FACTORS ASSOCIATED WITH HOME DELIVERY IN KAOMA CENTRAL CONSTITUENCY OF KAOMA DISTRICT

BY

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A Dissertation submitted to the University of Zambia in partial fulfilment of the requirements for the Degree of Master of Public Health.

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January, 2005

DECLARATION

This dissertation is the original work of Ireen Amukena Simbuwa. It has been prepared in accordance with the guidelines for MPH dissertations of the University of Zambia. It has not been submitted elsewhere for a degree at this or another university.

Signature..ISimbuwa..... Date..2nd January 2005

APPROVAL

I/We Prof S.S Szinte and Prof K.S Bedwei having supervised and read this dissertation, am/are satisfied that the work has been completed satisfactorily and is ready for presentation to the examiners.

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ABSTRACT

Objective: The main objective of the study was to determine factors associated with home delivery among women delivering in Kaoma central constituency.

Design: It was a case control study involving 248 women with children less than 6 months old who delivered in Kaoma central constituency of Kaoma District. 124 were women who delivered from home who were called cases and the other 124 were women who delivered in health facilities we called controls. The study was conducted from January 2003 to November 2003.

Setting: The study setting was Kaoma central constituency where 4 out of 7 constituencies were visited under the limitation of mobility. Shikombwe ward of Luampa constituency was also included in the study due to the proximity to Mulamatila ward and similarity of the life style and resource sharing of the two groups of people. A stratified random sampling method was used to select the respondents.

The main outcome: The main out come was the place of delivery. The results of the study were based on the interviews with mothers on the history of their previous labour. regarding their age, marital status, educational level, socio economic status, distance from the nearest health facility, antenatal care visits, number of last pregnancy, birth order and birth preparedness.

Due to the limitation of lack of the prevalence of the exposure variables of interest among the cases and the controls, sample size determination was done after recruiting 30 cases and 30 controls into the study. The analysis for sample size calculation was

based on 5% significance level. Finally since two analyses were done after completion of the study, a result of considered significant if it yielded a p-value of less than 0.025

Results: On bivariate analyses, there was no association between age and place of delivery (p=0.258) and between marital status and place of delivery (p=694). The proportion of women with no education or only primary education was significantly higher (p<0.001) among the cases than the controls. Unemployment was also significantly higher (p<0.002) among the cases than the controls. Equally unemployment was also significantly higher (p=0.009) among husbands to the cases than the controls.

The proportion of respondents who lived within less than 1hour walking distance to the nearest health facility was significantly higher (p<0.001) among the controls than the cases. Despite this there was no statistical difference (p=0.339) in the nearest health facility between the two groups. No association was observed between the number of the last pregnancy and the place of delivery (p-0.147) and birth order and place of delivery (p=0.321). There was also no association between antenatal care visits and place of delivery (p=0.387) and between staff attitude and place of delivery (p=0.545).

The majority of both the cases (62.1%) and controls (43.5%) made their own decision on their place of delivery. Still on bivariate analysis, the use of traditional medicine to fasten labour was significantly higher (p<0.001) among cases than controls. Knowledge of availability of a tTBA was also significantly higher (p<0.001) among cases than controls.

Common taboos were that very few people should enter the delivery room and that a person who has just has sexual intercourse should not assist a delivery. The majority of the cases 26.4% suggested to build health centres nearby and the majority of the controls 51.3% suggested to build a better maternity ward.

On multivariate analysis after adjusting for confounding variables, those who with no education or with only primary education were 89% more likely to deliver at home and that those who lived within less than 1 hour walking distance to the nearest health facility and were 78% less likely to be cases.

Conclusion: An association existed between educational level and place of delivery and between distance to the nearest health facility and place of delivery.

Recommendations: Based on these findings, we recommend that, intensive Information, Education and Communication (IEC) should be carried out in most simpler terms (such as drama and discussions) to give information on the benefits of a health facility delivery. We also recommend that a study be conducted to verify why women who live within less than 1 hour walking distance to the nearest health centre and deliver from health facilities are 78% less likely to be cases.

DEDICATION

I dedicate this work to my loving elder brother, Henry Imasiku Amukena who passed away during the time I was busy with my thesis; barely a few months before completion. I miss his love, encouragement, advice and support.

ACKNOWLEDGEMENT

I wish to thank all those whom I owe so much for their various helpful contributions and assistance for completion of my course in general and this project in particular.

I would like to thank my sponsors the African Development Bank (ADB) through the Central Board of Health (CBoH) for sponsoring me to pursue my course. I am also indebted to Prof. K.S. Baboo (supervisor) and Prof. S. Siziya (co-supervisor) for all their constructive criticisms and very helpful guidance. Others are, Dr. S.N. Nzala and Dr. M. Chipimo (CBoH) for their guidance.

The Livingstone District Health Management Board can not be forgotten for allowing me to pursue the course and the Ministry of Health for granting me paid study leave.

More gratitude goes to Kaoma District Health Management Board (DHMB) for allowing me to conduct this research and using their staff. Special appreciation goes to the following people of Kaoma DHMB for assisting me with data collection; Ms. Dorothy Lyempe, Mrs. Margaret Musangu, Mrs Kwaleyela Namuchana and Mr. Lawrence Shabalala.

Special appreciation also go to my classmates Mr. S.E. Banda, Mrs. C.K. Tembo and Mrs J. Mijere for their support and fruitful discussions on various aspects of this study.

I would also like to express gratitude to my family i.e. my husband Mr M.T. Simbuwa, my daughters Mukelabai (13 years) and Liswaniso (8 years), my parents Mr. F.N. and

Mrs. J.L. Amukena, my brothers and sisters with their spouses for their moral support and encouragement.

Lastly but not the least, I would like to thank all the 248 respondents who gave me their maximum co-operation during data collection.

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LIST OF ABBREVIATIONS

1.	AIDS	Acquired Immuno-Deficiency Syndrome.
2.	CBoH	Central Board of Health.
3.	C.D.E.	Classified Daily Employee.
4.	C.O.	Clinical Officer.
5.	C.S.O.	Central Statistical Office
6.	D.H.M.B.	District Health Management Board
7.	D.H.S.	Demographic and Health Survey
8.	E.D.D.	Expected Date of Delivery
9.	E.H.T.	Environmental Health Technician
10.	E.N.	Enrolled Nurse
11.	F.C.I.	Family Care International
12.	HIV	Human Immuno-Deficiency Virus
13.	I.E.C.	Information, Education and Communication
14.	MoH	Ministry of Health
15.	N.H.C.	Neighbourhood Health Committee
16.	S.T.I.	Sexually Transmitted Infection
17.	T.B.A.	Traditional birth Attendant
18.	tT.B.A.	Trained Traditional Birth Attendant
19.	U.N.F.P.A.	United Nations Population Fund
20.	U.N.I.C.E.F.	United Nations International Children`s Fund
21.	W.H.O.	World Health Organization

1.0 INTRODUCTION

1.1 BACKGROUND INFORMATION

Zambia is a developing country with a total population of 10.4 million and a density of 13.8 persons per sq.km. The country's total fertility declined from 7.2 in 1980, to 6.7 in 1990 and finally, 6.0 in the year 2000 (CSO, 2000). The proportion of women who wanted no more children increased from 24% in 1972 to 29% in 1996. Life expectancy at birth was 46.1 in males and 47.6 in females as reported by DHS (1996). CSO (2000) reports it at 50 years for both sexes, with a 48 and 54 being the rural and urban areas life expectancy, respectively. On average, women lived 2-3 years longer than men did, though the gap has narrowed. Child bearing in Zambia begins early with over one third of women becoming mothers by the time they reach the age 18 and two-thirds have had a child by the age 20. The majority of children, 81% were born within 24 months or more apart (DHS, 1996). Maternal mortality rate was 649/100 000 births annually while infant mortality rate was 109/1 000 live births (DHS, 1996).

Reproductive health is defined as a state of complete physical, mental and social well being of an individual and not merely the absence of disease or infirmity in all matters relating to reproductive health system and its functions and processes (CBoH, 1997). Its major components include:- safe motherhood (antenatal care, clean and safe delivery and postnatal care), prevention and treatment of Sexually Transmitted Infections/Human Immuno Deficiency Virus/Acquired Immuno-Deficiency Syndrome (STI/HIV/AIDS), family planning, cancer screening and treatment, maternal nutrition, infertility and research. Maternal care has been identified as one area where support is needed most, with emphasis on safe motherhood. Safe motherhood simply means childbearing without danger. It can be achieved by providing high quality maternal

health services to all women. The services include:- care by skilled health personnel before, during and after childbirth, emergency care for life threatening obstetrics complications; services to prevent and manage the complications of unsafe abortion; family planning to enable women and men plan their pregnancies and prevent unwanted pregnancies; health education and services for adolescents and community education for women, their families and decision makers.

Motherhood is a positive and fulfilling experience for most women though, for many it is associated with suffering, ill health or death. For this reason, the safe motherhood initiative was launched in 1987 in Nairobi, Kenya, to reduce the number of maternal deaths by half by the year 2000. It ensures that women have access to services and support needed to go through pregnancy and childbirth safely. Access means that maternal health care is within reach of women who need it (less than 5km from health facility). In developing countries 55% of women make at least one antenatal visit and 54% of these give birth with a skilled attendant (WHO, 1997). Skilled attendants as defined by WHO are trained midwives and doctors who have completed courses and are licensed to practice (WHO, 1992). A woman who gives birth in a health facility is more often likely to have skilled attendance while the one who gives birth at home is exposed to unskilled attendance. In some instances in developing countries, especially in the rural communities, a health facility delivery may not necessarily mean skilled attendance. This could be due to the fact that, when there is a shortage of staff with skills in the health facility, members of staff without skills such as Clinical Officers (CO), Environmental Health Technicians (EHT), Enrolled Nurses (EN) and Classified Daily Employees (CDE) take part in assisting women during labour and delivery. At community level, most deliveries are assisted by untrained Traditional Birth Attendants

(TBAs) who are not recognized by the system, while fewer are conducted by the trained TBAs. Trained TBAs have a role of supporting women during labour, but generally not trained to deal with complications such as hemorrhage, eclampsia and obstructed labour. On the other hand, in developed countries skilled attendants are found to assist women during home deliveries. Murphy and Fullerton (1998) concluded that home birth could be accomplished with good outcomes under the care of qualified practitioners and within a system that facilitate transfer to hospital care when necessary.

Beyond the year 2000, it has been observed that the safe motherhood initiative has not been able to completely fulfill its expectations. Some of the lessons learnt are:- to ensure skilled attendance during childbirth; to improve access to high quality maternal health services and referral when complications arise.; to empower women to ensure their choices; to address unwanted pregnancy and safe abortion and to measure progress by governments around the world pledging to reduce maternal mortality.

Many factors have antagonized the efforts of the safe motherhood initiative and adversely affected the health of women. These include: economic crises faced by many countries globally, socio-cultural factors, political instability, epidemiological changes, ecological and, natural disasters.

Despite this, the Zambian government through the Ministry of health and Central Board of Health has tried to bring safe motherhood as close to the family as possible through it's health reforms by the District Health Management Boards (DHMB). It aims to reduce maternal morbidity and mortality by ensuring that a woman can choose to become pregnant and if she does, she should receive care for prevention and treatment

of pregnancy complication and have access to trained birth assistance, essential obstetric care and care after birth (CBoH, 1997).

