crude birth rate = 45 per 1000). The same survey reported a median birth interval of 31 months.

The median age at first birth was reported according to current age, it ranged from 18.2 - 19.1 years (see table 2).

There are approximately 52,000 births in Lusaka every year. Of these 51,000 receive antenatal care. 45,000 at the 22 health centres and the remaining 6000 at the University Teaching Hospital⁹.

This figure does not include those receiving antenatal care from private clinics and hospitals.

Approximately 24% (12,240) of these are home births.

Table 2: Median age at first birth according to current age, Zambia 1992

Current Age	Median age at first birth
15-19	a
20-24	19.1
25-29	18.1
30-34	18.2
35-39	18.2
40-44	18.6
45-49	18.3

a less than 50% of the women in the age group x to $x + 4$ have had a birth by age x .

Source: Adapted from ZDHS, 1992.

This study was conducted in the following compounds:

1. Chilenje which is to the southwest of the city centre. It has a total population of 29 033 (1992) and 4,480 households (1992).

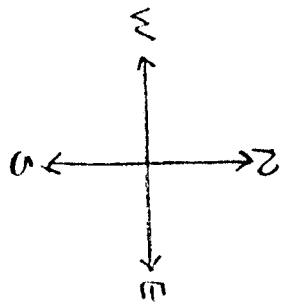
Chilenje is one of the oldest compounds in Lusaka urban (the first president of Zambia lived there in the pre-independence era). It is well planned and there is no area that began as a squatter compound.

There are two distinct parts to Chilenje, Chilenje South which is newer and has a population in a higher socio-economic class, and old Chilenje with housing inferior to that in Chilenje South and a population in a lower socio-economic class (see map 2)

2. Mutendere: This compound is to be found to the northeast of the city centre. It has a population of 35,915 and 6,556 households (1992). The area is well planned. the housing is built by individuals and is not council owned (as is the case in Chilenje), therefore the quality varies and there is a general mixture of socio-economic classes. (see map 3)

3. Chawama lies to the southwest of the city centre. It is the most densely populated of the 3 compounds with a population of 48, 222 and an area comparable in size to Chilenje. It has a total of 9,389 households.

Chawama is also divided into two distinct areas: old Chawama which is well planned with better housing (built by individuals) and new Chawama which started off as a squatter compound. In this area the roads are poor with poor drainage throughout the compound and haphazard building of houses and shelters. (see map 4)



To Town

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MARKING RD

RD.

+ CHURCH
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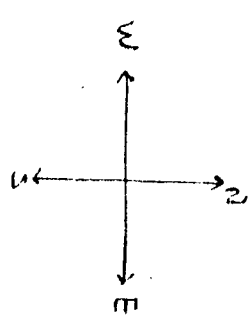
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Map 2 Challenge CSH's

CSH's included in survey



Filling station



Cute area

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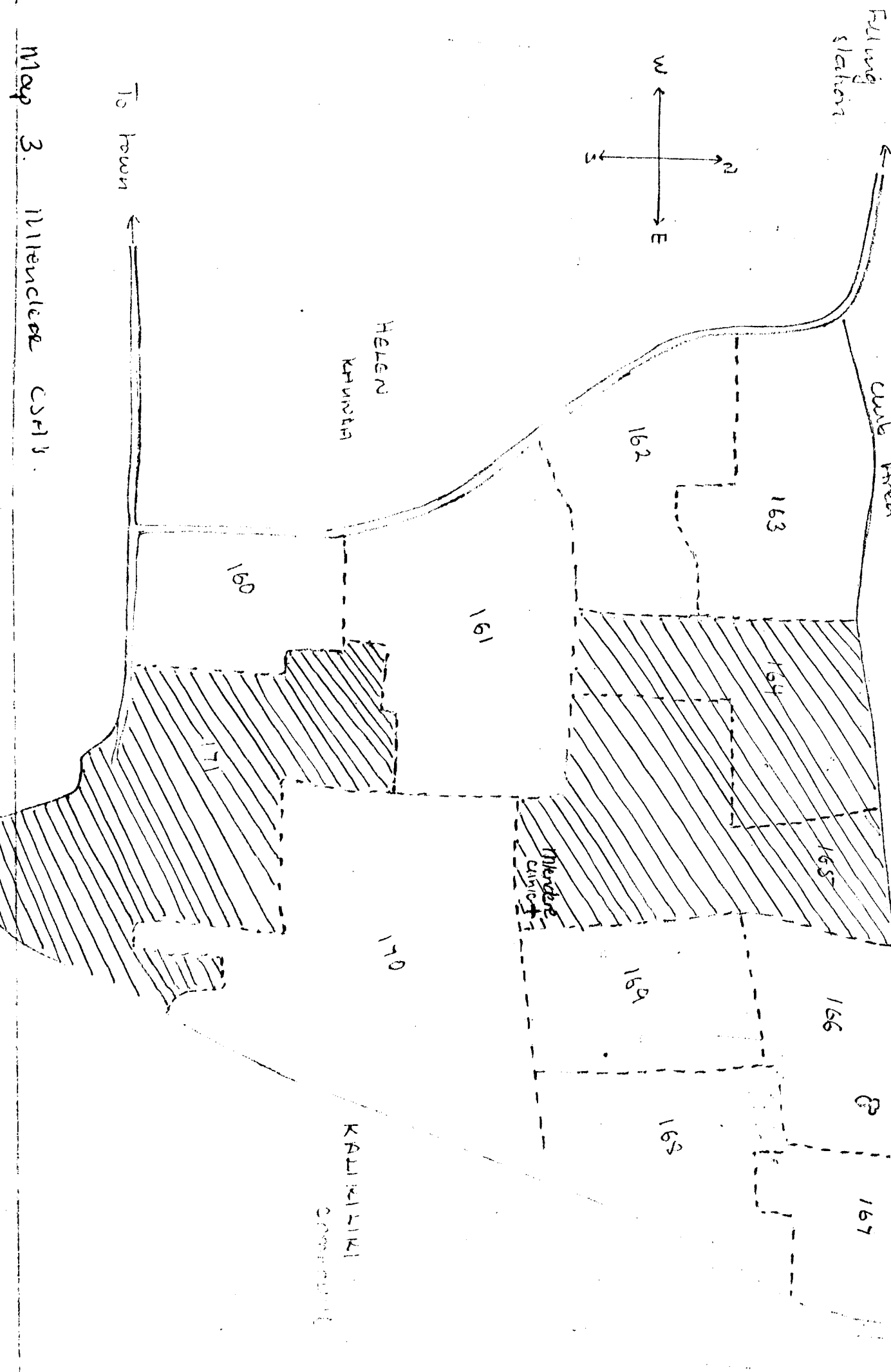
HELEN KAMUKHA

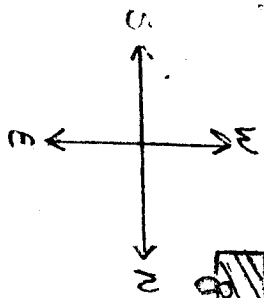
Mwende clinic

KATELELE CAMP

To town

Map 3. Mlenclede CSFs





CSH's included in survey



All the three compounds have fairly good all weather roads linking them to the main roads to the University Teaching Hospital and the city centre.

