FACTORS INFLUENCING DELIVERY BY SKILLED BIRTH ATTENDANTS AMONG THE MOTHERS IN KAVRE DISTRICT, NEPAL

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A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF PRIMARY HEALTH CARE MANAGEMENT FACULTY OF GRADUATE STUDIES MAHIDOL UNIVERSITY 2010

Thesis
entitled

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was submitted to the Faculty of Graduate Studies, Mahidol University
for the degree of Master of Primary Health Care Management
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ACKNOWLEDGEMENTS

Whatever I am now it is only because of pursuing his footsteps. So at first I would like to acknowledge my father **Mr. Dirgha Raj Shrestha** for always being by my side.

It is my prestigious privilege to express my deepest gratitude and appreciation to my major advisor **Dr. Supattra Srivanichakorn** for her keen and constant valuable guidance throughout the study.

It is with sincere gratitude and pleasure that I acknowledge my co-advisor **Dr. Jutatip Sillabutra** for her precious suggestions and valuable directions during the course and during conducting my thesis. Special thanks are due to **Dr. Bang-on Thepthien** and **Dr. Cheerawit Rattanapan** for their suggestions. Each has been most gracious, diligent and resourceful in their efforts to accomplish this thesis work.

I am greatly indebted to all the **Professors, lecturers, staff of MPHM and ASEAN house**. It would have never been a successful venture without their supports.

For their sustained loyalty and extra efforts, I express my deep gratitude and sincere appreciation to my **mother, sisters and my friend** for their love and encouragement during the stay in Thailand.

Thesis writing is truly a labor of love that makes one feel humble and grateful to countless individuals who have made it possible. Hence I am forever grateful to those I have identified and others not recognized here.

Shrinkhala Shrestha

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ABSTRACT

A cross-sectional study was conducted to determine the factors influencing delivery by skilled birth attendants among mothers living in Kavre District of Nepal. The 150 mothers attending immunization centers at the time of the study were purposively selected and interviewed by structured questionnaire. Descriptive analysis, the Chi-square test, and multiple logistic regressions were used this study.

In the study, 60% of the mothers who had recent delivery were assisted by skilled birth attendants. Most of the mothers (90%) were 20 to 34 years old and 29.33% of them were from the Chettri caste. 33.33% of mothers and 51.33% of their husbands had completed secondary level education. Among mothers who had an antenatal check up, 81.25% had completed the antenatal check up. 60% of deliveries were attended by skilled birth attendants.

Statistically significant association was found between skilled birth attendants and these factors: socio-demographic factors regarding the caste of the mother (p-value = 0.002) type of family (p-value =0.025), monthly family income (p-value = 0.019), education of the mother (p-value = 0.002), education of her husband (p-value < 0.001) and occupation of the husband (p-value = 0.003). Beside these, completeness of antenatal check up (p-value = 0.001) place of delivery (p-value < 0.001), payment of services (p-value < 0.001), knowledge of the mother regarding safe delivery (p-value = 0.039) and perception regarding the safety of safe delivery (p-value = 0.026) were also found to be significantly associated with the delivery by skilled birth attendants. Multiple logistic regression showed a significant association between the completeness of antenatal visits (OR= 2.95 CI= 1.00-8.74) with the delivery by skilled birth attendants.

Information regarding normal and abnormal pregnancy and delivery as well as emergency signs of pregnancy and delivery should be provided to mothers and their families. The presence of female health workers providing maternal health services and conducive environments in the health care facilities can encourage women to seek health care services.

KEY WORDS : DELIVERY/ SKILLED BIRTH ATTEDANTS/ MOTHERS/ SAFE DELIVERY

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LIST OF ABBREVIATIONS

ANC	:	Antenatal Care
ANM	:	Axillary Nurses Midwives
BCG	:	Bacillus Calmette Guerin
CPR	:	Contraceptive Prevalence Rate
FCHV	:	Female Community Health Volunteer
FIGO	:	Federation on International Gynecologists and Obstetrician
ICPD	:	International Community Population and Development
MCHW	:	Maternal and Child Health Worker
MDG	:	Millennium Development Goal
MMR	:	Maternal Mortality Rate
NDHS	:	Nepal Demographic Health Survey
NRs	:	Nepalese Rupees
PHCC	:	Primary Health Care Center
PNC	:	Postnatal Care
Q.D.	:	Quartile Deviation
SBA	:	Skilled Birth Attendants
S.D.	:	Standard Deviation
SDIP	:	Safe delivery Incentive Program
TBA	:	Traditional Birth attendants
UNFPA	:	United Nations Fund for Population Activities
UNICEF	:	United Nations Children's Emergency Fund
USBA	:	Unskilled Birth Attendants
VDC	:	Village Develop Committee
WHO	:	World Health Organization

CHAPTER I
INTRODUCTION

1.1 Rationale and Justification

Improvement of maternal health has been the major priority in public health sector for the last four decades. Many efforts have been made globally and nationwide to improve the health and overall status of women. The celebration of International Women's Year in 1975, the United Nations Decade for Women 1976-1985, the International Conference on Better Health for Women and Children through Family Planning held in Nairobi in 1987, the International Conference on Population and Development (ICPD) in 1994, the Beijing Conference of Women in 1995 and the Millennium Development Goals declared by United Nations Millennium Summit in 2000 all reflect major international commitments to improve the health status of women (2).

Despite of these global commitments, the health status of women is still tragic. The World Health Organization (WHO) in 2007 estimated that 536,000 women die each year due to pregnancy related causes, with the overwhelming majority (99 %) or them in developing countries. The average Maternal Mortality Ratio (MMR) worldwide is 400 per 100,000 live births (1). The MMR in developed and developing countries are significantly different. In developed countries, the MMR averages around 27 per 100,000 live births, whereas, in developing countries the ratio is nearly 20 times higher at 480 per 100,000 live births (3). Where women have many pregnancies, the risk of maternal death is magnified. In some developing countries, one woman in 12 may die from a pregnancy related problem compared to 1 in 4000 in industrialized countries (4).

The medical causes of maternal deaths are almost similar throughout the world. Globally, about 80% of all maternal deaths are the direct result of complications during pregnancy, delivery, and the postpartum period (5). The single most common cause, accounting for a quarter of all maternal deaths is severe bleeding, especially postpartum haemorrhage. Sepsis accounts for some 15% of maternal deaths. Hypertensive disorders of pregnancy, particularly eclampsia cause approximately 12%. Prolonged or obstructed labour accounts for a further 8%. Complications of unsafe abortion are responsible for 13% of maternal deaths worldwide (1). Poverty, socio-cultural factors, gender discrimination, availability of essential maternal health services and political insecurity intensify the causes of maternal deaths (1).

Reducing maternal deaths requires action by families, communities, society as a whole, health systems, and policy and legislation at legislation at national level. However, the health care that a woman receives during pregnancy, at the time of delivery, and immediately after delivery is of major importance for the survival and well-being of both the mother and the child.

The situation of maternal health in Nepal is not different from other developing countries. The National Demographic Health Survey in 1996 estimated the MMR to be 539 per 100,000 live births (6). The Human Development Report for 2004 by the United Nations Development Program (UNDP) estimated the ratio to be higher than the government report at, 740 per 100,000 births (7). However, the latest report by the Nepal Demographic and Health Survey 2006, reported the significant reduction in MMR from 539 deaths per live birth to of 1996 to 281 in 2006 (6). Based on this data, 2066 maternal deaths occurs each year in Nepal, which is equivalent of 6 deaths a day and 1 death in every 4 hours (8).

Whatever the actual number, the reality for pregnant women in Nepal is extremely miserable. In 2008, to serve an expected 725,510 pregnancies, only 51 hospitals had the capacity of provided comprehensive emergency obstetric care services. A further 68 hospitals and Primary Health care Centers (PHCCs) offered basic emergency care and 131 PHCCs and 254 health posts provided 24 hour delivery

care. This makes an average of about 1,440 births per facility of any kind, an unmanageable number for the limited facilities and staff available in most rural and district facilities (9).

The situation aggravated by the concentration of services in urban areas, which leave rural women desperately under-served. Only 15.8 % of births took place in a health facility in 2007/2008. The target for 2017 is 40 % (9).

In Nepal, the causes of maternal deaths are similar to the causes elsewhere in the world. At the community level, the common causes of maternal deaths are ; postpartum haemorrhage, obstructed labour, pre-eclampsia/eclampsia, sepsis and unsafe abortion (1).

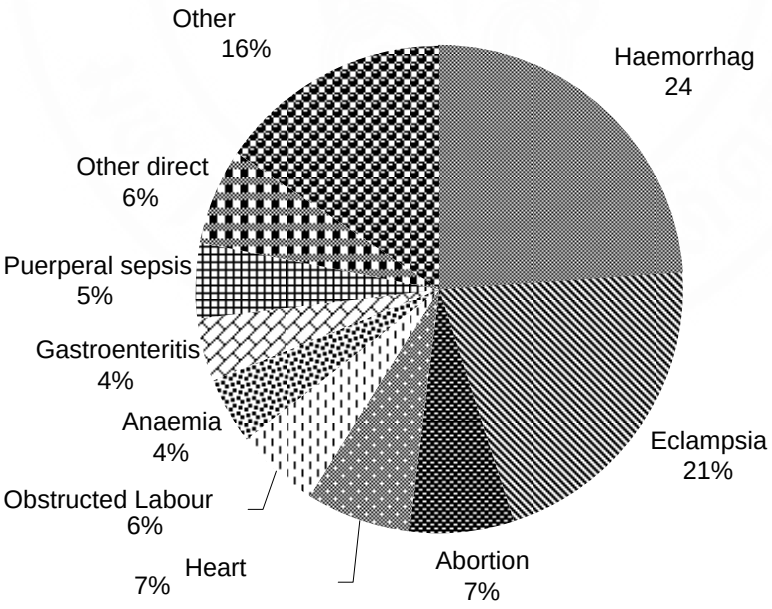

Figure 1.1 Breakdown of causes of maternal death in Nepal 2008/2009 (10)

For these medical causes of maternal deaths health experts blame three main factors for the high mortality rate, referring to them as 'the three D's' especially in rural areas of the country . They are (11)

1. Delay in seeking care
2. Delay in reaching care and
3. Delay in receiving care.

The global initiative to reduce maternal mortality and promote safe motherhood practices started in the mid 1980s but Nepal was slow to start any national initiative despite having one of the highest death rates. It was only after the International Conference on Population Development (ICPD), Nepal finally launched the national safe motherhood plan of action. International pressure following the national health survey of 1996 pushed the government of Nepal into initiating a program of action. Nepal has a long way to go to achieve the Millennium Development Goal of achieving a 60% attendance at birth by trained personnel and reducing the MMR to 134 per 100,000 births by 2015(13).

In the MDG framework, two indicators were formulated for monitoring progress towards the maternal health goal namely, the MMR and the proportion of deliveries assisted by skilled health care provider. WHO is calling for a global movement to ensure that every pregnant woman and her newborn have access to a skilled attendant (12). There is now a global consensus on what must be done to eliminate the threat of maternal deaths once and for all. Already in 1999, a joint WHO/UNFPA/ UNICEF/World Bank statement called on countries to "ensure that all women and newborns have skilled care during pregnancy, childbirth and the immediate postnatal period" (13).

Globally, about 80% of all maternal deaths are the direct result of complications arising during pregnancy, delivery, or the puerperium (4). Many of these deaths can be prevented if women assisted by skilled birth attendants during the delivery. In many countries, which have successfully reduced maternal mortality,

women have had high levels of access to skilled attendants at birth and effective referral to emergency obstetric care when needed.

Women remain at increased risk of death for some time after childbirth. Maternal deaths have conventionally been defined as those occurring up to 42 days postpartum, although recently a new category has been proposed to include late deaths up to 1 year postpartum. This change in definition is important since there is evidence that the risk of death is increased for up to 6 year postpartum (14).

The Nepal Demographic Health Survey, 2006 showed that four out of five births (81%) take place at home. Only 19% of all births the births take place with the assistance of skilled birth attendants. The government has initiated free delivery services, complementing the safe delivery incentives, to encourage women to deliver in a health facility. Nevertheless, four out of five women still undergo deliver at home where they deliver their babies with assistance from family members or traditional attendance (6).

The study site is located in the Kavrepalanchowk District, adjacent to Kathmandu, the Nepalese capital with the distance from the district to Kathmandu 30 km. The central and surrounding parts of the site are relatively urbanized, with access to electricity, several primary schools and a secondary school, and a well-equipped primary health care centre and Hospitals, which provide emergency obstetric services. The remote part of the site is hilly, and it can take up to 3 hours to walk to the health centre. A 2 to 5 hour journey, on foot and by bus, is required to get to the hospitals. Even so, people have reasonably good access to the medical facilities compared to the more remote regions of Nepal.

Kavre district is one 75 districts in Nepal. It has population of 385,672 in three Municipalities and 87 village development committees (VDCs) in Nepal. The district consists of three Municipalities and 87 Village Development Committee. According to the Census of 2001, the total population is 385,671 with the female population of reproductive age (10-19 years) 95,119. The expected pregnancies for the

year 2004 were 14,624 and the estimated number of infant population was 12,450. The infant mortality rate was 37.5 per 1,000 live births (25). The immunization coverage of BCG (<1 years) was 81.6%. The measles coverage of 2008 of this district was 74.4%. The dominant ethnic/caste groups nearly half of the residents are Brahmin and Chhetri (both are higher Hindu caste). The second-largest group, accounting for nearly one fourth of the population, is the Tamang.

Previous research by Bhatta BN, (16) showed that home delivery of Kavre district is 86.1%. Most of the deliveries in this district were still assisted by Mothers-in-law (50.4%) and only 23.4% assisted by health workers.

Therefore, understanding the underlying factors that led to the safe delivery is essential and help to identify what could be done to prevent unnecessary deaths. This study was proposed to ascertain the prevalence of delivery by skilled birth attendants and to determine factors influencing the delivery assisted by skilled birth attendants. The findings of this study would be helpful for planning and implementing safe delivery at health facilities for the development of maternal and newborn health.

1.2 Research questions

What are the factors influencing delivery by skilled birth attendants among the mothers in Kavre District, Nepal?

1.3 Research objectives

1.3.1 General objective

To determine the factors influencing delivery by skilled birth attendant among mothers in Kavre District, Nepal

1.3.2 Specific objectives

1. To describe the prevalence of delivery by skilled birth attendants

2. To describe the independent variables, including socio-demographic factors, obstetric experiences, availability and accessibility of services and knowledge and perception on safe delivery

3. To identify the association between independent variables and delivery by skilled birth attendants

1.4 Conceptual framework

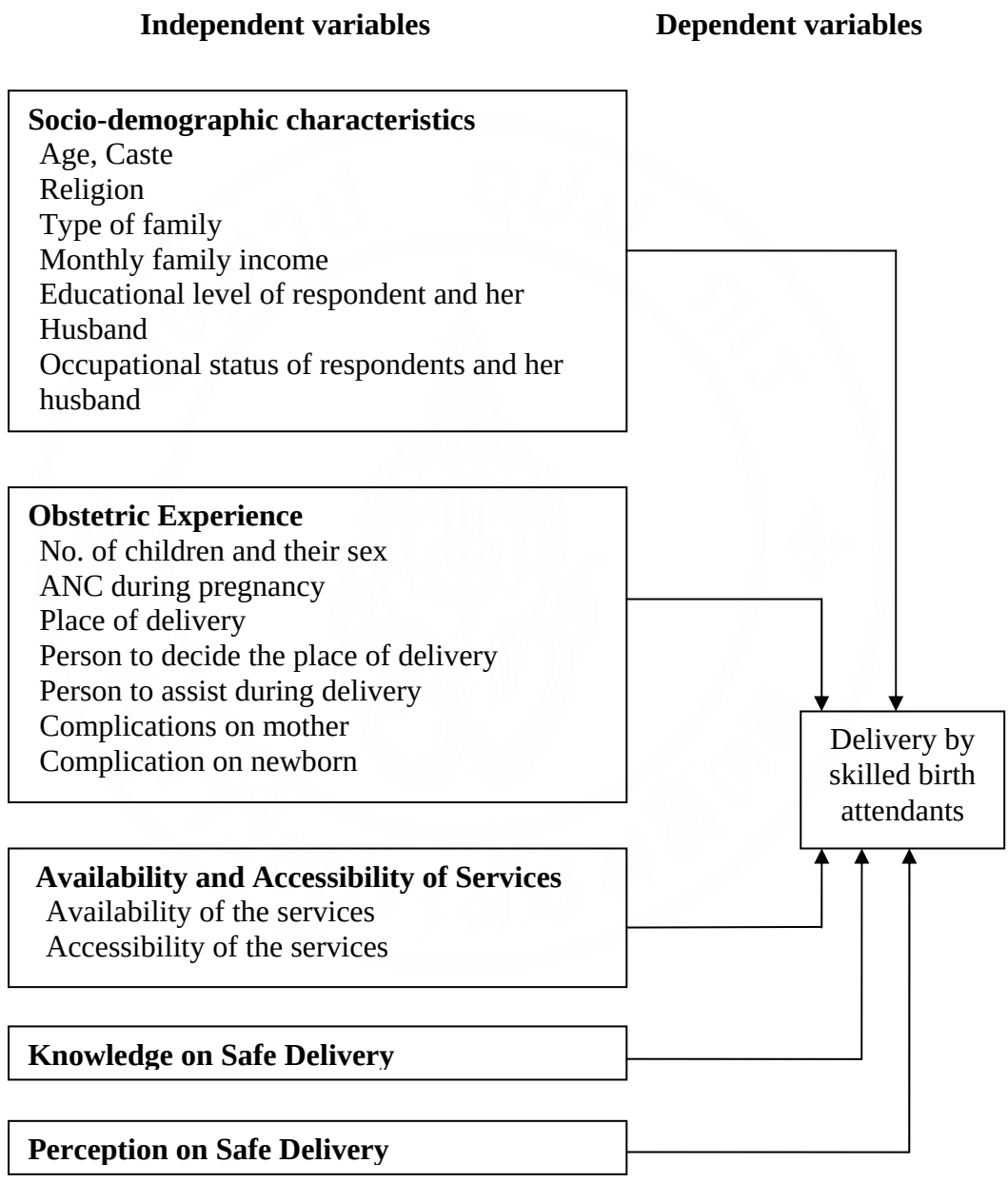

Figure 1.2 Conceptual framework (based on Andersen and Newman framework of health services utilization)

1.5 Operational definition of variables

1.5.1 Dependent variables

Skilled birth attendants: An accredited health professional-such as a doctor, midwife or nurse-who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the postnatal period and in the identification, management and referral of complications in women and newborns (47).