Kaoma DHMB like all other DHMBs implements safe motherhood activities. It is one of the seven DHMBs in the Western Province. Kaoma district is a rural district situated 420 km West of Lusaka and 200 km East of Mongu and has a surface area of 23 315 km^2 with a population density of 7.4 persons per km^2. The district has a population of 171 748 with an annual growth rate of 3.3% (CSO, 2000). The health facilities in the district include: 3 hospitals (Kaoma District Hospital, Mangango Mission Hospital and Luampa Mission Hospital), 17 rural health centres and 3 Military Health Centres. These facilities are accessible by road, mainly during the dry season and the District Health Officer is able to communicate with them without problems. Delivery services are offered by all health centres and all patients who need further management are referred to the hospital. Health personnel include Medical Doctors, Midwives, Nurses, COs and EHTs. The DHMB has over the years trained TBA to assist in assisting women giving birth in the community. These TBAs are recognized and supported by both the community and the DHMT.

The DHMT supports the health workers by ensuring adequate stocks of drugs and supplies and maintenance of essential equipment. This is directly related to the ultimate goal of reduction of maternal and neonatal morbidity and mortality through safe motherhood.

1.2 STATEMENT OF THE PROBLEM

The place of delivery and kind of birth attendant vary all over the world. Despite emphasis by the safe motherhood initiative, childbirth remains a risk for many women. Every year more than 200 million women become pregnant in the world. Each one of these faces a chance of an adverse outcome for both the mother and the baby, even if she does not present with any problem. This has been attributed to the fact that life threatening complications that require early identification and prompt management can develop suddenly.

Maternal risk is defined as the probability of dying or experiencing serious injury as a result of pregnancy or child-birth (Bwinikoff, 1991). Some of the common complications include retained placenta, bleeding, ruptured uterus, puerperal infections and eclampsia. Attempt to predict these complications before they occur has not been successful. Early signs of medical complications sometimes pass unnoticed and serious conditions calling for emergency care are not dealt with promptly especially during home delivery. One of the most effective ways to reduce maternal morbidity and mortality is to increase antenatal coverage and to ensure that skilled attendants conduct safe deliveries, identify and manage complications during childbirth. In Zambia, 91.7% women attend antenatal care (MOH, 1998). This shows that more women now receive antenatal services from trained nurses/midwives than before. The reason for this among other reasons could include the perceived benefit of appropriate assistance to be obtained during labour and in case of complications. Unfortunately only 57% of deliveries take place with skilled attendance globally (WHO, 1997). In Africa only 42% of the deliveries have coverage of skilled attendants as compared to 98% and 99% of Europe and North America, respectively (WHO, 1997). In Zambia, the 1996 DHS

report stated that 53% of the deliveries occurred at home. Later, the 2000 DHS report specified that at community level, 53% of the deliveries were assisted by the untrained TBAs and 11% were by the trained TBAs. It further explained that at institutional level only 42% of the deliveries were assisted by skilled attendants. There is varying differences of skilled attendants between urban and rural areas for various reasons. A comparison between Lusaka and Kaoma districts showed that, in Kaoma 14% of the deliveries took place in hospital while, 24% took place in health centres and 62% took place at home. In Lusaka 42.3% took place in the hospital, another 42.3% took place in health centres and 15.4% took place at home (MOH, 1998).

Local statistics showed that 65% of the deliveries in Kaoma district occur at home and that skilled attendance during delivery has been declining. In 1998 and 1999 only 28% and 21% respectively of all deliveries took place under skilled attendants, (Kaoma action plan, 1999). In Kaoma central constituency, only 23.3% of women had health facility deliveries in the year 2002. (Kaoma action plan, 2003). It has also been observed that despite the high antenatal coverage rates at health facilities, the majority of the deliveries take place at home. In Kaoma, more women (83.3%) access antenatal services at health facilities compared to only 38% who utilize the facilities for delivery services. The women who deliver at home are either assisted by older women, or sometimes trained TBAs. The tendency in the district is that even when a trained TBA is available only 3% of those women delivering have been reported to utilize them. (Kaoma Action Plan, 1999).

Maternal mortality is a threat to many women of reproductive age group today. More than 585 000 women die each year because of pregnancy complications. At least 7

million women suffer serious health problems and as many as 50 million suffer some health consequences after childbirth (UNFPA, 1999). A study conducted by van Tol and Heinze in 1998 indicated that maternal mortality ratio in Kaoma district was 800/100 000 births (Kaoma Action Plan, 1999). MOH (1998) reports that, 22.2% of the women in Kaoma die of maternal causes with a mortality risk of 3.96.

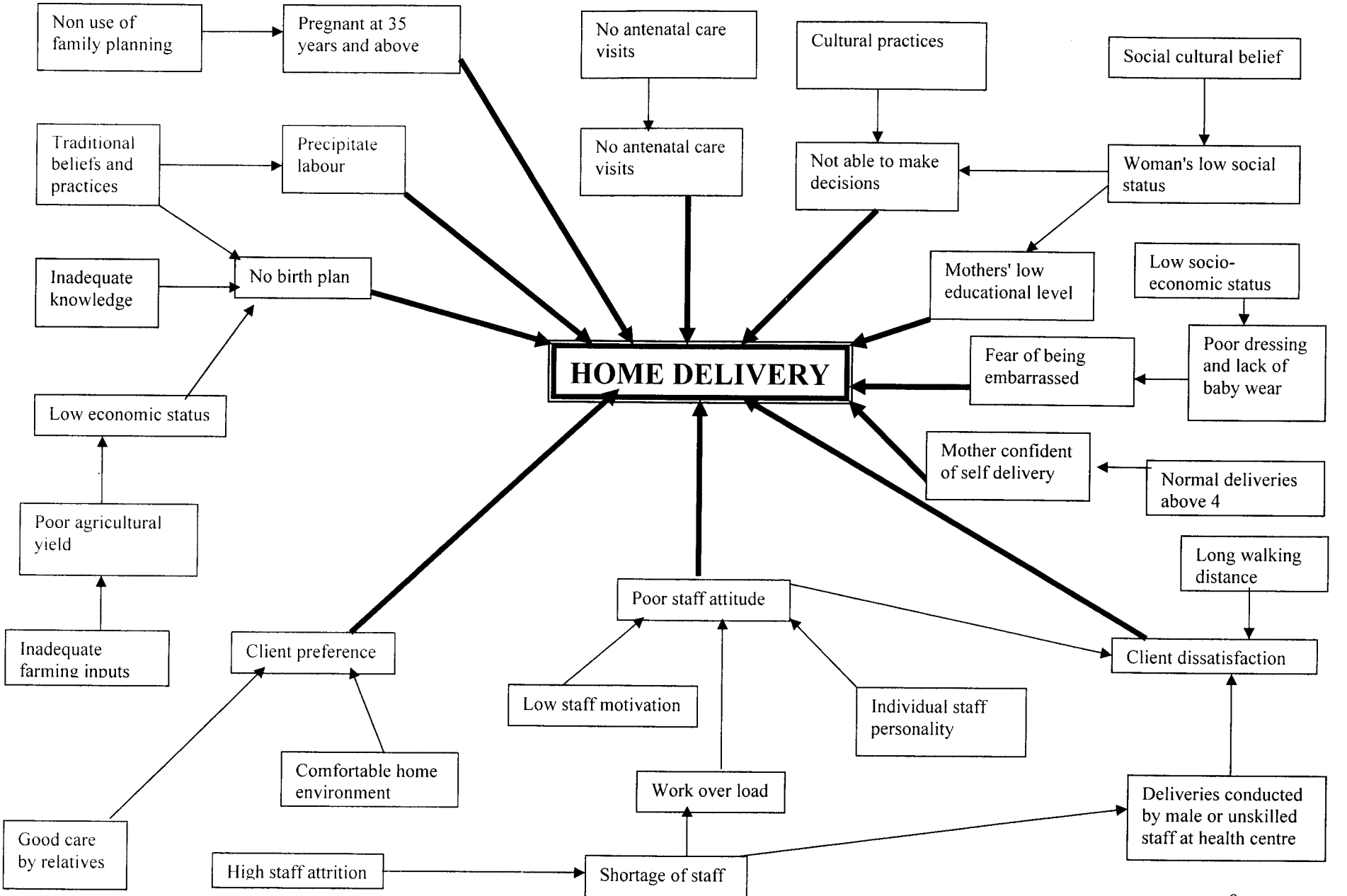
The actual maternal mortality ratio may be higher than reported. The reasons for this could be that only those who die in health facilities are reported, leaving out the unknown numbers of women who die in the communities. Many countries like Zambia use the sisterhood method of data collection, which may not be very accurate to determine maternal mortality ratio. In health facilities where records exist, the reasons could be that, there maybe inadequate attribution of causes of death and wrong definition of maternal death. As defined in the Tenth International Classification of diseases, maternal death is death of a woman while pregnant or within 42 days of termination of pregnancy irrespective of the duration and the site of the pregnancy or its management, but not from accidental or incidental causes (WHO, 1992). Maternal mortality ratio reflects the availability, accessibility, acceptability and quality of antenatal and delivery services. It is influenced by the quality of interventions designed to improve antenatal care, detection of complications and provision of delivery services by a qualified attendant.

It is therefore important to note that most maternal morbidity and mortality could be prevented if women had access to skilled attendance during pregnancy, childbirth and postnatal period. The proportion of women who have skilled attendant during delivery is generally lower yet, it is during labour, delivery and immediate post partum period

that complications are most likely to arise and that care is most needed. In Zambia, many women die during postnatal period. A ministry of health report (MoH, 1998) indicated that 26.7%, 15.0% and 58.3% deaths occurred during antenatal period, labour and delivery and postnatal period respectively. A woman's life time risk of maternal death is also increased by the delays in problem identification and management. In developing countries a woman's life time risk of dying from pregnancy is about 40 times higher than in the developed countries (WHO, 1996).

While many other health indicators have improved over the last two decades, maternal mortality rates have shown little improvement: 90% of these deaths occur in Asia and Sub-Saharan Africa; approximately 10% in other developing regions and less than 1% in developed countries (WHO and UNICEF, 1996). The women of Kaoma just like the rest of the women in Sub-Saharan Africa are at risk of morbidity and mortality, which could be reduced by ensuring skilled attendance during pregnancy, childbirth and postnatal period.

FACTOR ANALYSIS DIAGRAM - HOME DELIVERY



1.4 LITERATURE REVIEW

Does the place of birth have an impact on the course of labour and delivery? This question needs to be critically studied and answered by many reproductive health providers. Home deliveries are usually linked to unskilled attendance. In 1996 only 53% of deliveries in developing countries took place with a skilled attendant, (WHO, 1997). Skilled attendants present at delivery is one of key interventions for reducing maternal and peri-natal mortality, (WHO, 1994). Those providing midwifery care especially at the community level should be able to carry out emergency measures if medical help is absent and to get medical assistance or refer women to an appropriate health facility (WHO, 1992). The report 'Antenatal care and institutional delivery' in a UNFPA publication on the state of World Population explains that in many societies including some industrialised countries, child birth is seen as an every day affair rather than as a medical risk, and therefore home attendants have no specific training other than experience.

In the developed countries, skilled attendance at delivery is nearly universal. In some of these developed countries dissatisfaction with hospital care, led small groups of women and care givers to practice home deliveries in an alternative setting often more or less in confrontation with the official system of care. Others found were a few instances of home deliveries which were being provided by a midwife or a doctor in Africa and Asia. However, in countries where professionally trained staff provided such outreach and attended over half of all deliveries at home there was a marked degree of success. This happened in Malaysia between the mid 1970's and mid 1980's and in the Netherlands between 1955 and 1980 (Lourdenadin, 1980). Vast disparities in rates of skilled attendants exist within regions. In South Africa, almost 80% of women have a

skilled attendant at delivery; in Zimbabwe 30% of deliveries take place without a skilled attendant, in the rest of Africa, the rate is closer to 40%. In South Central Asia only 34% of women deliver with the assistance of a skilled attendant and almost 90% in Eastern Asia (WHO, 1997).