Map 5 (sketch) shows the orientation of the three compounds in relation to the University Teaching Hospital and the city centre.

TARGET POPULATION

The target population for this study was all women who had delivered a child at home, during the period 1st August, 1994 to 31st August 1995, in Lusaka Urban.

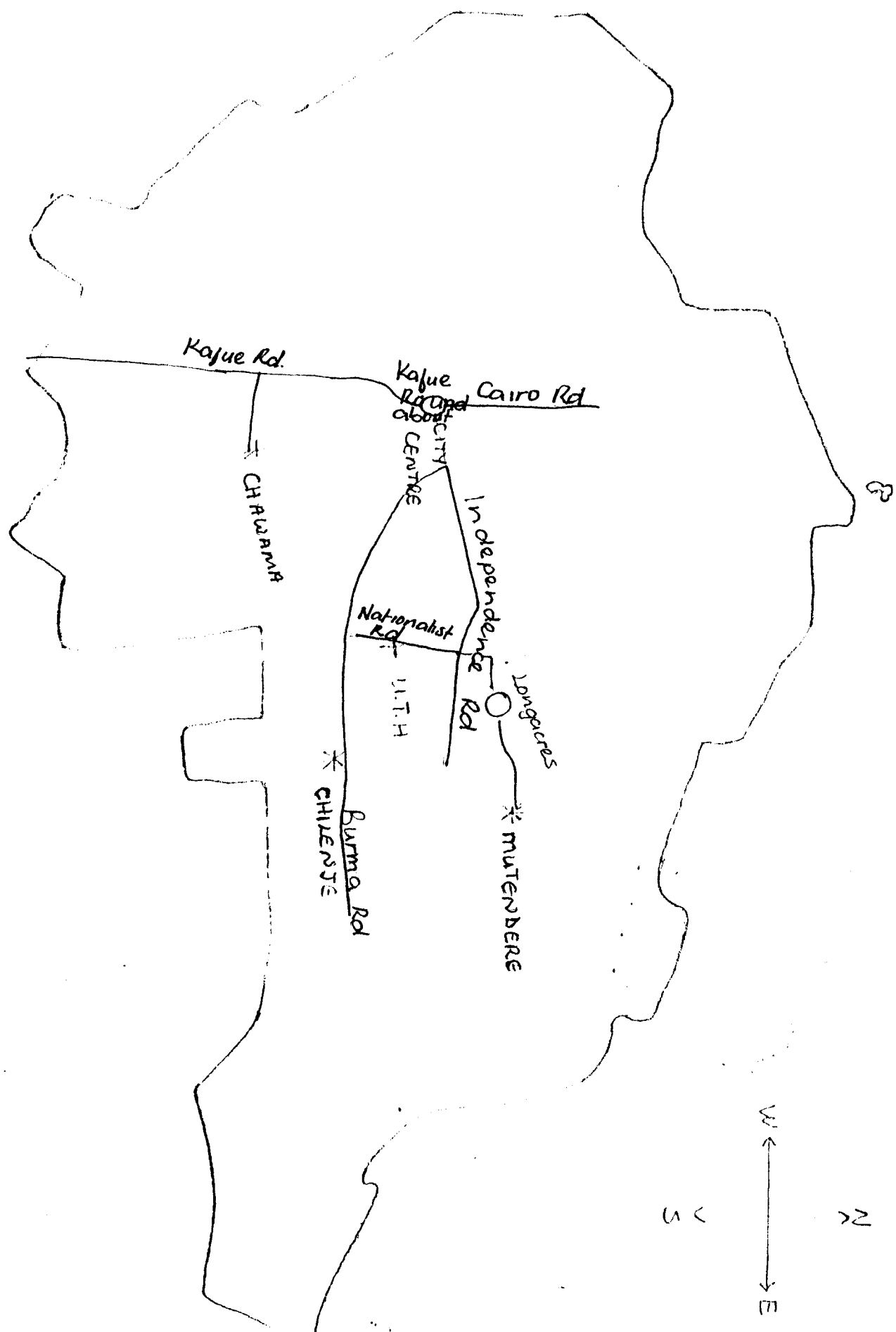
STUDY POPULATION

The study involved women in the target population in three compounds in Lusaka urban. These three compounds were selected from the 9 compounds in the district that have a clinic with a delivery centre in their immediate locality. The survey involved 82 respondents (plus 82 controls) and 8 non -respondents.

SAMPLE SELECTION

The three compounds included in the sample were picked from among the nine compounds in Lusaka urban that have a delivery centre in their locality. This was deliberately done because the main group of interest to the investigator was the group of mothers that have easy access to a delivery centre.

Sketch map of Juarez within district showing the location of Intendencia



Two of the compounds were chosen by simple random sampling using the lottery method. The third compound, Chawama, was deliberately picked when it became obvious that the number of compounds sampled would have to be increased so that the desired sample size could be achieved. Chawama was chosen because it is more densely populated than the other two. However, the investigator does not feel that this is a source of great bias because the characteristics of the compound are not very different from those of the rest of the compounds in Lusaka urban.

Maps of these three areas (maps 2, 3, and 4) were obtained from the central statistics office. These maps were used to select the census supervisory areas (CSA's) to be included in the study.

Three CSA's were selected from Chawama, three from Mtendere and two from Chilenje, by simple random sampling using the lottery method.

These eight CSA's together gave a total of 4,761 households. Using the available statistics, it was assumed that 1 in 3 households would have a mother who had delivered in the year under study and 1 in 5 of these would have delivered at home. It was therefore calculated that to get at least 100 home deliveries, 1500 households would have to be included in the survey. To be on the safe side the number of CSA's originally picked was designed to give a number approximately double this minimum requirement.

DATA COLLECTION

The principal investigator and one interviewer were involved in the study. The assisting interviewer was a married female laboratory technician with children of her own.

She was trained in how to approach the occupants of a household, establish rapport (by means of self introduction and explaining purpose of visit), elicit the required information and then administer the questionnaire (in English, Bemba and Nyanja) where appropriate. Unfortunately, she did not take part in pre-testing the questionnaire.

A questionnaire was designed and pre-tested in all the three languages mentioned above and then re-designed (see appendix 1)

Each household in the selected CSA's was visited to determine if there was a woman in that household who had delivered a child in the year under study.

All households without a female in the reproductive age group were not tallied i.e all households belonging to bachelors and those with women who said they were no longer capable of bearing children due to age.

All households with a woman or women who had delivered in the year under study were tallied and it was noted whether the baby was still alive or not. If the baby was not alive, age at death was determined.

All women who gave a positive response were further asked where they had delivered this child. If they had delivered at home, in the same house or in the same CSA, they were then asked if they would mind being asked a few questions. If they were agreeable, the questionnaire was then filled in. The next closest household, with a health centre delivery, to this home birth was also interviewed as a control.

