

Maternity Care in Zambia

With special reference to social support

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Stockholm 2004

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Abbreviations

AIDS	Acquired Immunodeficiency Syndrome
BFHI	Baby Friendly Hospital Initiative
BSAC	British South Africa Company
CBoH	Central Board of Health
CMAZ	Churches Medical Association of Zambia
CPD	Cephalo Pelvic Disproportion
C/S	Caesarean Section
FCI	Family Care International
FIGO	International Federation of Gynaecology and Obstetrics
HIV	Human Immunodeficiency Virus
ICM	International Confederation of Midwives
IHCAR	Division of International Health, Department of Public Health Sciences
LUHC	Lusaka Urban Health Centre
MDG	Millennium Development Goals
MoH	Ministry of Health
MMR	Maternal Mortality Ratio
NGO	Non Governmental Organization
NNPM	Nurse-to-Nurse Partnership Model
OECD	Organisation for Economic Cooperation and Development
RCT	Randomised Controlled Trial
SAREC	Department for Research Cooperation at Sida
Sida	Swedish International Development Cooperation Agency
SMI	Safe Motherhood Initiative
STD	Sexually Transmitted Disease
SI	Swedish Institute
SSP	Social Support Person
TBA	Traditional Birth Attendant
TFR	Total Fertility Rate
UNFPA	United Nations Population Fund
UTH	University Teaching Hospital
UNAIDS	United Nations Programme on HIV/AIDS
UNICEF	United Nations Children's Fund
UNZA	University of Zambia
WHO	World Health Organization
ZDHS	Zambia Demographic and Health Survey
ZEM	Zambia Enrolled Midwife
ZRM	Zambia Registered Midwife

Definitions

Cultural beliefs	Denotes the presuppositions which give meaning to the way the women understand the concept and practice of childbirth.
Cultural practice	Refers to ways of dealing with problems, derived from cultural beliefs and assumptions about how things should be done, as expressed by the social support women.
Doula	A lay woman, trained to give labouring women support, comfort and reassurance.
Illness	Represent perceptions of changes in well-being and social function of individuals.
Infant mortality rate	The probability of dying during the first year of life: deaths per 1000 live births by age one.
Maternal mortality ratio	Number of maternal deaths per 100 000 live births.
Mbusa	Refers to a woman who implements traditional reproductive education and practices.
Neonatal mortality rate	Neonatal deaths per 1000 live births. Neonatal deaths include early neonatal deaths (first week) of life and late neonatal deaths (7 to 28 days).
Nselezya & Mulolo	Traditional herbs used to widen the birth canal.
Normal labour	Spontaneous onset of labour, low-risk at the start of labour and remaining so throughout labour and delivery. The infant is born spontaneously in the vertex position between 37 and 42 completed weeks of pregnancy. After birth the mother and infant are in good condition.
Sickness	Is related to behavioural and biological signs that are turned into symptoms and socially significant outcomes.
Social support person	A female person who accompanies a labouring woman to maternity unit and who remain near the maternity unit until the birth of the baby.
Skilled birth attendant	Refers exclusively to people with midwifery skills, who have been trained to proficiency in the skills necessary to provide competent care during pregnancy and childbirth.
Total fertility rate	The average number of children that would be born per woman if she were to live to the end of her childbearing years and bear children at each age in accordance with prevailing age-specific fertility rates.
Witch	Refers to someone believed to process malevolent powers that can cause harm.

Preface

When I graduated in 1981, as a *Zambian Registered Midwife (ZRM)* from the School of Midwifery in Ndola, Zambia, I was posted to a district hospital in Zambezi, bordering Angola. I became the midwife in charge of the hospital with the task of attending to labouring women. There was a Medical Doctor in charge of the hospital, but he was not an obstetrician. Women with complicated deliveries, Caesarean Sections (C/S) included, had to be transferred to a Mission hospital in Chitokoloki, 50 kilometres from Zambezi Hospital.

My experience at Zambezi hospital was totally different from what I had learnt during my midwifery education. There were very few normal institutional deliveries, as home deliveries were the norm. I asked myself: Why did the labouring women in normal labour not come to deliver at the maternity units? Another observation was also that whenever labouring women came to deliver at the maternity unit, often with a complicated labour, they were accompanied by their relatives, who actually entered the labour ward. In most cases the relatives had given the labouring women traditional medicine often inserted in the vagina. This perplexed me because during my training, I had not been taught this aspect of midwifery care and did not know how to cope with labouring women's family network. During training we had been taught that family members should not enter the labour ward as they could spread infections. The traditional medicine issue was not even addressed at the midwifery school. Hence, these issues put me in a awkward position, as I did not know how to handle the situation.

After two years of service in Zambezi, I was transferred to the University Teaching Hospital (UTH) in Lusaka, where the labour ward rules were much stricter. At UTH in Lusaka, no relatives who had accompanied the labouring women to maternity units were allowed to enter the crowded maternity unit. They had to wait outside until the woman had given birth. It became clear to me that if these relatives waited outside the maternity unit until the woman had delivered, then they had a role to play and they were concerned about the labouring women. But could they be involved in the maternity care? At the time when I gave birth to my own children, I was not allowed to have a social support person with me during labour, which is something I miss.

In 1992, I came in contact with a team of *Zambian and Swedish Reproductive Health* researchers and became a research assistant and later a research student at IHCAR, Karolinska Institutet, Stockholm, Sweden supported by SAREC, Swedish Institute and Ministry of Health, Zambia. The collaborative studies which I have conducted are now included in my thesis.

List of publications

This thesis is based on the following papers, which will be referred to in the text by their respective Roman numerals.

- I. Maimbolwa MC, Ransjö-Arvidson A-B, Ng'andu N, Sikazwe N, Diwan VK. Routine care of women experiencing normal deliveries in Zambian maternity wards: a pilot study. *Midwifery* 1997;13:125-31.
- II Maimbolwa MC, Sikazwe N, Yamba B, Diwan V, Ransjö-Arvidson A-B. Views on involving a social support person during labour in Zambian maternities. *Journal of Midwifery & Women's Health* 2001;46:226-34.
- III Maimbolwa MC, Yamba B, Diwan V, Ransjö-Arvidson A-B. Cultural childbirth practices and beliefs in Zambia. *Journal of Advanced Nursing* 2003;43:263-74.
- IV Maimbolwa MC, Ahmed Y, Diwan V, Ransjö-Arvidson A-B. Safe motherhood perspectives and social support for primigravidae women in Lusaka, Zambia. *Africa Journal of Reproductive Health*. (In press).
- V Ransjö-Arvidson A-B, Maimbolwa MC, Matthiesen A-S, Diwan V. A randomised trial to measure the effect of extra support to labouring women by a female relative or a doula- a study in Lusaka, Zambia. (Submitted).
- VI Maimbolwa MC. Primiparae mothers' childbirth and breastfeeding experiences after uncomplicated deliveries. – A randomised study in Lusaka, Zambia. (In manuscript).

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Abstract

The Zambian woman starts childbearing early and gives birth to an average of 5.9 children during her reproductive period. The already high levels of maternal deaths are increasing in Zambia. Only 43 per cent of the women deliver with the assistance of a skilled attendant. Maternity care is in focus in this thesis because of the crucial impact it may have on childbearing women and their newborns' health.

The aim of this thesis is to describe prevalent maternity care routines during normal childbirth in Zambian maternities and the views of staff, newly delivered mothers and social support women (relatives, friends) on providing extra social support to labouring women. The aim is also to measure the effects of extra social support to primiparous women during labour, on labour outcome and mothers' early childbirth and breastfeeding experiences.

A cross-sectional study, including primi- and multiparous women (n=84), health staff (n=40), and social support women (n=36), was carried out at the University Teaching Hospital (UTH) in Lusaka, at two Urban Health Centres in Lusaka, and at eight district hospitals in the Southern Province of Zambia. A Randomised Control Trial was performed at UTH and 299 healthy primigravidae women attending antenatal care were randomised to routine labour and delivery care (Group I, n=100) or offered to have extra social support during labour by a female companion, social support person (Group II, n=100) or a doula (Group III, n=99). Observations, semi-structured interviews and questionnaires, record reviews and field notes were used to collect data.

It was found that the maternity care routines were not evidence-based and culturally appropriate. Labouring women were confined to bed during the whole labour and delivery period. Food and drinks were withheld, and no gowns to maintain women's privacy were provided. Foetal monitoring was inconsistent and the partograph was either not used or partly lacking. All women were delivered in a lithotomy position and there was lack of support for early mother/baby contact, prevention of hypothermia in the babies and early initiation of breastfeeding. None of the women were allowed to have any companion present during labour (Paper I).

Newly delivered mothers expressed a desire for having a supporting person present during labour to provide emotional and practical support. Those who were not in favour of the idea gave reasons such as relatives would interfere with the care provided. Health care staff cited hospital policy and administration of traditional medicine as reasons for not allowing a social support person to stay with a labouring woman (Paper II).

The majority of the social support women accompanying pregnant women to maternity units were aware of ongoing Zambian traditional

childbirth practices and beliefs. Half of them considered themselves as traditional birth assistants (mbusas). They advised the pregnant women on the use of traditional medicine and sexual relations during pregnancy. One third of the social support women were in favour of the idea to give extra social support to labouring women in Zambian maternity units (Paper III).

About 40 per cent of the primigravidae were adolescents (14-19 years of age) who had significantly less education than the older age groups ($p=0.000$). In total, 68 per cent were unemployed with inadequate living facilities and financial resources. The majority (78 %) had never used a family planning method and the main sources of information on sexual issues were friends and mass media. Sixty-three per cent made their first antenatal visit during the second trimester, and 22 per cent of the teenagers attended the antenatal clinic during the third trimester. Most of the women reported that they had a social support person, assisting them at home during the antenatal period and that a relative would escort them to a maternity unit, when labour commenced (Paper IV).

There were significantly more use of analgesia ($p=0.038$), caesarean sections ($p=0.007$), and episiotomies ($p=0.004$) in the control group. Significantly, more mothers in the intervention groups perceived that they coped well with labour ($p=0.000$). There was no difference in labour outcome, whether a doula or a social support person (SSP) supported a labouring woman. There was no difference found in the groups regarding time of first breastfeeding after birth in the labour ward (Paper V).

Significantly more mothers in the supported groups stated that their labour had been very easy ($p=0.02$) and more mothers in the supported groups had enjoyed their birth experience. All the mothers had had their infants 'skin-to-skin' contact with them, shortly after birth. More mothers in the supported groups reported that they were going to have enough milk for their babies ($p=0.01$). There were misconceptions about the value of colostrum and about one fourth of the mothers had had no or poor assistance from the staff regarding breastfeeding. Fifty-five per cent of the fathers (Groups I-III) had not seen their newborns before the mother and baby were discharged from the maternity unit (Paper VI).

Implications for practice: Physiological, psychosocial, and cultural aspects including preparation for parenthood should be included in the plan of maternity care. Midwives should reorient their practices to evidence based and culturally appropriate care. Social support, including fathers of the newborn, should be encouraged in the practice of midwifery in Zambia.

Key words: Social support, safe motherhood, maternity care, midwifery care, breastfeeding.