Doctors, nurses, Axillary Nurse Midwives (ANMs) are skilled birth attendants (SBAs). Physicians, gynecologists and obstetricians and other health personnel with at least 18 months training in maternal and child health were considered as skilled birth attendants.

Mothers: refers to all the mothers who had children aged less than 1 year, and came to immunize their children at the routine immunization centre.

1.5.2 Socio demographic factors

Socio demographic factors of the mothers included age, caste, educational status of the mothers and their husbands, occupation of the mothers and their husbands and the monthly income of the family.

Age: refers to the complete age of the mothers at the time of interview. Age was divided into three groups, below 20, 20-34 years and above 34 years.

Caste: refers the social group in which they belonged. It was categorized into Brahamin, Chettri, Newar, Tamang/Magar and others.

Type of family: refers to the mother lives after married. There are two types of family.

1. Nuclear Family: It is the family that includes only the husband, the wife, and unmarried children.

2. Joint family: It has two or more adults from different generations of a family, who share a household. It consists of more than parents and children. It may include parents, children, cousins, aunts, uncles, grandparents, foster children, etc.

Monthly family income: refers to the sum of the wages, salaries, rents and other received in a month. It was categorized into NRs. <11,000, 11,000-15,000, >15,000.

Educational status: The educational level of mother and her husband refer to the formal educational level attended by them. The level of education was categorized into illiterate, literate only, primary, secondary and higher.

Occupational status: It is the present main job of both husband and wife from where they earn. The occupation of mother was categorized into agriculture, housewife, business, service, labourer and others. For her husband, it was categorized into agriculture, business, service, labourer and others.

1.5.3 Obstetric experience

Regarding obstetric history, information about children, antenatal cares, problems during pregnancy, problems during delivery and problems after delivery was obtained. This information was obtained from recent delivery and if a mother had two or more children, history of previous two deliveries. If mother had more than three children, only last three pregnancies and deliveries were considered.

Number of children and their sex: refers to the number of live children born to a mother and still alive and their sex

Antenatal care during pregnancy: refers to whether mothers had antenatal check up during pregnancy period. Antenatal check up 4 or more than four times was considered completed and less than 4 times as incomplete antenatal care.

In this study, the number of ANC checkup in last three previous pregnant was taken into account.

Place of delivery: refers to the place where a mother's recent and or past deliveries occurred. It was categorized into Government hospital, Nongovernmental hospitals, private sectors, primary health care center, health post, home and others.

Person to decide the place of delivery: refers to the main person who decided where to deliver the baby. It consisted of self, husband, mother in law or other.

Person to assist during delivery: refers to the person who helped her during the time of giving birth. They may be doctor, nurse, midwife, Auxiliary Nurses Midwives (ANMs), health assistants or health worker, female community health volunteers (FCHVs), traditional birth attendants, relatives and none. Only doctor, nurse or Midwife and ANMs are considered skilled birth attendants, others are unskilled birth attendants.

Complications on mothers: refers to antenatal visits and any difficulties or abnormalities or complications faced by mother during pregnancy, during delivery and after delivery. The complications of recent and other two previous deliveries had been considered. The number of complications were taken into account.

The complications that a woman may during pregnancy were as follow:

- Per vaginal bleeding
- Severe abdominal pain
- Preterm premature rupture of membrane
- Fever over 100^0F
- Blurry or impaired vision
- Severe headache
- Fits
- Painful and burning urination

The complications that a woman may face during delivery were as follow:

- Severe bleeding
- Unconsciousness
- Prolonged labour
- Obstructed labour
- Malpresentaion

After delivery women may have the following complications:

- Heavy or sudden increase in vaginal bleeding
- Vaginal discharge with unpleasant odor
- Severe headache
- Fits/seizures
- Burning and/or frequency of urination
- Sleeplessness or depression
- Calf pain or tenderness
- Continuous leakage of urine or stool

Complications or abnormalities faced by the newborn are as follow:

- Blueness of body
- Sucking poorly
- Difficulty breathing
- Lethargy
- Jaundice

1.5.4 Availability and accessibility of services

Availability of the Services: It refers to the sufficiency of health care facilities. It consisted of nearest health care facility and availability of SBAs.

Accessibility of Services: It refers to the ability to obtainibility delivery service at a health care facility without encountering any obstacles regardless of time or the day of the week. It includes the convenience of facility, mode of transportation, duration to reach the service with appropriate treatment and payment of the services.

1.5.5 Knowledge on safe delivery

It refers to mother's understanding on safe delivery. It included danger signs of pregnancy and delivery, and safety of pregnancy and delivery.

1.5.6 Perception on safe delivery

It refers to the thinking of mother about safe delivery and reaction to possible problem that may occur during pregnancy delivery and after delivery. It was measured in terms of perception on safety, perception on benefit and perception on barrier of safe delivery.

1.6 Limitation of the study

This study had been conducted by the interview method with structured questionnaire. Mothers were asked on the information about last three pregnancies. So mothers may not remember or may not tell the truth. So the data may have the recall bias.

CHAPTER II
LITERATURE REVIEW

In this chapter, the contents are as follow:

2.1 Skilled birth attendants

Most maternal deaths are caused by haemorrhage, obstructed labour, infection, eclampsia, and complications from unsafe abortion. However, a growing proportion of deaths are attributed to indirect non-obstetric conditions. While the obstetric complications of pregnancy and delivery are not all predictable or preventable, they are all treatable (19).

Skilled birth attendants are trained to recognize problems early, when the situation can still be controlled, to intervene and manage at complication, or to stabilize at condition and refer the patient to a higher level of care, if needed. Skilled attendance is also vital to protecting the health of newborns: the majority of perinatal deaths occur during labour and delivery or within the first 48 hours after delivery (20).

Well intended efforts to reduce maternal and newborn mortality and morbidity have been under way for more than a decade. These efforts have resulted in

success in a few countries, but regrettably, progress in most countries has been unacceptably slow. Experience from past projects and ongoing research, point to the importance of access to a functioning health care system as a key factor in reducing maternal mortality. Currently, as part of economic development support linked to Millennium Development Goal targets, health systems are being reformed and strengthened in many developing countries. WHO, ICM and FIGO believe that this is an opportune moment to push the case for skilled attendants with a view to ensuring that this vital function is institutionalized in the newly reformed/ developing health systems (13).

A skilled attendant should be able to perform the following functions at home or in a facility (37)

1. Safely conduct a normal delivery using aseptic techniques
2. Use partograph to recognize obstructed labour
3. Active management of the third stage of labour
4. Provide immediate care of the newborn including resuscitation
5. Initial management of postpartum haemorrhage through use of parenteral oxytocics and abdominal massage
6. Initial management of pre-eclampsia and eclampsia through use of magnesium sulphate
7. Recognize and manage postpartum infection through use of parenteral antibiotics
8. Know how and when to refer women to the next level of care and stabilize them for their journey

In a facility delivery, a skilled birth attendant should also be able

1. Repair tears
2. Manually remove the placenta
3. Perform assisted vaginal delivery through the use of a vacuum extractor
4. Manage an incomplete abortion with manual vacuum aspiration (MVA)

Adapted from Carlough and McCall 2005 and UNFPA 2004

A 75% reduction in maternal mortality worldwide by 2015 is one of the millennium development goals and a priority in global public health. Skilled birth attendance is regarded as a key factor in reducing maternal mortality, primarily through prevention of infections and haemorrhage, and secondarily by recognizing and acting upon possible complications in a timely manner. In the event of the latter, the availability of emergency obstetric care is fundamental, although availability alone is insufficient to ensure real access (22).

About fifteen per cent of all pregnancies will result in complications (20, 23). Most complications occur randomly across all pregnancies, both high- and low-risk. They cannot be accurately predicted and most often cannot be prevented, but they can be treated.

Most maternal deaths occur close to the time of delivery, underscoring the need for timely interventions. The major causes of maternal death require medical interventions: Severe bleeding, infection and eclampsia can often be managed by a skilled professional in a health facility, while Caesarean sections to resolve obstructed labour and safe blood transfusions require more fully equipped hospital facilities (19). Nearly all these lives could be saved if affordable, good-quality obstetric care were available 24 hours a day, 7 days a week.

Essential obstetric care is the term used to describe the elements of obstetric care needed for the management of normal and complicated pregnancy, delivery and the postpartum period. Essential Obstetric Care is defined for two different levels of the health care system. Basic essential obstetric care services at the health centre level should include at least the parenteral antibiotics, or oxytocin drugs or sedatives for eclampsia and manual removal of placenta or retained placenta products (37).

Comprehensive essential obstetric care services at the district hospital level (first referral level) should include, in addition, surgery, anaesthesia and blood transfusion.

2.1.1 Situation of Skilled birth attendants in world

An accredited health professional-such as a midwife, doctor or nurse- has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the postnatal period and in the identification, management and referral of complications in women and newborns (47).

It has been estimated that between 13% and 33% of maternal deaths could be eliminated by the presence of skilled attendants at delivery. World-wide, 65.7% of births were attended in 2000 by a skilled health worker. Although nearly all births were attended by skilled health personnel in developed countries, this proportion fails to 61.9% in less developed countries and is only 35.3% in the least developed countries (21).

Almost all births in developed countries are attended by skilled birth attendants. In developing countries, the figure is 57%. However, in some of the least developed countries it falls to only 13%. The lowest levels are in Eastern Africa (34%), South- Central Asia (38%) and Western Africa (40%), with much higher levels in South America (34).

Of those women living in developing countries who do receive assistance, many will not receive the quality of care. They need to preserve their live, their health, or that of their newborns. In developed countries and countries in transition, about 90% of mothers had access to skilled health workers during childbirth. While the presence of skilled staff in urban areas is continuing to grow, progress is held back by stagnation in rural areas—mainly in south and Southeast Asia and sub-Saharan Africa, where the population is still mostly rural (36).

In countries such as China, Cuba, Egypt, Jamaica, Malaysia, Sri Lanka, Thailand and Tunisia, significant declines in maternal mortality have occurred. More women have gained access to skilled birth attendants with backup emergency obstetric

care. Many of these countries have halved their maternal deaths in the space of a decade (20).

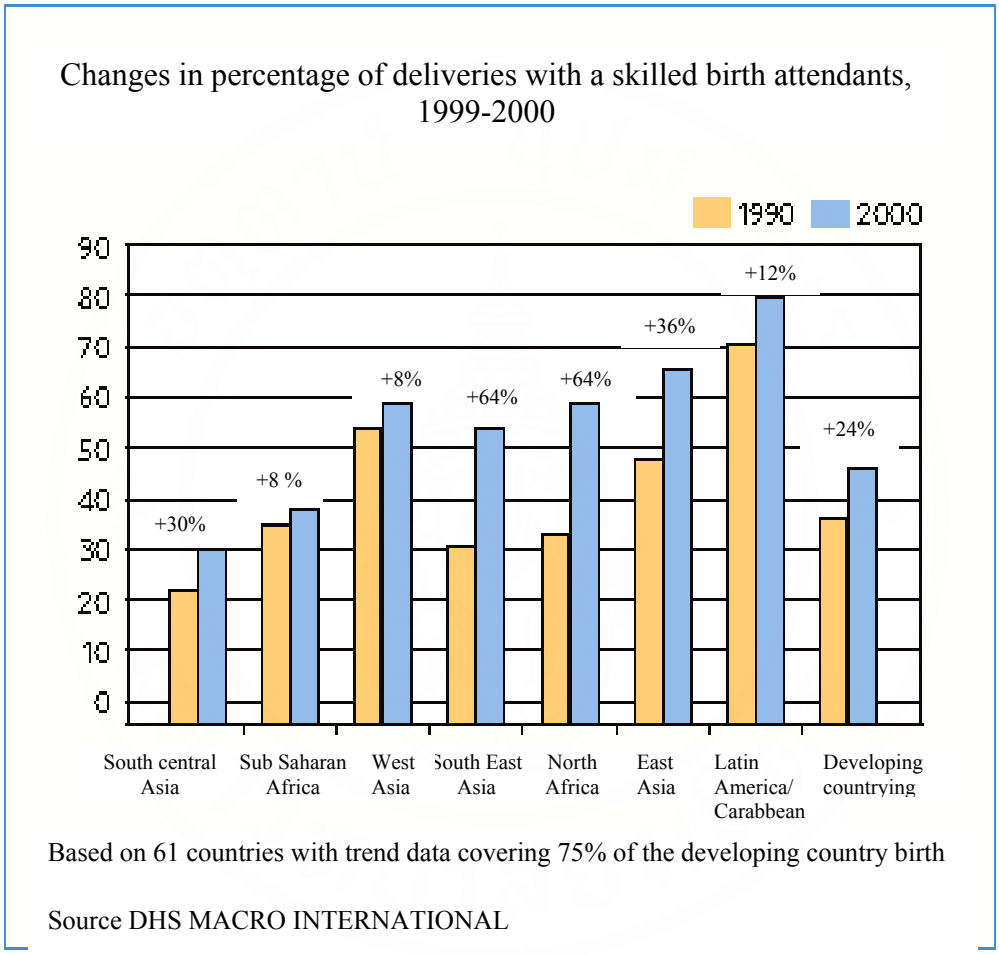

Figure 2.1 Trend of maternal death in many countries with the access of SBA (19)

2.1.2 Situation of Skilled birth attendants in Nepal

With only six years left to achieve its Millennium Development Goals, Nepal, like many other Asian countries, is lagging behind even after strenuous efforts. With 80% of the Nepal's population living in rural areas amid challenging topography, most women in Nepal still deliver at home and without the support and care of skilled healthcare providers (38).

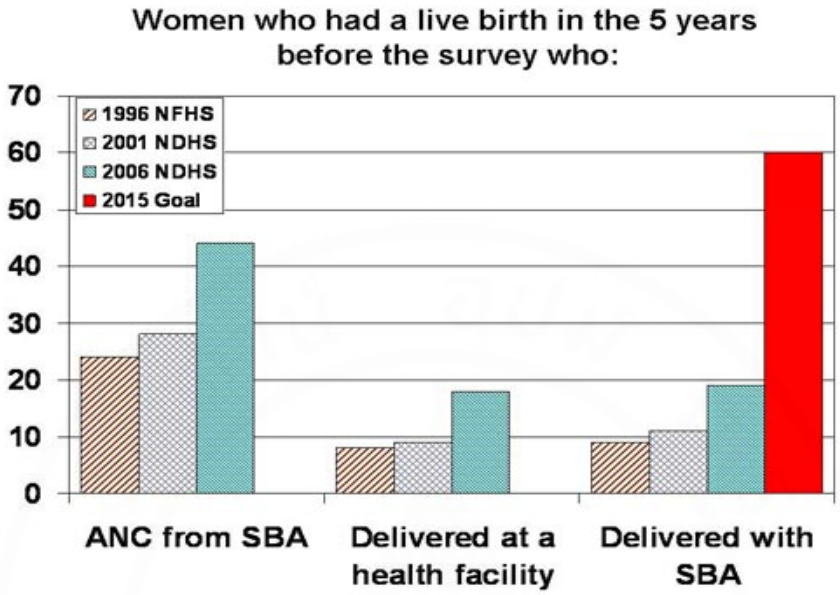

Figure 2.2 Obstetric history of women who had a live birth in the 5 years (38)

Nepal government hopes to reduce the MMR to 134 women per 100,000 live births from its current level of 281, according to the government's Demographic Health Survey 2006. However, skilled birth attendants are not present at nearly 81% of deliveries, thus that is putting thousands of women at risk (6).

Nepal is signatory to the MDGs and sincerely working to achieve these targets. Due to the overwhelming international emphasis on reducing maternal mortality, the Nepalese government has developed many policies to work towards reducing MMR. The Ministry of Health and Population, with the support of the UK Department for International Development (DFID), has started "Ama Surakchhya Karyakram", a national programme offering free childbirth and travel costs to women who come and deliver at a maternal health facility. The programme is available in all government hospitals and health centers. This programme is aimed to improve maternal health and newborn survival, and Nepal is committed to its effective implementation (24).

The safe delivery initiative program (SDIP) was found to be an effective means of increasing the use of skilled attendants at delivery and reducing the chances

of a woman delivering at home. Women exposed to the SDIP were 24% more likely to use government health institutions and 5% less likely to deliver at home. Findings from Health Management Information System (HMIS) data also suggest that the SDIP has had a positive impact on use of government delivery care services in terai and mountain districts (26).

2.2 Safe Delivery Initiative Program in Nepal

Nepal's Safe Delivery Incentive Programme (SDIP) was introduced nationwide in 2005 with the aim of encouraging greater use of professional care at childbirth. It provided cash to women giving birth in a public health facility and an incentive to the health provider for each delivery attended, either at home or in the facility. It aimed to assess the impact of the programme on neonatal mortality and health care seeking behaviour at childbirth in one district of Nepal. In Nepal, the skilled birth attendants policy was adopted as supplementary to the safe motherhood polity, 1993 by recognizing that maternal mortality and morbidity is still higher due to lack of skilled attendants at birth. This program was implemented to ensure that the current trend of the women dying every year in Nepal will be reduced to achieve MDG of 60% of deliveries attended by skilled birth attendants (SBAs). The policy was set as criteria of World Health Organisation (WHO) (29).

In Nepal, currently only 13% of women are attended by a health worker during delivery and it is important to note that not all of these health workers qualify as SBAs (6). Moreover, the poorest families also often live long distances from a facility that can provide emergency obstetric care. It is important to encourage women to deliver in facilities with skilled attendants with access to emergency obstetric care. This will require 24 hours a day and 7 days a week, “women-friendly” services that are culturally sensitive and affordable to all families, especially those in poor and underserved areas.

Hence, keeping in mind the challenges related to human resource development and management, socio-economic and cultural barriers to accessing SBAs, high unmet need for emergency obstetric care, and weak referral back-up, government policy has adopted the realistic, practical and achievable national target 60% of birth being attended by skilled birth attendants by 2015 (39).

Many women prefer to deliver at home and are willing to pay for the home delivery. The preference for home delivery by culture is also higher but still 15% of the post-delivery may experience the complications (28). In practice these larger number of women may need to be referred to a facility for the treatment of those problems on time. This makes the best option to go for the delivery at health facilities rather than home.

With these key components of the Government of Nepal effort to improve maternal health is to increase the coverage of women who deliver in the presence of a skilled health professional so that complications, should they arise, be recognised and managed. The safe delivery incentive programme (SDIP) is central to that strategy. It aims to increase coverage by skilled birth attendant and also, more broadly, to contribute towards poverty reduction by preventing death (mortality) and disability (morbidity), and mitigating the cost of delivery care to households.