Where a home birth was reported but the mother was not available at the time, the house was re-visited and if the mother was not found on the second visit this was entered as a non respondent.

The principal interviewer made occasional checks in the areas covered by the assistant to ensure that the procedure for data collection was being followed.

A rapid check of all questionnaires filled in during the day was conducted on a daily basis. Problems encountered during the day and ways of overcoming them were discussed at the end of each day.

DATA ANALYSIS

All the questionnaires were numbered serially from 1 to 164. All the home births had an odd number and the controls an even number. The variables to be analyzed were coded (see appendix 2).

A questionnaire and spreadsheet was created, and data entry and analysis were performed using the statistical package, EPI-INFO.

The open ended questions were also analyzed manually and so were some statistical tests for the other questions.

CHAPTER 5

RESULTS

A total of 4,762 households were covered in the survey. The total number of households in the study unit was 5,046. The remaining 284 households would have been those that were either excluded or where there was no one at home when the house was visited. Therefore of the total possible number of households 94.4% were covered.

The following table shows the breakdown of these households according to compound.

Table:3 Showing number (%) of households covered per compound

Compound	No (%) of households
Chilenje	1037 (21.8)
Mtendere	1884 (39.5)
Chawama	1841 (38.7)
Total	4762 (100)

Table:4 Total number of households and percentage (number) covered in survey

Compound	Households	
	Total	Percentage (No.) Covered
Chilenje	4,480	23.1% (1037)
Mtendere	6,556	28.7% (1884)
Chawama	9,389	19.6% (1841)
Total	20,425	23.3% (4762)

1223 mothers were found to have delivered a child between 1st August, 1994 and 31st August, 1995. This works out to approximately 1 in 4 households. Among these 1223 women, 9 had babies born during this period but who had died within one week of delivery or who were dead at birth i.e stillbirths. All these were delivered in a health facility.

90 of these women had delivered at home within the study area. Another 47 had also delivered at home but outside the study area. Taking all home births into account, irrespective of where they delivered (as long as they were residents of the study area at the time of the study), there was a total of 137 home births, or 1 in 9 of all births in the study area.

According to compounds. 14%(19) of the home deliveries were in Chilenje, 34% (46) were from Mtendere and the remaining 52%(72) were from Chawama (see table 5). Of those interviewed, 16%(13) were from Chilenje, 34%(28) from Mtendere and 50%(41) from Chawama.

Table 5: Percentage (No.) of home deliveries according to compound

Compound	Percentage (No.) of home deliveries
Chilenje	14% (19)
Mtendere	34% (46)
Chawama	52% (72)
Total	100% (137)

Of the 90 women who had delivered at home within the study area, 82 (91%) were interviewed.

One of these refused to complete the questionnaire when almost halfway through. Therefore the questionnaire was completed fully by 81 (90%) of these women. The incomplete questionnaire was included in the analysis of the variables that had a response but was excluded from the rest.

The mean age of the women in this sample was 26 years (standard deviation = 6.9). The range was 47 yrs - 15 yrs = 32 years. Mean parity was 3.6 (standard deviation = 2.7). It ranged from 1 to 14. 98.8% (162) of all the women attended ante-natal clinic during the last delivery. The mean gestational age at first attendance was 5.3 months (n = 161) range 8 months - 2 months = 6 months.

53.4% (87) of the women interviewed were literate, the remainder 46.6% (76) were illiterate.

VARIABLES INFLUENCING PLACE OF DELIVERY

1. Age

The mean age for mothers delivering at home was 27.8 years (standard deviation = 7.0), whereas for mothers delivering at the health centre it was 24.4 years (standard deviation = 6.4). This difference was not significant at the 0.05 level.

Table 6 and graph 1 on the following pages show home and health centre deliveries according to age group.

There are more women delivering at home in the age groups 15 - 29 than in the groups above 30 years. However this difference was not statistically significant ($p = 0.3$).

2. Parity

Mothers who had delivered at home had a mean parity of 4.4 (standard deviation = 2.8). The mean parity for those who had delivered at the health centre was 2.9 (standard deviation = 2.3). This difference was found to be significant at the 0.05 level.

Table 7 below shows home and health centre deliveries according to parity and graph 2 on the following page shows the same information in a histogram.

Table analysis of parity according to place of delivery revealed an association between the two ($p = 0.0086$)

Table 6: Place of delivery according to age group

Age Group	Home	Health Centre	Total
15 - 19	6	17	23
20 - 29	45	51	96
30 - 39	24	11	35
40 - 49	5	3	8
Total	80	82	162