1 Introduction and background

The studies presented in this thesis were carried out in Zambia between 1995–2000 as part of an institutional research collaboration between Schools of Nursing and Midwifery, University Teaching Hospital (UTH), Department of Obstetrics and Gynaecology, Lusaka, University of Zambia (UNZA), Division of International Health (IHCAR), Department of Public Health Sciences and Division of Reproductive and Perinatal Care, Department of Women and Child Health, Karolinska Institutet. The studies focus on maternity care routines during normal childbirth with a special attention to social support to Zambian childbearing women.

According to World Health Organization (WHO) criteria, normal birth is defined as: spontaneous onset of labour, low-risk at the start of labour and remaining so throughout labour and delivery. The infant is born spontaneously in the vertex position between 37 and 42 completed weeks of pregnancy. After birth the mother and infant are in good condition (1).

There is currently a growing recognition that the aim of the health care in normal childbirth is to provide the mother and her newborn with the lowest possible level of intervention that is compatible with safety. This implies that there should be a valid reason to interfere with the natural childbirth process (1). The issue of prevalent care routines in normal birth, irrespective of setting has been addressed by a WHO technical working group. The group classified its recommendations on prevalent practices related to normal childbirth into four categories: a) practices which are demonstrably useful and should be encouraged; b) practices which are clearly harmful or ineffective and should be eliminated; c) practices for which insufficient evidence exists and which need further research and d) practices which are frequently used inappropriately (1).

Some of the concepts used in the thesis are presented below.

1.1 Skilled attendant at birth

As more attention has been paid to the urgency to promote normal childbirth but also to reduce high levels of maternal mortality and morbidity, United Nations (UN) Alliances have worked to improve the situation. One of the suggested strategies is to ensure a skilled attendant at every childbirth (2,3). The term "skilled attendant" refers exclusively to people with midwifery skills, who have been trained to proficiency in the skills necessary to provide competent care during pregnancy and childbirth. A skilled attendant must be able to manage normal labour and delivery, recognise onset of complications, perform essential interventions, start treatment, and supervise the referral of mother and baby for interventions that are beyond their competence or not possible in the particular setting

(4). The term skilled attendant refers to midwives, doctors and nurses but globally the midwife is the health worker, who most commonly assists the women during normal childbirth.

According to the International Confederation of Midwives (ICM), International Federation of Gynaecology and Obstetrics (FIGO) and WHO, the professional responsibility of a midwife is to: be able to give the necessary supervision, care and advice to women during pregnancy, labour and the postpartum period, to conduct deliveries on her own responsibility and to care for the newborn and the infant. The care includes preventive measures, detection of abnormal conditions in mother and child, the procurement of medical assistance and the execution of emergency measures in the absence of medical help. The midwife has an important task in health counselling and education, not only for the woman but also for the family and the community. The work should involve antenatal education and preparation for parenthood and extends to certain areas of gynaecology, family planning and child care. A midwife may practice in hospitals, clinics, health units, and domiciliary conditions or in any other settings (5).

The difference between a skilled attendant and a midwife in the Zambian context is that a skilled attendant focuses on delivery care while a midwife's scope of practice covers sexual and reproductive health in a life perspective.

WHO has identified that there is a growing shortage and migration of nursing and midwifery personnel. Failure to strengthen the nursing and midwifery could seriously impair the quality of health care and access to services for pregnant women and their children (6).

1.2 Traditional birth attendant

In countries where there are not enough midwives, a traditional birth attendant (TBA) with or, more often, without any basic training, may assist women during birth (7), or women deliver alone (8). TBAs are not defined as skilled birth attendants (9). Studies in Africa and Asia have found that training TBAs in the absence of skilled back up did not decrease women's risks of dying during childbirth (10). However, TBAs can contribute in providing moral and emotional support especially as they are familiar with local customs and may be likely to respect women's needs.

1.3 Coverage of births with skilled attendants

Every year, worldwide, about 210 million women become pregnant and 130 million give birth. Although most of these pregnancies are uneventful, an estimated 15 per cent develop complications, around one-third of which are life threatening. In low-income countries it is estimated that 60 million

deliveries (46 %) take place without any skilled attendance at delivery. This figure can be compared with that of the high-income countries where skilled attendance at birth is nearly 100 per cent (11).

Health systems are facing an increasing number of challenges, while governments remain dedicated to searching for cost-effective options to enhance the capacity of national health systems to perform well (12). A chronic shortage of personnel with midwifery skills persists throughout the low-income countries and is most acute in the rural areas. Most midwives work in hospitals and live in urban areas. Data from Zambia indicate that at present 66 per cent of the 916 rural health centres have no midwife and 11 (1.2 %) of the health centres have no staff at all. Medically trained providers assist in 43 per cent of deliveries, while a relative or friend assists in 38 per cent and in 12 per cent of the deliveries women are assisted by a TBA, and the rest of the women deliver alone (13).

1.4 Maternal health in a global perspective

Before the first global estimates of maternal mortality were made in the 1980-ies the world was not well informed on the risks associated with pregnancy and childbirth in low-income countries. In 1987 a Safe Motherhood Initiative (SMI) was launched in Nairobi, Kenya with the aim to raise awareness on the consequences of poor maternal health and maternal health services in low-income countries and to mobilise action to address the unacceptably high rates of maternal death and disability in such countries (14). Despite such early efforts, the levels of maternal mortality have remained high (15). It is estimated that today about 600 000 women die every year from complications in connection with pregnancy and childbirth, and that most of these occur in low-income countries. Most of the maternal deaths are preventable (4).

Pregnancy-related maternal death is defined as; *"the death of a woman while pregnant or within 42 days after termination of pregnancy, irrespective of the cause of death"* (16). In some low-income countries, the lifetime risk of maternal death may be as high as one in seven, compared to one in more than 5000 in many high-income countries (11). The low status of the girls and women, poverty, women's limited access to education, poor nutrition, lack of access to good quality health service and lack of financial means to pay for the health services, are some of the contributing factors to high levels of maternal mortality and morbidity.

Historical evidence from countries, such as Sweden, has shown that reduction of maternal mortality was achieved even before the advent of modern obstetrics and the associated surgical techniques and therapies, such as safe blood transfusion and antibiotics. The most significant factor appears to have been the appropriate management of labour by professional midwives (17,18). In addition to the presence of a skilled birth attendant, provision of back up and support of a functional referral system able to take charge of obstetric emergencies and serious complications is very important (19).

1.5 Millennium development goals

In 2000, Heads of State Governments and Member States of the United Nations jointly endorsed the Millennium Development Goals (MDG), poverty reduction, alleviation of hunger, control of diseases, achieving universal education and reversing environmental degradation. Furthermore on the agenda key goals of the Millennium Declaration are to reduce the high levels of maternal mortality by 75 per cent by the year 2015. Greater attention should also be paid to the needs of the newborn (20). Thus attention to both maternal health and the health of the newborn are central to the attainment of the MDGs. In the MDG framework, indicators are proposed for monitoring progress toward the health goals, namely, the maternal mortality ratio and the proportion of deliveries attended by skilled attendants (20).

The challenges of reducing the problems of mortality and morbidity require strengthening of the health care system. Improvement in care of obstetric emergencies and improved coverage of skilled attendance at birth, require also long term planning (21). In order to reduce maternal morbidity and mortality there is a need also to plan for access to safe abortion care, improved reproductive health services and family planning, which are all important elements in promoting reproductive health (15). However there are many barriers to adequate sexual and reproductive health care. These include legal, moral and policy constraints, operational barriers such as cost of care, distance to services, and the negative attitudes from health staff and lack of information to community. Some groups of society face more severe access barriers than others.

1.6 Cultural aspects on childbirth

Cultures differ widely in their systems of belief, perceptions and understanding of health, illness and what may be regarded as appropriate health care. While many may regard the biological model of functioning as the primary model, others regard this level of functioning as of least importance with spiritual, social and psychological concerns playing a more important role in illness aetiology, treatment and prognosis (22). According to one anthropological view, Africans believe that illness and death are closely linked with religious doctrine. Many illnesses, especially serious ones are believed to be caused by the anger of the guardian spirit (*mudzimu*) of the family of the person concerned. Illness and death could also be caused by malevolent forces, particularly by certain people who control evil spirits (i.e. witches). Thus if a family/individual offends the *mudzimu* he/she or any family member may be punished (23,24).

In order to prepare Zambian women for their reproductive life and lifestyle they go through special initiation rites. These rites are still widely practised in Zambia. After the initiation ceremony the girl is considered an adult and is prepared for marriage. The girl is then assumed to be protected

by the ancestors and the guardian spirit and have a good will for her marriage (25).

In Zambia traditional medicine has been practised for centuries and is still widely used by the Zambian people. Childbirth in Zambia is a branch of traditional medicine. Modern medicine has often demonstrated scepticism towards traditional health care, which has been called quackery and witchcraft. During the colonial days the healers could not practice freely because of fear of being victimised. In this and many other ways the Zambian people were subjected to all sorts of colonial influence. The colonial masters introduced new law systems, which operated side by side with the customary systems in the local community (26). After independence in 1964 the indigenous people in Zambia continued to practice traditional medicine because people had confidence in it. During the development of primary health care programme in Zambia, traditional healers, traditional birth attendants, spiritual healers and herbalist were regarded as important community health workers and a closer collaboration and communication was established. The creation of a Traditional Medicine Unit at the Ministry of Health at the end of 1970s was a step in that direction. Today this unit has been transformed into a Traditional Health Practitioners Association of Zambia (THPAZ). It is thus as unacceptable to neglect consideration of spiritual rites in diagnosis and treatment of illness, same as it would be to fail to take a woman's blood pressure during pregnancy in technologically sophisticated societies. Traditional practices of healing should be considered with sensitivity and tolerance, and encouraged unless evaluated as distinctly harmful. Condemning indigenous practices because they are different would not be very wise. Cultural and alternative practices might be important for psychological health and should therefore be encouraged when appropriate (27).

Community members share their cultural values and have common perceptions of what constitute conception, pregnancy, labour, birth, and the postpartum period. These perceptions might to a large extent be shrouded in myth and superstition reflecting lack of basic knowledge of physiology of the birth process. The same values could also be barriers to health. Studies have found that the way a woman goes through pregnancy and birth has some implications for her position in her household and in her community. If she exhibits no problem she is respected. On the other hand a woman who experiences a difficult pregnancy or labour, is hospitalised, has an episiotomy or a Caesarean Section performed, is considered lazy and may not even be worth living (28).

1.7 Childbirth for the individual woman

For the individual woman childbearing is a major life event, marking a significant turning point in her life. Childbirth as a physiological event is universal but as shown above is also surrounded by different social and

cultural practices and beliefs (29). It is important therefore to regard this life event in a holistic perspective, stressing its multidisciplinary and multicultural dimensions as well (1). In addition to emphasising the holistic considerations in maternity care, the WHO Making Pregnancy Safer initiative also stresses the importance of providing respectful, dignified and confidential care together with a family-centered approach. Of most significance is the need to provide evidence-based care and a de-medicalized approach in which technology is used appropriately rather than as a matter of routine. These principles go a long way to adding a woman-centered view to perinatal care in today's world. It is appropriate, in the light of the new directions from the WHO and others to focus attention on just how well health care services are meeting these objectives for care. Evaluating childbearing women's own views of the care they receive is of significant importance in the process of identifying means to improve perinatal services (30-35).