The findings of some studies (6, 18, 30,) have revealed that the service utilization determined by the financial cost of institutional delivery care and particularly the transport cost, were prohibitively high and served to discourage use. The SDIP was developed as a response, to help households overcome financial barriers to access. The SDIP is partly funded by the Department for International Development (DFID) as direct financial assistance to the Government of Nepal.

The following incentives will be provided for safe delivery services:

a) Free safe delivery services
b) Transport costs for women to go to at health facility.

c) Cash incentives to skilled birth attendants for providing safe delivery services
d) Subsidy grants to health institutions to compensate for the free delivery they provide (29).

The revised policy guidelines, the SDIP provides the following financial benefits:

- Women delivering at eligible government health institutions (hospital, primary health care centre, or health post), medical colleges, mission hospitals and NGO run hospitals receive a fixed sum of 1,500 NRs in mountain areas, 1,000 NRs in hill areas, and 500 NRs in the plains areas.

- The 'trained health worker' – medical doctor, staff nurse, auxiliary nurse midwife, health assistant, auxiliary health worker or maternal and child health worker – and his/her team receive an incentive of 300 NRs for each delivery they assist, either at a government health institution or at a woman's home.

- Free delivery care is provided at health institutions for both normal and complicated cases, in addition to the cash incentive, to those women resident in 25 low human development districts. Health facilities are reimbursed NRs. 1,000 per delivery to recover their costs, regardless of the type of delivery.

The original policy guidelines, revised in late 2007, did not include medical colleges, mission hospitals and NGO-run hospitals, and imposed a parity condition whereby only women who had no more than two living children or an obstetric complication could be eligible to receive the cash incentive (27).

At survey of women has indicated that there has been an increase in the proportion of eligible women receiving the cash incentive from 34.4% in the first year (FY 2005/06) to 59.3% in the third year (FY 2007/08) of implementation (27).

2.3 Maternal health and new born

Every year more than 133 million babies are born, 90% of them are in low- and middle-income countries. When care their mothers die, the chances of their surviving is too little. Almost one quarter of the new born die during birth. The causes of the deaths are similar to the causes of maternal deaths: obstructed or very long labour, eclampsia and infection such as syphilis (20).

Poor maternal health and diseases that have not been adequately treated before or during pregnancy contribute to intrapartum deaths and also contribute to many babies' deaths and infant disability, premature birth and low birth weights. About 20 million (17%) are born with low birth weight. Of the 133 million babies who are born alive each year, 2.8 million die in the first week of life and slightly fewer than 1 million in the following three weeks. The patterns of babies' deaths are similar to the patterns of maternal deaths: large numbers in Africa and Asia and very low numbers in high-income countries. Infants who survive either maternal or neonatal complications have high morbidity and resulting disability Maternal and perinatal deaths (stillbirths and first week deaths) together add up to 6.3 million lives lost every year (20).

2.4 Theoretical Model

2.4.1 Andersen and Newman framework of health services utilization

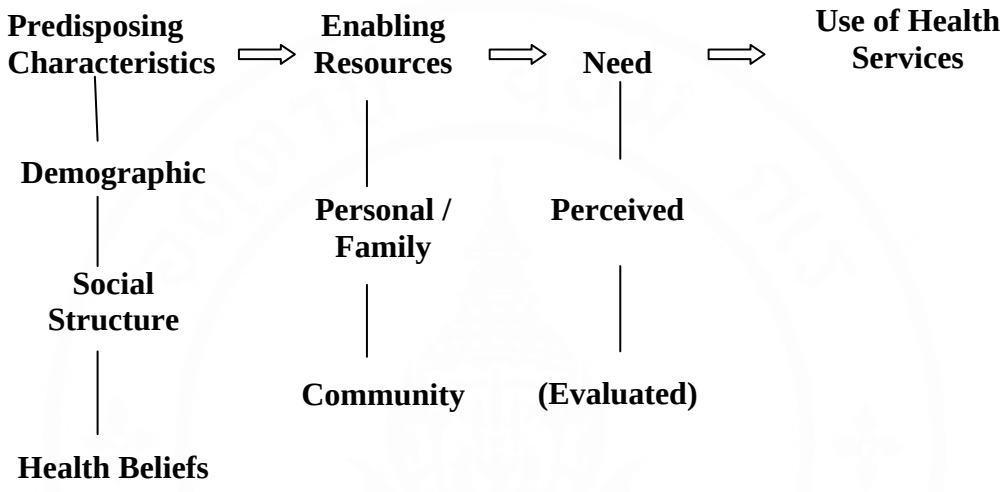

Figure 2.3 Andersen and Newman framework of health services utilization (40)

The purpose of this framework is to discover conditions that either facilitate or delay utilization. The goal being, to develop a behavioural model that provides measures of access to medical care. The framework was first developed in the 1960s and has since gone through four phases. Developed in the 1990s, the framework below represents the fourth phase. An individual's access to and use of health services is considered to be a function of three characteristics:

Predisposing Factors: The socio-cultural characteristics of individuals that exist prior to their illness

- Social Structure: Education, occupation, ethnicity, social networks, social interactions, and culture
- Health Beliefs: Attitudes, values, and knowledge that people have concerning and towards the health care system
- Demographic: Age and Gender

Enabling Factors: The logistical aspects of obtaining care

- Personal/Family: The means and know how to access health services, income, health insurance, a regular source of care, travel, extent and quality of social relationships
- Community: Available health personnel and facilities, and waiting time

Need Factors: The most immediate cause of health service use, from functional and health problems that generate the need for health care services. "Perceived need will better help to understand care-seeking and adherence to a medical regimen, while evaluated need will be more closely related to the kind and amount of treatment that will be provided after a patient has presented to a medical care provider."

- Perceived: "How people view their own general health and functional state, as well as how they experience symptoms of illness, pain, and worries about their health and whether or not they judge their problems to be of sufficient importance and magnitude to seek professional help."

- Evaluated: "Represents professional judgment about people's health status and their need for medical care" (Andersen, 1995) (40, 41).

Determinants for use of maternal health care can be conceptualized by applying these Andersen and Newman framework of health services utilization proposed by R.M. Andersen that seeks to account for and predict the use of health services by individuals. According to the model, such utilization is dependent on the interaction between individual traits, population characteristics, and the surrounding environment. Andersen proposes that the relevant factors can be grouped into three main categories: predisposing characteristics, enabling resources and the need for health care.

Predisposing characteristics are related to demographic elements, including age, occupation, education, and caste. Enabling elements consist of community factors that affect the availability and accessibility of health care for delivery and personal factors such as knowing about safe delivery services. Finally, characteristics associated with need include knowledge on safe delivery and perception of safe delivery So, this study structured to the Andersen and Newman framework of health services utilization has been applied in the study.

2.5 Related study on variables

2.5.1 Delivery by Skilled birth attendant:

According to UNFPA 2005 (23), the number of maternal deaths is highest in countries where women are least likely to have skilled attendance at delivery. Worldwide, 62% of births are attended by a skilled health worker. Almost all births in developed countries are attended. In less developed countries, the figure is 57%. In least developed countries it falls to only 34%.

According to UNFPA facts and figures, 2004 (34), worldwide, 62% of births are attended by a skilled health worker (a midwife or doctor). Almost all births in developed countries are attended. In developing countries, the figure is 57%. In some of the least developed countries it falls to only 13%. The lowest levels are in Eastern Africa (34%), South-Central Asia (38%) and Western Africa (40%), with much higher levels in South America (85%).

In East and South East Asia according to UNFPA (18), there was an increase in deliveries by skilled birth attendants of 36% in East Asia and 64% in South-East Asia, based on available DHS data. Countries like Indonesia and Thailand have significantly increased the proportion of births attended by skilled birth attendants; Thailand increased from 66% to 99% coverage during 1995-2005 and Indonesia from 40% to 68% in the same period.

Nepal Demography Health Survey (NDHS) 2006 (6) states that, despite recognition of the importance of skilled attendance in maternal mortality reduction, more than 90% of women in rural Nepal deliver at home with relatives or alone. Many complications and maternal death can be prevented if the delivery is conducted by the skilled delivery attendants than other people. Women who had previously used a trained birth attendants or health facilities for a delivery were more likely to use trained assistance. Maternal death is higher due to the delivery by the untrained personnel. NDHS also found that in Nepal only 19% of the birth is assisted by SBAs.

Others are assisted by health worker assistants, FCHVs, TBAs, relatives or someone near one or alone. In comparison rural births, 51% of the urban births are attended by SBA where maternal deaths are also less than rural.

2.5.2. Socio-demographic factors

A combination of socio demographic variables that best predicted the choice of Maternal Child Health (MCH) services. Age and caste of respondents: the age of women, education of respondents and her husband and the income status of a family.

Age: The World Bank in 2001 (33), study builds on the results of past studies on ethnically and socio-economically diverse districts of Nepal revealed that those women over 35 years were in better position to assess health care because they were more empowered to voice their needs and control over family resources.

A study by Matsuyama A, Moji K in Nepal (35), found that older and less educated informants were more likely to ascribe bleeding during pregnancy and after delivery. At the same time it also states that the risk of death increased with maternal age, especially above 35 years of age similar to the findings in a study in other county.

Opposite of this, NDHS 2006 (6) states that delivery in health facilities is more common i.e. 21% among younger mothers.

Caste: The study of World Bank 2006 in Nepal (26) revealed that caste (for low caste women) discrimination by community members and providers restricts certain women from accessing health care services. Brahmin, Chhetri and Newar come ahead in accessing maternal health care and facility in comparison to other castes and ethnic groups in Nepal. Even within the Brahmin/Chhetri community, terai based women of these communities are in better position in comparison to their counterparts in the hill. Dalit women are at the lowest level with regards to accessing maternal health services. They are followed by Muslim and Janajati community members.

Religion: Rahman MM, Prof. Khuda, Md. Reza in Bangladesh (32) found religion is also significantly associated with delivery practices. Muslim women are less likely to have their delivery assisted by medically trained persons probably because of their conservatism and religious.

NDHS 2006 (6) found that in Nepal found that Buddhist women are less likely to use SBA during childbirth than of other religion.

Type of family: Some studies show relationship between type of family or household size and maternal health service utilization and some do not. The NDHS 2006 (6) shows that women from small or nuclear facilities utilize SBAs more than women from big families.

According to World Bank in Nepal (33), utilization rate was 30% in small family relatively 16.9% in big family. Women from nuclear families were more likely to use ANC, delivery and PNC services than women who belonged to a joint family.

Monthly family Income: Women from good financial background are more likely to receive maternal health care services from SBAs. According to the NDHS 2006 (6), 60% of the richest women were assisted by SBAs compared with only 6% the poorest women.

The study of Nigussie M. et al, in Ethiopia 2004 (43) found that women with lower income were less likely to delivery at health facilities than women having higher income.

The study by Borghi J., Ensor T., Neupane BD. Tiwari S. (28) on financial implication of skilled attendants at delivery in Nepal (2006) discussed that 34% of the women were from the highest wealth quintile, compared to only 8% from the lowest had delivery assisted by skilled birth attendants. For those in the poorest fifth of households, the cost of a normal delivery in a facility represented 3 months of household income compared to just over 1 month in the richest group of households.

The study of Selijekog L. et al in Rural Malawi (30) showed that lack of money was given as the reason for not using the health facilities.

Educational level of mothers and their husbands: Educated women are better motivated for seeking health care in comparison to women who are not educated. An educated pregnant woman is more likely to be aware of the complications of pregnancies and their consequences on life. Therefore she is expected to better manage her pregnancy in terms of seeking and utilizing antenatal and postnatal care services than her counterpart who has little or no formal education. Educated women are likely to enhance their status and enable themselves to develop greater confidence and capacity to make decisions about their own health (42, 43).

Similarly, NDHS 2006, (6) showed that women with secondary school education marry two years later than those with no education.

United Nations 2008 (26) shows that in women with educated husbands have better chances of receiving health care services. At study by Yasmin N., Alam K., et al in Bangladesh (48) revealed that education of the husband makes a difference in the utilization of the maternal health services. According to the NDHS 2006 (6), also 71% of deliveries delivered by safe delivery attendants were among the educated women

Study of World bank in rural Nepal (33) shows that increased education of women and their husbands was positively correlated with increased utilization of all health services.

The study of Nigussie M. et al, (43) on assessment of safe delivery services utilization among mothers of childbearing in Ethiopia 2004 found that maternal education as strong predictor of preference to place of delivery.

Occupational status of respondents and their husbands: Women involved in gainful employment have a positive relationship with the use of maternal

health services. A study in South India found that working and earning women are less likely to utilize health professionals than those do not work (51).

The NDHS 2006 (6) reveals that women whose occupation was agriculture utilized SBA less than women who worked in other sectors or who did not do any work. World Bank 2001 (33) states that in Nepal those women engaged in self-employed agricultural work were more also likely to use such services.

2.3.2 Obstetric experiences

Number of children and their sex: The study of Nigussie M. et al, in Ethiopia 2004 (43) found that as birth order increases utilization of safe delivery services decreases. Similarly, the study of Woldemicael G, Tenkolang EY. (42) and Mekonnen Y, Mekonnen A. (47) in Ethiopia found that Birth order can be one of the significant factors for delivery by SBAs. As number of children increases, the chance of giving birth at health institute is decreased

Antenatal check up during pregnancy: ANC can lead to early detection and treatment of potentially hazardous conditions through screening test. Prenatal visits have been found to be a strong predictor of safe delivery services utilization.

The study of Nigussie M. et al, in Ethiopia 2004 (43), found that women who have not made had antenatal visits were less likely to seek institutional delivery than women who had such the visits. Women who did not have any registered antenatal visit were less likely to give birth at health facilities.

Place of delivery Obstetric care by trained assistants is recognized as critical for the reduction of maternal deaths. Regarding place of delivery in Nepal and most developing countries, most deliveries takes place at home. According to NDHS, 2006 (6) , four out of five births (81%) in Nepal take place at home.

A study to explore awareness level of people on safe motherhood in different district of Nepal including Kavre district (2008) (16) found that 86.1% of the mothers of Kavre district had delivered at home in the recent delivery in compared to other districts like 89.9% is from Saptari followed by and Dhanusa (85.8%).

According to NDHS 2006, the percentage of delivery in the health facility has been increasing over the years. It was 9% in 2001, 15.4% in 2003/04 and 17.7% 2006. NDHS 2006 (6) shows that out of the total delivery which took place in health facility, 13.1 percentage was in the government sector, 3.7 was in non government sector and merely 0.9 percentage was in private sector. Still 81 per cent of deliveries take place at home in Nepal.

Person to decide the place of delivery: The study of Shrestha DR. (18) reported that other household members strongly influence decisions to seek care. Husbands are the significant decision makers.

Seljeskog L. et. al (30) found that older members, especially the older women in the family like mothers or grandmothers or mother-in-laws decide on reproductive health issues.

Lack of formal education of husbands was associated with an increased risk of maternal death. This may reflect the role of the decision-makers in a household, leading to different health seeking behavior among those women whose husbands had a higher education.

Complications to mothers: Complication during childbirth accounts for a large proportion of maternal mortality. Risk of complications and infections causing death of both the mother and the child can be reduced by appropriate attention and hygienic conditions during delivery. Hence, deliveries in a safe environment with assistance of health professionals are one of the key factors to reduce MMR (26).

The study of Nigussie M. et. al (43), on assessment of safe delivery services utilization among mothers of childbearing in Ethiopia 2004, found that mother who had past history of intrapartum complications were more likely to seek safe delivery care than those with in such history.

In Nepal, common cause of maternal death are due to the complications of Hemorrhage: postpartum, antepartum, eclampsia complications related to abortion, spontaneous abortions and other direct causes including obstructed labor, puerperal sepsis (10).

2.3.3 Availability and accessibility of health facilities:

Types of nearest health care facilities: According to UNFPA, in Bangladesh (45), 62% maternal deaths could have been prevented if the pregnant women would have gone to the appropriate health facility in the first instance when they needed emergency care. In most of these cases, the treatment could not be found because of the absence of medical personnel and/or inadequate facilities at Government and private clinics.

Distance to reach health facility/its mode and time to reach: World Bank (33) states that MMR is likely to be higher in rural area than in urban areas, because the latter has a disproportionate concentration of health facilities with midwifery services including EOC services. Some women were unable to access care due to distance and lack of transportation.

The study of Selijekog L. et al (30) in Rural Malawi showed that distance was also an important determinant in the decision not to seek modern health care even when needed. They showed that seeking care at a facility care cannot be provided on time due to lack of transportation and bad road condition. So, to maintain the delaying of the medical intervention, they prefer to assist the women in getting optimal treatment quickly by traditional birth attendants.

World Bank studied in Nepal (33) stated that lack of access to health facility for women in rural area is evident as only 13.5 per cent of childbirths took place in health facility in rural areas in comparison to 47.8 % in urban area, where there are more facilities of transportation and where that is concentrated health care facilities. The same report revealed that, maternal mortality is higher in rural areas than the urban areas where they are unable to access the care due to distance of health care facility and lack to reach the facility for the services. (33)

Types and presence of health care provider available: Matsuyama A, and Moji K (2008) (35) found that there are no services where they live, and they cannot afford the services because they are too expensive or reaching them is too costly. Some women do not use services because they do not like how care is provided or the health services are not delivering high-quality care.

Lack of free medicines, lack of quality services, lack of capable and trained personnel are other reasons for being dissatisfied. Hence, MMM study (26) found that an overwhelming majority of women either did not have access or they do not utilize delivery services in health facilities.

The presence and quality of care imparted by health service providers, and the availability of equipment and medical supplies in a health service facility determine the decision of the needy women to visit the facility (26).

During this process of searching for appropriate care, precious time can be lost to save valuable lives. According to the study by UNFPA in Bangladesh (45), it found that 8 out 39 maternal death cases received inappropriate and wrong treatment at the health facilities.

Payment for service: Among the reasons of mothers who did not choose the health care facilities for delivery NDHS 2006 (6) stated that 10% of the reason was costly.

MMM study of Nepal (10) had shown that fear of expenses led many women to deliver at home without skilled assistance. Furthermore, expenses at a referral facility, including having to stay at a distant place for several days with an accompanying person, transport and the treatment cost, which made them even more reluctant to visit higher level referral centers.

2.3.4 Knowledge on safe delivery

If a woman has good knowledge about safe delivery, she may seek delivery by SBAs. Knowledge and education are factors that determine the behaviour of women in seeking for care.

Across all ages and ethnic groups, families seek for help from traditional faith healers first before ultimately the sick were taken for treatment to health care providers such as doctors and nurses when the cases became serious. Only those who are believed to require the need to consult health providers and thereon hospitalization are reported to have gone to hospital for treatment. This pattern persists irrespective of their background characteristics.