SHOWING THE NUMBER OF HOME AND H.CENTRE DELIVERIES ACCORDING TO AGE GROUP

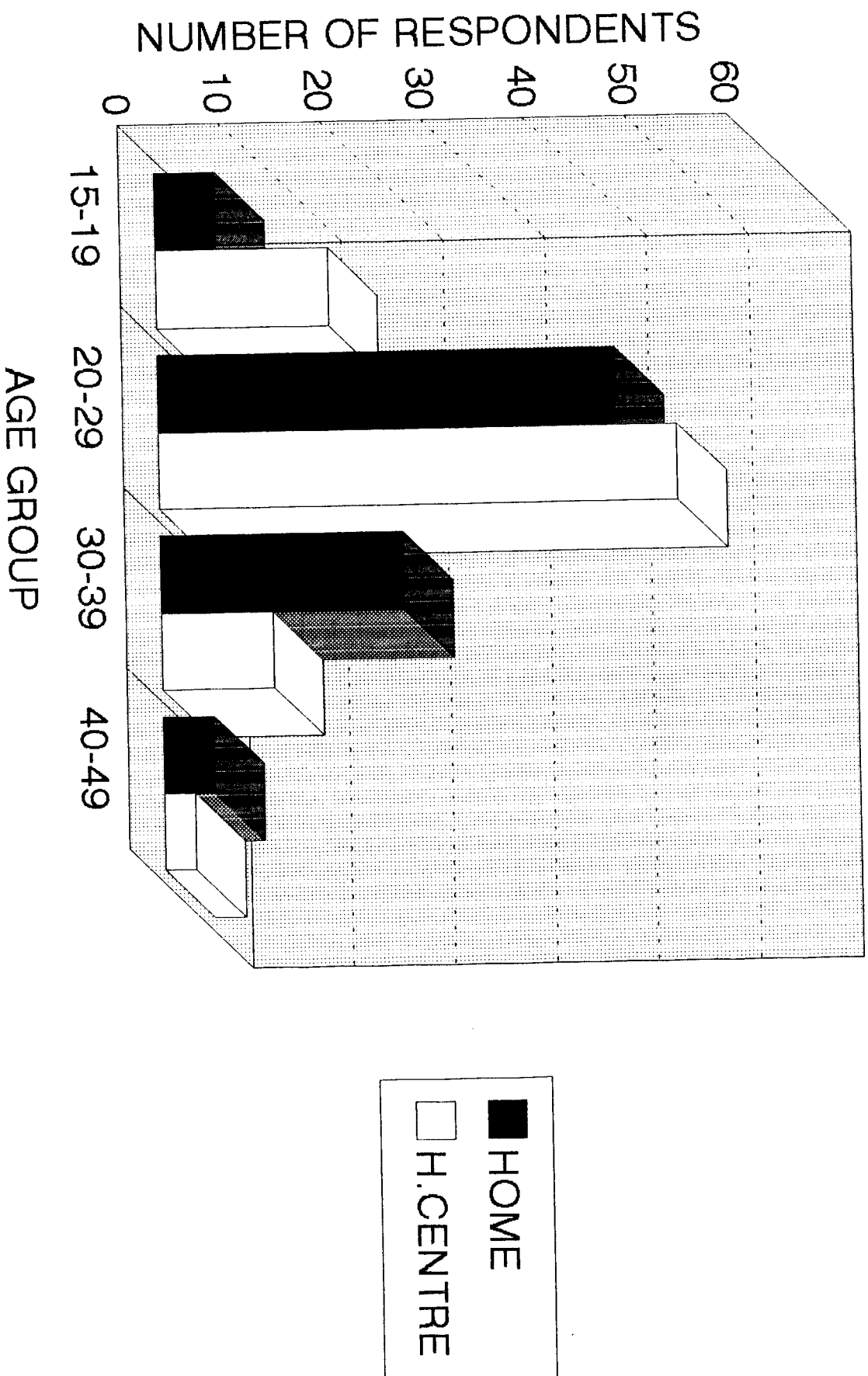


Table 7: Showing frequency of home and health centre deliveries according to parity.

Parity	House Births %	Health Centre (%) Births
1	6 (7)	27 (32)
2-4	46 (56)	39 (48)
≥5	30 (37)	16 (20)
	82 (100)	82 (100)

3. Previous children born at home.

92 of the 164 women had previous children born at home. The mean number of previous children born at home was 1.1 (standard deviation = 1.5) and ranged from 1 to 9.

Of the mothers in the home births group. 79(96%) had a previous home birth. The mean for this group was 2 (standard deviation = 1.7) and ranged from 1 to 9.

In the control group of health centre deliveries 12 (15%) had a previous home birth, mean being 0.2 (standard deviation - 0.7) and ranging from 1 to 4. This difference in means was found to be not statistically significant at the 0.05 level.

GRAPH SHOWING FREQUENCY OF HOME AND HEALTH CENTRE DELIVERIES ACCORDING TO PARITY

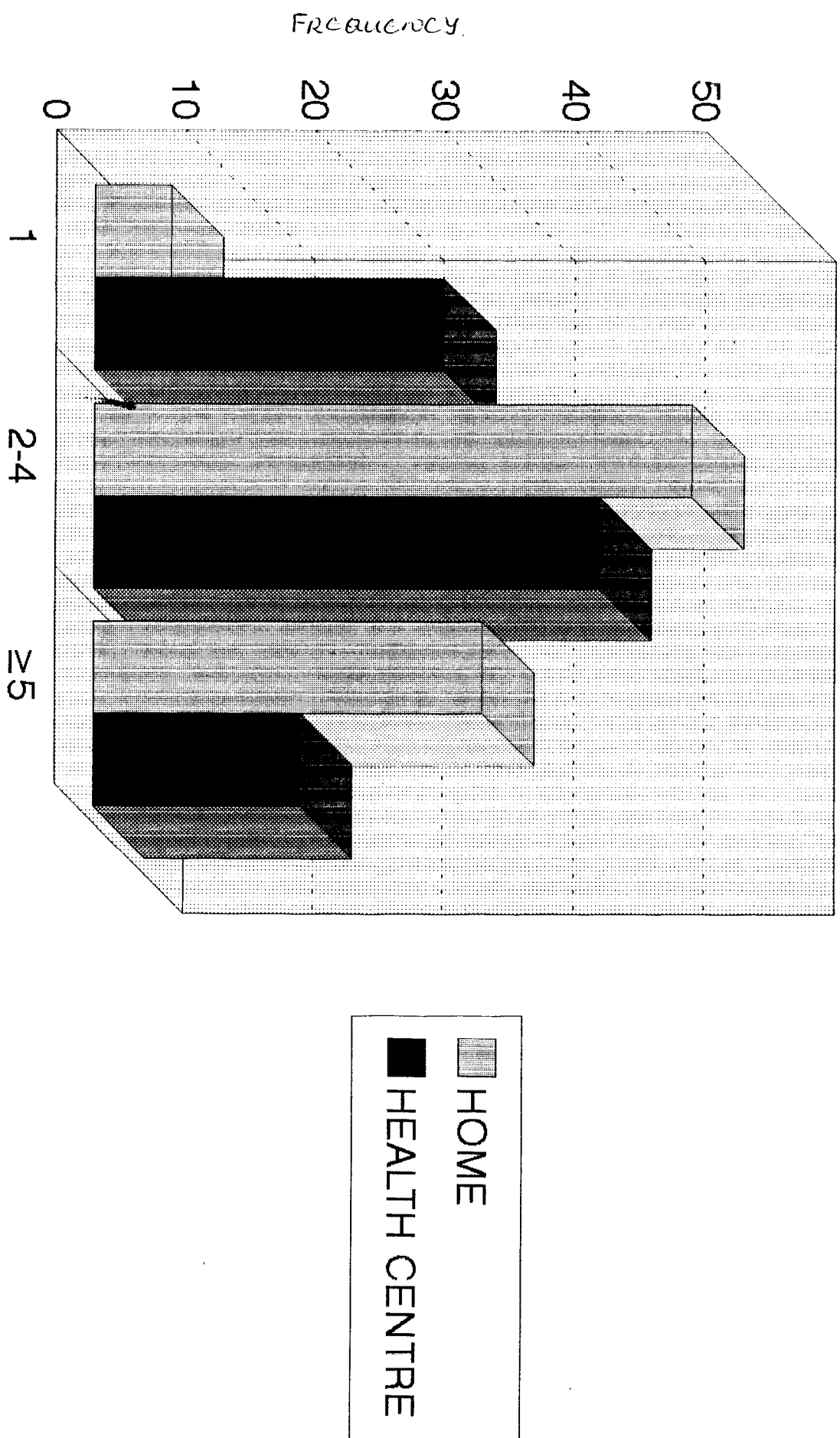


Table 8 below shows the number of previous children born at home according to current home or health centre deliveries.

Table 8:

Previous Children Born at Home	Home Deliveries %	Health Centre Deliveries	%
0	3 (3.7)	69 (84.1)	
1	45 (54.9)	10 (12.2)	
2	14 (17.1)	1 (1.2)	
3	4 (4.9)	0	
4	8 (9.8)	2 (2.4)	
5	4 (4.9)	0	
6	3 (3.7)	0	
7	0	0	
8	0	0	
9	1 (1.2)	0	
Total	82 (100)	82 (100)	

Number of previous children born at home according to place of delivery.