1.8 Breastfeeding

Breastmilk is both necessary and sufficient for infant nutrition during the first six months of life. A delay in initiating breastfeeding often results in the premature introduction of other liquids and foods, which may introduce infection and impede the mother's own breast milk production to the infant (36). Allowing breastfeeding within the first hour of life, the newborn's instinctive suckling behaviour is used (37) which helps to stimulate breast milk production.

Breastmilk is the child's first source of immunisation. Breastmilk contains anti-bacterial and anti-viral agents, which significantly lower rates of childhood illnesses (38). Breastfeeding also contributes to mother-child bonding (39) and reduces rates of abandonment (40). Furthermore, breastfeeding benefits the mother as it lowers the risks of postpartum haemorrhage, ovarian and breast cancer and anaemia (41). It has a major impact on reducing fertility by delaying the return of ovulation thus also complimenting other family planning methods. Exclusive breastfeeding has been shown to be 98 per cent effective in preventing pregnancy during the first six months postpartum when a woman has not resumed menstruation (42,43).

With the event of HIV/AIDS and evidence of mother to child HIV transmission through breastmilk a new debate surrounding breastfeeding has emerged. Mothers who are infected with the HIV must be provided with counselling, education and methods to reduce the risk of HIV transmission to their child, so that they can make informed, individual choices concerning breastfeeding (44).

1.9 Social support during labour

Women helping women during labour is an ancient and widespread practice. One of the most profound changes, in which the hospital-based medical approach changed the whole childbirth process during the 20th century, was to isolate the labouring women from her social supportive network. In virtually every society that was studied, continuous support during labour and delivery was common (29,45). As childbirth moved from the home to the hospital and became safer for mothers at risk, this vital ingredient of social support disappeared. A hospital birth environment can be lonely and strange for the labouring woman and contain many elements and regulations, which can increase the stress of labour and may make the woman refrain from delivering in health institutions. While efforts to involve fathers have done much to improve the situation, especially in industrial countries, an important link – women helping women – has been missing (45).

During the 1970s the care of women in labour became greatly influenced by the good results reported by O’Driscoll, employing active management of labour. The trend of active management was spread throughout the world. By administration of oxytocin to the labouring woman and providing her with continuous support of a companion, usually a student midwife, O’Driscoll found that labour was shortened (46). However, the obstetricians paid much more attention to the use of oxytocin, and left out to emphasise the aspect of continuous social support. It has recently been suggested that it was the support that may have had as much to do with the impressive results reported as the use of oxytocin in active management of labour (47).

During the 1980s direct evidence of the importance of labour companionship began to appear from several parts of the world. Lay women, “doulas”, who were not earlier acquainted with the mothers were assigned to give the mother in labour continuous support: talk to her, hold her hands, rub her back and encourage her. “Doula is a Greek word referring to an experienced woman who helps other women. The word has now come to mean a woman experienced in childbirth who provides continuous physical, emotional and informational support to the mother before, during and just after birth” (45). The result of the studies showed that women experienced considerably shorter labour and fewer obstetric complications when receiving continuous support by a doula (45,48).

Later a study was conducted at Coronation Hospital in Johannesburg, South Africa, where a supportive companion also unknown to the mother, was asked to stay with the mother during labour and give her comfort, reassurance and praise. This study did not show the significant effect on the physiological progress of labour found in the previous studies, but maternal satisfaction with the companionship was striking, the experience of labour pain was reduced, mothers coped better with the labour and they experienced, significantly greater breastfeeding success (49).

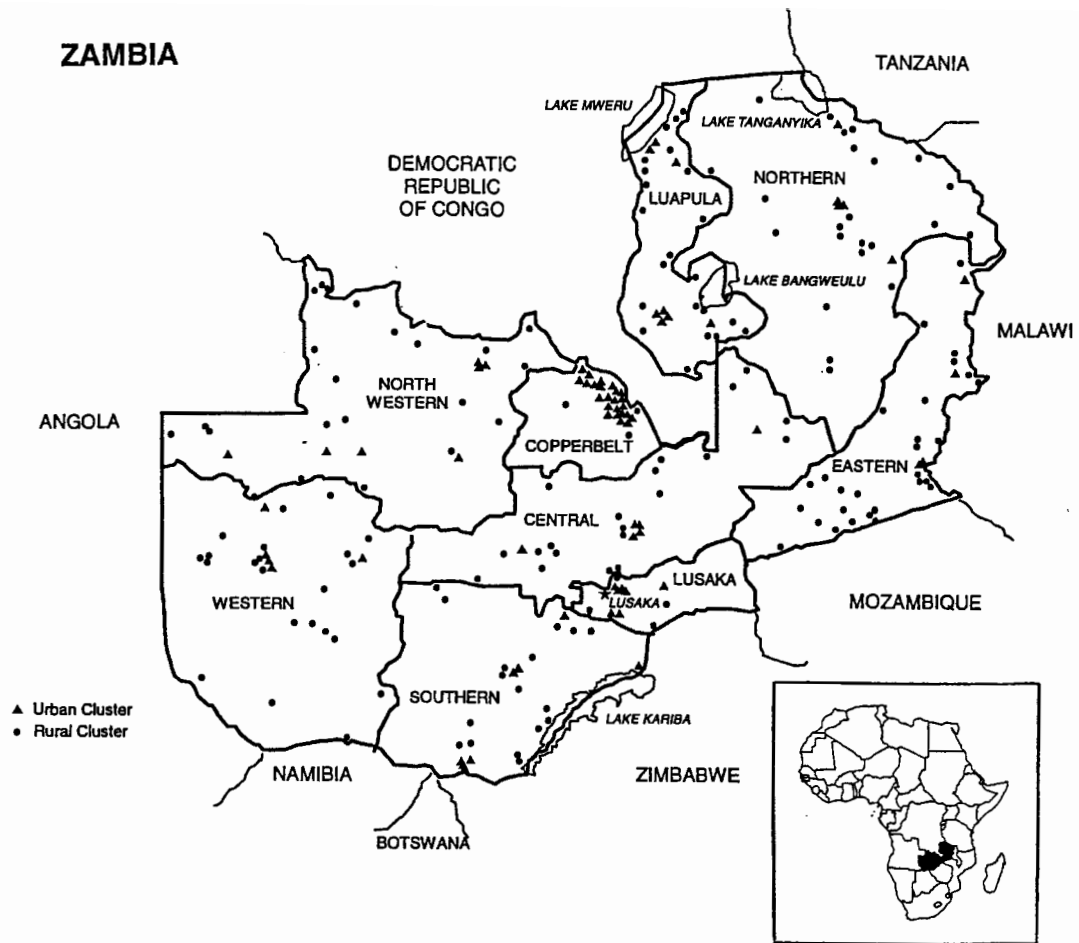
1.10 Zambia

Zambia is situated in the sub-tropical Central African Plateau. It covers 753,000 square kilometers and shares its borders with eight other countries. Administratively the country is divided into nine provinces and 72 districts. The population of Zambia is over 10 million and of these 5.2 million are women. The population growth rate is 2.9 per cent per annum.

In the late 19th century, Zambia was colonised by the British through a treaty between Zambia, the British government and the British South Africa Company (BSAC) that gave BSAC the mining rights in the colony then called Northern Rhodesia. There was not much resistance to the colonisation, perhaps because famine and diseases of which the most common was smallpox, was widely spread in the area at the time. In the late 1920s, BSAC handed over Northern Rhodesia to the British government because it was too expensive for the company to administer. Soon thereafter huge copper deposits were found in what is today called the Copperbelt. One might have expected this to have created much wealth in Northern Rhodesia, but in reality, most of the revenues went straight to the Colonial Office in Southern Rhodesia (present day Zimbabwe) and did not benefit the Zambian people (50).

In 1950s, the Zambian population led by Kenneth Kaunda began to fight the colonial power. Kenneth Kaunda founded the National Independence Party and became Zambia's first president when the country achieved independence in 1964. The Kaunda era ended in 1991, when the first multiparty elections were held in Zambia under the leadership of Frederick Chiluba, who in the year 2000 was replaced by the current president Levy P. Mwanawasa (50).

Today Zambia is one of the most urbanised countries in Sub Saharan Africa and one fifth of the population live in Lusaka, the capital of Zambia. Almost all people living in Zambia are Africans and the majority are Christians and Zambia is declared as Christian nation by the constitution. The indigenous population in Zambia belong to four major groups; the Bemba in the Northern Province, the Nyanja in the Eastern Province, Tonga in the Southern Province and the Lozi in the Western Province. English is the official language. The ethnic diversity that characterises the Zambian population is reflected in diverse pattern of cultural organization. The differences are primarily in terms of lineage systems, (the two predominant ones being, the matrilineal, in which the family is headed by a woman and the patrilineal, in which the family is headed by a man), and the impact these have on the family. Zambia, was until two decades ago one of the most prosperous countries in Sub-Saharan Africa, but is now ranked as one of the least developed countries. An estimated 85 per cent of the population live under the poverty line of one dollar per day (51).



Women of reproductive age (15-49 years) make up 23 per cent of the population (52). The median number of years of schooling among the women is seven. Women are heads of a quarter of all households, and a quarter of all Zambian households have at least one foster child. Fewer than half of all households have access to newspapers, TV or radio. At current fertility levels, a Zambian woman will give birth to an average of 5.9 children. About two-thirds of Zambian women have had a child by the age of 20 years, and only 34 per cent of married couples use contraception (53). In Zambia the power sphere of many women is restricted to household work and many women in urban areas have to take up marginal positions as traders, while their counterparts in the rural area are classified as housewives and are engaged in subsistence farming. Women are assigned the dependant role in the domestic economy and partly because of this; the women and children often face poor nutrition. Poor nutrition is a major cause of child hospitalisation, while in the pregnant women it can cause complications in pregnancy and childbirth (54). Although women play a decisive role in daily life at home, they have less to say in reproductive health matters though it involves their own bodies and sexuality. Decisions in matters of reproduction are usually made by the husband and the husband is seen as the head of the family. Contributing factors leading to the vulnerability of women includes low education, young age at marriage, high parity and early age of childbearing (55,56). Many early pregnancies are unplanned and

unwanted. As a consequence of this young girls commonly resort to unsafe abortion which predisposes them to variety of infections including HIV (11,56-58).

Today the HIV/AIDS epidemic constitutes a most severe burden on health care in Zambia. Nation-wide 16 per cent among the age group 15-49 is infected with HIV (52,59). The prevalence rates for antenatal attendees are estimated at 28 per cent. In urban centres and among some vulnerable populations the rate exceeds 30 per cent. Only Botswana, Lesotho, Namibia, Swaziland, and Zimbabwe have higher HIV prevalence rates than Zambia (59). Large scale efforts to prevent the transmission of HIV in Zambia are now in place and focus on prevention of mother-to child transmission in HIV, and Voluntary Counselling and Testing (VCT) at some of the antenatal clinics has been intensified (44).

Zambia has one of the highest maternal mortality rates in the world, at 729/100,000 live births (52), but a rural community-based study has reported rates nearly twice as high at 1,238/100,000 live births (60). A maternal mortality study carried out in Zambia in 1998 revealed that 18 per cent of women of reproductive age (12-50 years) died from pregnancy-related and childbearing complications. Nearly two thirds of those who died delivered at home, assisted by relatives (8). The prevalence of HIV has also contributed to the high maternal and infant mortality (61) (Table 1).