Perceptions and knowledge regarding health problems are confusing to women and they generally do not know how to differentiate between problems and normal discomfort (26).

Women can describe only obvious symptoms of their illness such as headaches, fevers, joint aches and body aches. They were more knowledgeable about pregnancy and delivery related problems than illnesses such as tuberculosis, malaria and typhoid. This lack of knowledge contributed to their delay in seeking care (33).

A study by Bhatta BN. 2008 (16), about awareness level of people on safe motherhood in different district of Nepal including Kavre district found that there are still 20% people in Kavre who did not know about the basic knowledge during pregnancy period.

2.3.5 Perception regarding safe delivery

Perception is the process of attaining awareness or understanding of the information. Perception is a requisite property of animate action. Action is guided by perception and without action perception would be pointless. People's perceptions of the advantages and disadvantages of home and hospital delivery affect on the choice of the delivery place and person.

A study in Ghana (52) found that when choosing the site of delivery, psychological and physical support from family and TBAs, and being able to follow the traditional practice, had a stronger impact than the fear of complications.

The study of Selijekog L. et al in Rural Malawi (30) showed that mothers wants to deliver at health facilities for the safety measure to ensure a positive outcome of the pregnancy. Mothers perceived that very young mother may face risk of dying and mother don't want to go to hospital for delivery due to fear of operation.

The study conducted in Tibet on "Having a "Safe Delivery" Conflicting Views for Tibet" (49) stated that the projects was started to focus on the best way to ensure the safety of mothers, particularly during home deliveries with skilled birth attendants. One of the reasons for low utilization of the service was the perceptions of rural women who did not necessarily trust the skill levels of their health care providers. They believed that the health workers were not skilled enough or the technological resources of the clinics or hospitals were poor. In addition, rural participants' perceive that the clinics were not "nice" places to go, financial prohibitions on utilizing even an undesirable clinic were great Although the government has a financial scheme for assisting rural families with their health care costs, it is clearly not yet functioning well enough to encourage greater use of government resources when it comes to having a safe delivery by skilled birth attendants.

Matsuyama A, Moji K. studied in rural Nepal 2008 (35) found that older and less educated informants were more likely to ascribe bleeding during pregnancy and after delivery to traditional causes. Younger women tended to attribute abnormal bleeding to either a heavy workload or a physical state of weakness (kamjori). Kamjori was often attributed in turn to a lack of rest or lack of nutritious food during pregnancy. Many mothers-in-law consider bleeding after delivery to be normal and even a positive occurrence. They seem to consider, therefore, that only excessive bleeding after delivery is unusual. For young daughters-in-law who are generally more highly educated than the mothers-in law, excessive bleeding would be an uncommon and life-threatening problem. Although there are differences in the perceptions of bleeding between mothers-in-law and the younger women, the women's behaviour remains under the strict control of the mothers-in-law.

CHAPTER III
RESEARCH METHODOLOGY

3.1 Study design

The cross-sectional study was conducted to determine the factors that influence on the delivery by the skilled birth attendants of mothers in Kavre District Nepal.

3.2 Study population

The study population included the mothers who had children below one year and those who had been living at least one year in Kavre District.

3.3 Study area

The study was conducted at Primary Health Care Centers (PHCCs) in Kavre District of Nepal.

3.4 Sample size and sample estimation

The sample size was estimated using the formula:

$$n = \frac{Z^2 p(1-p)}{d^2}$$

$$= \frac{1.96^2(0.19).(1-0.19)}{0.05^2}$$

$$= 120$$

n= estimated sample size

p= estimated prevalence of mother who gave birth by skilled birth attendants 19% (6)

Z= the standard normal score set at 5% level of significant (z=1.96)

d= degree of accuracy (0.05)

According to the calculation from the above formula, the sample size was 120. In this study, an additional 25% was added to the sample size to prevent information loss due to incomplete data or withdrawal of the participants from the study. Thus, 150 mothers were interviewed for the study.

3.5 Sampling technique

Purposive sampling technique was used for the data collection. The catchment areas of 5 PHCC: Dhulikhel, Khopashi, Panchkhal, Nala and Sunthan were selected. From these PHCCs, immunization centers were purposively for the convenience . All the mothers who came at the selected centers were included in the study.

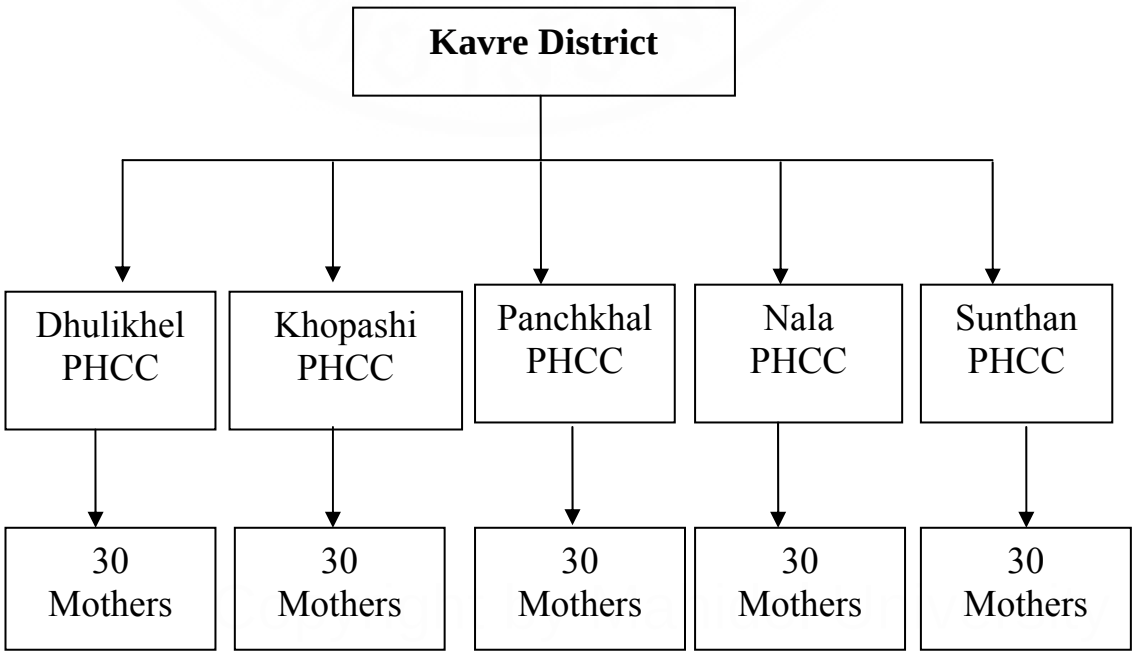

Figure 3.1 Sampling diagram for data collection

3.6 Research Instrument for data collection

A structured questionnaire was developed for the date collection. It consisted of 5 parts as follow:

Part 1: Socio-demographic factors

Part 2: Obstetric Experiences

Part 3: Availability and accessibility of the services

Part 4: Knowledge on safe delivery

Part 5: Perception on safe delivery

3.6.1 Socio-demographic characteristics of mothers:

This part consisted of 9 questions about age, caste, religion, type of family, monthly family income, educational level of respondent and their husbands, and occupational status of mothers and their husbands. The variables were categorized into group as follows.

- Age: Adolescence: <20 years old
  Child bearing age: 20-34 years old
  Elder mothers: >34 years
- Caste: Brahmin, Chettri, Newar, Tamang/Sherpa, Others
- Types of family: Joint family and nuclear family
- Monthly family income:
  1. NRs<11,000,
  2. NRs. 11,000-15,000 and
  3. NRs.>15,000.
- Educational status: illiterate, literate only, primary, secondary and higher.
- Educational status of the husbands: illiterate, literate only, primary, secondary and higher.

- Occupation: agriculture, housewife, business, service, labourer and others
- Occupation of husband: agriculture, business, service, labourer and others.

3.6.2 Obstetric history:

The questions related to the number of children, antenatal care during pregnancy, place of delivery, person to decide the place of delivery, complications on mothers and complications on newborn and place of treatment. The three obstetric histories were taken into account. Categorizes of variables were as follow:

- Number of children and their sex:

  Number of children: 1 child, 2 children and 3 or more than 3 children

  Sex of the children: Son: 0 son, 1 son, 2 sons, 3 sons

  Daughter: 0 daughter, 1 daughter, 2 daughters and 3 or more than 3 daughters
- Place of delivery:

  Government hospital, non-governmental hospital, private hospital, PHCC, health post, home and others
- Person to decide the place of delivery:

  Self, husband, mothers in law and others
- Antenatal Care during pregnancy:

  Antenatal check up: yes or no

  Frequency of antenatal check up:

  Less than 4 times : incomplete

  4 times or more : complete

- Person to do antenatal check up:

  Doctors Nurse or midwives ANMs/MCHWs, FCHVs, TBAs, others

- Complications on mothers:

Seven of complications were taken in account for the complication during antenatal period. The complications may be per vaginal bleeding, severe abdominal pain, preterm premature rupture of membrane, fever over 100^0F, blurry or impaired vision, severe headache, fits, painful and burning urination.

Five of complications were taken in account of the complications during delivery. That may be severe bleeding, unconscious, prolong labour, obstructed labour, and malpresentaion.

Six of complications were taken in account for the complications after delivery. That may be heavy or sudden increase in vaginal bleeding, vaginal discharge with unpleasant odor, severe headache, fits/seizures, burning and/or frequency of urination, sleeplessness or depression and continuous leakage of urine or stool

Five of complications were taken in account for complications on Newborn. They may be blueness of body, sucking poorly, difficulty breathing, lethargic, and jaundice.

- Place of treatment: governmental hospital, nongovernmental hospital, private hospital, PHCC, health post, sub health post, FCHVs/TBAs and others

3.6.3 Availability and accessibility of the services:

This part of the questionnaire consisted of 10 questions. It was assessed by the distance, the time taken to reach the service that they have to travel to get appropriate treatment, the mode of transportation to reach that service, facilities

availability, types of health care provider available, presence of service provider and payment for service. The categories of the variables were as follow:

- Nearest health institute with the facility of delivery: governmental hospital, nongovernmental hospital, private hospital, PHCC, health post.
- Mode of transportation: walking and vehicle
- Time to reach the facility by walking or by vehicle

  Walking : ≤23 minutes, >23 minutes

  Vehicle : ≤30 minutes, >30 minutes
- Person to serve for the problem: doctor, nurse and midwives, ANMs, Health assistants and others.
- Payment of the services: no or yes

3.6.4 Knowledge regarding delivery by skilled birth attendants:

The knowledge of mother regarding the safe delivery was assessed. The questionnaire was used 15 yes, no or don't know questions.

The scoring was set as follow:

Correct answer	1 points
Incorrect answer	0 points

The classification of score level was categorized into 3 level of knowledge based on Benjamin Bloom (15) as:

Good : if score equal or more than 12

Fair : if score from 9 to 11

Poor : if score less than or equal 8

3.6.5 Perception regarding delivery by skilled birth attendants

The questionnaire contained 15 questions. The questions were prepared in rating scale, as agree, not sure and disagree. The score was set for perception statement as follow

For positive perception

Agree : 3 points
Not sure : 2 points
Disagree : 1 point

For negative perception

Agree : 1point
Not sure : 2 points
Disagree : 3 points

The perception was divided as positive and negative based on the mean score as follow:

Positive perception : the total obtained score greater than mean score
Negative perception: the total obtained score equal or less than mean score

3.6.6 Delivery by skilled birth attendants:

The person to assist during delivery was asked from the mothers. The person may be, doctor, nurse or midwife, ANM, health assistants, FCHV, TBA, relatives, no one and other. Doctors, nurses and midwives and ANMs were considered as skilled birth attendants and other were considered unskilled birth attendants.

3.7 Pretesting of the questionnaire

Before the real data collection, the questionnaire was pretested for reliability. The reliability was measured by using Kuder-Richardson formula 20 (KR-20) for knowledge and Cronbach's alpha for perception. The sample of 30 mothers were pretested at Kavre Sub health post, Kavre District. The reliability of the knowledge and perception were obtained 0.56 and 0.62, respectively in the first pretesting. The questionnaire had been modified by deleting one question from knowledge part and one from perception on safety. With the second pretest, the KR20 was 0.77 and Cronbach's Alpha was 0.85.

3.8 Data collection procedure

After the research have been approved by Mahidol University Ethics Committee (COA. No. MU-IRB 2009/284.2611), data collection was started. Pretesting was done in Kavre Sub health–post, Kavre District. The steps for data collection were as follow:

1. The villages of the Kavre District according to identified immunization centers by PHCCs were selected for the data collection. Permission was obtained for data collection from the officer incharge of the immunization center. The research assistants were provided with one day training for the objectives of the questionnaire.

2. The mothers who came at the selected immunization center on the immunization day and agreed to participate were interviewed. Before interviewing the mothers, research purpose was explained and they were assured that the collected data would be kept confidential. Consent was obtained from each mother.

3.9 Data analysis and statistical analysis

Data were examined for the completeness of collected information. They were entered into Epidata and analyzed by Minitab software.

- Descriptive statistics were used to calculate frequency, percentage, mean median and standard deviation.

- Chi-square test was used to analyze the relationship between the dependent variable (delivery by skilled birth attendants) and dependant variable (socio-demographic factors, obstetric experiences, availability and accessibility of the services, knowledge and perception on safe delivery). The association between factors: ANC, complications of the mothers and skilled birth attendants were also analyzed by considering number of ANC visits and number of complications that found in last three pregnancies.

- Logistic regression was used to determine the strength of the association.

3.10 Ethical issue

The confidentiality of the findings was maintained. The collected information was used for the purpose of the study only. Privacy was maintained for the collected data. Informed consent was taken from the mothers after describing the objectives of the study. Any of the mothers who were not unwilling to participate were not forced to continue.

CHAPTER IV
RESEARCH RESULTS

The study was conducted to determine the factors influencing on delivery by skilled birth attendants among the mothers in Kavre District, Nepal. Immunization centers, under five PHCCs of Kavres District, were selected for data collection. Data were collected on specified immunization days. The 150 mothers, attending immunization center at the time of data collection were interviewed by using a structured questionnaire. The study identified socio-demographic factors, obstetric experiences, availability and accessibility of services, knowledge and perception on safe delivery as independent variables.

The study was a descriptive cross-sectional study. Variables were described in terms of frequency and percentage distribution. The association between each of various independent variables and delivery by skilled birth attendants was calculated by using chi-square test. Strength of association and the significant predictors were measured by using logistic multiple regression. The findings of the study are presented on two parts as follows:

4.1 Tables of frequency and percentage distribution of all variables

4.2 Association of various independent variables with the dependent variable.

4.1 Frequency and percentage distribution of all variables

4.1.1 Frequency and percentage distribution by socio-demographic characteristics of the mothers

Table 4.1 Frequency and percentage distribution by socio-demographic characteristic of the mothers

Variables	Number (n)	Percentage (%)
Age		
≤20	12	8.00
20-34	135	90.00
≥34	3	2.00
Min= 15 Max= 39	Mean= 24.26	SD= 4.0755
Caste		
Brahamin	20	13.33
Chettri	44	29.33
Newar	34	22.67
Tamang/Magar	33	22.00
Others	19	12.67
Religion		
Hindu	127	84.66
Buddhist	19	12.67
Christian	4	2.67
Type of family		
Joint family	89	59.33
Nuclear Family	61	40.67
Monthly family income (NRs)		
<11,000	48	32.00
11,000-15,000	68	45.33
>15,000	34	22.67
Min=NRs.6,000 Max= NRs. 30,000	Mean=13,696.70	SD=4954.46

Table 4.1 Frequency and percentage distribution by socio-demographic characteristic of the mothers (cont.)

Variables	Number (n)	Percentage (%)
Education		
Illiterate	16	10.67
Literate only	32	21.33
Primary	36	24.00
Secondary	50	33.33
Higher	16	10.67
Education of husband		
Illiterate	9	6.00
Literate only	13	8.67
Primary	34	18.00
Secondary	77	51.33
Higher	17	11.33
Occupation		
Agriculture	46	30.67
Housewife	77	51.33
Business	13	8.87
Service	6	4.00
Labour	8	5.33
Occupation of husband		
Agriculture	27	18.00
Business	37	24.67
Service	45	30.00
Labour	41	27.33

Table 4.1 shows that, 90.00% of mothers belonged to the age group 20-34 years. Only 2.00% of mothers were ≥ 35 years. The minimum age of mother was 15 years old and the maximum age was 39 years. Regarding the caste of the mothers,

29.33% of mothers were Chettri, 22.67% were Newar, 22% were Tamang/ Magar, 13.33 were Brahamin and only 12.67% were other castes.

Regarding religion of mothers, majority of mothers (84.66%) were Hindu followed by Buddhist (12.67%). Concerning about type of family, 59.33% of mothers lived in joint families and 40.67% of the mothers lived in nuclear families.

About 45% of mothers (45.33%) had family income NRs. 11,001-15,000, and 32% of mothers had NRs. ≤11,000 per months. The minimum income was NRs. 6,000 and maximum was NRs. 30,000 with mean income NRs. 13,696.70.

Regarding education of mothers, 33.33% of mothers had the secondary education followed by primary (24.00%). The same proportions of the mothers (10.67%) were illiterate and higher education.

Regarding educational level of their husband, 51.33% of their husband had secondary education and 18% had primary education. Only 6.00% of their husbands were illiterate.

Concerning the occupation of mothers, just over half (51.33%) were housewives, 30.67% were farmers, 8.87% were engaged in business, 5.33% were labourers and 4.00% worked in offices.

With respect to the husband's occupational, 30% worked in office, 27.33% were labourer, 24.67% were engaged in business, and 18% were farmers.

4.1.2 Frequency and percentage distribution by obstetric experiences

The pregnancy history, delivery history, postnatal history and history of new born were obtained from the mothers. They were also asked about the treatment of any complications and their treatment, the place of delivery and person to assist during delivery. The results are shown in table 4.2.

Table 4.2 Frequency and percentage distribution by children information

Variables	Number (n)	Percentage (%)	
Number of children			
1 child	67	44.67	
2 children	56	37.33	
≥3 children	27	18.00	
Median= 2	QD= 0.5	Max= 5	Min= 1
Number of sons			
0 son	51	34.00	
1son	87	58.00	
2 sons	9	6.00	
3 sons	3	2.00	
Median= 1	QD= 0.5	Max= 3	Min= 0
Number of daughters			
0 daughter	43	28.67	
1 daughter	71	47.33	
2 daughters	31	20.67	
≥3 daughters	5	3.33	
Median= 1	QD= 0.5	Max= 4	Min= 0

The study reveals that 44.67% of the mothers had only one child. The 18.00% of the mothers had three or more than three children. The median number of children was 2 children. The maximum was 5 children.