In Zambia the increase in births being delivered at home was in all the provinces except for Northern, North-Western and Western Provinces with a notable increase seen in Southern Province (MoH, 1998). Sitali (1991) and Faber and Koster-Oyekan (1998) have also shown high proportions of Zambian women delivering at their homes away from modern health institutions. Most notable was the increase in births delivered by relatives from 32.8% in 1992 to 41.1% in 1996. This was more on the Copperbelt, Lusaka and Southern Provinces where deliveries assisted by relatives increased by 110%, 44% and 37% respectively (MoH, 1998).

The type of assistance a woman receives during the birth of her child has health implications for both mother and child (DHS, 1996). In many developing countries, it is considered normal for childbirth to occur at home. The mother may be on her own or delivery may be performed by a non-professional who may be a family member or a trained or untrained birth attendant. Both (Sitali, 1991) and (Faber et al, 1994) said more than 60% of women were delivered by relatives such as mothers and grand mothers. In 1996, only 5.4% of women were assisted by tTBAs and 6.6% of women delivered themselves without any one's assistance (DHS, 1996).

Another study done in Mongu by Koster-Oyekan (1994) revealed that 61% of women delivered at home and out of these 72% were assisted by relatives. This is the reason

why the international partners behind the safe motherhood initiative are committed to achieving among others the target of skilled attendants present at 80% of births, globally by the year 2005. Where maternal mortality is very high, 40% of births should be assisted by the year 2005; by the year 2010, this figure should increase to 50% and by 2015 at least 60% (WHO, 1997)

Why home delivery?

A large number of women in developing countries do not have access to maternal health services. These women may experience physical, psychosocial and traditional barriers. Many such factors keep them away from essential health care. These factors include the following: Distance and lack of transport; cost; interactions with providers; shame of poor dressing; socio-cultural factors; mother's educational level; mother's age during delivery and birth order and precipitate labour

Distance and lack of transport

A study by Fellerstain (1991) found out that some factors which are likely to cause mothers to deliver at home are long distances to the nearest health facility and the cost of travel to hire transport is high. In some cases, the roads are poor and rivers are impassable during certain seasons.

A World Bank report (1994) explains that in most rural areas, one in every three women lives more than 5 km from the nearest health facility and 80% of rural women live more than 5 km from the nearest hospital. The scarcity of vehicles, especially in remote areas and poor road conditions can make it extremely difficult for women to reach even relatively nearby facilities. Walking is the primary mode of transportation

even in women in labour. The report also explains that in rural Tanzania, 84% of women who gave birth at home intended to deliver at a health facility but did not because of distance and transport problems.

Cost

A safe motherhood Technical Consultation in Sri-Lanka (1997) presented that: Fees reduce women's routine use of maternal health services and more importantly, keep millions of women from seeking care even when complications arise. Even when formal fees are lower or non-existent, there may be "informal" or "under-table fees", or other costs that pose significant barriers to women's use of services. These may include costs of transportation, drugs, and food or lodging for the woman or for the family members who help care for her in hospital. In Zaria, Nigeria a study found that the shift from free to fee based services for obstetric care reduced admissions by a wide margin and significantly increased emergency cases. The number of maternal deaths rose correspondingly (Harrison, 1977).

Interactions with providers

Many women describe providers in the formal health care system as unkind, rude, unsympathetic and uncaring. In such circumstances, women would prefer to be assisted by relatives at home (FCI, 1998). In Tanzania, a study found that 21% of women delivered at home because of the rudeness of health staff even though they thought delivering in a health facility was safer (Biega et al, 1995).

Formal health services, conflicting with cultural norms surround childbirth, including preference for privacy, modesty and female attendance FCI (1998). A physician in

Quito had learned that women prefer giving birth at home where their families can support them and they feel dignified. Furthermore, most women do not want to deliver lying down (90%) and prefer a female physician (67%). In Pakistan, women also preferred a female health provider during delivery, which is most common during home deliveries (Smith, 1993). Among the Saraguro Indians in Ecuador, hospital-based deliveries were perceived to violate privacy as many health providers were men (which is culturally unacceptable) and birth positions preferred by providers were unfamiliar to women. As a result affordable and accessible maternal health services were under utilized (Leslie et al, 1989).

Shame of poor dressing

A study by Leslie and Gupta (1989) described that in Sudan, many women were ashamed of being poorly dressed in front of health workers (who were generally of a higher socio-economic class), and were afraid the health workers would react negatively to their illiteracy. In Yemen, poorer women felt alienated by health personnel, (Anonymous, 1996). Another aspect is that those women who have not prepared baby wear may shun the health facility and opt to deliver at home to avoid embarrassment.

Socio-cultural factors

In many parts of the World, women's decision-making power is extremely limited particularly in matters of reproduction and sexuality. Decisions about maternal care are often made by mothers-in-law, husbands or other family members (FCI, 1990). Thaddeus and Maine (1994) in a study in Nigeria found that in almost all cases, a husband's permission was required for a woman to seek health services including life

saving care. If a husband was away from home during delivery, those present were often unwilling to take the woman for care no matter how pressing the need appeared to be. In the Bariba culture of Benin, it was considered that women who managed to deliver without calling for assistance were held in high esteem and that the presence of medical personnel at delivery was considered to interfere with the disposal of witch babies (Sargent, 1985). In Uganda, it was found that the most significant factor that influenced home delivery was habit (Nuwaha, 1999).

Mother's educational level

Women continue to die during pregnancy and childbirth mainly because of low social status and powerlessness. This limits their access to basic education and basic healthcare. Without basic education, women may remain illiterate and depend on others for health information. Their ability to pursue information that would empower them to make the best decisions on childbearing, health and nutrition remains compromised. According to the DHS (1996), a woman with higher educational level was about 4 times more likely to deliver in a health institution than a woman with no education. The survey revealed that among those mothers with no education, 24% delivered in health facilities while 75.7% delivered at home. Among those with primary education, 40.7% and 58.9% delivered in health facilities and at home, respectively. For those with secondary and higher education, 76.2% and 93.5% delivered in health facilities while only 23% and 5.9% delivered at home respectively. In Yemen, a study revealed that, those who felt comfortable to use the services were comparatively well educated, socially privileged urban dwellers (Anonymous, 1996).

Mother's age during delivery and birth order

The 1996 DHS revealed that as the mother's age at birth increased, the probability of delivering at home also increased and that as the woman's birth order increased, the probability of delivering at home also increased. The survey showed that among women aged less than 20 years old, 20-34 years and 35years+, 52.3%, 52.3% and 62.1% delivered at home respectively. A study by Sitali (1991) found that younger mothers aged less than 24 years were more inclined to deliver in a health institution than at home. However, mothers aged 25-44 years were more inclined to deliver at home than in health institutions. Among those with 1, 2-3, 4-5 and 6+ births, 44.2%, 51.3, 55.9% and 61.7% delivered at home respectively (DHS, 1996).

Precipitate labour

Many women delivered at home because labour was shorter than they expected. A study by Lule et al (1996) showed that in Malawi 90% of women wanted to deliver in a health care facility, but only 25% of them did. The most important reason given by 63% of the women was that by the time they realized they were in labour, they did not have enough time to get to a health facility.

The above literature shows that there are still many women delivering at home assisted by unskilled attendants. Further more factors associated with delivery at home have differed between continents and regions. It is therefore important that more research is conducted to verify why women choose to deliver at home and remedial actions found.

2.0 OBJECTIVES OF THE STUDY

2.1 GENERAL OBJECTIVE

To determine factors associated with home delivery among delivering women in Kaoma Central Constituency.

2.2 SPECIFIC OBJECTIVES

(1) To identify factors that influence decision to deliver at home.

(2) To determine the relationship between mother's educational level place of delivery.

(3) To determine the relationship between distance to the nearest health facility and place of delivery.

(4) To establish the relationship between the number of antenatal visits and the place of delivery.

(5) To determine the relationship between the number of the last pregnancy and the place of delivery.

(6) To establish the relationship between birth order and place of delivery.

(7) To establish the relationship between perceived staff attitude and place of delivery

(8) To determine knowledge and utilisation of a birth plan.

(9) To determine the criteria used to select a birth attendant.

(10) To establish taboos associated with the place of delivery.

2.3 OPERATIONAL DEFINITIONS

(1) Home delivery – The process of birth taking place at home.

(2) Skilled Birth Attendant – Trained doctors or midwives present to assist a woman giving birth.

(3) Birth Plan. –Preparations/plans made on what will be utilised during childbirth.

(4) Taboo - A strong custom that forbids certain behaviour.

(5) Lifetime risk of maternal death- The risk of an individual woman dying from pregnancy or childbirth during her lifetime.

(6) Birth order- The number of births that an individual woman has had.

(7) Mother's Age- The age of the mother during delivery.

(8) Mother's Education – The formal educational level that the woman has attained.

(9) Antenatal visits – A pregnant woman's visit to the health institution to be examined to ensure good health of both mother and baby.

2.4 HYPOTHESES

1. There is no association between mother's education level and place of delivery.
2. There is no association between distance to the nearest health facility and place of delivery.
3. There is no association between birth order and place of delivery.
4. There is no association between taking traditional medicine to fasten labour and place of delivery.

2.5 JUSTIFICATION OF THE STUDY

Customarily in Zambia, women assist other women in childbirth. This could be a relative, an older woman, a trained TBA or a health worker. Several factors favour the choice of birth attendant and place of delivery. This choice may significantly influence the course of labour and the outcome of delivery. 83.3% of women in Kaoma attend antenatal care while only 38% utilise the health facilities for deliveries. It is also taken note that among the 62% who deliver at home only about 3% have been reported to utilise the trained traditional birth attendants. This increases the risk of exposure to harmful practices and consequently the increase in morbidity and mortality among the affected women. Unskilled attendance contributes to delayed identification of complications and poor management of complications. The purpose of this study is to determine reasons why women deliver at home other than in health facilities and why they prefer unskilled attendants during delivery. The findings of this study will provide information to policy makers, members of Kaoma DHMB, reproductive health providers and partners in the district. Consequently the results will be utilised to come up with strategies to increase the rate of skilled attendants in the district so as to reduce maternal and neonatal mortality and morbidity skilled attendants for all women giving birth in the district so as to reduce the rates of maternal and neonatal mortality and morbidity.

3.0 METHODOLOGY

3.1 RESEARCH DESIGN

This was a case control study that comprised women residing in Kaoma Central Constituency who delivered in the past 6 months. This design was chosen because it allows for evaluation of a wide range of factors leading to home delivery by making a comparison between those who delivered at home and those who delivered in health facilities. The study used unmatched cases and controls.

Cases were women who delivered at home while controls were women who delivered in a health facility. Subjects were selected on the basis of where they delivered from.

Mothers were interviewed using a standardised structured interview schedule. Information was obtained on the factors shown in table 1.

TABLE 1 Factors considered in the study.

FACTOR	DEFINITION
1. Age	In years
2. Marital status	Single, married, divorced, widowed
3. Education level	Never been to school or have only been up to primary education or, have been to school up to secondary level and above
4. Socio-economic	Being unemployed, employed or self employed
5. Distance to health facility	Working distance to the nearest health facility in terms of:- Very near - <1 hour Near – 1-<2 hours Far – 2-5 hours Very far - >5 hours
6. Antenatal care visits	Ever been for antenatal care or not
7. Number of the last pregnancy	The number of a respondent's last pregnancy which could be 1-3 or 4 and above
8. Decision making	Who makes decision on where the respondent should have delivered from, self, husband, relative or health worker
9. Birth order	1-3 children, 4 children and above
10. Improvements	What women suggested to be done in order to improve provision of maternal health services in the district

The investigator also obtained information on birth plan, taboos and suggestions to improve services in the district.