Table 1. Demographic, socio-economic and health-related information on Zambia

General data 2003	
Total population 2003 (million)	10.3
Life expectancy F/M (2000-05) (years)	52/48
Urban population (2001) (%)	39.8
Population under age 15 (%)	48
Population over age 65 (2001) (%)	3
Adult literacy levels F/M (%)	79/91
Population living below 1 USD per day (2002) (%)	85
Health-related data 2003	
Antenatal attendance (%)	93
Birth attended by skilled health personnel (2003) (%)	43
Postnatal attendance < 2 days/7-41 days (%)	12/8
Infant mortality rate (per 1,000 births)	95
Maternal mortality ratio (per 100,000 live births)*	729
Crude birth rate (per 1,000)	43
Total fertility rate	5.9
Teenage pregnancies (%)	32
Breastfeeding 6 months (%)	40
Contraceptive use (%)	34
Access to clean water supply (%)	51
People living with HIV/AIDS, age 15-49 (%)	16
Physician per 100,000	7
Population per midwife RN/EM	36,530/9420
Number of registered midwives, RM (2002)	4615
Number of enrolled midwives, RN (2002)	4952
Number of training institutions for EM/RM	5/3

Sources: ZDHS 2003 (52), ZMoH 2001 (13), *MMR 1,238 per 100,000 live births (Vork et al. 1997 (60). MoF and NP 2002.

1.11 The health care system in Zambia

The Ministry of Health plays a dominant role in provision of modern health care services. Churches, private practitioners and industry also contribute to health care, as does the traditional, informal sector (62).

The introduction of modern medicine during 1900s was accompanied by official disapproval and discouragement of traditional medicine, which assumed lower status (63). However, traditional medicine has continued to play an important role in the overall health system in Zambia and in the neighbouring countries (64-67). The modern medical care introduced in many African countries focuses on technology-based interventions; less

attention has been paid to try to understand the client and provider perspectives and the cultural contexts in which care is provided (68).

1.12 Organization of the health sector

The Zambian health reform process from 1993 has focused on decentralizing the responsibility and authority for health care to District Health Boards and Hospital Management Boards respectively. This includes concerted efforts to strengthen the capacity of health workers in planning and managing health services, and working with communities. The overall aim is to build capacity in the health sector in order to achieve “equity of access to cost-effective, quality health care as close to the family as possible” (69-70).

At central level, the Ministry of Health is administratively responsible for making health policies for the country (69-71). At Provincial level, the Provincial Health Office directs all the health activities. The formal health sector in Zambia is comprised of the public-, semi-private- (mission hospitals) and the private sector. The informal health system includes the traditional healers and Traditional Birth Attendants (TBA) (67). The public health sector in Zambia is divided into primary health care, health centres and hospitals. The primary health care includes rural and urban health clinics that normally refer high-risk patients to hospitals. Hospitals are divided into general, specialized, central and tertiary hospitals. The University Teaching Hospital (UTH) is the only tertiary hospital in Zambia. It is also the clinical base of the University of Zambia’s School of Medicine. UTH receives referrals of the most sick patients throughout Zambia. Implementation of health policies is contracted to the Central Board of Health (CBoH) that is headed by a Director-General (69).

1.13 Mother-infant care in Zambia

The maternity units in Zambia are staffed and led by nurse-midwives who have considerable autonomy in their clinical practice, providing care in uncomplicated labour and delivery and making referral decisions (72). Maternity care in Zambia as in many other settings has been and still is, divided into care of women during pregnancy, offered by one team of professionals and intra-partum and post-partum care offered by another team of professionals. Antenatal care is characterised by regular check-ups of pregnant women to detect any deviation from “normal” conditions as well as to detect “high-risk” ones. Antenatal education is traditionally offered but this is often restricted to advice about dietary needs, what items to bring for delivery, e.g. gloves, cord clamp, clothes for the baby, hygienic requirements like sanitary pads. Little focus is paid to psychological issues, preparation for the birth, breastfeeding, the importance of mother-infant interaction and eventual changes in family life and the experiences of childbirth. Women are

admitted alone to the labour wards. Family members are not allowed to accompany the woman for labour and the woman often delivers alone.

This fragmentation of services may have been quite rational from the caregiver's point of view, but possibly less so from the point of the mothers. The division of care also reflects a conceptualisation of the mother and the baby as two separate entities requiring different forms of care. In contrast, evidence and modern approaches to mother-infant care regard the mother-baby pair as a unit of concern requiring combined care primarily because they are dependent on each other for their respective health (38,73-75).

In 1994 following the WHO/UNICEF Baby Friendly Initiative (BFHI) a national policy on breastfeeding practices was developed in Zambia. Breastfeeding is fully endorsed and highly valued in the traditional Zambian setting, and practised by almost every mother at some time after delivery. The routine to place newborns in nurseries separated from their mothers, supplementing the newborn with water, glucose or breastmilk substitute formulas from the first day of life has been abandoned. Newborns now stay with their mothers while they are in the postnatal ward. This is an impressive achievement in the change of these routines (43).

The Safe Motherhood Initiative (SMI) was introduced in Zambia after the global launch of the concept was developed by WHO/UNFPA 1987 (76). The SMI aims to ensure that all women have access to the services and support they need to go through pregnancy and childbirth safely. Four strategic interventions have been identified and are now regarded as the four pillars of the SMI. These are access to: antenatal care, clean and safe delivery, essential obstetric care, and family planning. In Zambia the SMI is placed in the context of Primary Health Care.

In 1996 the Zambian Ministry of Health, conducted a safe motherhood needs assessment in 11 hospitals and 102 health centres based on WHO guidelines developed for the purpose but adapted to the local situation. The aim of the survey was to highlight ongoing maternity practices in the country. The survey revealed many shortcomings both regarding policy issues, quality of service delivery and manpower. Sixty-six per cent of the health centres had no midwives and safe motherhood activities were performed by nurses, clinical officers and MCH workers who did not have sufficient basic training in midwifery (13,69-71).

The report further revealed that not only was there lack of access to service delivery, but also that the quality of antenatal, delivery and postnatal care in both community and health facility service were perceived to be poor by the community. Pregnant women in the community preferred to be delivered by relatives, since obstetric health services were not accessible 24 hours a day (8,69,70). Institutional deficiencies, such as inadequate skilled attendants in the maternity units at district level, have contributed to the high maternal mortality levels in Zambia (52). It was also found that a significant proportion of the Zambian public health facilities lacked supplies to be able to provide basic reproductive health services, and that some health centres had too few midwives to population ratios. Only 55 per cent of the staff interviewed felt that they could handle obstetric emergencies (70).

The Zambian Demographic and Health Survey reveal that 93 per cent of pregnant women attend antenatal care. Further that approximately 27 per cent of pregnant women receive at least two tetanus toxoid vaccinations and 36 per cent of the women receive some anti-malaria drugs during pregnancy (52).

In 1993 hospital boards introduced user fees (payment) for the health services including maternal and neonatal health services. The woman pays for health service at the antenatal clinic located near her home. However, if a woman is self-referred to the tertiary hospital, in uncomplicated labour, she has to pay a by-pass fee of 25 000 Zambian Kwacha (approximately 6 USD) for labour and delivery services (77). Women are also requested to purchase items for themselves for the birth, such as gloves, sanitary pads, cord clamps and other necessary items. For poor women this could be one of the reasons for not utilizing maternity services (72).

1.14 Midwifery in Zambia

During the colonial period the nurses and midwives who worked in the health institutions were recruited from countries such as Britain, Ireland, South Africa, Zimbabwe, Caribbean Islands, Sweden, India, and the Netherlands. In 1947 training of Zambia Enrolled Nurses (ZEN) through a two-year upgrading course for female auxiliary workers was started by the missionaries. Enrolled midwifery training began in 1951. During the late 1960s and the 1970s, training of Zambians to become nurses, midwives and doctors were introduced, based on the experience from industrialised parts of the world (78). This was a new concept in Zambia, where for generations each ethnic group had developed its own health primitive traditions, beliefs, and taboos for different stages of life, birth, puberty, marriage and death (79).

There are currently two midwifery educational programmes in Zambia for nurses. For those who wish to qualify as either Enrolled Nurse Midwife (ENM) or a Registered Nurse Midwife (RNM). The yearly intake of midwifery students' ranges from 20-45 per intake in both the ZEM and the ZRM schools. The difference is that the Zambian Enrolled Midwife has 9 years of education while the Zambian Registered Nurse Midwife has a basic education of 12 years (high school). At present there is a national intake each year of 190 registered and enrolled nurses into midwifery institutions. The graduation rate is 88 per cent.

There is also a Post Basic Nursing Department at the University of Zambia (UNZA), where nurse/midwifery teachers/lecturers receive their education.

According to the National 10-year Human Resource Plan, the projection by the MoH is to expand the intake by enrolling 64 registered midwives and 248 enrolled midwives per year by the year 2010 (13), in order to keep pace with the population growth.

2 Aims

2.1 Overall aim

The overall aim of this thesis is to describe prevalent maternity care routines during normal childbirth in Zambian maternities and explore the views of health staff, newly delivered mothers and social support women on providing extra social support to labouring women. Further, it is aimed at measuring the effects of extra social support given to primiparous women during labour and on mother's early childbirth and breastfeeding experiences.

2.2 Specific aims were to study:

- the routine care of women during normal labour and delivery, and the immediate care of the newborn babies in Zambia at different levels of health care (Paper I),
- the views of urban and rural mothers and health staff about having a supportive companion present during childbirth (Paper II),
- the cultural childbirth practices and beliefs in Zambia as related by women accompanying labouring women to maternity units (Paper III),
- the low-risk Zambian primigravidae's preparation for pregnancy including their contraceptive use, content of antenatal care, preparation for childbirth and the extent of social support (Paper IV),
- the effects of extra support during labour by a female companion, known to the mother or a "doula" compared to routine care with no extra support during labour on outcome of labour (Paper V),
- whether extra social support during labour and delivery influenced mother's childbirth and breastfeeding experiences during the immediate postpartum period, after uncomplicated deliveries (Paper VI).

3 Material

3.1 Study setting

The studies were carried out in two geographical regions in Zambia, Lusaka and the Southern Province of Zambia. Lusaka is the capital of Zambia and has the main University Teaching Hospital (UTH) where most Zambian doctors, nurses and midwives get their professional education. The Southern Province was purposely selected for its similarity with the rest of the Zambian districts in terms of socio-economic conditions and health status.

3.2 Lusaka

Lusaka is the capital city of Zambia and has an estimated population of 1.5 million, with an annual growth rate of 3.8 per cent and a population density of 65.4 persons per square kilometre. The UTH and two urban health centres were selected for data collection units in Lusaka. The UTH is the national referral hospital with 1,846 beds, and has the largest single concentration of specialist medical doctors and nurses and equipment for management of complicated medical problems. The Department of Obstetrics and Gynaecology at UTH provides both low cost and high cost reproductive health services. There are eleven wards with a total number of 200 beds, for obstetrics and gynaecology care. During the study period (1995-2000) there were an average of 25-35 deliveries per day, with about 10,500-11,000 deliveries annually at UTH. At each urban health centre/clinic there were approximately 10 deliveries per day per health centre. Women identified as requiring hospital level care were referred from the urban health centres/clinics to UTH. These maternity centres in Lusaka were built in 1983 to decongest UTH (72).