Among the mothers, 34% of them did not have a son. More than half (58%) of the mothers had only one son. Most of mothers had one daughter (47.33%). The 28.67% of them did not have daughters.

In this study, recent pregnancy means the most recent pregnancy experienced by mother, second pregnancy means the second most recent pregnancy experienced by mothers and first pregnancy means the third most recent pregnancy experienced by mothers.

Table 4.3 Frequency and percentage distribution by the antenatal care and complications during pregnancies of the mothers

Obstetric histories	**Recent pregnancy n=150**	**%**	**Second pregnancy n=83**	**%**	**First pregnancy n=27**	**%**
ANC check up						
Yes	144	96.00	74	89.16	23	85.82
No	6	4.00	9	10.84	4	14.82
Completeness of ANC check up						
	Recent pregnancy n=144	**%**	**Second pregnancy n=74**	**%**	**First pregnancy n=23**	**%**
Complete (≥4 visits)	27	18.75	13	17.56	3	13.04
Incomplete (<4 visits)	117	81.25	61	82.43	20	86.69
Complication during pregnancy						
	Recent pregnancy n=150	**%**	**Second pregnancy n=83**	**%**	**First pregnancy n=27**	**%**
Yes	28	18.67	3	3.61	2	7.41
No	122	81.33	80	96.39	25	92.59

The result in table 4.3 shows that, most of the mothers (96.00%) had received antenatal check up prior to the recent pregnancy; 85.82% of the mothers had

received an antenatal check up during their first pregnancy and 89.16% during their second pregnancy. Regarding the complications during the pregnancy, the majority of the mothers did not have any complications during recent pregnancy (81.33%), second pregnancy (96.39%) and first pregnancy (92.59%).

Of the mothers who had received antenatal check ups, 86.69% of mothers had visited for ANC check up more than or equal 4 times to during last three pregnancies.

Table 4.4 Frequency and percentage distribution by complications during pregnancy

Type of complications	Recent pregnancy		Second pregnancy		First pregnancy	
	n=28	%	n=3	%	n=2	%
Per vaginal bleeding	10	35.71	0	0	1	50.00
Severe abdominal pain	9	32.14	1	33.33	0	0
Preterm premature rupture of membrane	1	3.57	0	0	0	0
Fever over 100^0F	3	10.71	1	33.33	0	0
Blurry or impaired vision	2	7.41	0	0	0	0
Severe Headache	3	10.71	0	0	0	0
Painful and burning urination	13	57.00	1	33.34	1	50.00

Table 4.4 shows that, among the mothers who had faced problem in their recent pregnancy, the complications of mothers were painful and burning urination (57%), per vaginal bleeding (35.71%), severe abdominal pain (32.14%), Sever

headache and fever over 100^0F (10.71%), blurry or impaired vision (7.41%) and premature rupture of membrane (3.57%), respectively.

During second pregnancy, the complications of mothers, who faced problems, were severe abdominal pain, fever over 100^0F and painful and burning urination. In first pregnancy, the complications of mothers who faced problem were per vaginal bleeding, and painful and burning urination.

Table 4.5 Frequency and percentage distribution by information about the place of delivery

Place of Delivery	Recent delivery		Second delivery		First delivery	
	n=150	%	n=83	%	n=27	%
Government Hospital	7	4.67	9	10.84	6	22.22
Non-Government Hospital	71	47.33	33	39.76	6	22.23
Private Hospital	2	1.33	1	1.20	0	0
PHCC	3	2.00	1	1.20	0	0
Health Post	0	0	1	1.20	0	0
Home	67	44.67	38	45.78	15	55.50

Regarding place of delivery, in recent delivery, most of them had delivered at non-government hospitals (47.33%) and home (44.67%). The result in table 4.5 also reveals that higher proportions of home deliveries were found in second delivery (45.78%) and in first delivery (55.50%).

Table 4.6 Frequency and percentage distribution by the reason to have home delivery

Reasons	Recent delivery		Second delivery		First delivery	
	n=66	%	n=38	%	n=15	%
Health facility delivery is not necessary	23	35.38	17	44.74	7	46.67
It is custom	6	9.23	9	23.68	3	20.00
Delivery in health facility is expensive	1	1.54	1	2.63	0	0
It is too far to reach health facility	7	10.77	4	10.53	2	13.33
Born before go to health facilities	24	35.38	5	13.16	3	20.00
Didn't allow to go to health facility	5	7.69	2	5.26	0	0

Regarding reason to have home deliveries, common reason found in last 3 deliveries was that health facility delivery is not necessary. Other reasons were that they delivered are home before go to health facility and home delivery is a custom (Table 4.6).

Table 4.7 Frequency and percentage distribution by the person to decide the place of delivery

Person to decide the place of delivery	Recent delivery n=150	%	Second delivery n=83	%	First delivery n=27	%
Self	49	32.67	41	49.39	11	40.74
Husband	58	38.67	25	30.12	7	25.93
Mother in law (In laws)	43	28.66	17	20.49	9	33.33

The result in table 4.7 shows that only 32.67% of the mothers decided the place of delivery for the recent delivery. The low proportion were also found in both first delivery (40.74) and second delivery (49.39%), when compare with the proportion on the one who did not made decision by them. More than 50% of the mothers delivered at the place that their husbands or in-laws decided.

Table 4.8 Frequency and percentage distribution by skilled birth attendants

Skilled birth attendants	Recent delivery N=150	%	Second delivery N=83	%	First delivery N=27	%
Yes	90	60.00	46	55.41	12	44.45
No	60	40.00	37	44.58	15	55.55

Regarding the type person who assisted during the deliveries, doctors, nurses or midwives and ANMs were considered as skilled birth attendants (SBAs) and health assistant, FCHVs, TBAs relatives and others were considered unskilled birth attendants. In recent delivery, most of the deliveries were conducted by SBAs (60%), and 40% were conducted by unskilled attendants.

Considering the last deliveries, the result shows in table 4.8, that the trend to have delivery by skilled birth attendants was increasing from 44.45% to 60.00%.

Table 4.9 Frequency and percentage distribution by person to assisted during delivery

Person to assist during delivery	Recent delivery n=150	%	Second delivery n=83	%	First delivery n=27	%
Doctors	59	39.33	30	36.14	8	29.63
Nurse or Midwives/	27	18.00	15	18.07	4	14.81
ANMs	4	2.67	1	1.20	0	0
Health Assistants	0	0	1	1.20	0	0
FCHVS	2	1.33	3	3.61	0	0
TBAs	8	5.33	0	0	3	11.11
Relatives	48	32.00	31	37.61	12	44.45
None	2	1.33	2	2.41	0	0

In recent delivery, nearly 40% of mothers (39.33%) delivered by doctors. However, relatives were the one who assisted mothers during delivery in second delivery (37.61%) and first delivery (44.45%). The result also indicated that assistance by doctors was increased and the delivery by relatives was decreased from the first delivery to recent delivery. (Table 4.9)

Table 4.10 Frequency and percentage distribution by the perceived complications during delivery and after delivery

Complications	Recent delivery n=150	%	Second delivery n=83	%	First delivery n=27	%
Complication during delivery						
Yes	38	25.33	10	12.05	3	11.11
No	112	74.67	73	85.95	24	88.89
Complication after delivery						
Yes	31	20.67	6	7.14	2	7.41
No	119	79.33	77	92.86	25	92.59

Table 4.10 shows the perceived complications by the mothers during delivery and after delivery. Regarding the complications during the recent delivery, the majority of the mothers did not have any complications during delivery (74.67%) and after delivery (79.33%).

Table 4.11 Frequency and percentage distribution by complications during delivery

Types of Complications	Recent delivery n=38	%	Second delivery n=10	%	First delivery n=3	%
Severe Bleeding	11	28.95	0	0	1	33.33
Unconscious	1	2.62	0	0	0	0
Prolong labor	24	63.16	8	80.00	2	66.67
Obstructed labor	3	7.89	0	0	0	0
Malpresentaion	7	18.42	2	20.00	0	0

Table 4.11 shows that among mothers who faced problem during delivery, more than half (63.16%) of them had prolonged labour; 28.95% had severe bleeding; 18.42% had malpresentation. The 7.89% of the mothers had faced obstructed labour.

With respect to previous two deliveries, most of mothers who faced problem during delivery had prolonged labour.

Table 4.12 Frequency and percentage distribution by complications after delivery

Types of complications	Recent delivery n=31	%	Second delivery n=6	%	First delivery n=2	%
Heavy or sudden increase in vaginal bleeding	15	48.38	3	50.00	2	100.00
Vaginal discharge with unpleasant odor	2	6.45	0	0	0	0
Severe headache	4	12.92	1	16.67	0	0
Burning and/or frequency of urination	6	19.45	1	16.66	0	0
Sleeplessness or depression	2	6.45	0	0	0	0
Continuous leakage of urine or stool	2	6.45	1	16.67	0	0

Among mothers who faced the problem in during deliveries, majority of them had faced heavy or sudden increase in vaginal bleeding as illustrates in table 4.12.

In the recent delivery and second deliveries, the complications such as severe headache, burning and/or frequency of urination and continuous leakage of urine or stool were also found.

Table 4.13 Frequency and percentage distribution by the complications of newborn baby

Complications	Recent delivery		Second delivery		First delivery	
	n=150	%	n=83	%	n=27	%
Yes	24	16.00	4	4.82	1	3.70
No	126	84.00	79	95.18	26	96.30

Table 4.13 shows the frequency and percentage distribution by complications of new born babies in last 3 deliveries. Few of them faced complication in recent delivery (16.00%) and second delivery (4.82%).

Table 4.14 Frequency and percentage distribution by the types complications of newborn baby

Types of complications	Recent delivery		Second delivery		First delivery	
	n=24	%	n=4	%	n=1	%
Blueness of body	3	12.49	0	0	0	0
Sucking poorly	7	29.17	1	25.00	0	0
Difficulty breathing	6	25.00	0	0	0	0
Lethargy	4	16.66	0	0	0	0
Jaundice	10	41.67	3	75.00	1	100

Jaundice was the most experienced problem for new born. The other problem was sucking poorly with the proportion of 25.00% in second deliveries and 29.17% in recent deliveries.

4.1.3 Frequency and percentage distribution by availability and accessibility of the services

Table 4.15 Frequency and percentage distribution by the availability and accessibility of the health care facilities for delivery

Particular	Number (n)	Percentage (%)
The nearest health facilities available (n= 150)		
Government hospital	5	3.33
Non-Governmental Hospitals	103	68.67
Primary Health Care Center	28	18.67
Health Post	14	9.33
Mode of transportation (n= 150)		
By Walking	87	58.00
By Vehicle	63	42.00
Time to reach the health facilities		
By Walking (n= 87)		
≤ 23 minutes	50	57.47
> 23 minutes	37	42.53
Mean= 22.18 SD= 11.53	Min= 5	Max= 60
By Vehicle (n= 63)		
≤ 30 minutes	50	79.36
> 30 minutes	13	20.64
Mean= 29.20 SD= 19.07	Min= 10	Max= 120
Expensive (n= 56)		
Yes	31	55.36
No	25	44.64

Table 4.15 shows the availability and accessibility of the health care facilities for delivery. The nearest health facility was a non–governmental hospital (68.67%). Others types of facilities available were PHCCs (18.67%), health post (9.33%) and government hospitals (3.33%).

To reach the nearest health care facility for delivery, more than half of mothers (58%) walked to health care facility and 42% used some form of vehicle. Regarding time to reach the nearest health care facility, 57.47% of the mothers could reach the nearest place for delivery within 23 minutes. Average time to reach the nearest health care facility by vehicle was about 30 minutes. Among mothers who used vehicle, 79.36% could reach the health facility within 30 minutes. However, the maximum time to reach health care facilities was 2 hours.

4.1.4 Frequency and percentage distribution by knowledge on safe delivery

Table 4.16 Frequency and percentage distribution by knowledge on safe delivery

Knowledge on safe delivery	Number (n=150)	Percentage (%)
Good (>80%)	97	64.67
Fair (80-60%)	44	29.33
Poor (<60)	9	6.00
Mean=12.0267 SD=2.06585 Min=6		Max=15

Table 4.16 shows that more than 60.00% of mothers (64.00%) had good knowledge on safe delivery; nearly 30.00% of the mothers had fair knowledge. Only 6.00% had poor knowledge.

Table 4.17 Frequency and percentage distribution by items of knowledge on safe delivery

Statement	Number Correct	Percentage (%)
1. Pregnancy is one of the diseases.	84	56.00
2. Bleeding before the delivery of the baby is not dangerous to mother and fetus.	138	92.00
3. A pregnant woman can do hard works as they do before pregnancy.	123	82.00
4. Fits during pregnancy is due to lack of rest.	88	58.66
5. If a woman have delivery longer than 24 hours it is normal.	137	91.33
6. Heavy bleeding after delivery may result death of mother.	133	88.67
7. If women become unconscious during delivery it's normal.	143	95.33
8. Bluish discoloration of the skin after the birth of the baby is normal.	143	95.33
9. During delivery, experienced traditional birth attendants can help as trained nurses.	101	67.33
10. Using sterilized instruments during delivery can protect the health of the mother.	135	86.67
11. Women below 18 years can face severe problem during delivery than women of higher than 18 years.	130	86.66
12. Delivery at hospital is safer than the delivery at home.	146	97.33
13. A woman needs extra food before delivery only to store energy after delivery.	143	95.33
14. If a woman does not have any problem before delivery doesn't have any problem during delivery.	76	50.66
15. Abdominal massage after delivery of the fetus can help to stop bleeding	102	68.00

Table 4.17 shows that 97.33% of the mothers knew that delivery at hospital is safer than delivery at home and 95.33% of the mothers knew that “if women become unconscious during delivery, it is not normal”, “a woman needs extra food before delivery to store energy after delivery” and “bluish discoloration of the skin after the birth of the baby is not normal”. About 92% of the mothers knew that “bleeding before delivery of the baby is dangerous to mother and fetus”.

Nearly half of mothers (50.66%) knew that, it is not normal if a woman does not have any problem before delivery she doesn’t have any problem during delivery. More than 50% of mothers (56.00%) knew that, pregnancy is not the diseases (56.00%) and fits during pregnancy is due to lack of rest (58.66%).

4.1.5 Frequency and percentage distribution by perception safe delivery

Table 4.18 Frequency and percentage distribution by perception on safe delivery

Perception	Number (n)	Percentage (%)
Positive (attitude≥ mean)	69	46.00
Negative (attitude <mean)	81	54.00
Mean= 35.8 SD= 3.58	Min= 25	Max= 42
Perception on safety		
Positive	64	42.67
Negative	86	57.33
Mean=13.10 SD= 1.65	Min= 8	Max= 15
Perception on benefit		
Positive	61	40.67
Negative	89	59.33
Mean=10.23 SD= 1.62	Min= 4	Max= 12
Perception on barrier		
Positive	85	56.57
Negative	65	43.33
Mean= 12.47 SD= 1.90	Min= 6	Max= 15

Table 4.18 above shows that less than half of mothers (46.00%) had positive attitude. The minimum and maximum were 25 and 42 respectively. The mean score was 35.8.

Regarding the perception on safety, benefit and barrier of safe delivery, the results in table 4.18 shows that more than half of the mothers (56.57%) had positive perception on barrier. Less than half of them had positive perception on safety (42.767%) and benefits (40.67%).

Table 4.19 Frequency and percentage distribution by items of perception on safe delivery

Statement	Agree (%)	Not Sure (%)	Disagree (%)
Perception on Safety			
1. Delivery is the natural process so it does not need any medical care.	20.00	6.00	74.00
2. Experiencing heavy hemorrhage after delivery is good for mother health because it helps to get rid of bad blood of the body.	30.00	16.67	53.33
3. Preparation of money before the delivery is essential.	87.33	4.67	8.00
4. Husband knows about everything about pregnancy and can decide about his wife.	86.67	8.00	5.33
Perception on Benefit			
5. Women can have baby at home, safely with the help of TBAs than nurses at hospital.	12.00	4.00	84.00
6. Recognition of danger sign after delivery of the baby can avoid delay in seeking care for treatment.	83.33	4.00	12.67
7. Delivery in hospital can prevent all complications than delivery at home.	89.33	2.00	8.67
8. Free and easy available of the delivery service may encourage women to give delivery at hospital.	78.67	2.67	18.66

Table 4.19 Frequency and percentage distribution by items of perception on safe delivery (cont.)

Statement	Agree (%)	Not Sure (%)	Disagree (%)
Perception of Barriers			
9. One has to pay a lot if they go for hospital delivery.	41.33	5.33	53.33
10. It is comfortable to go to health facilities for care if there are female care providers.	76.67	5.33	18.00
11. If you go to hospital for delivery, they ask for surgery.	24.00	5.33	70.67
12. Bleeding after delivery is normal.	21.33	19.33	59.33
13. Delivery kit at home during home delivery can prevent some infections.	86.00	8.67	5.33
14. After delivery of the baby the baby there is no risk left for women.	28.67	20.00	51.33

The statements on perception on safety, more than 80% of mothers (87.33%) agreed that preparation of money before delivery is essential. Nearly half of mothers (53.33%) disagreed that experiencing heavy haemorrhage after delivery is good for mother health. However, 16.67% of them were not sure on this statement (Table 4.19).

For perception on benefit, nearly 90% of mothers (89.33%) agreed that delivery in hospital can prevent all complications than delivery at home. More than 80.00% of mothers (84.00%) disagreed that women can have baby at home, safely with the help of TBAs than nurses at hospital.

For the statement on perception on barrier, 41.33% of mothers agreed that hospital deliveries are expensive. Half of the mothers (51.33%) disagreed with statement that after delivery of the baby there is no risk left for women.

4.2. Association between various independent variables and dependent variable

4.2.1 Association between socio-demographic factors and delivery by SBAs

Table 4.20 Association between socio-demographic characteristics and delivery by SBAs

Variables	Delivery by SBAs		Delivery by USBA		Chi Square	p-value
	n=90	%	n=60	%		
Age group						
≤19	7	58.33	5	41.67		0.212[f]
20-34	82	60.74	53	39.26		
>34	1	33.33	2	66.67		
Caste						
Brahamin	13	65.00	7	35.00	17.16	0.002**
Chettri	23	52.27	21	47.73	df= 4	
Newar	27	79.41	7	20.49		
Tamang/Magar	12	36.36	21	63.64		
Others	15	78.95	4	21.05		
Religion						
Hindu	80	62.99	47	37.01	3.17	0.204
Buddhist	8	42.10	11	57.90	df=2	
Christian	2	50.00	2	50.00		
Type of family						
Joint family	60	67.42	29	32.58	5.01	0.025*
Nuclear Family	30	49.18	31	50.82	df=1	
Monthly family income (NRs)						
<11,000	22	45.83	26	54.16	7.94	0.019*
11,000-15,000	42	61.76	26	38.24	df=2	
>15,000	26	76.47	8	23.83		

Table 4.20 Association between socio-demographic characteristics and delivery by SBAs (cont.)