Table analysis of previous children born at home according to place of delivery shows a strong association between the two. ($P = 0.0000$)

4. Antenatal clinic attendance

Both mothers who did not attend antenatal clinic during the last pregnancy were mothers who had delivered at home.

98% (80) of mothers who delivered at home and 100% (82) of those who delivered at a health facility attended antenatal clinic during the last pregnancy. This difference was not statistically significant.

Gestational age at first attendance.

The mean age at first attendance for the home births group was 5.4 months (standard deviation = 1.3) and for the control group it was 5.2 (standard deviation = 1.1). This difference was not statistically significant at the 0.05 level.

The table below shows gestational age (grouped in trimesters) and the number of home or health facility deliveries who attended antenatal clinic for the first time in that trimester.

Table 9 - Gestational age (months) at first antenatal clinic attendance according to place of delivery.

Gestational age group (Months)	Home	Health Centre	Total
≤3	6	4	10
4 - 6	58	69	127
7+	15	9	24
Total	79	82	161

Table analysis revealed that there was no significant association between gestational age at first antenatal clinic attendance and place of delivery.

Reasons for attending antenatal clinic .

30.9% (50) of the mothers interviewed, attended antenatal clinic to make sure the baby was okay.

27.8% (45) attended antenatal clinic to make sure that they themselves and the baby were fine. These were the two most common reasons in both groups.

The pie charts on the following pages show the reasons given for attending antenatal clinic according to place of delivery.

5. Assistant at labour

The following table is a frequency tabulation of type of assistant according to place of delivery.

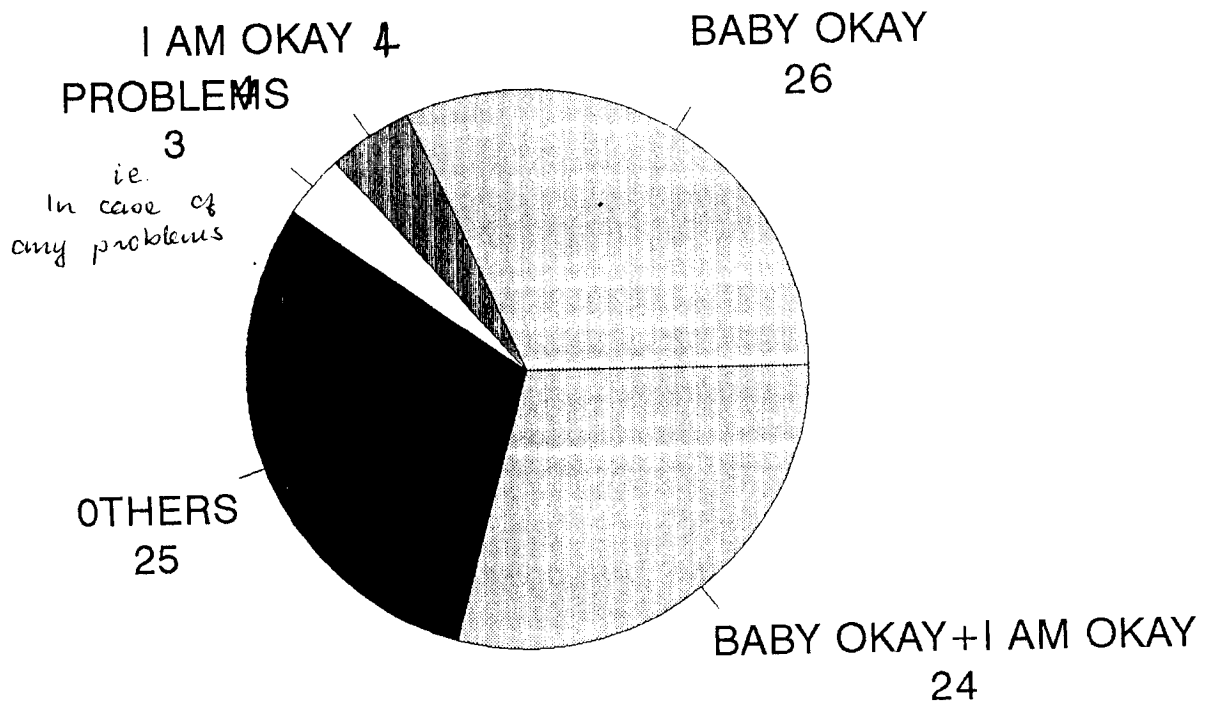
Table 10: Type of assistant according to place of delivery

Assistant	Frequency (%)			
	Home	Births	Health Centre	Births
Nurse	2	(3)	76	(93)
Doctor	0		6	(7)
Relative	33	(41)	0	
Neighbour/friend	27	(33)	0	
Non(Self-delivery)	19	(23)	0	
Traditional birth attendant	0		0	
Total	81	(100)	82	(100)

Figure 2.

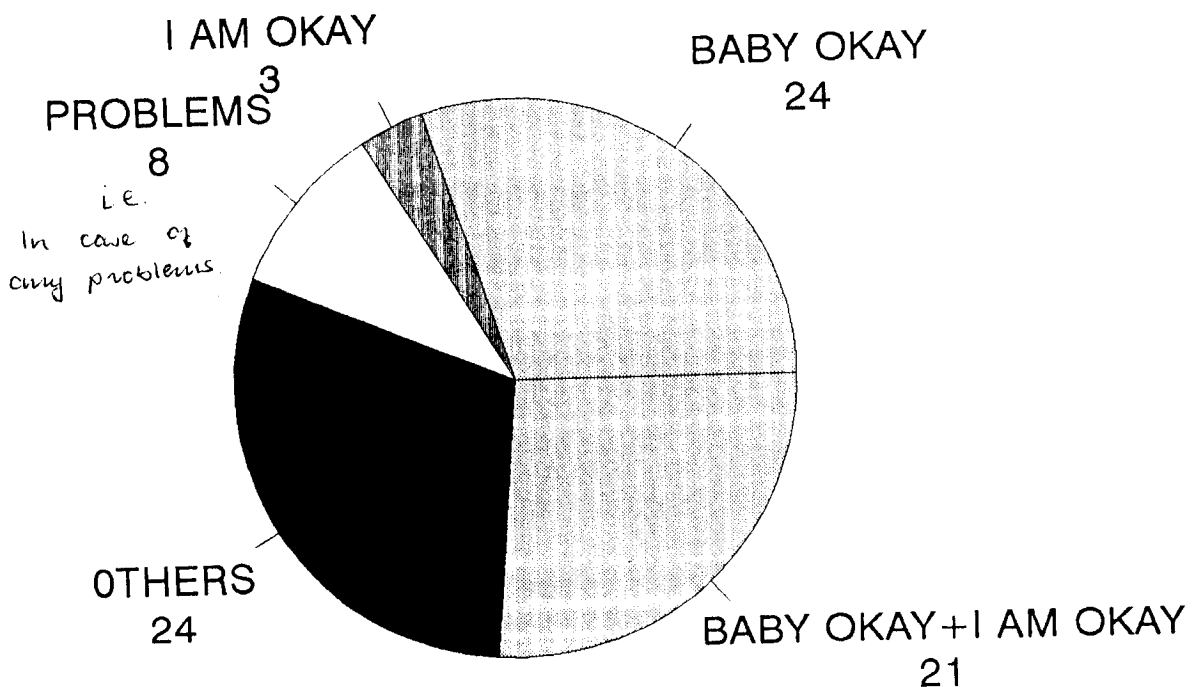
REASONS FOR ATTENDING ANC

HEALTH CENTRE DELIVERIES



REASONS FOR ATTENDING ANC

HOME DELIVERIES



Reasons for choosing a particular assistant (Home births)

The table below shows the various reasons given for choosing a particular assistant and the frequency of each.