3.3 The Southern Province of Zambia

The Southern Province is one of the nine provinces in Zambia, with a population of about 1.4 million of whom 49 per cent are males and 51 per cent females. The Province has an annual growth rate of 3 per cent and a population density of 15 persons per square kilometre. The ethnic groups Lozi and Tonga are predominant in this area. In this area eight of ten district hospitals which had delivery units were purposively selected (Paper I,II,III).

4 Methods

The studies in this thesis have qualitative as well as quantitative dimensions and the research questions focus on maternity care routines in Zambia.

4.1 Design of the studies

A cross sectional (Paper I-IV) and a randomised controlled trial design (Paper V-VI) were used in the studies.

The study design, sample size, data collection methods and study settings of different studies are presented in Table 2.

Table 2. Study design, sample size, data collection methods, and study setting.

Paper	Study design	Sample size and subjects	Data collection methods	Study setting
I	Cross sectional study	84 primi/multiparous women	Observations Field notes Record review	Lusaka and Southern Provinces
II	Cross sectional study	84 primi/multiparous women and 40 health staff	Field notes Semi-structured interviews Semi-structured questionnaire	Lusaka and Southern Provinces
III	Cross sectional study	36 women accompanying labouring women	Semi-structured interviews. Observations	Lusaka and Southern Provinces
IV	Cross sectional study	299 primigravidae women	Semi-structured interviews, Record review	Lusaka Province
V	Randomised controlled trial	209 primiparous women	Observations Record review	Lusaka Province
VI	Randomised controlled trial	188 primiparous women	Interviews	Lusaka Province

4.1.1 Observations (Paper I,III,V)

The routine care during normal labour and delivery of primi- and multiparous (Paper I) and primiparous women (Paper V), and the immediate care of their newborn babies were observed. Social support women accompanying labouring women were also observed (Paper III). The observations followed a pre-designed protocol containing issues and events related to the midwifery routines of care during labour, delivery, and the immediate postpartum hours. The observation method was useful for obtaining descriptions of midwifery practices and events. This method enabled the researchers to understand the midwifery practices in-use, as well as aspects of the participants' perspective that they were reluctant to state directly in interviews (80).

4.1.2 Interviews (Paper II,III,IV,VI)

The semi-structured interview guides with closed and open-ended questions were used to get information from 84 newly delivered mothers (Paper II), 36 social support women (Paper III), 299 primigravidae (Paper IV), 188 primiparous women (Paper VI). Interviewing can be a valuable way of collecting information about events that took place in the past. This enables the researcher to gain a description of action of events. Interviews also enable the researcher gain additional information that what was missed in observations and can be used to check the accuracy of the observations (81).

4.1.3 Questionnaire (Paper II)

A semi-structured questionnaire was used to collect data from 40 health staff. The questions included background variables of the health staff and their views on involving social support persons to labouring women in Zambian maternities (Paper II).

4.1.4 Record review (Paper I,IV,V)

Maternity records were reviewed to retrieve any recorded information or not on variables under study, during labour and delivery such as use of partograph, recordings of foetal heart; fluid and nutrition to the mothers; methods of pain relief and any other interventions recorded (Paper I,V). The antenatal card was reviewed to retrieve information on some of the socio-demographic characteristics of the pregnant women such as age, gestational age at first antenatal visit, prescription of ferrous sulphate tablets, number of antitetanus immunisation injections during antenatal attendance (Paper IV). From the labour ward records information was retrieved for variables such as, use of and recordings in the partograph, foetal heart recordings, any prescriptions during labour such as administration of

analgesia; oxytocin stimulation of labour, episiotomy done or not (Paper I,V).

4.1.5 Randomised controlled trial (Paper V,VI)

To study the effects of extra social support to labouring women by a female person chosen by the labouring women or a doula chosen by the research team we used a randomised controlled design (82). Participants for the study were 299 primigravidae attending the antenatal clinic at UTH, with an uneventful pregnancy at 36 weeks or more, singleton foetus in vertex presentation, based on the results of abdominal palpation and a prospective uneventful labour and delivery as expected by the obstetrician. After screening and informed consent, a baseline questionnaire was completed. The pregnant women were thereafter allocated to their groups, according to the generated random numbers, which were sealed in opaque envelopes. The opaque envelopes with the assignment were locked up in a cabinet to which only the co-author (Paper V) had access. The research assistant opened the envelope with a paper inside showing to which group each woman was assigned. Women were recruited to the study from Monday to Thursday 08.00–12.00 in the antenatal clinic. A doula was called upon for the women in the doula group, and the women in the SSP group were told to come with their female companion of choice at the next antenatal visit. To avoid contamination between treatment groups, a private room was used in the antenatal clinic, where each woman was seen alone. The records of the women selected for the study were marked, so that the women could be identified at the time of admission to the labour ward. The women were recruited to the study in consecutive numbers by blocked randomisation into three groups.

Group I (n=100) was randomised to receive routine labour and delivery care, Group II (n=100) to have an extra support person – a female companion chosen by the pregnant women herself to be present during labour and delivery, and Group III (n=99) to get extra labour support offered by a doula, chosen by the research team. After delivery the women were interviewed on their childbirth and breastfeeding experiences. A statistician was part of the study from planning to analysis.

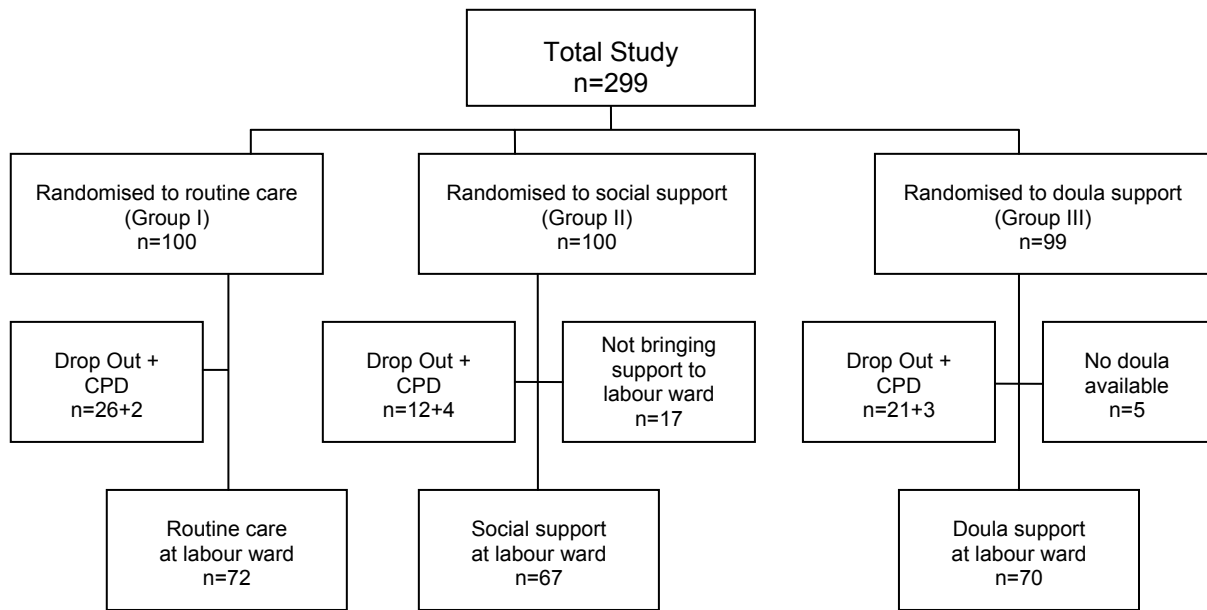


Figure 1. Randomised groups and drop outs.

4.1.6 Field notes (Paper I,VI)

Field notes were taken daily during the data collection period and events observed and key issues and statements from conversations with the key informants were written in a field note book. The purpose of collecting these data was for the research team to further explore information useful for the purpose of the study. The field notes thus complemented the information collected through other methods (81).

4.2 Analysis of data

4.2.1 Quantitative data analysis

The quantitative data were analysed using the EPI-Info statistical programme (83). The data was organised, coded and analysed in collaboration with a statistician. Descriptive statistics was used to describe the samples (Paper I-VI). The statistical analyses in Paper V were conducted both on the actual study group and according to the intention to treat and non-intention to treat principles (84). The means of the data from the continuous variables were compiled, contingency tables were prepared and association measured using the non parametric Kruskal-Wallis test. To assess differences between intervention and control groups, chi-square tests were obtained among the variables of interest (Paper V,VI).

4.2.2 Qualitative data analysis

The qualitative data derived from open-ended questions and field notes were analysed using the principle of content analysis (81,85). Each interview was transcribed and each interview was read to acquire a sense and understanding of the whole text and to obtain ideas for further analysis (Paper II,III). This involved rigorous and reflexive study of each question. A process of open coding was applied, which revealed concepts in the responses that were then classified into categories. Connections between the categories became apparent in accordance with the coding. This led to the systematic development of the major themes (81). The impressions and ideas were written down and discussed until the research team reached consensus. Meaning units, positive and negative, connected to newly delivered women and health staff's views about involving a social support person in maternity units were identified and themes were formulated regarding the findings (Paper II, Figure 1). The themes and sub-themes in Paper III were related to cultural practices and beliefs: during pregnancy; labour and delivery; postnatal period and disposal of placenta for protection of fertility (Figure 2). This type of content analysis shares stages with other qualitative research methods (85). The content categories formed were represented in the form of excerpts from the respondents.

4.3 Ethical issues

Permission from the ethical committees of Karolinska Institutet and University of Zambia, Lusaka was obtained prior to data collection. Permission was also obtained from the MoH in Zambia and the District Health Boards that were involved in the study.

The methods of data collection, observation and interviewing in the clinical setting, in which the researcher is interested and may intervene if the situation so requires can cause conflict. While the role of a nurse/midwife requires emotional and physical closeness to the patient, the role of the researcher basically requires a disinterested detachment and in effect, a distance of sort. The researcher collects data to increase the awareness of human conditions without obligation to intervene, but to optimise the caring activities. The two roles have to do with the aims of nursing and science, the former to assist people, the latter to gain knowledge. However, staff and colleagues who might be overworked and do not fully understand what is going on may question the intrusion of a nurse researcher (86,87).

Continuous observation of the mother/infant might be experienced as disturbing for parturient woman and by the staff. All women had however, given their consent to participate and our experience is that mothers accepted the presence of the researcher midwives during these sensitive hours.

For each of the individuals who took part in the studies (Paper I-VI), information was given and informed consent was always sought before participation in the study. Each individual was also told that participation was voluntary and that declining from participation would not affect the care given. All interviews were conducted in privacy and anonymity was guaranteed and no names have been quoted in any of the materials, published or unpublished.