Variables	Delivery by SBAs		Delivery by USBA		Chi Square	p-value
	n=90	%	n=60	%		
Education						
Illiterate	5	31.25	11	68.75	17.11	0.002*
Literate only	14	43.75	18	56.25	df=4	
Primary level	21	58.33	15	41.67		
Secondary level	36	72.00	14	28.00		
Higher	14	87.50	2	12.50		
Education of husband						
Illiterate	2	22.23	7	77.78	30.19	<0.001**
Literate only	3	23.08	10	76.72	df=4	
Primary level	14	41.18	20	58.82		
Secondary level	55	71.43	22	28.57		
Higher	16	64.12	1	5.88		
Occupation						
Agriculture	22	47.82	24	52.17	5.22	0.156
Housewife	50	64.94	27	35.06	df =3	
Business	10	76.92	3	23.08		
Service/labor	8	66.66	6	33.34		
Occupation of husband						
Agriculture	11	40.74	16	59.26	14.04	0.003*
Business	29	78.38	8	21.62	df=3	
Service	31	68.88	14	31.12		
Labor	19	46.34	22	53.65		

* Significant at p-value <0.01 f : fishexact
** Significant at p-value <0.001

Table 4.20 shows association between the socio-demographic factor and delivery by SBAs. The analysis between age and delivery by SBAs had done by Fisher Exact Test. Majority of mothers (60.67%) who had age 20 -34 years delivered by

SBAs. However, there was no significant association found between age of mother and delivery by SBAs and unskilled birth attendants (p value = 0.212).

Regarding the caste of mothers, 79.41% of the Newar mothers had delivered babies by SBAs whereas 36.36% of Tamang/Magar mothers were delivered by SBAs. There was a significant association between caste and delivery by SBAs (p-value = 0.002).

The religion of mothers did not show any significant association with delivery by SBAs or unskilled birth attendants. (p-value = 0.204). Nearly 60% of Hindu mothers (62.99%) delivered by SBAs and 50.00% of the Christian mothers had delivered by SBAs.

Concerning types of family, 67.42% mothers lived in joint families delivered baby by SBAs. Nearly half of mothers (49.18%), who lived in nuclear families delivered by skilled birth attendants. There was significant association found between type of family and delivery by SBAs (p-value = 0.025).

Regarding monthly income, the proportion of mothers who had higher income had higher delivery by SBAs than the one who had lower income. The result also revealed that there was significant association between income and delivery by SBAs (p-value= 0.011).

Table 4.20 also shows that 87.50% of mothers who had higher educational level were delivered by SBAs. There was significant association between maternal education and delivery by SBAs (p-value = 0.002).

Regarding education of husbands of mothers, 64.12% of mothers whose husbands had higher education delivered their baby by SBAs. There was a significant association between education of husband and delivery by SBAs (p value = <0.001).

Regarding occupation of mother and their husbands, table 4.20 shows that there was no association between their occupation and delivery by SBAs (p-value = 0.156). However, result shows that there was a significant association between occupation of their husbands and delivery by SBAs and a higher proportion of mothers of the husbands were engaged in other occupations.

Table 4.21 Association between number of children and delivery by SBAs

Variables	Delivery by SBAs		Delivery by USBA		Chi	p-value
	n=90	%	n=60	%	Square	
Number of children						
1 child	47	70.15	20	29.85	5.431	0.066
2 children	28	50.00	28	50.00	df=2	
≥3 children	15	55.56	12	44.44		

Table 4.21 shows that regarding number of children and delivery by SBAs, 70.15% of mothers who had 1 child were delivered by SBAs. The 55.56% of mothers who had three or more than three children that delivered by SBAs. There was no significant association between number of children and delivery by SBAs (p-value = 0.066).

4.2.2 Association between obstetric experiences and delivery by SBAs

Information regarding antenatal care, complications during pregnancy, complications during delivery and complications after delivery, in respect of mothers' recent and past deliveries were obtained. The total number of those in last 3 deliveries was taken into account.

Table 4.22 Association between number of antenatal care during pregnancy and completeness of the antenatal check up and delivery by SBAs

Variables	Delivery by SBA		Delivery by USBA		Chi	p-value
	n=148	%	n=112	%	Square	
Antenatal care during Pregnancy						
Yes	144	59.75	97	40.25	10.756	0.001**
No	4	21.05	15	78.65	df=1	
Completeness of ANC check up						
Complete (≥4 visits)	121	61.11	77	38.89	6.720 df= 1	0.010*
Incomplete (<4 visits)	17	39.53	26	60.47		

* Significant at p-value < 0.05
* *Significant at p-value < 0.01

The result shows that mothers who had ANC care during pregnancy had more proportion to delivery by SBA than those who did not have services The association between ANC during pregnancy and SBAs was found (p-value = 0.001). (Table 22)

The result in table 22 also shows that mothers who had incomplete ANC had more proportion to delivery by SBAs than one who had incomplete ANC. There was significant association between number of ANC visit and SBAs (p-value = 0.010).

Table 4.23 Association between number of complications during pregnancy and delivery and delivery by SBAs

Variables	Delivery by SBA		Delivery by USBA		Chi Square	p-value
	n=148	%	n=112	%		
Complications during pregnancy						
Yes	18	54.55	15	44.45	0.087	0.768
No	130	57.27	97	42.73	df= 1	
Complications during delivery						
Yes	27	52.94	24	47.06	0.410	0.522
No	121	57.89	88	42.11	df= 1	

Table 4.23 shows the association between the problems faced by mother during pregnancy and delivery with delivery assisted by skilled birth attendants. There was no significant association between the complications during pregnancy (p-value = 0.768) or complications during delivery (p-value = 0.522) and delivery by SBAs.

4.2.3 Association between the obstetric experiences with the delivery by skilled birth attendants by recent delivery

Table 4.24 Association between antenatal care during pregnancy and completeness of antenatal check up and delivery by SBAS in recent delivery

Variables	Delivery by SBA		Delivery by USBA		Chi Square	p-value
	n=90	%	n=60	%		
Antenatal care during pregnancy						
Yes	88	61.11	56	38.89	1.852	0.174
No	2	33.33	4	66.67	df=1	
Completeness of ANC check up						
Complete (≥4 visits)	79	67.52	38	32.48	10.789	0.001*
Incomplete (<4 visits)	9	33.33	18	66.67	df =1	

* Significant at p-value <0.01

Table 4.24 shows that there was no significant association found with antenatal care and the delivery by skilled birth attendants (p-value = 0.174). Moreover, statistically significant association was found with the number of antenatal check up and the delivery by SBAs (p-value = 0.001).

Table 4.25 Association between place of delivery and person to decide the place of delivery and delivery by SBA in recent deliveries

Variables	Delivery by SBA		Delivery by USBA		Chi Square	p-value
	n=90	%	n=60	%		
Place of delivery						
Institute	83	1000.00	0.00		121.1493	<0.001*
Home	7	10.61	59	89.39	df=1	
Person to decide the place of delivery						
Self	26	53.06	23	46.94	5.862	0.118
Husband	40	68.96	18	31.03	df= 3	
Mother in laws (In-laws)	24	52.50	19	47.50		

* Significant at p-value <0.001

Table 4.25 shows the association between the place of delivery and person to decide the place of delivery in recent delivery with delivery assisted by skilled birth attendants. Significant association was found with place of delivery (p-value = <0.001) but there was no association between person to decide the place of delivery and delivery assisted by skilled birth attendants (p-value = 0.118).

Table 4.26 Association between complication during pregnancy and delivery by SBA in recent deliveries

Variables	Delivery by SBA		Delivery by USBA		Chi Square	p-value
	n=90	%	n=60	%		
Complications during pregnancy						
Yes	15	53.57	13	46.43	0.593	0.441
No	75	61.47	47	38.53	df=1	
Complications during delivery						
Yes	23	60.53	15	39.47	0.006	0.939
No	67	59.82	45	40.18	df=1	

* Significant at p-value <0.001

Table 4.26 illustrates that the complication during pregnancy (p-value = 0.441) and complication during delivery (p-value = 0.939) were not found statistically significant with delivery by SBAs.

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4.2.4 Association between availability and accessibility of service and delivery by SBAs

Table 4.27 Association between availability and accessibility of service and delivery by SBAs

Variables	Delivery by SBA		Delivery by USBA		Chi Square	p-Value
	n=90	%	n=60	%		
Types of nearest health care facility						
Governmental hospital	4	80.00	1	20.00	2.764	0.430
Non-government hospital	62	60.19	41	39.81	df= 3	
Primary Health care Center	18	64.29	10	35.71		
Health Post	6	42.85	8	57.15		
Mode of transportation						
Walk	55	63.22	32	36.78	0.894	0.344
Vehicle	35	55.56	28	44.44	df= 1	
Time to reach by walking						
≤23 minutes	31	62.00	19	38.00	0.075	0.784
>23 minutes	24	64.86	13	35.14	df=1	
Time to reach by vehicle						
≤30 minutes	28	56.00	22	44.00	0.019	0.889
>30 minutes	7	53.85	6	46.15	df= 1	
Payment of services						
Yes	54	77.14	16	22.86	23.426	<0.001*
No	27	57.45	20	42.55	df= 1	
Don't	9	27.27	24	72.73		

* Significant at p-value <0.001

Table 4.27 reveals that there was significant association between payment of the services and delivery by SBAs (p-value = <0.001).

The mothers who paid for delivery services had more proportion (77.14%) to deliver by SBAs than those who did not pay for service (57.45%).

4.2.5 Association between knowledge on safe delivery and delivery by SBAs

Table 4.28 Association between knowledge of mother on safe delivery and delivery by SBAs

Knowledge	Delivery by SBA		Delivery by USBA		Chi Square	p-value
	n=90	%	n=60	%		
Good	65	67.01	32	32.99	6.486	0.039*
Fair	22	50.00	22	50.00	df=2	
Poor	3	33.33	6	66.67		

* Significant at p-value <0.05

Table 4.28 reveals that statistically significant association was found between knowledge of mother about safe delivery and delivery by SBAs (p-value = 0.039). The high proportion of mothers (67.01%) who had good knowledge on safe delivery had delivered by SBAs than the one who had fair (50,00%) or poor (33.33%) knowledge.

4.2.6 Association between perception of mother on safe delivery and delivery by SBAs

Table 4.29 Association between perception of mothers on safe delivery and delivery by SBAs

Perception	Delivery by SBA		Delivery by USBA		Chi Square	p-value
	n=90	%	n=60	%		
Positive	47	68.12	22	31.88	3.507	0.061
Negative	43	53.09	38	46.91	df=1	

Table 4.29 shows that there was no significant association between perception of mother and delivery by SBAs.

Table 4.30 Association between perception on safety, benefit and barrier towards safe delivery and delivery by SBAs

Variables	Delivery by SBA		Delivery by USBA		Chi Square	p-value
	n=90	%	n=60	%		
Perception on safety						
Positive	45	70.31	19	29.69	4.946	0.026*
Negative	45	52.33	41	47.6	df=1	
Perception on benefit						
Positive	40	65.57	21	34.43	1.331	0.249
Negative	50	56.18	39	43.82	df=1	
Perception on barrier						
Positive	54	63.53	31	36.47	1.018	0.313
Negative	36	55.38	29	44.62	df= 1	

* Significant at p-value <0.05

Table 4.30 shows the association between perceptions regarding safety, benefits and barriers towards safe delivery and delivery by SBAs. A significant

association was found between perception of safety towards safe delivery and delivery by SBAs (p-value = 0.026)

4.3 Multiple logistic regressions model

Categories of some of the variables for the logistic regression were combined because of the small sample size. The independent variables that found statistically significant from chi-square were additionally tested by multiple logistic regressions to find strength of the association between deliveries assisted by skilled birth attendants. It was also to predict the factors for the delivery by skilled birth attendants and related variables.

Table 4.31 The association between factors and delivery by SBAs by multiple logistic regression model

Factors	Adjusted Odds ratio	95% CI		p-value
		Lower	Upper	
Socio- demographic factor				
Caste				
Higher	1			
Others	1.30	0.40	2.66	0.958
Types of family				
Nuclear	1			
Joint	2.08	0.94	4.64	0.072
Income level				
≤15,000	1			
>15,000	2.19	0.80	5.99	0.128

Table 4.31 The association between factors and delivery by SBAs by multiple logistic regression model (cont.)

Factors	Adjusted Odds ratio	95% CI Lower	95% CI Upper	P-value
Education				
Informal Education	1			
Formal Education	1.71	0.70	4.18	0.242
Education of husband				
Informal Education	1			
Formal Education	2.83	0.80	9.99	0.106
Occupation of husband				
Agriculture	1			
Others	2.29	0.80	6.56	0.125
Obstetric experiences				
Number of children				
≥3 children	1			
< 3children	1.25	0.44	3.50	0.676
ANC				
No	1			
Yes	1.91	0.22	16.70	0.557
Completeness of ANC check up				
Complete (≥4 visits)	1			
Incomplete (<4 visits)	2.95	1.00	8.74	0.048 *
Complication during pregnancy				
Yes	1			
No	2.14	0.76	6.03	0.149

Table 4.31 The association between factors and delivery by SBAs by multiple logistic regression model (cont.)

Factors	Adjusted Odds ratio	95% CI		P-value
		Lower	Upper	
Complications during delivery				
No	1			
Yes	1.50	0.56	4.01	0.423
Availability and accessibility of the services				
Types of Nearest health care facility				
Government Institutes	1			
Non-government hospital	2.02	0.17	24.26	0.579
Mode of transportation				
Vehicle	1			
Walking	1.40	0.62	3.16	0.418
Knowledge on safe delivery				
Poor	1			
Good	1.69	0.67	4.23	0.263
Perception on safety of safe delivery				
Negative	1			
Positive	1.39	0.60	3.22	0.77

* Significant at p-value <0.05

Note: The reference group "0" was delivery by unskilled birth attendants and 1 was skilled birth attendants.

Table 4.31 illustrates that completeness of antenatal check up were found the significant association with delivery by SBAs. Odds ratio shows that mothers who had completed antenatal checkup (4 or more than 4 times), had 2.95 times delivery assisted by SBA than those had incomplete antenatal checkup.

CHAPTER V
DISCUSSION

The cross-sectional study was conducted to determine the factors influencing delivery by skilled birth attendants among the mothers. The mothers who had children below one year in Kavre district, Nepal were the sample in this study. The mothers who came to the immunization center of the study sites during the study period were interviewed by structured questionnaire. The questionnaire with 74 questions included the socio-demographic factors (age, caste, religion, type of family, monthly family income, educational level of mothers and her husband and occupational status of mothers and her husband), obstetric history (number of children and their sex, ANC during pregnancy, place of delivery, person to decide the place of delivery, person to assist during delivery, any complications during pregnancy, any complications during pregnancy, delivery or after delivery and any complication on newborn), availability and accessibility of the services (facilities availability, mode of transportation time to reach, and payment for service), knowledge on safe delivery and perception on safe delivery.

5.1 Methodological concern

The immunizations centers from 5 PHCCs of Kavre districts were purposively selected as a study area. On the immunization days, the mothers who came at the selected immunization centers were interviewed by the trained researcher with the structured questionnaire. The mothers were purposively selected, so generalization of findings may be difficult.

5.2 Delivery by skilled birth attendants

A skilled birth attendant is an accredited health professional– such as a midwife, doctor or nurse – who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and in the identification, management and referral of complications in women and newborns (37). The presence of a skilled attendant at delivery is an important mechanism of administering life saving procedures and ensuring prompt referral to health facilities

In this study, 60% of the mothers in their recent pregnancy had delivered their baby by skilled birth attendants. The history was also obtained from previous deliveries if one has more than one child. In last pregnancy, 55.41% of the mothers had delivered by SBAs and 44.45% in the first pregnancy. The trend of the institutional delivery is increasing from the previous 2 deliveries to the recent delivery. The result of this study indicated that the number of mother who delivered by SBAs were higher than previous data of Nepal in 2006 It report that, only 19 % of the deliveries are assisted by SBAs. This was only 10% in 1996 and 13% in 2001. However the proportion of mother who delivered by SBAs in this study was lower than the world-wide situation that reported by WHO (21) which was that 67% deliveries in world are attended by SBAs. This may be that most women deliver at home, by relatives or traditional birth attendants or sometime alone also. (6, 10)

The proportion of the mother delivered by SBAs is higher in the study than in the country or other studies. This might be because the study selection sites were near to the area, where facilities are easily available.

5.3 Socio-demographic factors

Age

Concerning the age of mothers the majority mothers (60.74%) who aged 20-34 years had delivered by SBAs. The result also revealed that there was no significant association between the age of the mother and delivery by SBAs.

The finding similar to the NDHS 2006 (6), delivery in health care facilities is more common among younger mothers than older mothers. The finding contrast with to the study by World Bank (33) on ethically and socioeconomically diverse districts of Nepal. It revealed that women over 35years were in better position to assess the health care.

Caste

In the study, 29.33% of the mothers were Chettri; 22.67% were Newar; 22% were Tamang/ Magar; 13.33 were Brahamin and only 12.67% were of other caste. Regarding the caste of mother, 79.41% of the Newar mothers and 65% of the Brahamin mothers had delivered their baby by skilled birth attendants. However, it was still 52.27% of Chettri mothers and 36.36% of Tamang/ Magar mothers that delivered their baby by SBAs. There was a significant association between the caste and delivery by skilled birth attendants

The similar finding as the pervious study done by World Bank 2001 (33), the higher caste had higher access for maternal health care facility than the other caste. However, this study showed that Chettri and Tamang/ Magar mothers had lower utilized the facility for delivery in compare to others. This may that, the group of low value placed on women's status less supportive husbands and family for accessing health care than the other caste. Some caste was disadvantaged group; lag behind in their income and asset levels in their education and other human development indicators.

Religion

Regarding the religion of the people in this study, the 62.99% of Hindu mothers had delivered by SBAs. Tamang/Magar are usually Buddhist, and above finding already explained that they have lower utilization of health care facility. It is supported by the work of Sujan (46). He reported that Buddhist mothers are less likely to delivery by SBA.

Even though significant association was not found in this study, Mekonnen Y, Mekonnen A. (2003) in Ethiopia found the significant association between the religion and delivery by SBA.