3.2 RESEARCH SETTING

The study was conducted in Kaoma Central Constituency of Kaoma District in Western Province. Under the limitation of inadequate transport, the researchers only managed to visit 4 out of 7 wards; namely, Mulamatila, Namilangi, Naliele and Chitwa.

Due to close proximity of Mulamatila Ward of Kaoma Central Constituency and Shikombwe Ward of Luampa Constituency, the researcher included the women of Shikombwe Ward in the study. This was facilitated by the fact that the two groups had similar life styles. They shared common resources like hospital, schools, markets, churches and shops.

3.3 SELECTION OF SAMPLES

The study respondents were selected using stratified random sampling method. This method ensures representativeness of different groups within the population and gives greater accuracy. The population was divided into strata which were wards in this case. This ensured that each element of the population belonged to only one stratum. Within each stratum, simple random sampling was conducted using a table of random numbers. In the villages lists of women who delivered within the past 6 months was made from which samples were drawn. In urban aspects of the district, plot numbers and house numbers were used to select the samples.

Since 42% of the people of Kaoma reside in the urban and peri-urban; 42% of the samples were drawn from the urban and peri-urban area while 58% came from the rural setting.

3.4 INCLUSION CRITERIA

Case

Any woman who delivered at home and met the following conditions:-

Delivered in the past 6 months, resided in the ward and was willing to be interviewed.

Control

Any woman who delivered in a health facility and met the following conditions:-

Delivered in the past 6 months, resided in the specific ward and was willing to be interviewed.

3.5 SAMPLE SIZE DETERMINATION

Due to the limitation of lack of information to compute the sample size, $P_1 \& P2$. P_1 was the proportion of exposure among cases and P_2 was the proportion of exposure among controls. The researcher drew a sample of 30 cases and 30 controls initially which was analysed at 5% confidence level to calculate the sample size for the study. The final analysis was done at 2.5% significance level. In this calculation, the exposure employment status and the outcome was the place of delivery. In this case, P =23 and P_2 = 10 A sample of 124 cases and 124 controls was determined using the formula:

$$n = (u+v)^2 \{p_1(100 - p_1) + p_2(100 - p_2)\}/(p_1 - p_2)^2$$

n= represents the sample size in each group

u= type II error, such that 1-U = power

v= significance level

P_1 = represents the proportion of the exposure in one arm,

P_2 = represents the proportion of the exposure in the second arm.

3.6 PILOT STUDY

Pre-testing of data collection instrument was done before the actual data collection to ensure clarity, precision and consistency of the questions. After the pilot study, corrections and modifications were done to the data collection instrument in relation to the pilot study.

3.7 ETHICAL CONSIDERATION

Approval was sought from the Research Ethics Committee and the Board of Graduate Studies. Permission to conduct the study was sought from the District Director of Health, Kaoma District Health Management Board. Messages were sent to the specific Neighbourhood Health Commitees (NHCs) and village headmen to make it easy for the researchers to get the respondents. Before each interview, the nature and purpose of the exercise was explained to the respondents and consent was obtained. The researchers did not come across any selected respondent who refused to be interviewed.

3.8 DATA COLLECTION AND ANALYSIS

Data collection was done during the second quarter of the year 2003. 4 research assistants were trained to collect data. These included 2 midwives, 1 EHT and 1 nurse helper.

Before both analyses, raw data in all questionnaires were edited in the field to ensure completeness and correct entries. Later all responses were categorised and post-coded before they were entered into EPI 2000 statistical software for analysis. SPSS package was used during multivariate analysis. A scientific calculator was also used for analysis.

In determining the relationship between the independent and the dependent variables, both bivariate and multivariate analyses was done.

The chi-square was used to determine association between the exposure and outcome. The Odds Ratio was calculated to measure the strength of association between the factors and the outcome.

4.0 RESULTS

The findings are presented in frequency tables and a bar chart. The total sample comprised 248 respondents who included 124 cases (women who delivered at home) and 124 controls (women who delivered in health facilities).

4.1 Socio-demographic data

4.1.1 Age

Out of the 124 cases, 11 (8.9%) did not know their ages while 113 (91.1%) knew their ages. On the other hand, out of the 124 controls 5 (4%) did not know their ages while 119 (96%) knew. The median (Q1, Q3) ages in years for those who delivered from home and those who delivered from health facilities were 25 (21,30) and 24 (20,29) respectively (p=0.258). This indicated that there was no association between age and place of delivery.

4.1.2 Marital Status

Due to the fact that expected frequency were less than 5 in some cells, marital status was categorised as married and single and the result were that there was no association between marital status and place of delivery (p=0.694) as shown in table 2.

Table 2 Marital status by place of delivery

Category	Cases		Controls		Chi-square	P-Value
	Number	Percentage	Number	Percentage		
Single	46	37.1	47	37.9	0.15	0.694
Married	78	62.9	77	62.1		
Total	124	100	124	100		

4.1.3 Religion

Among the cases 121 (97.5%) were Christians of various denominations while the remaining 3(2.4%) did not belong to any religious cycle. Among those Christians, 45 (36.3%) and 34 (27.4%) belonged to New Apostolic Church and Evangelical Church in Zambia respectively. The rest belonged to various denominations as shown in table 1. Equally among the controls 121(97.5%) were Christians from various denominations and 3(2.4%) did not belong to any religious cycle. The majority 39 (31.4%) and 29 (23.3%) belonged to New Apostolic church and Evangelical church in Zambia respectively. The rest also belonged to various denominations as indicated in table 3.

Table 3 Religion by place of delivery

Category	Cases		Controls	
	Number	Percentage	Number	Percentage
Catholic	12	9.7	18	14.5
New Apostolic Church	45	36.3	39	31.5
Evangelical Church in Zambia	34	27.4	29	23.4
Seventh Day Adventist	7	5.6	12	9.7
Others	23	18.5	23	18.5
None	3	2.4	3	2.4
Total	124	100	124	100

4.1.4 Educational level

The proportion of respondents with no or only primary educational level was significantly higher ($p<0.001$) among those who delivered from home than those who delivered from health facilities as shown in the table 4.

TABLE 4 Educational level and place of delivery

Category	Cases		Controls		Chi-square	P-Value
	Number	Percentage	Number	Percentage		
No education or only primary education	100	80.6	74	59.7	13.02	<0.001
Secondary education and/or higher	24	19.4	50	40.3		
Total	124	100	124	100		

4.1.5 Employment status

The proportion of unemployed women was significantly higher ($p=0.002$) among those who delivered from home than those who delivered from health facilities as shown in table 5. There was also an association between husband's employment status and place of delivery as the proportion of unemployed husbands was significantly higher ($P=0.009$)

among those women who delivered from home than those who delivered from health facilities as shown in table 5.

Table 5 Employment status by place of delivery

Category	Cases		Controls		Chi-square	P-Value
	Number	Percentage	Number	Percentage		
Respondent's employment status by place of delivery						
Unemployed	100	80.6	90	72.6	12.61	0.002
Employed	0	0	12	9.7		
Self-employed	24	19.4	22	17.7		
Total	124	100	124	100		
Husband's employment status by place of delivery						
Unemployed	39	50	24	31.2	9.33	0.009
Employed	10	12.8	24	31.2		
Self-employed	29	37.2	29	37.7		
Total	78	100	77	100		

4.1.6 Residential area

Out of the 124 cases, the majority 43 (34.7%) and 37 (29.8%) lived in Mulamatila and Naliele Wards respectively. The rest 26 (21.0%), 12 (9.7%) and 6 (4.8%) came from Namilangi, Shikombwe and Chitwa Wards respectively. On the other hand, the majority of the controls 74 (59.7%) and 25 (20.2%) also lived in Mulamatila and Naliele Wards.

The rest 15 (12.1%) and 10 (8.1%) lived in Namilangi and Shikombwe Wards. The duration of stay ranged from 1 year to 37 years among cases and 1 year to 36 years among the controls. The median (Q1, Q3) duration of stay in years for those who delivered from home and those who delivered from health facilities were 9 (3,18) and 7.5 (3,11.5) respectively (p=0.175). This meant that, there was no statistical difference in the median length of stay for the two groups.

4.1.7 Distance to nearest health facility and mode of transport

There was no association between nearest health facility and place of delivery (p=0.339). However, the proportion of women who lived within <1 hour walking distance to the nearest health facility was significantly higher (p<0.001) among those who delivered from health facilities than those who delivered from home as shown in table 7. The majority of the cases 118 (95.2%) and the majority of the controls 118 (95.2%) walked to the nearest health facility. The rest among both the cases and the controls either went there by ox-cart or by bicycle. See table 6.

Table 6. Mode of transport to the nearest health facility by place of delivery.

	Cases		Controls	
Category	Number	Percentage	Number	Percentage
Walking	118	95.2	118	95.2
Ox-cart	4	3.2	2	1.6
Bicycle	2	1.6	4	3.2
Total	124	100	124	100

Table 7 Distance to nearest health facility by place of delivery

Category	Cases		Controls		Chi-square	P-Value
	Number	Percentage	Number	Percentage		
Distance to nearest health facility by place of delivery						
Kaoma District Hospital	92	74.2	101	81.4	2.16	0.339
Namilangi Health Centre	9	7.3	8	6.5		
Luena Camp Hospital	23	18.5	15	12.1		
Total	124	100	124	100		
Distance to nearest health facility by place of delivery						
<1 hour walking distance to nearest health facility	36	29.0	99	79.8	65.69	<0.001
1-<2 hours walking distance to nearest health facility	47	37.9	17	13.7		
1-<2 hours walking distance to nearest health facility	41	33.1	8	6.5		
Total	124	100	124	100		

4.2 Obstetric history by place of delivery

There was no association between the number of the last pregnancy and place of delivery (p=0.147), between birth order and place of delivery (p=0.321) and between the number of antenatal care visits and place of delivery (p=0.387) as shown in table 8

TABLE 8 Obstetric History by place of delivery

Category	Cases		Controls		Chi-square	P-Value
	Number	Percentage	Number	Percentage		
Number of last pregnancy						
1-3 pregnancies	73	58.9	84	67.7	2.10	0.147
4 and above	51	41.1	40	32.3		
Total	124	100	124	100		
Birth order by place of delivery						
1-3 children	86	69.4	93	75	0.98	0.321
4 and above	38	30.6	31	25		
Total	124	100	124	100		
Number of antenatal visits by place of delivery						
1-3 visits	83	77.6	79	72.5	0.75	0.387
4 and above	24	22.4	30	27.5		
Total	107	100	109	100		

4.3 Staff Attitude

There was no association between classification of staff attitude and place of delivery (P=0.545) as indicated in table 9.

Table 9 Classification of staff attitude by place of delivery

Category	Case		Control		Chi-square	P-Value
	Number	Percentage	Number	Percentage		
Good	100	80.6	104	83.9	1.21	0.545
Poor	10	8.1	11	8.9		
Not sure	14	11.3	9	7.2		
Total	124	100	124	100		

4.4 Reasons given for classification of staff attitude

The majority of the cases 93 (75%) and controls 103 (83.1%) said they were treated appropriately. Among the cases, 10 (8.1%) and controls 15 (12.1%) said the staff were sometimes too harsh and unkind. Some of the cases 12 (9.7%) and controls 4 (3.2%) said they did not usually go to the health facilities. The remaining 9 (7.2%) cases and 2 (1.6%) controls gave no reasons as shown in table 10.