The methods of data collection, observation and interviewing in a clinical setting, in which the researcher is interested and may intervene if the situation so requires can cause conflict. While the role of a nurse/midwife requires emotional and physical closeness to the patient, the role of the researcher basically requires a disinterested detachment and in effect, a distance of sort. The researcher collects data to increase the awareness of human conditions without obligation to intervene, but to optimise the caring activities. The two roles have to do with the aims of nursing and science, the former to assist people, the latter to gain knowledge. However, staff and colleagues who might be overworked and do not fully understand what is going on may question the intrusion of a nurse researcher (86,87).

Continuous observation of the mother/infant might be experienced as disturbing for parturient woman and by the staff. All women had however, given their consent to participate and our experience is that mothers accepted the presence of the researcher midwives during these sensitive hours.

5 Results

5.1 Maternity care for women during normal childbirth (Paper I)

- On admission to the labour wards at different levels of health care in Zambia, most of the midwives performed some standard examinations of the woman in labour, such as measurement of blood pressure, abdominal palpation for foetal presentation, listening to the foetal heart and vaginal examination. However, information about the findings was not communicated to the labouring women.
- During labour, foetal monitoring and use of partograph were inconsistent, and the labouring women remained lying in the bed during the whole labour and delivery period. Food and drinks were withheld and the women were naked throughout the second and third stages of labour.
- All the primigravidae were put in stirrups in a lithotomy position from late in second stage until the end of third stage of labour.
- About half of the primiparae had an episiotomy performed and none of the women were given local anaesthesia prior to the intervention or before suturing. The indication why the woman had an episiotomy was not stated in any of the records.
- None of the newborn babies were carefully dried before being wrapped in cotton cloth for prevention of hypothermia.
- Sixteen (19 %) of the newborns who had an Apgar Score of 8-9 at birth were taken to the resuscitation table for gastric suctioning. All mothers and their newborns were separated immediately after birth until discharge from the hospital and breastfeeding was not promoted.
- There was a generally shortage of drugs, supplies and equipment such as gloves for the midwives and linen to cover the labouring woman and to dry and cover the newborns after birth.

5.2 Views on involving a social support person during labour in Zambian maternities (Paper II)

- More than 25 per cent of the newly delivered mothers were teenagers.
- Nineteen (63 %) of the women who had given birth at UTH and 32 (59 %) of the women who had given birth at urban or rural health facilities wanted a supportive companion to be present during labour.
- Those mothers who wanted to have a companion during labour and delivery mentioned that their preference of a supportive companion was a close family member such as the mother, sister or cousin. Nobody mentioned the husband as a first choice.
- The women wanted a companion who could provide emotional and practical support. Some of the mothers gave examples on what a supportive person could do for a labouring woman such as guiding the labouring woman through the labour process in a practical way: "*She could give me advice on what to do during labour*" and "*assist me to look after the baby after birth since I have abdominal pain.*"
- The mothers wanted a companion near for emotional reasons: "*I would feel safe if I had my mother nearby*".
- The women had various experiences of the health care staff and some said that health staff could reprimand mothers who did not meet the demands of the hospital. One woman said: "*Some nurses get angry even when you try to talk to them nicely, but your mother can understand since she knows that it is painful*".
- Some of the women were hesitant to having a social support person, present in the maternity unit during labour and delivery. Some of the delivered mothers indicated that it was the health staffs' role to take care of the labouring women.
- The newly delivered mothers had also the belief that the hospital was responsible for maternity care and that only health care staff had the expertise: "*Relatives have no role to play in hospitals apart from escorting me here*", "*My own mother is not trained to take care of labouring women, and she does not know what to do*".
- The health staff worried that social support person could contribute to infections in the wards and said that there was no policy for this routine. "*It is our duty to take care of the mothers.*" They had also a concern that relatives could spread information about how mothers behaved during delivery and that: "*Relatives encourage mothers to push before the second stage of labour*" and relatives "*give traditional medicine to the labouring women and this medicine is inserted in the vagina.*"
- The positive and negative views of the mothers and health staff regarding social support are presented in Figure 2.

POSITIVE VIEWS

Why a social support person is wanted in Zambian maternity

Mother



- Assistance to mother
- Company to mother
- Advice to mother
- Security to mother
- Provide human quality of care
- Guidance to mother
- Witness complications

Maternity care



Social support persons

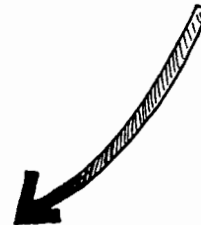
NEGATIVE VIEWS

Why a social support person is not wanted in Zambian maternity

Mother



- A social support person has no training/knowledge
- Embarrassment to mothers
- Interference with care
- Hospital has responsibility for care
- Spreading rumours about women



Health staff



- Assistance to staff
- Security to mother
- Help to solve problems
- Companion to mother
- Encouragement during labour
- Human quality of care
- Increase male involvement

Hospital policy



Health staff



- It is not a policy of hospitals
- Only health staff are experts
- Risk of infection
- Interference with care
- A social support person may use traditional medicine
- No space
- Spreading rumours about women

Figure 2. The views of mothers and health staff on involvement of social support persons in Zambian maternities.

5.3 Cultural childbirth practices and beliefs in Zambia (Paper III)

- The youngest social support woman was 18 years old and the oldest 62 years old.
- Nineteen percent of 36 social support women had no formal education.
- Eighteen of the 36 women interviewed answered that they were traditional birth attendant, *mbusas*, and conducted home deliveries. They did not conduct antenatal care services but if they were consulted, they explained illness or sickness during pregnancy by culturally accepted causes. Precautions and preventive measures should be taken as a pregnant woman and the foetus were believed to be in a physically and spiritually weak state and thus more susceptible to illnesses, sicknesses, witches and evil forces in the environment.
- The *mbusas* advised the pregnant women on the use of traditional medicine for example to widen the birth canal and to precipitate labour.
- Sexual relations during pregnancy was discussed and there was a general belief among the *mbusas* that sexual relationship outside marriage was harmful and that it could harm the unborn child and cause problems during labour such as prolonged labour or obstructed labour and/or death of the mother and baby.
- If a woman confesses that she has been unfaithful to her husband she should be given traditional medicine so that labour can progress well. The *mbusas* reported that a labouring woman is not supposed to shout or cry during labour and if does the baby can die.
- If a life-threatening situation occurred to the delivering mother the explanation was attributed to witchcraft or the labouring woman was purported to have misbehaved (infidelity), and thus she had to confess.
- Twelve of 36 social support persons interviewed were interested to offer support to labouring women in maternity units and learn more about childbirth care from the midwives.
- The women's views and beliefs concerning cultural childbirth practices in Zambia are summarised in Figure 3.

Cultural childbirth practices and beliefs in Zambia

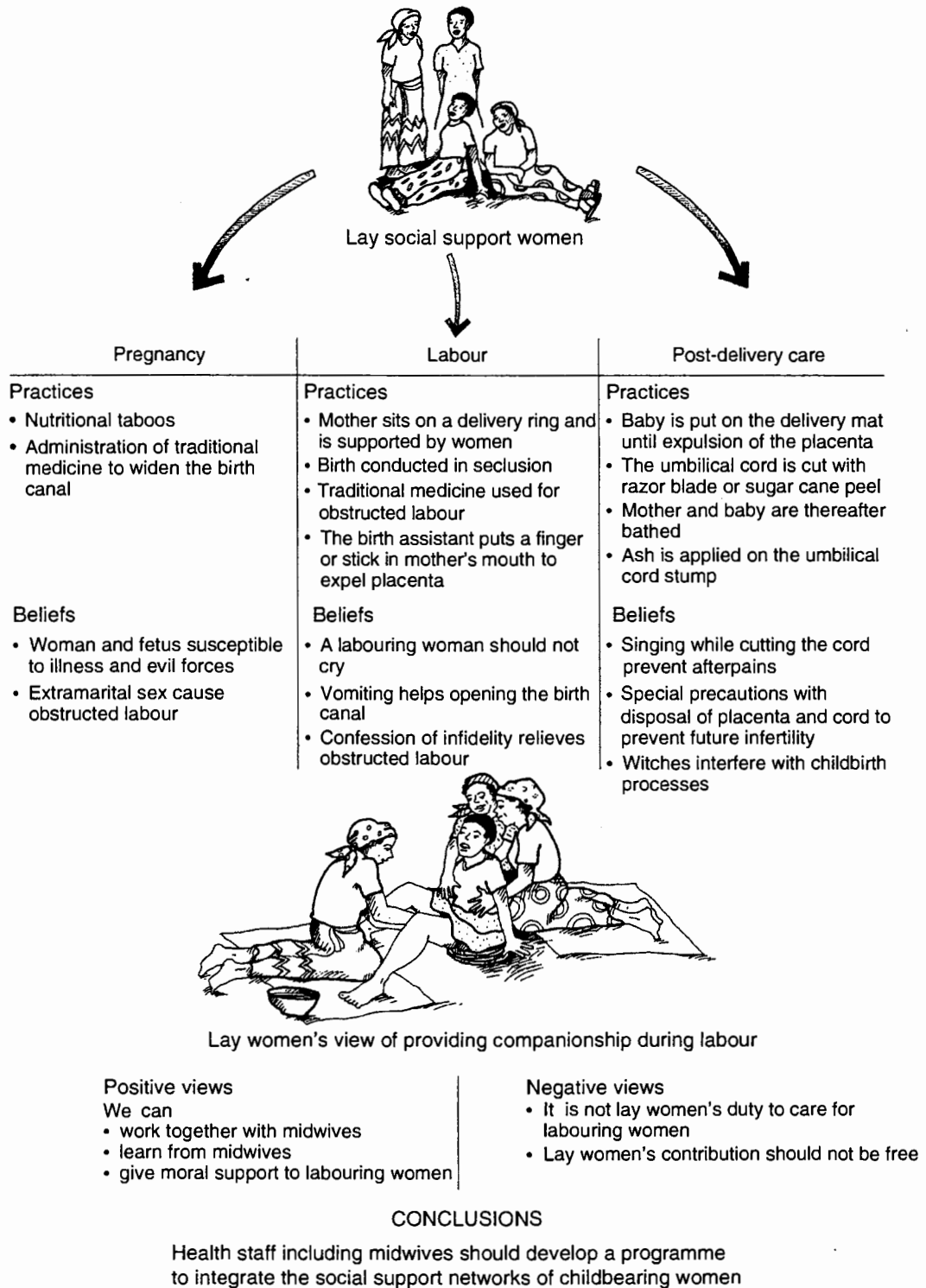


Figure 3. Social support women's cultural childbirth practices and beliefs in Zambia.

5.4 Safe motherhood and social support for primigravidae women in Lusaka, Zambia (Paper IV)

- About 40 per cent of the primigravidae were adolescents (14-19 years of age) and had significantly less years of education compared to the older groups ($p < 0.0000$).
- The majority (78 %) of the primigravidae had never used any contraceptive method and their main source of information on sexual issues was friends and mass media.
- Nearly half did not want the pregnancy.
- Sixty-three percent (63 %) of the women had made their first antenatal visit during the second trimester.
- There had been no antenatal preparation to prepare the women for parturition and their parenting role.
- Eighty five percent of the pregnant women had identified a social support person to assist them during pregnancy and after childbirth.
- Details on antenatal preparation are shown in Table 3.

Table 3. Antenatal preparation for motherhood (n=299) (Paper IV).