Table 11 : Frequency tabulation of reasons for selecting a particular assistant.

Reason	Frequency (%)	
Available	34	(55)
Trustworthy	13	(21)
Experienced	10	(16)
Elderly	3	(5)
Trained midwife/nurse	2	(3)
Total	62	(100)

6. Reasons for delivering at home

The following table shows the most common reasons given for delivering at home and the frequency of each.

Table 12: Table showing reasons for delivering at home and the number (percentage) of women giving that reason.

Reason for delivering at home	Number (%)	
1. Didn't know was in labour until too late	39	(48.1)
2. It is cheaper	17	(21.0)
3. It was night time	11	(13.6)
4. No transport	4	(4.9)
5. Delayed leaving for the clinic	4	(4.9)

7. Reasons for delivering at the Health Centre.

The table below shows the reasons given for delivering at the health centre and the frequency of each.

Reasons for delivering at health centre	Number	(%)
1. Cheaper	1	(1.22)
2. Safer	79	(96.34)
3. More friendly	2	(2.44)
Total	82	(100)

Table 13: Showing reason for delivering at the health centre and frequency (percentage).

8. Literacy Level

In total 76 (46.6%) of the women were found to be illiterate. 43(56.6%) of these were mothers who had delivered at home, and the remaining 33(43.4%) had delivered at a health facility.

There was no significant association between literacy and place of delivery ($P = 0.1$). There appeared to be an association between literacy and age ($P = 0.000$).

The following table shows frequency of literacy and illiteracy according to age group.

Table 14: Number (%) of illiterate and literate mothers according to age group

Age group in years	Illiterate (%)	Literate (%)
15 - 19	9 (12)	14 (10)
20 - 29	41 (55)	55 (55)
≥30	25 (33)	18 (21)
Total	75 100)	87 (100)

The histogram on the following page shows the above information in a graph form.

There was no association found between literacy and parity ($P = 0.7$), and between gestational age at first antenatal clinic attendance and literacy ($P = 0.2$).

9. Charge for deliveries

91(50.9%) of the women felt that clinics should not charge at all for deliveries. The table below shows the preference frequency per category of charges.

AGE GROUP IN YEARS AND NUMBER (%) LITERATE AND ILLITERATE IN EACH GROUP

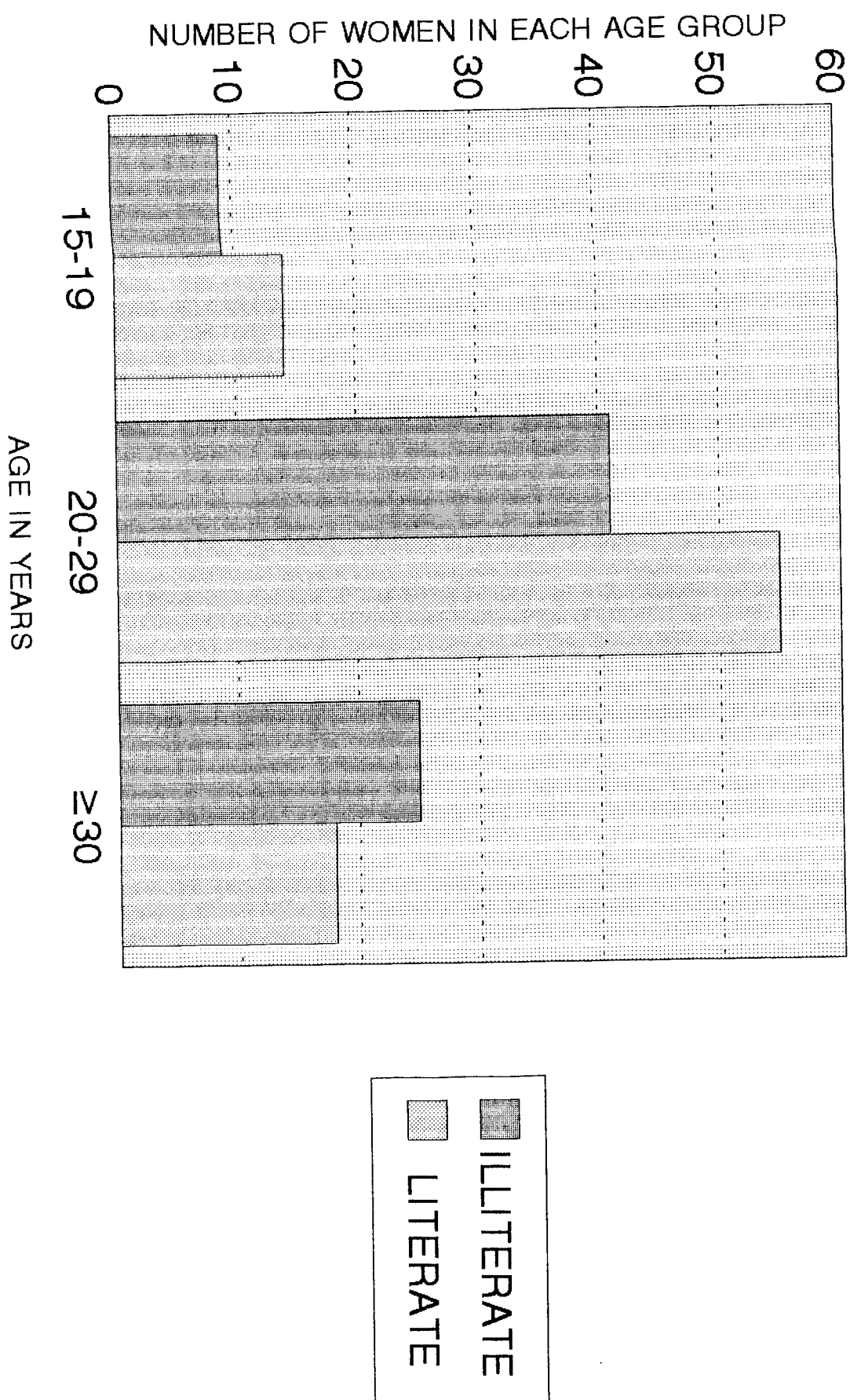


Table 15: Showing number (%) of mothers opting for each category of payments.

amount (Kwacha)	Frequency	(%)
0.00	92	(56.9)
500 - 1000	22	(13.8)
1000 - 2500	38	(23.7)
2500 +	2	(1.3)
Scheme (K800 per month)	7	(4.4)
Total	160	(100)

There was no difference between the number of women in the two groups who felt that there should be no charge for delivery.