Table10 Reasons given for classification of staff attitude by place of delivery

Category	Cases		Controls	
	Number	Percentage	Number	Percentage
They treat us appropriately	93	75	103	83.1
They are sometimes too harsh and unkind	10	8.1	15	12.1
I do not usually go there	12	9.7	4	3.2
No reasons given	9	7.2	2	1.6
Total	124	100	124	100

4.5 Decision making

The majority of the cases 77 (62.1%) and controls 54 (43.5%) personally made the decision for their place of delivery. For the rest of both the cases and controls, decisions were made by relatives, husbands and TBAs, as shown in table 11.

Table 11 Frequency of decision making by place of delivery

Category	Cases		Controls	
	Number	Percentage	Number	Percentage
Self	77	62.1	54	43.5
Husband	9	7.3	16	12.9
Relatives	24	19.3	20	16.1
TBAs	0	0	34	27.4
No one (delivery was coincidental)	14	11.3	0	0
Total	124	100	124	100

4.6 Reasons of choice of place of delivery

Among the cases 46 (37.1%) had no transport and 31 (25.0%) said labour was too fast while the majority of the controls 88 (71.0%) wanted to avoid complications and 24 (19.3%) said, it was their first delivery as shown in table 12.

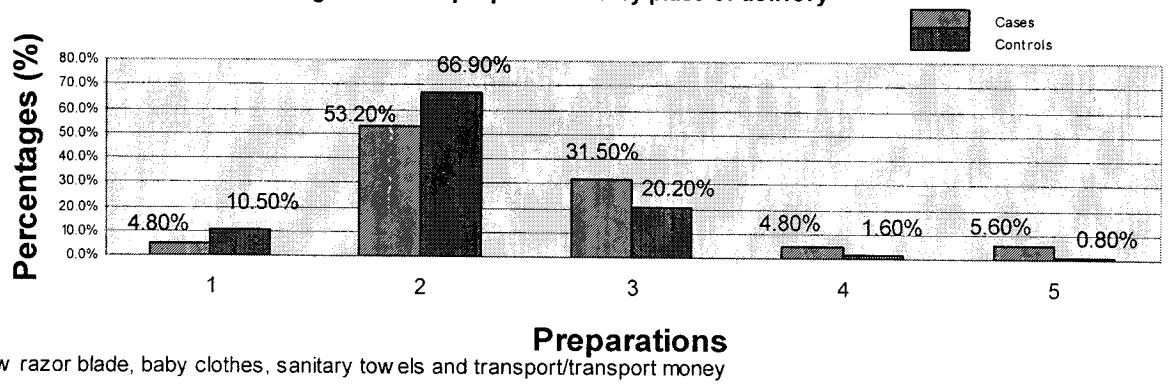
Table 12 Reasons of choice of place of delivery by place of delivery.

Category	Cases		Controls	
	Number	Percentage	Number	Percentage
To avoid complications	1	0.8	88	71
Labour was too fast	31	25	0	0
I had no one to leave at home	16	13	0	0
I had no transport	46	37.1	0	0
I do not know	6	4.8	2	1.6
I was referred	1	0.8	10	8.1
It was my first delivery	0	0	24	19.3
There was a tTBA	6	4.8	0	0
I wanted to deliver from that place	9	7.3	0	0
I had no antenatal card	4	3.2	0	0
I had no clothes for the baby	4	3.2	0	0
Total	124	100	124	100

4.7 Birth preparedness

Birth preparedness included preparing baby clothing, sanitary towels and transport or transport money. The majority of the cases 66 (53.2%) and the majority of the controls 83 (66.9%) prepared baby clothes and sanitary towels only. It is worthy to note that 7 (5.6%) cases and 1 (0.8%) did not prepare anything at all as shown in figure 2.

Figure 2: Birth preparedness by place of delivery



1. New razor blade, baby clothes, sanitary towels and transport/transport money
2. Baby clothes and sanitary towels
3. Baby clothes only
4. Sanitatry towels only

4.8 Use of traditional medicine

4.8.1 Use of traditional medicine during labour and delivery.

The use of traditional medicine during labour and delivery was significantly higher ($p<0.001$) among those who delivered from home than those who delivered in health facilities. See table13.

TABLE 13 Use of traditional medicine by place of delivery.

Category	Case		Control		Chi-square	P-Value
	Number	Percentage	Number	Percentage		
Yes	27	21.7	7	5.6	12.62	<0.001
No	97	78.2	117	94.4		
Total	124	100	124	100		

4.8.2 Method of using traditional medicine

Among those who used traditional medicine during labour and delivery, most of it was given through the mouth, 26 cases and 5 controls compared to scarification which was used by 1 case and 2 controls as shown in table 14.

Table 14 Method of using traditional medicine by place of delivery

Category	Cases	Controls
Mouth	26	5
Scarification	1	2
Total	27	7

4.9 Birth attendants

4.9.1 Birth attendants

The majority of the cases 106(85.5%), were attended to by relatives while, the majority of the controls 105 (84.7) were attended to by Nurses/Midwives. The rest of the controls were assisted by Doctors and other health staff as shown in table 15.

Table 15 Birth attendant by place of delivery

Category	Case		Control	
	Number	Percentage	Number	Percentage
Self	2	1.6	1	0.8
tTBA	15	12.1	4	3.2
Relatives	106	85.5	0	0
Nurse/Midwives	1	0.8	105	84.7
Doctors	0	0	11	8.9
Other (CO, EHT and CDE)	0	0	3	2.4
Total	124	100	124	100

4.9.2 Reasons for choice of birth attendant

The majority of the cases 70 (56.5%) choose their birth assistants while 54 (43.5%) did not. Among those who did, 30 said she was the nearest person and 29 said she was experienced. Among the controls, the majority 119 (96%) did not choose their birth assistants while, only 5 (4%) did. Those 5 said she was experienced as shown in table 16.

Table 16 Reasons for choice of birth attendant by place of delivery.

Category	Cases	Controls
No money to pay any other person	6	0
She was experience	29	5
She was the nearest person	30	0
She was trained	5	0
Total	70	5

4.10 tTBA

4.10.1 Knowledge of existence of a tTBA in the community.

The proportion of women who had knowledge of existence of a tTBA in the community was significantly higher ($p<0.001$) among those who delivered from home than those who delivered in health facilities as indicated in table 17.

TABLE 17 Knowledge of existence of a tTBA in the community by place of delivery

Category	Case		Control		Chi-square	P-Value
	Number	Percentage	Number	Percentage		
Yes	34	27.4	24	19.3	23.25	<0.001
No	86	69.4	70	56.5		
	4	3.2	30	24.2		
Total	124	100	124	100		

4.10.2 Utilisation of a tTBA by place of delivery.

Among the 33 cases who had knowledge of existence of a tTBA in their communities Only, 15 utilised their services while among the 26 controls, only 5 did utilised their services. as shown in table 18.

Table 18 Utilisation of a tTBA by place of delivery.

Category	Cases	Controls
Yes	15	5
No	18	21
Total	33	26

4.11 Taboos

4.11.1 Taboos associated with place of delivery

Only 9 out of the 124 cases and 3 out of the 124 controls knew any taboos associated with the place of delivery. Among the taboos mentioned, the most common ones were that that very few people should be allowed to enter the delivery room, as mentioned by 4 cases and 1 control. The rest were as listed in table 19.

Table-19 Taboos associated with place of delivery by place of delivery

Category	Cases	Controls
No hanging clothes in the delivery room	1	0
No man should be allowed to enter the delivery room	1	1
A person who has just had sexual intercourse is allowed to be in the room	1	0
No person who has just eaten meat is allowed to be in the room	0	1
No one with an undefined pregnancy should be allowed in the room	1	0
Very few people should be allowed to enter the room	4	1
The placenta should never be disposed off any how	1	0
Total	9	3

4.11.2 Taboos associated with the birth attendant

On the other hand only 4 (3.2%) out of the 124 cases and only 3 (2.4%) controls knew any taboos associated with the birth attendant. The only common one was that a person who has just had sexual intercourse should not assist during delivery. This was mentioned by 2 cases and 1 control. See table 20.

Table 20 Taboos associated with Birth attendant by place of delivery

Category	Cases	Controls
A person who has just eaten meat should not assist during delivery	0	1
A person who has just had sexual intercourse should not assist during delivery	2	1
No herbalist should be allowed to assist with delivery	1	0
No one with an undefined pregnancy should assist with delivery	1	0
The birth attendant should not have a neck lace, a belt or beads around the neck or waist	0	1
Total	4	3

4.12 Improvements

Among the cases, 87 (70.2%) and 76 (61.3%) gave suggestions on how to improve maternal health services. in the district. The most common ones were to build health centres nearby 23 (26.4%), to train more midwives 20 (23%) and to train more TBAs 16 (18.4%). The majority of the controls mentioned to build a better maternity ward 39

(51.3%) and that midwives should be more caring 13 (17.1%). Several other suggestions were given by both cases and controls as listed in table 21.

Table 21 **Suggestions to improve maternal health services in the district by place of delivery**

Category	Cases		Controls	
	Number	Percentage	Number	Percentage
Build a better maternity ward	7	8	39	51.3
Build a health centre nearby	23	26.4	11	14.5
Male staff should not conduct deliveries	2	2.3	0	0
Train more midwives	20	23	7	9.2
Midwives should be more caring	7	8	13	17.1
Train more TBAs	16	18.4	4	5.3
Provide transport services	10	11.5	2	2.6
Provide beddings at the mother's waiting shelter	2	2.3	0	0
Total	87	100	76	100

4.13 Results of multivariate analysis

After adjusting for confounding variables, educational level and distance to the nearest health facility were found to be the only two variable that were significantly associated with the out come which was home delivery. Women with no education or only primary

education were 89% more likely to deliver at home compared to those women with secondary education and above. Women who lived within less than one hour walking distance to the nearest health facility were 78% less likely to have been cases. See table 22 for details.

Table 22 Results of multivariate analysis

Factor	Odds Ratio	Confidence Interval
Educational Level		
No education or only primary education	1.89	(1.21, 2.94)
Secondary Education and above	1	
Distance to the nearest health facility		
Less than 1 hour walking distance	0.22	(0.13, 0.38)
1 to less than 2 hours walking distance	1.42	(0.75, 2.67)
2 hours and above	1	

5.0 DISCUSSION OF FINDINGS AND LIMITATIONS

In many developing countries, especially in rural communities, home deliveries seem to dominate. In Zambia it is noteworthy that most deliveries occurred at home or in the relative's home in rural places like Chadiza (70.4%), Mansa (89.1%), Chinsali (76%) and Mongu (71.4%). In contrast, most deliveries in urban areas took place in health facilities such as Lusaka (84.6%), Ndola (81.8%) and Kafue (57.7%) (MOH, 1998). Preference for home delivery over health facility delivery is influenced by several factors that vary from age, social-economic status, distance to the health facility and many others. Even in circumstances where women preferred to have a health facility delivery with skilled attendance, limitations such as ignorance about the services offered and poverty may limit them to home delivery.

5.1 Limitation of the study

One of the limitations in this study was due to inadequate funds. This was because only one sixth of the total budget was made available to the researchers. The funds were not adequate to enable the researchers to reach other eligible respondents in the other wards, which would have allowed them to also express themselves.

The other limitation was that, due to the vast area of the constituency, the researchers could not reach all wards because of inadequate transport and long walking distances between wards and villages. Because of these limitations, the researchers included sampled respondents from the other wards not reached within the constituency who were visiting their family members and who met the selection criteria. However, we feel that

the results have not been significantly biased because the responses given by these respondents were not unique compared to the rest of the respondents. The implication is that, when a view is unique compared to the rest, even the response given to a particular question will totally be different from the rest. In this case since the responses were not so different, we feel the results can be generalised.