Variable	Group I 14-19 (y) n=124		Group II 20-24 (y) n=137		Group III 25+ (y) n=38		Total n=299	
	n	%	n	%	n	%	n	%
<i>First antenatal visit</i>								
1st trimester	13	10	35	25	14	37	62	21
2nd trimester	84	68	83	61	23	60	190	63
3rd trimester	27	22	19	14	1	3	47	16
<i>Who advised you to go to antenatal clinic?</i>								
my own decision	18	14	17	12	7	18	42	14
my husband/partner	42	34	58	42	11	29	111	37
my mother	39	32	24	18	9	24	72	24
others	25	20	38	28	11	29	74	25
<i>Has the clinic staff involved social network in health education?</i>								
yes	55	44	46	34	8	21	109	37
<i>Injection tetanus toxoid immunization?</i>								
no dose	26	21	20	15	2	5	48	16
one dose	43	35	29	21	9	24	81	27
two doses	55	44	88	64	27	71	170	57
<i>Has the clinic staff advised to take ferrous sulfate/folic acid?</i>								
no	40	32	25	18	7	18	72	24
<i>Previous diagnosis?</i>								
gonorrhoea	3	2	1	1	1	2	5	2
syphilis	12	9	8	5	2	5	22	7
medical disease	12	10	15	10	3	8	30	10

5.5 Effects of extra support to labouring women (Paper V)

- Of the 299 pregnant women who were randomised to three study groups I-III at the end of pregnancy, fifty-nine never came back to deliver at UTH.
- Forty-four per cent were teenage mothers and nearly 30 per cent were single.
- More than half of them had 8-12 years of education and about 20 per cent had formal employment.
- The outcomes of labour in the three groups differed. There was significantly more use of analgesia during labour ($p=0.033$), more caesarean sections ($p=0.010$) and more episiotomies ($p=0.008$) in control group – I compared to the supported Groups II and III.
- Significantly, more mothers in the supported groups perceived that they coped well with labour ($p=0.000$).
- There was no significant difference in labour outcome, whether a doula or a SSP supported a labouring woman. There was no difference in the groups regarding time of first breastfeeding after birth.
- For further information on outcome of labour in the study population see Table 2b Paper V.

5.6 Childbirth and breastfeeding experiences (Paper VI)

- More mothers in the supported groups stated that their labour had been very easy ($p=0.02$).
- All mothers reported that their newborns had been put with skin-to-skin contact with the mothers shortly after birth.
- Significantly more mothers in the supported groups answered that they were going to have enough milk for their babies ($p=0.01$).
- Most of the mothers did not know how often to feed the baby and there were misconceptions about the value of colostrum.
- In total 55 per cent of the fathers in Group I-III had not seen their newborns before the mother and newborn were discharged from the maternity unit.

6 Discussion

The studies in this thesis concern maternity care routines during normal childbirth in Zambia, particularly midwifery practices and the issue of social support (Paper I–VI). The thesis also touches on many burning issues in today's national and international discussions regarding a Safer Motherhood. Some of them are the issues of human resources in maternity care (Paper I,II), traditional and modern childbirth care (Paper III), content of antenatal (Paper IV), intrapartum (Paper I,V) and early postpartum care, including breastfeeding support (Paper VI). The findings of the thesis also concern adolescents' sexual and reproductive preparation for parenthood, access to contraception (Paper IV), and the value of civil society as social support to childbearing women (Paper V).

Some of the findings confirmed earlier evidence that provision of extra social support to labouring women has a positive effect on the outcome of labour (49,88,89) and this is also the case in the context of Zambian urban maternity care (Paper V,VI). A female social support person chosen by the expecting mother showed the same positive effects, as one chosen by the research team (doula) (Paper V,VI). Even though labour and delivery in modern maternity units are viewed as safer, it is important to consider both physiological and psychosocial aspects of care. An effective maternal and child health program can only be achieved through teamwork and the midwife is an important member of the team. The practices discussed here are also relevant to other team members concerned with maternal care, such as, obstetricians, paediatricians, health planners, policy makers and the civil society. Many of the recommended maternity practices during normal childbirth studied in this thesis were not appropriately implemented or evidence based, as suggested by WHO (1,2).

A new and confounding dimension of the maternity care at present is the high prevalence of HIV/AIDS, which is 28 per cent among antenatal mothers in Zambia. It is estimated that the percentage of HIV positive women, who will transmit the virus to their newborns, during pregnancy labour and through breastfeeding is as high as 39 per cent and this translates into 30-40,000 babies born with HIV-infection every year in Zambia. If recommended maternity practices are not applied adequately and correctly in addition with inadequate resources (gloves, needles etc) the mothers, newborns and the midwife may further be exposed to the risks of contracting HIV (52,90).

6.1 Maternity care for women during normal labour and delivery (Paper I)

The maternity care at different levels of health care in Zambia was studied. A critical review of conventional maternity care routines is essential and it is important to recognise that a good quality of maternity care is not a luxury; rather it constitutes evidence that the service is cost effective because it meets the woman's needs in an appropriate way (91). Maternity care has been criticised for being fragmented with lack of continuity of care, which may cause distress in the childbearing women (33). Women want to seek health services with confidence, be met with respect and to be attended to during pregnancy, labour and in the postnatal period by a qualified midwife with whom they have established a relationship (92). Developing a trusting relationship with the midwife is essential in promoting a positive childbirth experience (93). It is important for the woman to feel that she is special and not just one of the numerous women being cared for by the midwife (94).

All but two study settings, included in this thesis had doctors and registered midwives present and working in the maternities. However half of the deliveries were observed to be unsatisfactory, e.g. the labouring woman was left alone with poor supervision and in some cases there was even no assistance by the midwife during delivery mainly because of shortage of staff and especially in the rural areas.

In spite of this, none of the labouring women were allowed to bring a social support person to stay with them during labour. Similar practices from obstetric institutions in neighbouring countries have been described (34,88).

As reported in Paper I, when a woman in labour was admitted to the delivery ward, she was confined to bed during labour and in most cases the woman was left naked on the delivery bed until delivery. From a physiological point of view it has been established that there is no evidence supporting using the supine position during the first stage of labour. A woman in normal labour should be allowed to stand, walk, sit up or do whatever is comfortable for her unless there is a contraindication (1). Flynn et al. (95) found a significant lower incidence of foetal heart rate abnormalities when women were in the upright position.

The fact that the labouring women were left naked was partly due to lack of sheets and gowns in the delivery ward, but also due to lack of planning on the side of the midwife. The labouring woman could have been told to bring her own clean chitenge – (a cotton cloth used by Zambian women) – to be used to cover her while in labour.

As described in Paper I it was also found that there were inconsistencies in foetal monitoring and in the use of partograph in all the labour wards. The reason for using a partograph is to monitor the progress of labour and to detect labour complications e.g. prolonged labour. Furthermore, cephalo-

pelvic disproportion (CPD) must be considered when progress is slow. To monitor foetal well being is part of essential care during labour (1).

Lack of some of the basic resources e.g. blood-pressure machine, gloves, drugs etc. which are prerequisite to being able to carry out recommended care and examinations could be related to financial constraints in a low-income country (96).

The primiparous were delivered in lithotomy position and about half of them had an episiotomy performed. Local analgesia was not administered prior to the episiotomy. The indication as to why the woman had an episiotomy was not stated in the records. The indication for an episiotomy has usually been that it can prevent damage to foetal head and prevent damage to the muscles of the pelvic floor. Like other surgical procedures an episiotomy carries a number of complications such as infections and pain. It does not reduce the risk of perineal trauma or improve the healing but causes many problems for the women (97, 98). Randomised studies have found no evidence to support the routine use of episiotomy (99,100). There is also growing evidence that birth position may affect perineal outcome (101). A systematic review of the literature about women's position and second stage of labour highlight potential advantages of upright positions over supine and lithotomy positions. Benefits such as reduced duration of second stage of labour, reduced rates of assisted births, fewer episiotomies and fewer abnormal foetal heart rate pattern were noted. Risks included a small increase in the likelihood of second degree tear and blood loss greater than 500 ml (102).

Other practices such as separating mothers and newborns immediately after birth, as found in the study (Paper I), could result from lack of understanding of the importance of early mother-infant contact as part of normal childbirth care (37,103), and a general lack of orientation to evidence based practices (104).

6.2 Views about social support in Zambian maternity facilities (Paper II and III)

The health workers and some mothers suspected and feared that female relatives would bring "traditional medicine", mainly intended to shorten the labour, if they were allowed to provide social support in labour wards (Paper II). It is a well-known practice in the Zambian community, that women take traditional medicine of some sort in connection with childbirth. Furthermore many people generally combine modern and traditional medicine to compliment each other (52,63,65,67). What is not so well known, however, is what they take and what the actual pharmacological effects of these "traditional medicines" are. Some anecdotal accounts here and there might be seen as revealing the believed effects of the "traditional medicine". One woman who had taken the traditional medicine, shortly thereafter *"gave birth to a fresh stillbirth (FSB) and the placenta was discoloured and*

ragged". Other stories tell about precipitate labour and deliveries. Although studies from South Africa show that some of the traditional medicines taken in connection with childbirth contain oxytocics (105), a more systematic investigation is needed in Zambia to evaluate the traditional medicines and their content.

Instead of excluding an important human resource from care during pregnancy and childbirth, cultural practices and traditional medicines need to be identified, assessed and be discouraged if found to be harmful. Involving the social support person early in pregnancy care would provide an opportunity for the health staff to inform as well as educate the social network. The mothers in the study (Paper II) stated that the role of a social support person could be to enhance emotional and practical support to the woman in labour. The maternity staff also considered that extra social support to labouring women could be beneficial, if support women could be trusted not to bring traditional medicine into the labour wards. Some of the health staff thought that more attention should be given to the potential role of fathers during the birth of their children. They felt that fathers should be involved, especially as they otherwise would not understand what women go through. Some studies carried out in other cultural settings suggest that fathers should be better prepared for their task of providing support during childbirth (106-108). To be left alone in an unfamiliar environment such as in a busy labour ward is quite stressful for the labouring woman. Studies in human and primate mothers have indicated that there is an association between stress and arrest of labour and that increased levels of catecholamines decrease uterine contraction and result in longer labour (109). According to Keirse et al. 1989 (110) the culturally appropriate care offered by the doula may counteract the negative effects of the hospital environment. Indeed, the presence of a companion at birth is one of the five suggested measures in the Bologna Score (111).

Half of the lay women who followed the labouring women to maternity units considered themselves to be TBAs, and were prepared to be involved in maternity care as social support persons and felt that they could learn more from the modern trained midwives (Paper III). The preparedness of these women or other family members to give support to labouring women, could also be an important asset to the Zambian maternity care and goes in line with the suggestion in the Zambian Health Reforms (69).