10. Knowledge about social welfare

This was very scanty with only 46(29.4%) of the mothers interviewed having some vague idea of this assistance rendered by the Government. The remaining 113 (70.6%) had never even heard of the social welfare scheme.

CHAPTER 6

DISCUSSION

Although the sample size was small, it was still possible to make some important observations from this study.

The home birth rate of 11% was less than the expected rate of 24%. This may be due to either the small sample size or there may have been a trend downwards in home births since the last survey (1992) quoting 24%⁴ was done.

Home births increase as the general standard of living in an area decreases. The general standard of living was assessed by quality of housing. It would have been more helpful if a question had been included in the questionnaire on socio-economic status.

The outcome of home births (survival status of the neonate at birth to 7 days of life) and that of health facility births in the sample interviewed was the same. The perinatal mortality rate (still births plus deaths within the first week of life per 1000 total births) was zero in both groups. The small sample size may have been responsible for failing to detect a difference between the two groups. Out of the total of 1223 births in the area surveyed, 9 were perinatal deaths. All these occurred in a health facility. This gives a perinatal mortality rate of 8 per 1000 total births in health facilities, (1133 total health facility deliveries).

It would therefore seem as though delivering in a health facility is more risky than delivering at home. But, one has to keep in mind the fact that health facilities tend to see more of the higher risk groups and therefore will have higher mortality rates. Also, mothers in labour may develop a complication at home and report to the health centre late.

A better way of measuring outcome, although more difficult to measure, may be to use morbidity e.g. crying immediately after birth, pattern of breathing, colour of baby.

This apparent change over of the expected has been documented in other African countries as well as in the west.^{2,14,17} This has generated debate in the west on whether "institutionalized" delivery is really the best thing for both mother and child.

Considering the environment that most of these home births occur in, in Lusaka Urban - crowded houses with no running water and electricity - a bigger, more comprehensive study would have to be done to assess the advantages and disadvantages of home deliveries.

The vast majority of mothers attended antenatal clinic and most of these appeared aware of the reasons for attending antenatal clinic. However, there appears to be a general lack of appreciation of the importance of registering early with more than three quarters of the mothers registering at between 4 and 6 months. This is consistent with the findings of the Zambia Demographic and Health survey (1992)⁴ and of Lule, G.S. et al. in Malawi.³

This suggests a deficiency in the health education given at health centres. This might also explain the large number of women delivering at home because they did not know that they were in labour until too late. This finding is also similar to that of Lule, G.S. in Malawi.³

The problem of under-utilization of antenatal care services and delivery services has also been recorded by Akpala, C.O. et al in Nigeria.¹⁷

It has been shown in other studies ^{4,18} that there is a strong association between literacy and ante-natal clinic attendance, failure of this study to demonstrate this may be due to the small sample size.

The women delivering at home tended to be of higher parity, this is consistent with the findings of Declercq E.R. in the United States (1978)²⁰. They also tended to be women who had delivered a child at home previously and most of those delivering themselves had done so on a previous occasion. These findings are not surprising because it is expected that a woman with the experience of a previous birth(s) and more so a home birth with no adverse outcome, would be more confident in delivering at home.

The majority of women delivering at the health centre chose to do so because it is perceived to be safer i.e. any problems arising can be dealt with quickly. Even some of the mothers who had delivered at home did say that the clinic was actually safer. This point could have been explored in more depth if there was a question on intended place of delivery. However, the fact that more than half of the home births were delivered by the closest person available at the time, suggests that these were unplanned home deliveries.

21% of the mothers who delivered at home, did so because they did not have money to pay the delivery charges at the clinic. This implies that the current fee-paying system for deliveries is working against the aims of the safe motherhood initiative. Some of the women, including those who had delivered at the health centre, complained that delivery is a life threatening situation and hence there should be no charge. Safe delivery can be considered a preventive measure and it is in the interests of the state to ensure safe delivery for every woman, therefore making deliveries free would be quite reasonable. Considering the economic constraints facing the country at the present time, other options of financing delivery services for the less privileged would have to be worked out. For example, the social welfare system if organised well could be of help, another option would be to introduce a two tier system in the urban health centres, so that there's a fee-paying wing with a few extra luxuries for those who can afford and this could support the free wing which would simply have all the necessities.

It seems that there is a problem somewhere on relaying information to the general public about the social welfare scheme and how to get access to it. None of the women interviewed had any idea on how to get financial assistance for health services if they should need it.

The fact that there are actually trained traditional birth attendants in the areas surveyed, but they do not seem to be functioning at all is a cause for concern. The idea of training traditional birth attendants was good because the number of mid-wives in the country is not adequate to satisfy the demand, and even if it were, there would be the problem of having them in easily accessible locations, 24 hours of the day, to a majority of the women in the compounds. The availability of functional traditional birth attendants would resolve the problems of women delivering at home because it is night time or due to the fact that they have a problem with transport to get them to the health centre.

Such a situation may also be beneficial to the functioning of the health centres. They will be able to reduce their workload by letting those women who wish to deliver at home and are low risk, to do so with the assistance of a traditional birth attendant (or even a midwife). By so doing their quality of service may improve. Going by the absence of any concrete proof that health facility deliveries are actually better than home deliveries, it might be a good thing to encourage home delivery for all low risk pregnancies.

CONCLUSION

In conclusion, therefore, this study has demonstrated that women delivering at home are of higher parity and tend to have a previous home birth(s). They are not particularly older, being in the age group 20 - 30 years.

Generally, the women were aware of the reasons for attending antenatal clinic but lacked appreciation of the importance of reporting early in pregnancy.

It seems reasonable to assume that the majority of home deliveries are unplanned.

The outcome of home deliveries seems to be quite good.

Traditional birth attendants are not functioning as well as they should.

The majority of home deliveries are attended by an untrained person.

Charging for deliveries is not in the interests of safe motherhood.

Hence it appears that home deliveries are being caused in part by health service factors i.e. charging for health services and inadequate Health Education.

CHAPTER 7

CONSTRAINTS

The sample size was small due to time and financial constraints and also due to the difficulties of finding a reliable sampling frame. Financial constraints included inadequate funding and delayed release of funds. The study had to be completed within the three months, October to November, irrespective of the fact that funds were released in mid-October.

The study could have also been improved by involving a statistician from the very beginning so that the sampling of households within the CSA's would have been done on a random basis. This would most likely have meant a wider area to be covered requiring more time and money. Other points of improvement could have also been inclusion of questions to determine socio-economic status and intended place of delivery.