5.2 Age

It is a very common view among the younger women that a health facility delivery is safer because most of them have had no or little experience and would want to avoid complications. Buitendijk (1993) mentioned in the outcome of teenage pregnancies in Netherlands that, 13-17 years age group had the lowest percentage of delivery at home with 10%. Buitendijk also found that, women 13-19 years old ran 1.5 times as high a risk of having pre-term babies as women aged 20-29 years. This study found no association between age and the place of delivery. While some older women preferred to deliver from a health facility to avoid complications, others wanted to deliver from home based on experience, preference and to follow traditions and customs. Self conviction, interaction with others and personal experience seemed to play a major role on their choice. This could be because society may be aware that the younger the woman, the more complications she is likely to face during childbirth and, some women may be influenced on the basis that complications are only for the younger ones. Other older women could be trapped in the beliefs and traditional practices while, on the other hand, others may prefer health facility deliveries because they are aware that the older women are equally prone to complications.

5.3 Marital Status

Marital status may not influence the place of delivery in that many women have learnt to make their own decisions. MOH (1998) stated that single mothers were more likely to deliver in health facilities and less likely to choose home delivery. This may mean that single mothers would want to avoid solving problems created by a delivery assisted by an unskilled attendant, compared to the married ones who had husbands to help them solve such problems. However, in this study, no association was seen between marital status and place of delivery

5.4 Educational Level

Traditionally, few resources were expended on the education of females, since their worth is measured primarily in terms of their reproductive function and physical capacity. Lack of education for mothers restricts their opportunities to raise their quality of life and that of their family members (Williams et al, 1994). Quality of life starts from birth and, the place of birth is very cardinal in this case. Education of a woman is most of the times used to determine her socio-economic status and usefully her level of empowerment and independence of decision-making. Women with no education or only primary education tend to lowly utilise maternal health services. Those who obtain minimum literacy skills are not able to maintain them and soon become illiterate again. With education, women are able to function at all levels in society and make correct decisions for their welfare and that of their families. The assumption made is that women with higher level of education are more likely to have fewer pregnancies, be more aware of danger signs, live

near the health facility and thus access them more easily if and when problems arise (MacCarthy, 1996).

The educated women have the ability to make choices based on rational and understanding of issues. Even if educated women may live far away from the health facility, they may have means to get to the health facility easily. Caldwell (1979) showed attention to the ways in which women's education results in a greater ability to use health services. Those who are uneducated or with little education are disadvantaged in that they are most of the times ignorant about services provided in health facilities and that they rely on other people to make decisions for them. They fear to ask questions and may easily be influenced by others. In this study, women who had no or only primary education were 89% more likely to deliver at home compared to those with secondary education and above. This is also in agreement with MOH (1998) report which stated that, the majority with no education or only primary education (62.2%) delivered from home compared to the (26%) with secondary education and above. Turner (1991) in a study of rural Nigerian women also found that 80% with those with secondary education and above delivered from health facilities compared to (40%) with primary education

5.5 Employment Status

With an appropriate level of education, a woman is able to get employed and sustain her income and livelihood of herself and her family. Those who are in employment are able to decide on quality than those who are not. In this study, on bivariate analysis, an association was observed between the respondent's employment status and place of

delivery and between the husband's employment status and place of delivery. In this case employment may have been confounded by educational level for both respondents and the unemployed husbands. Turner (1991) also reported that civil servants were more likely to receive adequate care (78%). This could be because the working mothers are able to interact with their elite workmates to learn and share healthful life styles. A health centre delivery may mean a source of prestige and a story to narrate for many women who value quality. This may indicate that women with higher socio-economic status deliver in health facilities compared to those of low socio-economic status.

The husband's employment status may influence the family's economic status. The unemployed husbands face more economic constraints and may not be able to prepare their wives for labour and delivery. For fear of stigmatisation at the health facility, such wives may not go to the health facility during labour and delivery. MOH (1998) found that many women feared and felt embarrassed by nurses who shouted at them for not purchasing maternity items such as baby clothes.

The other implication may be that many unemployed husbands have low education and may lack understanding of the importance of a health facility delivery and consequently may not advise their wives to go to the health facility or take them there. This could explain the confounding issue. In a similar vein, Obermeyer (1992) found that urban residence, higher standard of living, education and exposure to media are positively associated with both peri-natal care and hospital delivery

5.6 Residential area

Distance to the nearest health facility has a great influence on the choice of the place of delivery. This means the further away the health facility is, the less likely it would be for women to utilize the delivery services. Nwakoby (1992) also found that the use of the comprehensive health centres showed decline with increasing distance from the woman's residence. However in this study, women who lived within less than 1hour walking distance to the health facility were 78% less likely to be cases. This seems very unusual and therefore needs probing. It could be that these women were strongly influenced by the pressures of society like the economy, religion, education and some social factors like traditional beliefs. No association was observed between staff attitude and place of delivery. Hence, staff negative attitude may not have played a role in choice of place of delivery in the current study.

Poverty may have disadvantaged most of these women/families in that, they could have been unable to prepare adequately for labour and delivery. Lack of education and understanding may also play a major role in the choice of home as the place of delivery despite the proximity to the health facility.

Some social factors like fear of polygamy could make a woman avoid confinement. This may be because the women did not want to give chance to their husbands to see other women during their absence from home. However, in other circumstances, men may be very careful during this period for fear of traditional beliefs like *inchila* (which is a belief

that a woman may die during labour because either the man or the woman was promiscuous).

Obermeyer (1998) said while a distant view of maternal health-care patterns might lead to the conclusion that cultural factors are the main obstacles to proper care, a closer look revealed that many obstacles are more practical in nature. Schaefer-Davis (1998) suggested that convenience, cost and courtesy are most important factors behind women's choice.

In other circumstances, women may be ignorant about their Expected Date of Delivery (EDD) hence the delay to prepare for labour and delivery. It may also be that in some rural communities, women may prefer to deliver at home despite living near the health facility because most health centres are short staffed and women may not have the much needed attention during delivery. They may at the time not want to be delivered by men like male nurses, COs and EHTs also conduct deliveries.

5.7 Number of the last pregnancy and birth order

As women add on the number of pregnancies and children, they feel competent to be able to have a home delivery. They feel safe and experienced to deliver at home. Despite this, they exhibit ignorance about the likelihood of developing complications. MOH (1998) reported that 68.4% of those who had children more than 4 delivered from home. However, in this study, no association was observed between number of last pregnancy and place of delivery.

5.8 Antenatal care visits

The mother's attitude towards her pregnancy is the most important factor in the life of the child. In view of this many women today receive antenatal care. The education and benefits of antenatal care seem to be well perceived. MOH (1998) reports that in 1996, 92.9% of women in Zambia received antenatal care. Findings in this report are that (97.2%) of the women received antenatal care. Such portrays a health seeking behaviour that encourages women to check whether everything is alright with the pregnancy or not. Al-Shamman et al (1994) reported that better educated mothers who delivered in the necessity of prenatal care were younger, less parous, booked earlier for prenatal care and paid more visits and that (90%) mothers received prenatal care at least three times. In this study, no association was noted between antenatal care visits and place of delivery. The majority of the pregnant women did attend antenatal care sessions. This could be a credit emanating from publicity of the benefits of antenatal care and the introduction of outreach sessions within their communities.

5.9 Staff attitude

A woman's preference to utilise health services may be determined by her attitude towards the health staff at the local health facility. In this study the majority of both the cases and the controls said the health staff were good. The reasons given included appreciation of the good reception and treatment offered. This could be because the health staff and their clients were members of the same communities hence building of strong and friendly relationship which were carried with them even as they went to the health centres. Lule et al (1995) reports that women who had a positive attitude towards

health centre staff were 2.8 times more likely to deliver with assistance of a trained health professional than those with negative attitudes A relationship that is perceived to be warm and friendly will encourage utilisation of services.

5.10 Decision Making

The ability to make decisions on where to give birth from is one very important aspect in a pregnant woman's time. Traditionally women are not expected to make their own decisions with regards to pregnancy, labour and delivery. Cultural practices and traditional beliefs dominate the woman's decision-making power. It is however important to note that, women are mostly oppressed in the male dominated world, where men seem to want to make all decisions in the family. Sometimes in the process of waiting for someone or a husband to decide, women have delivered at home even when they wanted to deliver in a health facility. In this study, 11.3% of the cases delivered at home in the process of waiting for the decision-maker. This study also found that, mainly decisions were based on the woman's previous experience or information on labour and delivery. Most of the reasons given by the cases were economical such as no transport, or no clothes for the baby. On the other hand, the controls mostly based their decisions on their past experience and information and to avoid complications. It implies that with more information and sensitisation on women's decision-making power, society and families would change and more women would be able to make their own decisions. Lule et al (1995) also explained that 95% of the women expressed desire to deliver at a health centre primarily, so that they could be quickly referred to a hospital in the event of complications but, only 23% did.

5.11 Birth Preparedness

This is another very important issue that is usually dealt with in the terminal stages of pregnancy if not when labour has started. In many cultures, parents to are taught what to do before the birth of the child and are compelled to follow. Glazer et al (1989) reported that most people tend to model their behaviour as parents on that of their parents, while for some, learning comes from others who have recently become parents. In some cultures, traditional beliefs do not allow a woman or family to make preparations for the delivery of the baby because it is taboo as it is associated with bad omen. In those cultures that allow a woman to prepare, only the clothes for the baby and the mother's sanitary towels are mainly prepared. Mostly, things like transport or transport money and clean delivery items are omitted. Where there is no birth plan, panic and unfavourable decision-making prevails and, home delivery is the most common outcome. In many of such occasions, the desire to deliver in a health facility is there but many women may deliver at home because of lack or inadequate preparations. One such preparation that is usually inadequate is transport. This current study shows that, only 4.8% cases and 10.5% controls included transport in their preparations while the majority 53.2% cases and 66.9% controls prepared baby clothes and sanitary towels only. MOH (1998) reports that both men and women expressed difficulty in arranging transportation especially with sudden or night labour or delivery.

5.12 Use of traditional medicine

Traditional medicines to fasten labour are sometimes given to women in labour by their elderly relatives. MOH (1998) found out in a focus group discussion (FGD) that lack of

use of traditional medicine during pregnancy, delivery and after delivery was a woman's perception of non-medical causes thought to lead to maternal death. We found an association between taking traditional medicine and place of delivery on bivariate analysis but not on multivariate analysis This could be because many home deliveries are attended to by relatives who may have strong beliefs in use of these medicines. Most of this medicine was given by mouth. The medicine is believed to make labour shorter and reduce complications. But, such predispose them to morbidity and mortality.

Half a million of the women of reproductive age 15-49 years in the developing world who die; die of preventable conditions caused by complications of pregnancy, abortion and childbirth (Williams et al, 1994). In agreement with these findings, PAHO (1982) stated that, maternal mortality and morbidity is largely preventable and is attributed directly to lack of health services before, during and after delivery. The most common causes of death was postpartum haemorrhage. In line with this, the consequence of these medicines is largely precipitate labour, which leads to inco-ordinated uterine action, resulting into excessive bleeding, hence postpartum haemorrhage.

5.13 Birth assistant

In many developing countries, the birth attendant and place of delivery are synonymous. Health facility delivery is mainly characterised by skilled attendants while home delivery is characterised by unskilled attendants like relatives. In a home environment, a woman may be able to choose a birth attendant in that, this could be a close relative or a friend. When chosen, this attendant will be able to show undivided attention and care until the

woman delivers. Unlike that, in a health facility, women do not choose their birth attendant.

On the other hand, birth attendants may not be able to give these women a choice because of their busy schedules at a particular time created by shortage of staff Vs the number of clients/patients. In developed countries, choice is usually on which doctor or obstetrician to attend to the woman. In many developing countries many deliveries are attended to by midwives and so, the only choice the woman has is the midwife on duty. This could imply that many women may prefer to choose their birth attendants but are not given chance and that given that chance, they would choose their birth attendants even in health facilities therefore. This in turn may increase the number of women delivering from health facilities.