6.3 Preparation for safe motherhood and social support for primigravidae (Paper IV)

About half of the primigravidae included in the study were adolescents – 36 per cent were unmarried and nearly half of them described the pregnancy as unwanted. In Zambia, like in other neighbouring countries, contraceptive counselling services are only provided for married women not even for their husbands (53). Adolescents and married women below the age of 18 years have had no contraceptive services at all, although it has repeatedly been documented that sexual activity with multiple partners starts at an early age for both sexes in Zambia. Too early and unplanned pregnancies, unsafe abortions, sexually transmitted infections and HIV/AIDS among the youth are thus a threat for the society (57). Consequences like school drop outs are not unusual. Furthermore, the role of the adolescent boys and men in sexual and reproductive health issues needs much more attention (112). In Zambia, as in most African countries, socio-cultural factors and lack of knowledge have prevented an open dialogue of sexuality, including abortion (113). Traditionally close relatives instil and might be seen as dictating the practices on reproductive norms through initiation ceremonies, usually carried out by grandmothers. The grandmothers may not have appropriate information about reproductive physiology and modern obstetrics and antenatal care. This could be one of the reasons why most of the pregnant women attended the antenatal care clinic late (Paper IV). Given the fact that 32 per cent of pregnancies in Zambia are teenage pregnancies (52) bridging the gap between modern and the traditional system will contribute in meeting the safe motherhood objectives. During initiation ceremonies, still widely practised in Zambia, one would also expect that, with the colossal impact of HIV/AIDS and the high awareness of its existence, the use of condoms, would be discussed in initiation ceremonies. But, studies indicate that at present this is not the case (25). Special training on how to deal with adolescents and men are clearly needed in Zambia especially in the area of HIV/AIDS (56).

Education of girls may be one of the most important ways of preventing unplanned pregnancies as education would create awareness about the need to access and use reproductive health services in time thereby contributing to the prevention of early births and pregnancy complications. Utilisation of health care is often related to educational level if the accessibility and level of health care are controlled for (114).

6.4 Effect of extra support to labouring women (Paper V)

The Randomised Controlled Trial (Paper V) in this thesis reports results of support of both psychosocial and physiological benefits. The study reveals that the mothers in the intervention groups coped significantly better with labour, and there was less administration of analgesia and oxytocin, but

also less caesarean sections. An interesting finding to our knowledge not earlier referenced was that there were significantly fewer episiotomies in the supported groups. Reasons for this are not clear. However, these findings could be related to less anxiety in the mothers and thus more effective uterine contractions (109,115).

However, the question of companionship during labour and delivery may be a more complex issue. Firstly, women's preferences may differ with regard to support during labour and delivery (72). Secondly, while some women would like and benefit from having a companion it was not a universal wish (Paper II). Some women would rather be alone or were concerned that their companion would reveal to others how they purported themselves during labour, "*she may say things in the compound afterwards*". This indicates that such interventions have to be individually tailored and carefully prepared. There may also be other inputs for helping women to "feel accompanied" e.g. by improved staff orientation on benefits of social support and physical lay out of the labour ward (personal communication Late Dr Godfrey Katema, The Managing Director of the University Teaching Hospital, Lusaka, Zambia, 1996).

6.5 Childbirth and breastfeeding experiences (Paper VI)

The finding from Paper VI reflect a change in one of the breastfeeding routines from earlier studies in Zambia and revealed that infants were no longer separated from their mothers immediately after birth as earlier described (116,117). Based on observations by the Zambian health staffs' working in maternity units and through research and continued training of staff, Zambian health staff with support from MoH and UNICEF took their own initiative to develop a national policy on breastfeeding practices in Zambia (43). This initiative may well have been the driving force in changing the maternity practices on breastfeeding.

There were significantly more mothers in the supported groups, who said they were going to have enough milk for their babies. Oakley contends that supported women tend to have less anxiety and enhanced self-confidence and self-esteem, better health in the postnatal period, less depression and feel more in control of their lives than unsupported ones (118).

The mothers had misconceptions about colostrum. A possible explanation for this is that mothers may view first milk as dirty, poisonous or contaminated. Withholding colostrum could have serious consequences for the newborn as it contains immunoglobulin necessary for development of immunity (38,119). Mothers should be supported to understand the negative implications of withholding colostrum. This information is necessary for new mothers so that they are aware of the benefits of giving their newborns colostrum. Parenthood classes should include this aspect and social support persons/grandmothers should be well informed on importance of early mother-newborn contact and colostrum (120).

6.6 Concerns for improved midwifery in Zambia

The results of the studies should be considered in the light, that until mid-twentieth century there was almost no midwifery staff in Zambia, and until 1960s nearly all Zambian women laboured and delivered at home. To give birth at home assisted by elderly and respected women has been a normal part of the reproductive process for ages. Urbanisation, migration and modernisation have changed the Zambian family structures and the introduction of modern medicine has brought a new option for childbearing women, the chance to deliver in hospitals and/or other health facilities, attended to by trained midwives. Despite this more than half of the Zambian women are still delivering at home, while almost all pregnant women utilise antenatal care prior to delivery. Regional and international advocacy meetings have been held to encourage low-income countries to prioritise provision of skilled attendance and attention. The international development target is that 90 per cent of all births assisted by skilled attendants should be met by the year 2015 (3). This need arises from the disappointment of earlier priorities – traditional birth attendants (TBA) training and antenatal "at risk" scoring- regarding impact on maternal mortality and the consequent threat of discontinuing donor support (121). There is no evidence that trained TBAs can prevent maternal deaths but they could be valuable sources of social and cultural support if they are closely linked with the health services (122). Other shortcomings within maternity care in Zambia are that only specialist doctors are permitted to conduct emergencies and that there might not be any specialist available in an emergency situation. Procedures like vacuum extraction have yet not been delegated to the midwives, although strongly advocated for by the Zambian General Nursing Council (123). *"Women are dying because societies have yet to make the decision that their lives are worth saving"* (15). Other solutions to the emergency problems are thus urgently required. A successful programme from Mozambique demonstrates that advanced elective and emergency surgical procedures with low rates of complications were performed by trained medical assistants (124).

Since independence, Zambia has trained approximately 5000 midwives under the auspices of Ministry of Health, regulated by the General Nursing Council of Zambia. However, many of the nurses/midwives have left their work or were retrenched at the onset of Zambia's structural adjustment programme. The adjustment programme was implemented in 1992 in accordance with the demands of the World Bank (125), as a precondition to helping the country. As there are shortages of midwives in many countries including more wealthy countries (6), many midwives have also left Zambia to work elsewhere both within and outside Africa. A study from Zimbabwe affirms a similar pattern. In their study it was found that the nurses were concerned about poor working conditions, overwork and patient dissatisfaction (126). The quality of maternity services has been adversely affected by a number of other factors. Over the years the government's budgetary allocations to the public service sectors including the health

sector have declined (127). Furthermore the health service has become a very stressful place to work in after the advent of AIDS. Health personnel often feel helpless and demoralised because of the epidemic and may distance themselves from their patients. There is no medicine available to cure the disease and the health staff in general, who have received little or no education about sexuality, feel incompetent to deal with families and spouses of patients. This situation is further compounded by the fact that there is considerable stigma attached to HIV/AIDS (128,129). Many of the few nursing/midwifery teachers who are qualified for the task and very much needed in the educational system and health service have left their jobs for more lucrative positions in international organisations. In this context we should not overlook the fact that the Zambian female health professionals have similar financial responsibilities for their families as their male counterparts. It has also been discussed that one long-term outcome exacerbating the existing skills shortage may be the fact that fewer students will opt for medical and nursing training in countries with advanced HIV/AIDS epidemics (129,130).

Although a lot of research activities and research training has taken place in Zambia, the involvement of nursing and midwifery personnel as researchers and research students in international research collaboration has been limited. There are several reasons for poor development of research capacity for the nursing and midwifery staff in Zambia. Research has been seen as something very special and often medical doctors are prioritised. Moreover, research from the government and institutions are quite scarce and there is lack of systematic monitoring of key health indicators to be used for national policy development. These indicators should be communicated and displayed for drawing conclusions both nationally and internationally (131).

The training curriculum for Zambian midwives has a component on introduction to research methodology. However, there is inadequate capacity among tutors to teach research methodology. Furthermore, for Zambian women researchers there are several gender-related obstacles for access to research training. Usually, overseas research training involves longer period of stay in another country, away from children and family. This also mars the ability of midwives, senior nursing and midwifery staff to undertake research training. Fortunately, Sida/SAREC and the Swedish Institute have supported a "sandwich" research training programme which is relatively gender sensitive and allows shorter stays in Sweden, while most of the research work is done in Zambia. This type of international research collaboration needs to be encouraged if health staffs, particularly nurses and midwives, are to be targets for research training (132,133). Through the international research collaboration, there has been an increased awareness about the need for research and development activities both at local, national, regionally and at international levels. Followed by this initiative which started in mid 1980s a multidisciplinary group of midwives, doctors, psychologists and social scientists, have been trained to

support other researchers to-be. Through a special grant from the Netherlands Government computer facilities were installed at the School of Nursing, Lusaka and the Norwegian government through NORAD gave support to a community-based research study within reproductive health. In 1992 a network for research interested midwives, Africa Midwives Research Network (AMRN) was initiated in Tanzania at a reproductive health workshop sponsored by SAREC. Since then there is an ongoing collaboration at national, regional, and international levels through the AMRN network (134), and with the East Central and Southern Africa College of Nursing (ECSACON) (135) with the aim to provide in-country and regional research training to midwives. New links to the network has also been established with the Nurse-to-Nurse Partnership Model (NNPM) at the University of Alabama, Birmingham, USA and this link is financially supported by the University of Alabama. NNPM also provides in-country research training in Zambia.

For human capacity building and long term planning it is important to start with students under training. For this purpose a new programme entitled the Linnaeus-Palme an exchange programme for teachers and students at undergraduate level in higher education, has been launched. The programme is financed by Sida and aims at strengthening co-operation between higher education institutions in Sweden and those outside the OECD area thereby promoting global links in the world of higher education. Lusaka Schools of Nursing/Midwifery, since 2001, are part of this programme.

7 Conclusion and recommendations

7.1 Caring implications of the findings

- Maternity policies and guidelines should be formulated and discussed, so that caring goals, such as continuity of care and women's participation in birth planning can be met. The findings from the studies should be used for further discussion on quality assessment and improvement of midwifery care.
- Special attention should be paid to adolescent and single women in the design of maternity care routines and fertility regulation programmes. Here co-operation with other sectors such as education/schools, religious groups/churches, NGOs and civil society at large should be strengthened.
- Criteria should be developed for exemption from payment for maternity services for the very poor women.
- Maternity care routines should be organised so that they support the physiology of the mother and her newborn and early breastfeeding.
- Special efforts should be made to allow social support persons to be with the childbearing women during childbirth in maternity units.
- The midwives need refresher courses to reorient their caring practices to more culturally and evidence-based maternity care.
- The midwives need guidelines for management of normal childbirth and assisting births in other positions than the supine.
- The midwives should strengthen the social aspect of antenatal care through parenthood classes and integration of social support network in the maternity units.
- The midwifery curricula should include a component of teaching parenthood classes and involvement of social support networks during antenatal care.

7.2 Policy implications of findings

- With regard to the serious shortage of health staff including teachers in training institutions in Zambia, politicians, planners and donor agencies should look for ways to strengthen the support to the educational system.
- Culturally- specific knowledge should be used to guide policy-makers and health planners in the future development of safe motherhood initiatives in Zambia.
- Policy makers should be sensitised to the need for strengthening national nursing/midwifery research units within the existing University system, such as School of Medicine/Post Basic School of Nursing.

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