Types of family

In this study, the mothers who lived in joint family were more likely to delivery by skilled birth attendant than the nuclear family. The 67.42% of the mothers lived in joint family had delivered their baby by SBAs. There was significant association between the types of family and the delivery by SBAs.

It was contrast with the report of NDHS 2006 (6). It showed that women from small family or nuclear family utilized SBAs more than women from big family.

The members of the family can influence on the mothers decision on the utilization of health care services. This could support by this study that most of the mothers had husbands/mothers-in-law to decide the place for delivery. The experienced members of the family can support for the services utilization during delivery. Families and their networks engage in communication and information-exchange with other social systems and institutions (e.g., professionals, the media, etc.) can complement to support.

Monthly family income

This research shows that the higher family income mothers had delivered their baby by SBA than the lower monthly family income. One third of the mother (75.47%) who had high income mother had delivered baby by SBAs. The significant

association was also found between the monthly family income and the delivery by SBAs.

This finding supported by NDHS in 2006 (6) and UNFPA in 2004 (19) that richest women took assistance of SBAs more than poor women. According to study on maternal mortality and morbidity (MMM) in Nepal 2009 (10), the cost of care had been found as a significant constraint to women seeking maternal health services. The financial barrier includes costs incurred at the health facility for treatment; transport costs; expenses of those accompanying the woman and opportunity costs for income earning. Affordability was still a major barrier to accessing care, particularly among the poor, and it significantly affected decision-making.

The reason for this may be more supported by the evidence in Nepal 1995-96 Living Standards Survey (26), suggests that 2.80% of total household resources are spent on health care. Beside this, in Nepal women are not give importance to their needs including health care needs. Even though they earn an income, women have been found not to be spending for their health care needs.

Educational level of the mother and her husband

This research identified that mothers with higher education had delivered their baby by SBAs (87.50%) than illiterate mothers. There was significant association between the education of the mother and the delivery by SBAs (p-value= 0.002).

Maternal education might be one of the predictor for the delivery assisted by skilled birth attendant because educated women are more motivated for seeking health care than uneducated. Educated are more likely to be aware of the complications and its consequences on life. Therefore, they seek and utilize the health care facility. (6, 43, 47)

Majority of mothers (94.12%), in this study, who had educated husband, had delivery by SBAs. Significant association between the education of husband and the delivery by SBAs were found. (p-value= < 0.001).

The pervious study done by Yasmin N., Alam K., et al in Bangladesh (48) showed that, education of husband makes difference in utilization in service of maternal health. It was similar as the finding from in NDHS 2006 (6). It also reveals that women with educated husbands had better chance of receiving health care services.

The educated husband may have good knowledge on the safe delivery to decide for his wife. Besides that, educated husband may have more authority in the family to decide in family matters.

Occupation of the mother and her husband

In this study, 76.92% of mothers engaged in business and 66.66% of mothers engaged in service or labor work had delivered by SBAs. More than half 60.00%of mothers (64.94%) housewifves had delivered baby by SBAs. However, there was no statistically significant association between occupation of the other and delivery by SBAs (p-value= 0.156).

NDHS 2006 (6) revealed that women whose occupation was agriculture utilize less SBAs compare to other sector, who do not do any work. NDHS also revealed that two fifths of women employed in the agricultural sector are paid in kind only. Women are more likely to be paid in cash if they are employed in the nonagricultural sector. This may prevent women to utilize health facility even if they want. They have to depend on the decision of the family members to decide for her.

Regarding to the occupation of the husband, statistically significant association was identified with the delivery by SBAs (p-value= 0.003). The 78.38% of the mothers whose husbands were engaged in business had delivered by SBAs.

Women's status is low and decision-making to seek obstetric care is typically made by women's husbands or their mothers-in-law. So, if husband can earn he can decide himself, he to take his wife for the services.

5.4 Obstetric experiences

Number of Children

Birth order can be one of the significant factors for delivery by SBAs. As number of children increases, the chance of giving birth at health institute is decreased (42, 43, 46, 47). The higher the birth order of a delivery, the less likely the mother is to receive professional delivery care. In other words, women in their first or second pregnancy are more likely to deliver with a skilled birth attendant than women who have already had several children (19).

No statistically significant association was found between the numbers of children and delivery by SBAs in this study. About half of mothers (53.83%) who had more than 3 children and half of the mother (50.00%) who had 2 children had delivered by SBAs. Nearly 70.00% of the mothers who had 1 child had delivered by SBAs.

The possible explanation for the low use-rate of SBA among high-parity women may be that such women developed confidence and may tend to believe that modern healthcare is not as necessary due to the experience and knowledge accumulated from previous pregnancies and birth.

Antenatal care during pregnancy and times of visit

In spite of ANC can lead to early detection and treatment of the problem, it has been found that antenatal care has been found as a predictor of safe delivery service utilization. The WHO (50) recommended that a woman without complications had at least four ANC visits to provide sufficient antenatal care. It was possible during these visits to detect health problems associated with a pregnancy.

There was a no significant association between the antenatal visits done or by the mother during the recent pregnancy and delivery by SBAs. However, the number of antenatal visit was found to be the strong predictive of delivery assisted by skilled birth attendants (p-value= 0.01)

Among the mothers that had done antenatal check up, 67,52% of the mothers who had completed the ANC four times or more than 4 times had delivered baby by SBAs. The 66.67% of mothers who had incomplete antenatal checkup had delivered by unskilled birth attendants.

The results supported by the study in Ethiopia (43, 47) that those women who did not had antenatal visit were likely to seek institutional delivery services than who had antenatal visit.

The reason for this may be because without antenatal care, mothers may have little or no birth preparation or understanding of potential emergencies, and no knowledge of measures for preventing emergencies or how to seek emergency care.

Although an exclusive focus on care during pregnancy has not been shown to have a direct impact on maternal mortality, antenatal care provides an important entry point for women to the health care system. Women who get antenatal care are also more likely to have a skilled attendant present during childbirth (50).

Place of delivery

In the study done in Ethiopia (43) and in Bangladesh (44), the home deliveries are still assisted by untrained birth attendants and or relatives. Similar result of NDHS, 2006 (6), it also revealed that among the deliveries, only 19.00% were assisted by SBAs. It was higher in urban areas (51.00%) compare to the rural areas. A study done in Kavre district in 2008(16), it showed that 86.1% of mothers had delivered at home.

In this study, a few of mothers (10.61%) who delivered at home had delivered by SBAs. Significant association between places of delivery and delivery by skilled birth attendants were found (p-value= <0.001).

Regarding the reason of home delivery in the study, nearly 35% of the mothers feel that health facility delivery is not necessary (35.38%) and they delivered before go to health facility (35.38%). The reason is similar to the study done in Ethiopia 2004 (43) that 44.7% of the mothers reported that labour pain was short to reach health facilities.

In this study, 100% of the deliveries at any of the institutes like government hospital, non government hospital, private hospitals, PHCC or health post were delivered by skilled birth attendants. This may be because that, the study area selection was within distance that researcher could be reached within an hour from central area of Kavre district. In those areas, the staffs of the health care facilities had been trained to establish a birthing center. Beside these two nongovernmental hospitals, Kathmandu University Teaching Hospital and Sheer Memorial Hospital are available with full trained staffs for safe delivery services. Rural areas of Kavre district may not be similar, where it takes days to reach.

Person to decide that place of delivery

The significant association was not found between the person to decide the place of delivery and the delivery by SBAs. The 66.67% of the deliveries attended by SBAs were decided by husbands and about half (50.72%) of the hospital deliveries were decided by in-laws like mother-in-law or father in law or other member of family.

According to NDHS, 2006 (6), majority of the household are men headed and similar finding was reported by Shrestha D. (18), that husband and the in laws are a significant decision maker for the maternal health care services. Mothers have to depend on their husbands or other family members to make the decisions to seek for health services. Women do not have decision making power to seek for health care

because men (fathers, fathers-in-law, husbands) as the head of the household controlled the cash/family finance decisions.

Complications during pregnancy, delivery and after delivery

Every pregnancy is at risk, and risk during pregnancy or delivery after delivery cannot be predicted. Women usually do not visit health facilities for minor illness (26). Only when the patient becomes seriously ill, they are taken to the hospital for better care and medication. The study done in Ethiopia, 2004 (43), described that there is higher chance of mother utilizing safe delivery if there are some previous life threatened obstetric history.

Despite of complications faced during the pregnancy, 46.43% of the mother had delivered their baby by unskilled birth attendants. Likewise, 39.47% of the mothers that had some complications during delivery had delivered by unskilled birth attendant. However there was no significant association between the complications during pregnancy and delivery by SBAs. This might be because of lack of knowledge on seriousness of the problem and their consequences.

In the study complications during pregnancy, delivery and after delivery were asked to the mother. Since the complications were only the perceived complications and they were not diagnosed, there may be the memory bias in the finding.

In this study, the common complications faced by mothers during the pregnancy, were painful and burning urination (57.00%) which is the sign of urinary tract infection and are per vaginal bleeding (35.71) which is the sign of antenatal haemorrhage, in recent pregnancy. In Nepal and also in world one of the reasons of maternal death is antepartum hemorrhage (5, 10, 18)

The common problem faced by mothers during delivery was prolong labor (63.16%) and severe bleeding (28.95%). Postpartum hemorrhage is the main problem that can kill the mother. And in the study also, 48.38% of the mothers had heavy and or sudden increase in vaginal bleeding which is the sign of postpartum hemorrhage.

5.5 Availability and accessibility of health care facilities

Types of nearest health care facilities

Eight out of ten mothers (80.00%) who had governmental hospital near to them with delivery service, had delivered by SBAs. Lower to this, 6 out 10 mothers who had non-governmental hospital near to them had delivered their baby by SBAs. Only 42.85% of the mothers who had health post near to them for delivery services had delivered by SBAs.

Even though there was no significant association between types of nearest health care facilities and the delivery by SBA in this study. The MMM study (10) and study by UNESCAP in Nepal (26) had shown that long distance between communities and health care facilities had contributed for maternal seeking care and maternal death.

Different level of health care facilities has different level of health manpower for different level of health facilities. The presence of appropriate care may not be available at peripheral services. Besides that, reason for not utilizing nearest available health post by people may be because that the peripheral health facilities like health posts in Nepal had not yet gained trust from people for their services. Lack of free medicines, lack of quality services, lack of capable and trained personnel are other reasons for being dissatisfied.

Mode of transportation

Concerning mode of transportation, there was no statistically significant association with the delivery by SBAs. The study shows that more than 60% of mother who can reach nearest health care facility by walking has delivered by SBAs (63.22%). It was higher than by some vehicles (55.57%).

Women tend to seek for more medical care if health post is close to their homes. But in many remote areas of hilly and mountain regions in Nepal, where travel time has to be measured in hours or even days rather than minutes because of topography where most people travel on foot (26). Due to this reason also delivery by SBAs in this study might have been higher than other studies.

World Bank studied in Nepal (33), stated that lack of access to health facility for women in rural area is evident as only 13.5 % of childbirths took place in health facility in rural areas in comparison to 47.8 % in urban area, where there are more facilities of transportation and where that is concentrated health care facilities. The same report shown that, maternal mortality is higher in rural areas than the urban areas, where they are unable to access the care due to distance of health care facility and lack to reach the facility for the services.

Payment of services

NDHS 2006 (6) reveals that 10% of the reasons for the home delivery were costly services. It means that payment for the service is one of the factors that prevent the mothers for the utilization of health care facility. Studies have long established the cost of care as a significant constraint to women seeking maternal health services. UNFPA had also shown that financial barrier includes costs incurred at health facility for treatment (10).

Affordability is a major barrier to accessing care, particularly among poor, and it significantly affected decision-making (6). MMM study of Nepal (10) had shown that fear of expenses led many women to deliver at home without skilled assistance and further expenses at a referral facility, including having to stay at a distant place for several days with an accompanying person, transport and treatment cost, which made them even more reluctant to visit higher level referral centres.

This study also revealed that 77.17% of the mothers that had delivered by assistance of SBAs had paid for delivery service and 27.27% of mother delivered with assistance of SBA did not pay. There was the statistically significant association between the payment for delivery service in the nearest health care facility and the use of the service.

5.6 Knowledge on safe delivery

The 67.01% of the mothers that had good knowledge on safe delivery had delivered their baby by SBAs. Half of the mothers (50%) who had fair knowledge and 33.33% of the mothers that had poor knowledge on safe delivery had delivered by SBAs. There was significant association between knowledge of mother on safe delivery and delivery by SBAs.

Knowledge determines the behavior of women in seeking for care. Lack of recognition of problems and slow decision-making remain significant delays in utilization of delivery assisted by SBAs (26). A study by Bhatta BN 2008 (16) shows that there were still 20% people in Kavre who did not know about the basic knowledge during pregnancy period.

Pregnancy is a normal, healthy state that most women aspire at some point in their lives. However, 56% mothers knew that it is not disease. This may be because during pregnancy, body undergoes a number of changes as baby develops inside womb. These changes can cause various symptoms, so people may think that it was a disease rather than a normal phenomenon.

This study also reported that, 86.66% of the mothers believe that women below 18 years can face severe problem during delivery than women of higher than 18 years. This is supported by UNFPA (11) that for both physiological and social reasons, mothers aged 15 to 19 are twice as likely to die in childbirth as those in their 20s, and girls under age 15 are five times as likely to die as women in their 20s.

For the statement that during delivery, experienced traditional birth attendants can help as trained nurses, 67.33% of the mothers knew as not incorrect. It may be because TBAs already exist in many communities, it has been suggested that they could perform the role of the skilled attendant and it is recognized that for some women TBAs are the only source of care available during pregnancy (13).

5.7 Perception on safe delivery

The 68.12% of the mothers that had positive perception on safe delivery had delivered with assistance of SBAs whereas 53.09% of the mothers that had negative perception on safe delivery had delivered with the assistance of SBAs.

Being specific on perception, regarding the perception on safety, about 70% of mothers who had positive perception on safe delivery had delivered by SBAs. The statistically significant association was found between the perception on safety and the delivery by SBAs (p-value=0.026). There was no significant association was found between the perception of mother on benefit and barrier of safe delivery and delivery by SBA.

It may be because in Nepal, women with reproductive health issues are guided and advised by older and experienced women who lack adequate, correct and factual knowledge. Women do not have decision making power to seek for health care because men even they know or perceive that health care is essential.

This is supported by a study by Seljeskog L. et al in Rual Malawi (30). It revealed that perception on danger sign during pregnancy has important influence on health care seeking behavior (30). However, 12.67% of mothers in the study still disagreed that “recognition of danger sign after delivery of the baby can avoid delay in seeking care for treatment”, and similar to that 30.00% of mothers agreed in the study that experiencing heavy haemorrhage after delivery is good for mother health because it helps to get rid of bad blood of the body. It was similar to the study of MMM study (10). It states that mothers believe bleeding after delivery as normal and that bad/broken blood (*bigreko ragatt)* was meant to be expelled after delivery.

CHAPTER VI
CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

The study was conducted to determine the factors influencing delivery by skilled birth attendants among the mother. The study was conducted in 5 PHCC of Kavre District Nepal. The study had investigated the association between various factors for the delivery by skilled birth attendants like socio-demographic factors, obstetric history, availability and accessibility of services, knowledge on safe delivery and perception on safe delivery.

The structured questionnaire was prepared and used to interview with 150 mothers who came for immunization center during the study period. The questionnaire was pretested in the 30 mothers of Kavre Sub Health post of Kavre District, Nepal for reliability of questionnaire. The collected data was entered in Minitab and the Kuder-Richardson coefficient for reliability of knowledge and Cronbach's Alpha coefficient of perception. The reliability of knowledge and perception were 0.77 and 0.85, respectively.

The descriptive data were used to analyze and identify the characteristics of the variable. Chi-square test and Fishexact test was conducted to assess any significant association between various dependent variables and delivery by skilled birth attendants. Multiple regression analysis was used to evaluate magnitude and significant of predictive independent variables.

Concerning about the dependent variable, the person to assist were either skilled birth attendants that include doctors, nurses and ANMs. Three out of five mothers (60%) had delivered their baby with assistance of skilled birth attendants in

their recent delivery which was higher than previous deliveries. The trend of delivery by skilled birth attendants was increasing. Beside SBAs, relatives were the one who assisted the delivered commonly (32%) if there were not any SBAs for delivery.

Castes of mother, types of family she lived, monthly family income, educational status of the mother and her husband and occupation of her husband were found statistically significant association with delivery assisted by skilled birth attendants.

There was statistically significant association between place of delivery and delivery by SBAs (p-value= <0.001). All institute deliveries were assisted by SBAs and majority of deliveries (89.39%) at home are assisted by unskilled birth attendants.

Payment of services had significant association between deliveries assisted by skilled birth attendants (P-value= <0.001). Other variables of availability and accessibility of health facilities for mother had no significant association with delivery by SBAs.

The significant association by chi square was also found one knowledge of mothers on safe delivery (p-value= 0.039). Mothers who had good knowledge on safe delivery had delivered with the assistance of skilled birth attendants than mothers with poor knowledge on safe delivery.

The perception of mother on safety of safe delivery (p-value= 0.026) had significant association on delivery assisted by skilled birth attendants. Mothers having positive attitude on safety of safe delivery had delivered by skilled birth attendants. Perception on benefit of safe delivery and perception on barrier of the safe delivery were not found significant association between the delivery by skilled birth attendants.

Regarding Multiple Logistic Regression, statistically significant association was found between numbers of antenatal visits and delivery by SBAs.

Mothers who had complete antenatal check up were likely to delivery assisted by skilled birth than mothers who had incomplete antenatal check up (OR= 2.95, CI= 1.00-8.74).

6.2 Recommendations

The finding of study would be beneficiary for implementing the maternal health programs to reduce maternal mortality in developing countries like Nepal. The project managers, health planners and policy makers, working on implementation of safe delivery in community would be benefited the finding of the study.

6.2.1 At community level

Awareness arising and knowledge increasing on safe motherhood issues should be highlighted among the mothers and her family. Information regarding normal and abnormal pregnancy and delivery, emergency signs of pregnancy and delivery should be provided. Since illiterate mothers and mothers aged above 34 are less likely to delivery assisted by skilled birth attendants, this requires the appropriate behaviour change communication (BCC) strategies to make community people and illiterate and mothers aged above 34 years mothers to make aware of the safety and benefits of safe delivery. This can be done by using IEC material interpersonal consultations such as in mother's groups meetings or local campaign. School health program can also be lunched.

The available, traditional birth attendants and FCHVs at community level can be facilitated to act as a change agent to identify the pregnant mothers in the community and ensure that they had antenatal check up. FCHVs can explain them on normal and abnormal obstetric situations and to ensure timely referral to the appropriate health facilities.