5.14 TBA assistance

The main goal of training TBAs is to improve maternal and neonatal outcomes among women in communities where skilled attendants are not very available. Although the benefits of TBA training remains controversial, donor organisations and ministries of health throughout the world have carried out these training programs for many years. (Stephen et al. 2001). The controversy surrounds the fact that TBAs are not defined as skilled attendants because they lack the capacity to manage obstetric complications (FCI, 2002). Despite this in many developing communities, TBAs assist many deliveries. This therefore calls for reasons to support and strengthen them within the communities because they are able to identify complications and refer immediately. In this study more

women who delivered from home knew about the availability of a tTBA in the community. This could be because they discovered them in the process of trying to find a birth attendant within the community. On the other hand, fewer women utilised their services despite that knowledge. If the selection of the women to be trained as a TBAs is not supported by the community members for various reasons, it would be very difficult for them to know their existence and to utilise their services. The main implication is that the community members need to be fully involved in the selection of these women to be trained if they have to fully utilise them.

5.15 Taboos

The local cultural pattern is of great importance to reproductive health providers in many circumstances all over the world. It's awareness equips the health provider with the dos and don'ts of any given society and why certain things are done the way they are done. Taboos are found in many cultures. These guide the indigenous people with their day to day activities. Taboos may be helpful or harmful to the people they are intended. With development and education, fewer people now rely on taboos than before. This has resulted into ignorance about them among the people. We found that the majority of both cases and controls did not know any taboos, an indication that in this society, taboos may not really play a major role in determining the place of delivery. Among the few taboos that were mentioned, some were helpful to both mother and baby while others had no definite link with labour and delivery. These included no hanging clothes in the delivery room which could be helpful since it may play a role of infection prevention through none availability of dirty material in the delivery room. The other one was that no

herbalist was allowed in the delivery room. This may also have benefited both mother and baby in that it minimised the use of traditional herbs. Those that had no definite link were that, no one should eat meat during or just before assisting a delivery, no one with an undefined pregnancy should be present and that no one who had a belt or necklace was to be present or assist with delivery.

5.16 Improvements

In any given situation, planning for improvements is very essential. In maternal health programmes, activities need to be directed towards improving women's knowledge and helping them exercise their rights. It is therefore important that they are given an opportunity to make suggestions on what improvements to institute in health service delivery .In this study, several suggestions were put across by the respondents. These suggestions included infrastructure, staff development and creation of a transport system that would enhance access to health facilities for services. These suggestions were considered valid and executing them needed joint efforts of individuals, community members and health providers to produce favourable outcomes that would boost the health of the people. Unless there is community involvement and participation in problem identification and implementation of specified activities, no interventions would be seen to improve the health status of the people wholly.

6.0 CONCLUSION AND RECOMMENDATIONS

Though home delivery may be seen as normal in many rural and developing communities, it's outcomes and consequences could be unfavourable among many women especially in the presence of an unskilled attendant. In many circumstances, home delivery is characterized by unskilled birth attendants who maybe relatives or friends. Due to ignorance on the complications of labour and delivery on the part of both the mother and the birth attendant, many women have been exposed to a lot of risks that are sometimes fatal. It is therefore important to note that skilled attendants needed to be present at all times and they must be able to manage normal labour and delivery, recognise the onset of complications, perform essential interventions, start treatment and supervise the referral of the mother and baby for interventions that are beyond their competences or that are not possible in a particular situation.

Several factors during bivariate analysis were found to be associated with women's choice or decision to deliver at home. These included educational level, employment status, husband's employment status, distance to the nearest health facility, use of traditional medicine and knowledge of existence of a tTBA in the community.

On multivariate analysis after adjusting for confounding variables, educational level and distance to the nearest health facility were the only significant variables associated with the outcome. We therefore concluded that, women who had no education or only primary education were 89% more likely to deliver at home compared to those with secondary

education and above and that, those who lived within less than 1 hour walking distance to the nearest health facility, were 78% less likely to be cases.

Based on these findings, we recommend that the DHMB should be able to strengthen their Information Education and Communication strategies emphasising on the importance of a health facility delivery. The information given to the people should be in simpler terms, so as to be understood even by those with no education and with only primary educational level. Drama performances and group discussions may be used. We also recommend that since the direction of the association between distance to the nearest health facility and place of delivery is very unusual, it would be worthy that further research be conduct to verify the reasons why.

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THE UNIVERSITY OF ZAMBIA
SCHOOL OF MEDICINE
DEPARTMENT OF COMMUNITY MEDICINE

INFORMED CONSENT

FACTORS ASSOCIATED WITH HOME DELIVERIES

I would like to request you to participate in a study in which information is sought on why women deliver at home. Your role in this study will be to give information as requested by the interviewer.

I would like you to know that:

- Your participation in this study is voluntary, you are free to withdraw at any stage of interview if you wish.
- All the information given will be held confidential.
- No names will be mentioned.
- The information will be given to the planners and providers of maternal health services in the district so as to improve on the care given to women and mothers to be.
- Women giving birth in this will benefit from the improvements that will be made from this study.

I have read and understood the above information and agree to participate in the study. Signature/thumb print:_____ Interviewer:_____	I have read and understood the above information and agree to participate in the study. Signature/thumb print:_____ Interviewer:_____

The University of Zambia
School of Medicine
Department of community medicine
P O Box
LUSAKA

2nd January, 2003

The District Director of Health
Kaoma District Health Management Board
P O Box 93
Kaoma

Dear sir,

RE: Permission to carry out a case-control study on factors associated with home delivery in Kaoma Central Constituency of your district

My name is Ireen A. Simbuwa a Masters of Public Health student at the university of Zambia and is interested in conducting a case control study on factors associated with home delivery in Kaoma central constituency of your district during the first and second quarters of the year 2003.

My reason for selecting your district are based on my personal observations and also upon the realised need after reading through your annual reports and strategic plan for the period 2000-2005.The other reason is that it a partial fulfillment of requirements of the degree of Masters of Public Health.

A copy of the report will be submitted to the University of Zambia, Central Board of Health as well as your office for utilization of results to you at the end of the study.

In order to carry out this study I will require to train 5 research assistants from your DHMT who will be trained in data collection before commencement of the exercise.

The purpose of writing this letter is to ask for permission to carry out the study in your district, with the help of your staff as research assistants.
I will be very grateful for your favourable response.

Yours faithfully

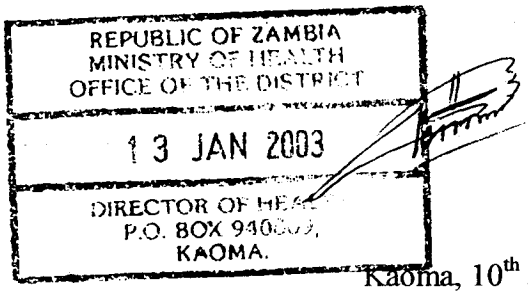
IABimbuwa

Ireen Amukena Simbuwa
MPH student
The University of Zambia

Kaoma District Health Office
P.O. Box 940009
Kaoma
Tel/fax: 07 – 360093

To Ireen Amukena Simbuwa
C/o Mr. M.T. Simbuwa
The University of Zambia
Department of Civil Engineering
P.O. Box 32379
Lusaka

u.f.s. Mr. R.N. Mwanamambo,
District Director of Health
Kaoma District Health Office



Kaoma, 10th January 2003.

Dear Mrs Simbuwa,

Thank you very much for your letter about your intended research project in our district. I'm writing you on behalf of the District Director of Health and the Technical Advisor Health of Kaoma District Health Office, who forwarded your letter to me. I'm a medical doctor in Kaoma District Hospital, taking care of female/maternity ward and interested in research, especially on Reproductive Health. I just finished a paper about malaria-prophylaxis in pregnancy.

Your observation of giving birth at home rather than in the hospital in our district is of great concern to us. We observed a hospital-delivery-coverage rate of 23.3% in Kaoma Central Constituency in 2002 (source: Actionplan 2003 Kaoma District Hospital), which is far below the national target. We are therefore very interested in your research proposal.
Being a medical doctor in the same field, I'm very much willing to assist in carrying out the research and probably my experience in writing a paper could be of help.

I'm looking forward to see your proposal and I am willing to help with compiling protocols and questionnaires. We will look into the issue of utilisation of some of our conversant staff. I hope to hear from you soon and I'm looking forward to working with you. You can contact me by e-mail: marijaap@zamnet.zm

Yours faithfully,

Dr. Marita Nijenhuis, MO
Kaoma District Hospital

THE UNIVERSITY OF ZAMBIA
SCHOOL OF MEDICINE

RESEARCH ETHICS COMMITTEE

Telephone: 256067
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Dean's Office
P.O. Box 50110
Lusaka, Zambia

Assurance No. FWA00000338
IRB00001131 of IOR G0000774

Ref.: 006-01-03

5 March, 2003

Ireen A. Simbuwa
University of Zambia
Department of Community Medicine
LUSAKA

Dear Ms Simbuwa,

RE: **SUBMITTED RESEARCH PROPOSAL**

The following research proposal was presented to the Research Ethics Committee on the 29 January 2003 where changes were recommended. We would like to acknowledge receipt of the corrected version. The proposal has been approved. Congratulations!

Title of Proposal:

'A Study to Determine factors associated with Home delivery in Kaoma Central Constituency of Kaoma District, Western Province'

Conditions:

- This approval is based strictly on your submitted proposal. Should there be need for you to modify or change the study design or methodology, you will need to seek clearance from the Research Ethics Committee.
- If you have need for further clarification, please consult the Research Ethics Committee. Please note that it is mandatory that you submit a detailed progress report of your study to this Committee every six months and a final copy of your report at the end of the study.

Yours faithfully,

Prof. J. T. Karashani, M.B., Ch.B, Ph.D
CHAIRMAN
RESEARCH ETHICS COMMITTEE

Date of Approval: 5 March, 2003
Date of Expiry: 4 March, 2004

Please note that when your approval expires, you will need to request for renewal. The request should be accompanied by a progress report.

The University of Zambia

DIRECTORATE OF RESEARCH AND GRADUATE STUDIES

Telephone: 290258/291777 Ext. 2208
Fax: +260-1-290258/253952
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P O Box 32379
Lusaka, Zambia
Your Ref:
Our Ref:

28 October 2003

Ms Ireen A Simbuwa
Department of Community Medicine
School of Medicine
UNZA

Dear Ms Simbuwa

RE: MASTER OF PUBLIC HEALTH (MPH) RESEARCH PROPOSAL

Your research proposal for the Master of Public Health (MPH) entitled:

"Factors associated with Home Deliveries in Kaoma Central Constituency"

was presented at the 79th meeting of the Board of Graduate Studies held on Friday, 6th June 2003.

I am pleased to inform you that the proposal was approved by the Board. You can proceed to Part II of the programme and your Supervisor is Prof. K. S. Baboo and your Co-supervisor is Prof. S. Siziya.

I wish you every success in your studies.

Yours sincerely

Professor Shamitiba B Kanyanga
DIRECTOR

cc Dean, School of Medicine
Head, Department of Community Medicine
Assistant Dean (PG), School of Medicine
Prof. K. S. Baboo, School of Medicine
Prof. S. Siziya, Department of Community Medicine
Assistant Registrar (Graduate Studies)

QUESTIONNAIRE
INTERVIEW SCHEDULE

TITLE: **FACTORS ASSOCIATED WITH HOME DELIVERY**

DATE: _____

PLACE: _____

INSTRUCTIONS TO THE INTERVIEWERS

1. No name should appear on this questionnaire.
2. Information given will be considered confidential.
3. Indicate the answer to the question by ticking ☑ in the box provided and write the response to open-ended questions in the space provided.
4. Obtain consent and explain the purpose of the study before the interview.