The original methodology outlined in the proposal had to be abandoned because it simply was not feasible. It was not possible to find more than 75% of the addresses given in the ante-natal register. If an address was found then the person being looked for would have either moved or had never lived there.

Locating a house by the use of an address in the compounds of Lusaka urban, more so the more densely populated ones, is next to impossible because the streets are not labelled, houses/structures are not numbered and are not arranged in any order. Record keeping was also found to be quite poor in that some records were missing and some entries were incomplete.

Going from door to door may have had it's own bias in that households that did not seem approachable, maybe due to vicious dogs or suspicious looking owners may not have been approached and follow-up may not have been as vigorous as it would be if a household has been randomly picked and therefore has to be visited.

Some of the questions on the questionnaire had responses that were duplicating each other; (see Appendix 1). Question 4C - options (ii) and (iii) are saying the same thing as option (v).

Question 7 - option (ii) is saying the same thing as option (iv).

CHAPTER 8

RECOMMENDATIONS

1. The scope and quality of health education given to ante-natal mothers should be improved. This health education should not be restricted to mothers coming for ante-natal care only. It should be targeted at all women in the reproductive age group.
2. The problem of non-functioning traditional birth attendants needs to be researched in depth to determine the reasons and come up with workable solutions.
3. The issue of charging for deliveries needs to be looked at critically and may actually warrant a study to determine it's impact on the numbers of women delivering at the health centres since the introduction of the fee-paying scheme.

It would be desirable and in the best interests of safe motherhood for deliveries to be free.

4. Dissemination of information on the social welfare scheme should be improved. It should be organised in such a way that it serves the people it is supposed to serve.

Maybe the same scheme could be used to pay traditional birth attendants for the patients they attend to.

It is recommended that there should be a registration system for all people who need social welfare assistance and they should be issued with cards or numbers to reduce delay in providing care at the clinics.

5. A system of follow-up of all antenatal mothers would be extremely useful, then there would be a completeness of records and a more complete idea of what is happening to these mothers.
6. The feasibility of providing domiciliary midwifery should be considered to increase coverage of all deliveries by a trained person and to retain the advantages of home deliveries.
7. Record keeping and entry must be improved at all levels.
8. Planning and organisation of compounds is essential. Where a squatter compound is upgraded, effort should be put in to get some order in the area. All streets should be labelled and houses numbered. This is also essential if follow-up visits are to be successful.

9. Further studies are needed to determine why there seems to be a poorer outcome to deliveries in the health centre and also to assess adequately the outcome of home deliveries and relate them to poverty and the effect of female literacy.

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Annex 1.

PLACE OF DELIVERY AND DELIVERY OUTCOME QUESTIONNAIRE

©©©©©

NO. _____

1. (a) How old are you?

(b) What is your date of birth? _____ / _____ / _____

2. (a) Can you read and write? Yes _____ NO. _____

(b) Can you read this paragraph for me.

(Paragraph from A.I.D.S./H.I.V. pamphlet)

3. Can you tell me where each of your children was born; when they were born and if they are still alive or not;

Hospital, clinic,	Home,	Year	Status
-------------------	-------	------	--------

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

4. (a) Do you go to the antenatal clinic when you are pregnant?

Yes _____ NO. _____

(b) At how many months of pregnancy do you usually start going to the clinic? _____

(c) Why do you go to ante-natal clinic:

(i) Immunisations

(ii) To check if the baby is O.K

(iii) To check if I am O.K

ill

(iv) To get medicines non/folic acid

(v) In case of any problems

(vi) Others _____

5. (a) When was your last delivery? _____ / _____ / _____
- (b) Is the child still alive? Yes _____ NO _____
- (c) (If no) What happened?
- Was it (i) Child died within 1 week of delivery
- (ii) Child died later than 1 week
- (iii) A miscarriage
- (iv) Child was born dead.
- (d) Where was this delivery?
- Hospital _____ Clinic _____ Home _____
6. (a) Who assisted you at your last delivery?
- (i) Nurses
- (ii) Doctor
- (iii) T B A
- (iv) Relative
- (v) Neighbour/Friend
- (vi) Others (specify)
- (b) Why did you choose this particular person?
7. Why did you choose to deliver at home/health centre/hospital rather than at _____ (alternative) is it because it is:
- (i) Cheaper
- (ii) Safer
- (iii) The people are more friendly/helpful
- (iv) Problems can be dealt with quickly
- (v) Closer to home
8. How much do you think clinics should charge for deliveries?
- (i) Nothing
- (ii) K500 - K1,000
- (iii) K1,000 - K2,500
- (iv) K2,500 +
9. Do you know that there is a system available for people who cannot afford to pay for medical services? Yes _____

IDNUM:

2.AGE: 3.PARITY: 4.CHN BORN AT HOME 5. ATTENDANCE:(ANC)

6.GESTATION AGE AT ATTENDANCE: (GESTAGE)

7. REASONS FOR ATTENDING ANC

- 1 = IMMUNISATIONS
- 2 = TO CHECK IF BABY IS O.K
- 3 = TO CHECK IF I AM O.K
- 4 = TO GET MEDICINES NON/FOLIC ACID
- 5 = IN CASE OF ANY PROBLEMS
- 6 = OTHERS
- 7 = 1+2
- 8 = 1,2+3

8. BABY STATUS(BABY STATU:) ALIVE/DEAD

9. PLACE OF DELIVERY = HOSP/HOME

10. ASSISTANT AT LABOUR(ASSISTANT)

- 1 = NURSES
- 2 = DOCTOR
- 3 = TBA
- 4 = RELATIVE
- 5 = NEIGHBOUR/FRIEND
- 6 = OTHERS

1. REASON FOR CHOOSING PARTICULAR ASSISSTANT:

- 1= AVAILABLE
- 2= TURSTED
- 3= EXPERIENCED
- 4= ELDRELY
- 5= TRAINED MIDWIFERY

12. REASON FOR DELIVERY AT HOME (REAS HOME)

- 1 = CHEAPER
- 2 = SAFER
- 3 = THE PEOPLE ARE MORE FRIENDLY/HELPFUL
- 4 = PROBLEMS CAN BE DEALT WITH QUICKLY
- 5 = CLOSER TO HOME
- 6 = OTHERS

13. REASON FOR DELIVERY AT HOSPITAL (REASHOSP)

- 1 = CHEAPER
- 2 = SAFER
- 3 = THE PEOPLE ARE MORE FRIENDLY/HELPFUL
- 4 = PROBLEMS CAN BE DEALT WITH QUICKLY
- 5 = CLOSER TO HOME
- 6 = OTHERS

14. HOW MUCH SHOULD CLINICS CHARGE FOR DELIVERIES? HOW MUCH?

15. KNOWLEDGE ABOUT SOCIAL WELFARE?
(SOCIALWEL) Y/N

16. LITERACY LEVEL (LITERACY).

1 = POOR

2 = FAIR

3 = GOOD

4 = NIL

11/2/4