6.2.2 At institution level

Proper and adequate information on the importance of safe delivery to all mothers during antenatal check up should be provided in appropriate way so that they can accept services and follow instruction to utilize health care facilities

Presence of female health workers to provide maternal health services and conducive environment in health care facilities should be promoted. It can encourage women to seek health care services.

6.2.3 Recommendation for Further Study

The effect of the SDIP program in the nation and the cultural factors should be considered in further study..

Beside these the study area had relatively good accessibility to the health care facilities for delivery than in other part of country. Therefore, further study with same objectives can be conducted in with expanded areas of the country to identify the obstacle to utilize the delivery by skilled birth attendants.

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APPENDICES

APPENDIX A

Table 4.32 Frequency and percentage distribution of the nearest health facility for delivery and mode of transportation

Characteristic	**Walking**		**Vehicle**		**Chi Square**	**P-value**
	N=87	**%**	**N=63**	**%**		
Government hospital	3	6.00	2	2.40	16.452	0.0001**
Nongovernmental hospital	49	47.57	54	52.43	df= 3	
Primary Health Care Center	22	78.57	6	21.43		
Health Post	13	92.86	1	7.14		

** Significant at p-value <0.01

Table 4.33 Frequency and percentage distribution of the delivery by skilled birth attendants during the second pregnancy and first pregnancy with delivery by skilled birth attendants in recent pregnancy

Characteristic	**SBAs (recent)**		**Unskilled (recent)**		**Chi Square**	**P-value**
Second pregnancy	N=46	%	N=37	%		
SBAs	32	74.42	11	25.58	13.033	<0.0001
Unskilled	14	35.00	26	65.00	df=1	
First pregnancy						
SBAs	9	75.00	3	25.00	4.480	0.069
Unskilled	6	40.00	9	60.00	df=2	

Table 4.34 Frequency and percentage distribution of the delivery by skilled birth attendants during the second pregnancy with delivery by skilled birth attendants in first pregnancy

Characteristic	**SBAs (second)**		**Unskilled (second)**		**Chi Square**	**P-value**
	N=46	**%**	**N=37**	**%**		
SBAs (first)	10	83.33	2	16.67	17.099	<0.0001
Unskilled (first)	1	6.67	14	93.33	df= 2	

APPENDIX B
QUESTIONNAIRE

FACTORS INFLUENCING DELIVERY BY SKILLED BIRTH ATTEDANTS AMONG THE MOTHERS IN KAVRE DISTRICT, NEPAL

The questionnaire is constructed to the data collection on postpartum mother of Kavre District. The questionnaire consists of the socio-demographic characteristics, obstetric history, availability and accessibility of the services and knowledge and perception on delivery by skilled birth attendants. The information we get will be used for the research purpose only and we ensure for the privacy of your personal information.

The study aim of this study is to determine the factors influencing the delivery by skilled birth attendants among the postpartum mothers of the mothers.

If you have any concern about any of the or about this study, please do not hesitate to ask the researcher or the interviewer.

The answers you provide are confidential. If you feel you don't want to answer any of the questions you can say that.

Questionnaire

Socio- Demographic Characteristics

1. How old are you?

   …….years

2. What is your caste?
   - ☐1. Brahamin
   - ☐2. Chetrri
   - ☐3. Newar
   - ☐4. Tamang/Magar
   - ☐ 5. Others

3. What is your religion?
   - ☐1. Hindu
   - ☐2. Buddhist
   - ☐3. Christian
   - ☐4. Others

4. What type of family you live in?
   - ☐ 1. Joint family
   - ☐ 2. Nuclear Family

5. How much is your monthly income?

   …….Rs

6. What is your educational level?
   - ☐1. No education
   - ☐2. Some primary
   - ☐3. Completed Primary
   - ☐4. Some Secondary
   - ☐5. Completed Secondary
   - ☐6. More than Secondary

7. What is the educational level of your Husband?
   - ☐1. No education
   - ☐2. Some primary
   - ☐3. Completed Primary
   - ☐4. Some Secondary
   - ☐5. Completed Secondary
   - ☐6.More than Secondary

8. What is your main occupation?

☐ 1. Agriculture
☐ 2. Housewife
☐ 3. Business
☐ 4. Service
☐ 5. Labor
☐ 6. Other(specify)

9. What is the main occupation of your husband?

☐ 1. Agriculture
☐ 2. Business
☐ 3. Service
☐ 4. Labor
☐ 5. Other(specify)

Obstetric History

10. How many children do you have?
……..

11. How many sons do you have?
……..

12. How many daughters do you have?
……..

If a woman has one baby go for recent delivery only; for two go for recent and 2nd delivery; for three go for all three and if more than three children ask for recent three only

No	Questions	Recent Delivery	2nd Delivery	1st Delivery
13.	Did you have Antenatal check up during pregnancy ?	1. Yes ……times	1. Yes ……times	1. Yes ……..times
		2. No [Skip 15]	2. No [Skip 15]	2. No Skip 15]
14	Who did the antenatal check up most of the times?	1. Doctors	1. Doctors	1. Doctor
		2. Nurse or Midwives	2. Nurse or Midwives	2. Nurses or Midwives
		3. ANMs/ MCHWs	3. ANMs/ MCHWs	3. ANMs/ MCHWs
		4. Health Assistants	4. Health Assistants	4. Health Assistants
		5. FCHVS	5. FCHVS	5. FCHVs
		6. TBAs	6. TBAs	6. TBAs
		7. Others (specify)	7. Others (specify)	7. Others (specify)
15.	Where your delivery took place?	1. Government Hospital [Skip 17]	1. Government Hospital [Skip 17]	1. Government Hospital [Skip 17]
		2. Non-Government Hospital [Skip 17]	2. Non-Government Hospital [Skip 17]	2. Non-Government Hospital [Skip 17]
		3. Private Hospital [Skip 17]	3. Private Hospital [Skip 17]	3. Private Hospital [Skip 17]
		4. PHCC [Skip 17]	4. PHCC [Skip 17]	4. PHCC [Skip 17]
		5. Health Post [Skip 17]	5. Health Post [Skip 17]	5. Health Post [Skip 17]
		6. Home	6. Home	6. Home
		7. Others (specify)	7. Others (specify)	7. Others (specify)

16.	What was the reason to choose this place?		1. It is not necessary		1. It is not necessary		1. It is not necessary
			2. It is custom		2. It is custom		2. It is custom
			3. It is expensive		3. It is expensive		3. It is expensive
			4. It is too far to reach		4. It is too far to reach		4. It is too far to reach
			5. Born before go to health facilities		5. Born before go to health facilities		5. Born before go to health facilities
			6. Didn't allow to go		6. Didn't allow to go		6. Didn't allow to go
			7. Others (specify)		7. Others (specify)		7. Others (specify)
17.	Who assisted during the delivery?		1. Doctors		1. Doctors		1. Doctors
			2. Nurse or Midwives		2. Nurse or Midwives		2. Nurse or Midwives
			3. ANMs		3. ANMs		3. ANMs
			4. Health Assistants		4. Health Assistants		4. Health Assistants
			5. FCHVS		5. FCHVS		5. FCHVS
			6. TBAs		6. TBAs		6. TBAs
			7. Relatives		7. Relatives		7. Relatives
			8. None		8. None		8. None
			9. Others (Specify)		9. Others (Specify)		9. Others (Specify)
18.	Who decided the place of delivery?		1. Self		1. Self		1. Self
			2. Husband		2. Husband		2. Husband
			3. Mother in law		3. Mother in law		3. Mother in law
			4. Others (specify)		4. Others (specify)		4. Others (specify)

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Obstetric history before delivery

If a women have one baby go for recent delivery only; for two go for recent and 2nd delivery; for three go for all three and if more than three children ask for recent three only

No	Questions	Recent Delivery	2nd Delivery	1st Delivery
19.	Did you face any complications before delivery?	1. Yes	1. Yes	1. Yes
		2. No [Skip 23]	2. No[Skip 23]	2. No[Skip 24]
20.	If yes, did you face any of the problems?	1. Per vaginal bleeding	1. Per vaginal bleeding	1. Per vaginal bleeding
		2. Severe abdominal pain	2. Severe abdominal pain	2. Severe abdominal pain
		3. Preterm premature rupture of membrane	3. Preterm premature rupture of membrane	3. Preterm premature rupture of membrane
		4. Fever over 100^0F	4. Fever over 100^0F	4. Fever over 100^0F
		5. Blurry or impaired vision	5. Blurry or impaired vision	5. Blurry or impaired vision
		6. Severe Headache	6. Severe Headache	6. Severe Headache
		7. Fits	7. Fits	7. Fits
		8. Painful and burning urination	8. Painful and burning urination	8. Painful and burning urination
		9. Others (specify)	9. Others (specify)	9. Others (specify)
21.	Did you go for treatment?	1. Yes	1. Yes	1. Yes
		2. No [Skip23]	2. No [Skip23]	2. No [Skip24]

22.	Where did you go for the treatment?		1. Government Hospital		1. Government Hospital		1. Government Hospital
			2. Non-Government Hospital		2. Non-Government Hospital		2. Non-Government Hospital
			3. Private Hospital		3. Private Hospital		3. Private Hospital
			4. PHCC		4. PHCC		4. PHCC
			5. Health Post		5. Health Post		5. Health Post
			6. Sub Health post		6. Sub Health post		6. Sub Health post
			7. FCHVs/ TBAs		7. FCHVs/ TBAs		7. FCHVs/ TBAs
			8. Others (specify)		8. Others (specify)		8. Others (specify)

Obstetric history during delivery

If a women have one baby go for recent delivery only; for two go for recent and 2nd delivery; for three go for all three and if more than three children ask for recent three only

No	Questions	Recent Delivery	2nd Delivery	3rd Delivery
23.	During delivery did you faced any of the problems?	1. Yes	1. Yes	1. Yes
		2. No [Skip 27]	2. No [Skip27]	2. No [Skip 27]
24.	If yes, did you face any of the problems?	1.Severe Bleeding	1.Severe Bleeding	1.Severe Bleeding
		2.Unconscious	2.Unconscious	2.Unconscious
		3.Prolong labour	3.Prolong labour	3.Prolong labour
		4.Obstructed labour	4.Obstructed labour	4.Obstructed labour
		5.Malpresentaion	5.Malpresentaion	5.Malpresentaion
		6.Unconscious	6.Unconscious	6.Unconscious
		7.Others (Specify)	7.Others (Specify)	7. Others (Specify)
25.	Did you go for treatment?	1. Yes	1. Yes	1. Yes
		2. No [skip 27]	2. No[skip 27]	2. No [skip 27]
26.	Where did you go for the treatment?	1. Government Hospital	1. Government Hospital	1. Government Hospital
		2. Non-Government Hospital	2. Non-Government Hospital	2. Non-Government Hospital
		3. Private Hospital	3. Private Hospital	3. Private Hospital
		4. PHCC	4. PHCC	4. PHCC
		5. Health Post	5. Health Post	5. Health Post
		6. Sub Health post	6. Sub Health post	6. Sub Health post
		7. FCHVs/ TBAs	7. FCHVs/ TBAs	7. FCHVs/ TBAs
		8. Others (specify)	8. Others (specify)	8. Others (specify)

Obstetric history after delivery

If a women have one baby go for recent delivery only; for two go for recent and 2nd delivery; for three go for all three and if more than three children ask for recent three only

No	Questions		Recent Delivery		2nd Delivery		1st Delivery
27.	After delivery did you faced any of the problems?		1. Yes		1. Yes		1. Yes
			2. No [skip 31]		2. No [Skip 31]		2. No [Skip 31]
28.	If yes, did you face any of the problems?		1. Heavy or sudden increase in vaginal bleeding		2. Heavy or sudden increase in vaginal bleeding		1. Heavy or sudden increase in vaginal bleeding
			2. Vaginal discharge with unpleasant odor		2. Vaginal discharge with unpleasant odor		2. Vaginal discharge with unpleasant odor
			3. Severe headache		3. Severe headache		3. Severe headache
			4. Fits/seizures		4. Fits/seizures		4. Fits/seizures
			5. Burning and/or frequency of urination		5. Burning and/or frequency of urination		5. Burning and/or frequency of urination
			6. Sleeplessness or depression		6. Sleepless ness or depression		6. Sleeplessness or depression
			7. Calf pain or tenderness		7. Calf pain or tenderness		7. Calf pain or tenderness
			8. Continuous leakage of urine or stool		8. Continuous leakage of urine or stool		8. Continuous leakage of urine or stool
			9. Others (Specify)		9. Others (Specify)		9. Others (Specify)

29.	Did you go for treatment?		1. Yes		1. Yes		1. Yes
			2. No [skip 31]		2. No [skip 31]		2. No [skip 31]
30.	Where did you go for the treatment?		1. Government Hospital		1. Government Hospital		1. Government Hospital
			2. Non-Government Hospital		2. Non-Government Hospital		2. Non-Government Hospital
			3. Private Hospital		3. Private Hospital		3. Private Hospital
			4. PHCC		4. PHCC		4. PHCC
			5. Health Post		5. Health Post		5. Health Post
			6. Sub Health post		6. Sub Health post		6. Sub Health post
			7. FCHVs/ TBAs		7. FCHVs/ TBAs		7. FCHVs/ TBAs
			8. Others (specify)		8. Others (specify)		8. Others (specify)

History of New Born

If a women have one baby go for recent delivery only; for two go for recent and 2nd delivery; for three go for all three and if more than three children ask for recent three only

No	Questions		Recent Delivery		2nd Delivery		1st Delivery
31.	Did your new born faced any of the problems?		1. Yes		1. Yes		1. Yes
			2. No [Skip 35]		2. No [Skip 35]		2. No [Skip 35]
32.	If yes, did you face any of the problems?		1. Blueness of body		1. Blueness of body		1. Blueness of body
			2. Sucking poorly		2.Sucking poorly		2. Sucking poorly
			3.Difficulty breathing		3.Difficulty breathing		3. Difficulty breathing
			4. Lethargy		4. Lethargy		4. Lethargy
			5. Jaundice		5. Jaundice		5. Jaundice
			6.Others (Specify)		6. Others (Specify)		6. Others (Specify)
33.	Did you go for treatment?		1. Yes		1. Yes		1. Yes
			2. No [Skip 35]		2. No [Skip 35]		2. No [Skip 35]
34.	Where did you go for the treatment?		1. Government Hospital		1. Government Hospital		1. Government Hospital
			2. Non-Government Hospital		2. Non-Government Hospital		2. Non-Government Hospital
			3. Private Hospital		3. Private Hospital		3. Private Hospital
			4. PHCC		4. PHCC		4. PHCC
			5. Health Post		5. Health Post		5. Health Post
			6. Sub Health post		6. Sub Health post		6. Sub Health post
			7. FCHVs/ TBAs		7. FCHVs/ TBAs		7. FCHVs/ TBAs
			8. Others (specify)		8. Others (specify)		8. Others (specify)

Availability and Accessibility of Services

35. What health institute do you have nearest to your house with the facilities for delivery?
    1. Government hospital,
    2. Nongovernmental Hospitals
    3. Private Hospital
    4. Primary Health Care Center
    5. Health Post
    6. Others

36. How do you reach there?
    1. Walk it take …….minutes
    2. Vehicles……minutes

37. Is it convenient for you to get that health facility?
    1. Yes
    2. No

38. Who serve you if you go for the service for your problem?
    1. Doctors
    2. Nurses and Midwives
    3. ANMS
    4. Health Assistants
    5. Others(specify)

39. Do you have to pay for the service?
    1. Yes
    2. No [Skip 46]

40. How much do you pay for the service?.....Rs

41. Do you think it is expensive?
    1. Yes
    2. No

42. Do you know you can get incentive for institute delivery?
    1. No
    2. Yes

42.1 If yes, how much? ……Rs

Knowledge on Safe Delivery

Please mark "X" at the answered option.

No.	Statement	Yes	No	Don't know
43.	Pregnancy is one of the diseases.			
44.	Bleeding before the delivery of the baby is not dangerous to mother and fetus.			
45.	A pregnant woman can do hard works as they do before pregnancy.			
46.	Fits during pregnancy is due to lack of rest.			
47.	If a woman have delivery longer than 24 hours it is normal.			
48.	Heavy bleeding after delivery may result death of mother.			
49.	If women become unconscious during delivery it's normal.			
50.	Bluish discoloration of the skin after the birth of the baby is normal.			
51.	During delivery experienced traditional birth attendants can help as trained nurses.			
52.	Using sterilized instruments during delivery can protect the health of the mother.			
53.	Women below 18 years can face severe problem during delivery than women of higher than 18 years.			
54.	Delivery at hospital is safer than the delivery at home.			
55.	A woman needs extra food before delivery only to store energy after delivery.			
56.	If a woman does not have any problem before delivery doesn't have any problem during delivery.			
57.	Abdominal massage after delivery of the fetus can help to stop bleeding.			

Perception on Safe Delivery

Please mark "X" at the answered option.

No.	Statements	Agree	Not Sure	Disagree
Perception on Safety				
58.	Delivery is the natural process so it does not need any medical care. F			
59.	Delivery at hospital			
60.	Experiencing heavy hemorrhage after delivery is good for mothers health because the it helps to get rid of bad blood of the body.			
61.	Preparation of money before the delivery is essential. T			
62.	Husband knows about everything about pregnancy and can decide about his wife.			
Perception on Benefit				
63.	Women can have baby at home, safely with the help of TBAs than nurses at hospital.			
64.	Recognition of danger sign after delivery of the baby can avoid delay in seeking care for treatment.			
65.	Delivery in hospital can prevent all complications than delivery at home.			
66.	Free and easy available of the delivery service may encourage women to give delivery at hospital.			
Perception of Barriers				
67.	One has to pay a lot if they go for hospital delivery.			
68.	It is comfortable to go to health facilities for care if there are female care providers.			
69.	If you go to hospital for delivery, they ask for surgery.			
70.	Bleeding after delivery is normal.			
71.	Delivery kit at home during home delivery can prevent some infections.			
72.	After delivery of the baby the baby there is no risk left for women.			

73. In your opinion, where a pregnant women can go for safe delivery?
    1. Government hospital,
    2. Nongovernmental Hospitals
    3. Private Hospital
    4. Primary Health Care Center
    5. Health Post
    6. Sub Health Post
    7. Home
    8. Others (Specify)

74. In your opinion who can who can provide you safe delivery?
    1. Doctors
    2. Nurses
    3. ANMs
    4. Health Assistants
    5. FCHVs
    6. TBAs
    7. Relatives
    8. Others (specify)

BIOGRAPHY

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DATE OF BIRTH	April 27th 1982
PLACE OF BIRTH	Dhulikhel, Kavre, Nepal
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