SPECIFY WHETHER 1: CASE ☐ 2: CONTROL ☐

SECTION A
BIO-DEMOGRAPHIC DATA

1. Age in years_____ Do not know ☐
2. Date of birth ____/____/_____ Do not know ☐

3. Marital status

1	Single	
2	Married	
5	Divorced	
6	Widowed	

4 Which church do you go to?

1	Catholic	
2	New Apostolic	
3	Evangelical church in Zambia	
4	Seventh Day Adventist	
5	Others	
6	None	

5 Educational level

1	No Education or only Primary Education	
2	Secondary and above	

7 What is your employment status?

1	Unemployed	
2	Employed	
3	Self employed	

8 If married, what is your husband's employment status?

1	Unemployed	
2	Employed	
3	Self employed	

9 Where do you live? _____

10 How long have you lived in this area? _____

11 Which is your nearest health facility? _____

12 How far is it from your home?

1	Less than 1 hour walking distance	
2	1-2 hours walking distance	
3	3-5 hours walking distance	
4	Above 5 hours	

13 How do you get to the health facility?

1	Walking	
2	Ox-cart/sledge	
3	Bicycle	
4	Car	
6	Any other specify	

SECTION
OBSTETRIC DATA

14 What number was your last pregnancy? _____
15 How many children do you have? _____

16 What is the status of your last child?

1	Alive	
2	Dead	

17 What was the cause of the child's death? _____
_____

18 Did you receive antenatal care during the last pregnancy?

1	Yes	
2	No	

19 If yes how many times did you receive antenatal care?

_____

20 How do you classify the attitude of the staff at your local health centre?

1	Good	
2	Poor	
3	Not sure	

21 Why have you given this response?

_____

_____

_____

22 Where did you give birth from during the last pregnancy?

1	Home	
2	Health institution	

23 Who decided that you deliver from that place?

1	Self	
2	Husband	
3	Relative/friend	
4	TBA/CHW	
5	Health worker	

24 Why was this place chosen? _____

_____

25 What did you prepare/plan for the birth of the baby during your last pregnancy? (Tick as the respondent mentions)

1	New razor blade, baby clothes sanitary towels and transport/transport money	
2	Baby clothes and sanitary towels	
3	Baby clothes only	
4	Sanitary towels	
5	Nothing	

If any thing not on the list specify

_____

_____

26 When you were in labour was any medicine given to you to fasten your labour?

1	Yes	
2	No	
3	Don't know	

27 How was the medicine administerd?

1	Through the mouth	
2	Through the vagina	
3	By scarification	
4	Any other specify	

28 Who assisted you with the delivery?

1	Self	
2	Trained TBA	
3	Relative/Friend/Neighbour	
4	Nurse/Midwife	
5	Doctor	

Others specify_____

29 Did you choose this person?

1	Yes	
2	No	

30 If yes why did you choose this person to assist you during the delivery?

_____

_____

31 If your response to question 22 is home, did you go to the health facility afterwards?

1	Yes	
2	No	

32 If yes to question 31, why did you go there? _____

_____

33 If no to question 31, why did you not go there? _____

_____

34 During and after delivering what problems did you have?

_____

35 If any problems, how were you reated?_____

_____

36 What problems did you have during the postnatal period of the last delivery (within 6 weeks of post delivery). _____

_____

_____

37 Do you have a trained Traditional Birth Attendant in your area?

1	Yes	
2	No	
3	Don't know	

38 If yes, have you ever gone to your local trained Traditional Birth Attendant for any services during your last pregnancy?

1	Yes	
2	No	

39 If yes, what services were they?

_____

_____

40 What taboos are associated with the place of delivery?

_____

_____

41 What taboos are associated with a birth attendant?

_____

_____

_____

42 What would you suggest to improve maternal health services in this district?

_____

_____

_____

_____

_____

THE END

Thank you for your participation.

WORK PLAN

	ACTIVITY	TIME FRAME	RESOURCES REQUIRED
1	Research proposal development	Up to 15th January, 2003	- stationery - Computer/printer/diskettes - Human
2	Submission of research proposal to UNZA and Ethics Committee	15th-31st January, 2003	- Human
3	Pre-testing the questionnaire	14th-20th March, 2003	- Stationery - Computer/printer/diskettes - Transport - Human
4	Making corrections on questionnaire	22nd –24th March, 2003	- Stationery - Computer/printer/diskettes - Human
5	Training research assistants in data collection	28th-31st March, 2003	- Stationery - Computer/printer/diskettes - Human
6	Data collection for the initial sample size calculation	1st-10th April, 2003	- Stationery - Computer/printer/diskettes - Human
7	Analysis of data and calculation of sample size	15th-21st April,2003	- Stationery - Computer/printer/diskettes - Human
8	Collection of data	25th July-25th August, 2003	- Stationery - Human - Allowance
9	Data entry and analysis	30th August -30th Sept., 2003	- Computer/diskette/printer - Human

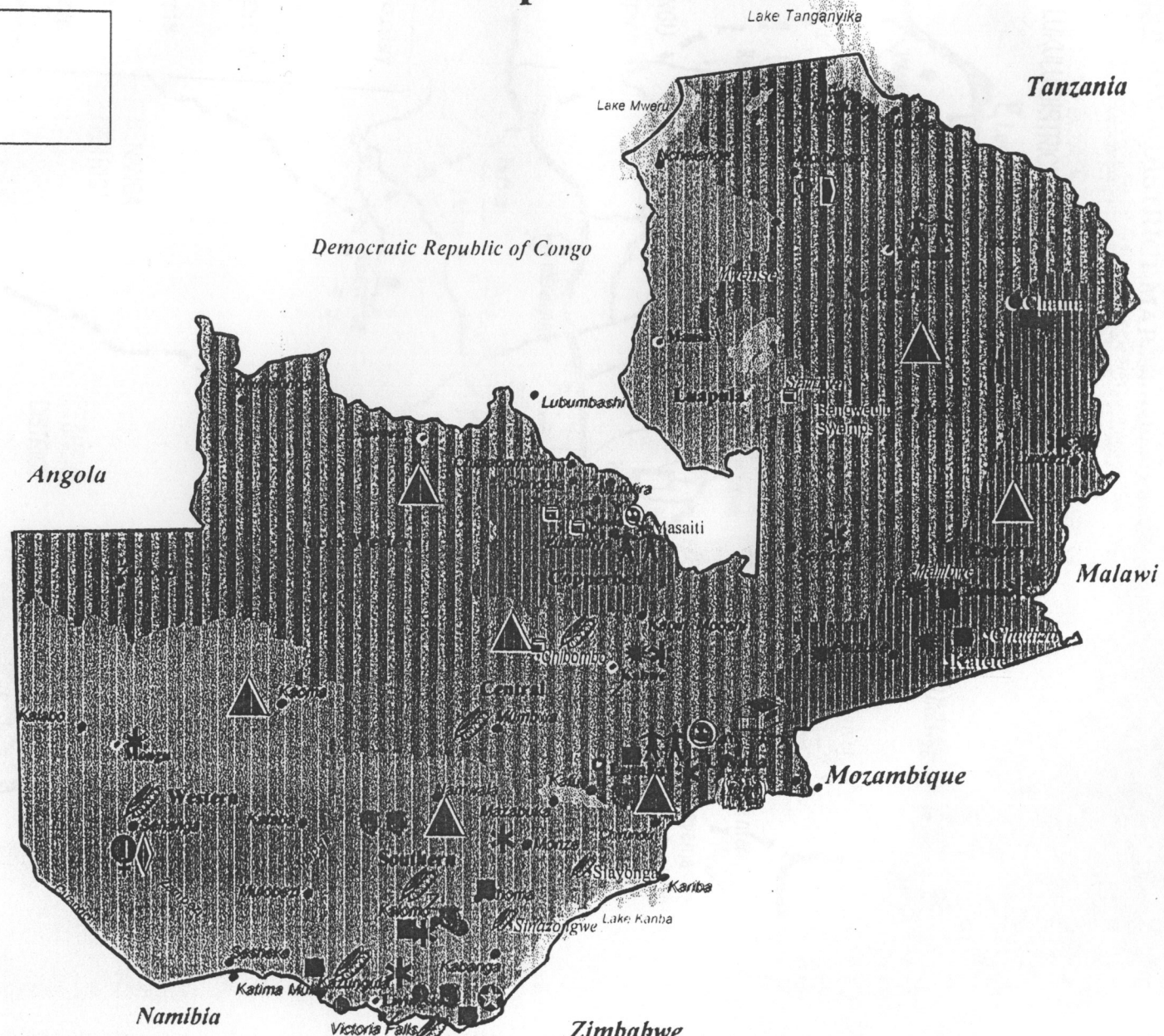
10	Report writing	1st-31st October, 2003	- Stationery - Computer/diskette/printer - Human
11	Submission of report	1st-30th November, 2003	- Human
12	Dissemination of information	1st- 30th March, 2004	- Bound reports - Transparencies/flip charts - Human

BUDGET

No.	CATEGORY	QUANTITY	UNIT COST (K)	TOTAL COST (K)
1.	**STATIONERY**			
A	A4 bond paper	10	25 000	250 000
B	Diskettes	10	2 500	25 000
C	Folders	5	5 000	25 000
D	Clips	1 box	15 000	15 000
E	Pens	15	1 000	15 000
F	Pencils	20	500	10 000
G	Rubbers	10	5 000	50 000
H	Tip-Ex	3	10 000	30 000
I	Writing pads	8	4 000	32 000
J	Duplicating paper	5	25 000	125 000
K	Carrier bag	1	100 000	100 000
SUB TOTAL				**677 000**
2	**SECRETARIAL SERVICES**			
I	**RESEARCH PROPOSAL**			
A	Typing	80 pages	1 500	120 000
B	Printing	80 pages	500	40 000
C	Photocopying	8x80 pages	300	192 000
D	Binding	10 copies	5 000	50 000
E	Submitting to the research ethics committee		120,000	120 000
SUB TOTAL				**522 000**
II	**PILOT STUDY**			
A	Typing	5 pages	1 500	7 500
B	Printing	5 pages	500	2 500
C	Photocopying	30x5 pages	300	45 000
SUB TOTAL				**55 000**
III	**ACTUAL STUDY**			
A	Typing	500	1 500	750 000
B	Printing	500	500	250 000
C	Photocopying	800	300	240 000
SUB TOTAL				**1 240 000**
3	**ALLOWANCES**			
A	Research assistant training lunch allowance	2x5	35 000	350 000
B	Research assistant data collection lunch allowance	15x5	35 000	2 625 000
C	Research assistant transport for data collection	15x5	15 000	1 125 000

D	Principal researcher meal allowance	17 days	35 000	595 000
E	Principal researcher transport for data collection	15 days	15 000	225 000
F	Supervisor's allowance	2	270 000	540 000
SUB TOTAL				**5 470 000**
4	**TRANSPORT LUSAKA-KAOMA-LUSAKA**			
A	Researcher	2x2 trips	45 000	180 000
B	Supervisor	2x1 trips	45 000	90 000
SUB TOTAL				**270 000**
5	**DATA ANALYSIS**			
A	Analysis	40 hours	10 000	400 000
B	Report writing	20 hours	10 000	200 000
C	Editing	15 hours	10 000	150 000
D	Binding	10 copies	20 000	200 000
SUB TOTAL				**950 000**
TOTAL				**9 244 000**
CONTINGECY 10%				**924 400**
GRAND TOTAL				**10 287 400**

Map of Zambia



PART ONE: INTRODUCTION

1.1 KAOMA DISTRICT MAP