ASSESSMENT OF ANTENATAL CARE UTILIZATION AND CLIENT SATISFACTION OF WOMEN IN RURAL AND URBAN AREAS OF KATHMANDU DISTRICT OF NEPAL

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การประเมินการใช้บริการและความพึงพอใจในการฝากครรภ์ของสตรีเขตชนบทและเขตเมือง กาฐมาณฑุ ประเทศเนปาล

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วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาสาธารณสุขศาสตรมหาบัณฑิต
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Thesis Title	ASSESSMENT OF ANTENATAL CARE UTILIZATION AND CLIENT SATISFACTION OF WOMEN IN RURAL AND URBAN AREAS OF KATHMANDU DISTRIT OF NEPAL
By	Mr. Prakash Prasad Shah
Field of Study	Public Health
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ประกาศ ปราสาท ชา: การประเมินการใช้บริการและความพึงพอใจในการฝากครรภ์ของสตรีเขตชนบทและเขตเมืองกาฐมาณฑุ ประเทศเนปาล (ASSESSMENT OF ANTENATAL CARE UTILIZATION AND CLIENT SATISFACTION OF WOMEN IN RURAL AND URBAN AREAS OF KATHMANDU DISTRICT OF NEPAL) อ.ที่ปรึกษาวิทยานิพนธ์หลัก: อ.ดร.จิตรลดา อารีย์สันติชัย, 132 หน้า

การฝากครรภ์เป็นองค์ประกอบพื้นฐานที่สำคัญในการดูแลสุขภาพ และช่วยลดอัตราการเสียชีวิตของสตรีมีครรภ์ อัตราการเสียชีวิตดังกล่าวพบว่ามีแนวโน้มสูงขึ้นในประเทศเนปาล เมื่อเปรียบเทียบกับกลุ่มประเทศในภูมิภาคเอเชียตะวันออกเฉียงใต้ เป้าหมายระยะยาวจึงถูกกำหนดขึ้นเพื่อกระตุ้นให้ร้อยละ 80 ของสตรีมีครรภ์เข้าใช้บริการฝากครรภ์อย่างน้อย 4 ครั้ง การวิจัยครั้งนี้จึงมีวัตถุประสงค์หลักเพื่อประเมินการใช้บริการและความพึงพอใจในการฝากครรภ์ของสตรีเขตชนบทและเขตเมืองกาฐมาณฑุ ประเทศเนปาล

การวิจัยนี้เป็นงานวิจัยเชิงสำรวจ ณ จุดเวลาหนึ่งในกลุ่มสตรีที่คลอดบุตรภายในระยะเวลา 12 เดือนที่ผ่านมา โดยพื้นที่ทำการสำรวจที่สุ่มได้คือ หมู่บ้าน Dhapasi ซึ่งอยู่ในเขตเมือง และหมู่บ้าน Jhormahankal ซึ่งอยู่ในเขตชนบทของเมืองกาฐมาณฑุ เครื่องมือที่ใช้ในการศึกษาวิจัยคือ แบบสอบถามสำหรับสัมภาษณ์กลุ่มตัวอย่าง เพื่อประเมินการใช้บริการและความพึงพอใจในการฝากครรภ์ของสตรีในพื้นที่เขตเมืองและเขตชนบท

ผลจากการศึกษาพบว่า ร้อยละ 84.6 ของกลุ่มตัวอย่างเข้าใช้บริการฝากครรภ์ (ร้อยละ 83 ในเขตเมือง และร้อยละ 87.5 ในเขตชนบท) ร้อยละ 58 ใช้บริการฝากครรภ์ครบจำนวน 4 ครั้ง (ร้อยละ 59.6 ในเขตเมือง และร้อยละ 56 ในเขตชนบท) ร้อยละ 43.7 พึงพอใจในการใช้บริการฝากครรภ์ (ร้อยละ 44.2 ในเขตเมือง และร้อยละ 42.9 ในเขตชนบท) ปัจจัยที่มีผลอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 ต่อทั้งการใช้บริการและความพึงพอใจในการฝากครรภ์ ประกอบด้วย ระดับการศึกษา อาชีพ สุขอนามัยของอาหาร รายได้ สิ่งอำนวยความสะดวก ระดับความรู้สึก ข้อมูลที่ได้รับ ระยะทาง เพศ และการได้รับยา ส่วนปัจจัยทางด้านอายุ เชื้อชาติ ความเสมอภาค ชนิดของครอบครัว การสนับสนุนทางสังคม ข้อจำกัดทางสังคม และข้อจำกัดทางครัวเรือน เป็นปัจจัยที่มีผลต่อการใช้บริการฝากครรภ์อย่างมีนัยสำคัญทางสถิติ ในขณะที่ปัจจัยทางสถานที่ในการให้บริการฝากครรภ์ เป็นปัจจัยที่มีอิทธิพลต่อระดับความพึงพอใจในการใช้บริการฝากครรภ์อย่างมีนัยสำคัญทางสถิติ

สรุปผลการศึกษา ปัจจัยทางด้านประชากรและสังคมศาสตร์ การสนับสนุนทางสังคม การสนับสนุนจากครอบครัว ข้อจำกัดทางครัวเรือน เพศ และการได้รับยา เป็นปัจจัยที่มีอิทธิพลสำคัญต่อการใช้บริการและความพึงพอใจในการฝากครรภ์ทั้งในเขตชนบทและเขตเมืองกาฐมาณฑุ ประเทศเนปาล ผลจากการศึกษาดังกล่าวชี้ให้เห็นว่า การพัฒนาระดับการศึกษา และการกระตุ้นการรับรู้ภาวะตั้งครรภ์ สามารถช่วยทำให้การใช้บริการฝากครรภ์และระดับความพึงพอใจเพิ่มมากขึ้น ข้อมูลดังกล่าวจึงมีประโยชน์อย่างมากต่อการศึกษาในอนาคตเกี่ยวกับปัจจัยทางด้านสังคม รวมถึงอุปสรรคที่มีผลต่อการใช้บริการฝากครรภ์

สาขาวิชา สาธารณสุขศาสตร์ ..... ลายมือชื่อนิสิต.....

ปีการศึกษา 2555 ..... ลายมือชื่อ อ.ที่ปรึกษาวิทยานิพนธ์หลัก.....

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KEYWORDS: ANTENATAL CARE UTILIZATION/ CLIENT SATISFACTION/ URBAN AREA/ RURAL AREA/ WOMEN/ KATHMANDU DISTRICT/ NEPAL

MR. PRAKASH PRASAD SHAH: ASSESSMENT OF ANTENATAL CARE UTILIZATION AND CLIENT SATISFACTION OF WOMEN IN RURAL AND URBAN AREAS OF KATHMANDU DISTRICT OF NEPAL.
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Background: Antenatal care is an important determinant of high maternal mortality rate and one of the basic components of maternal health care and is also a key strategy for reducing maternal mortality. In South East Asia Region, MMR is still higher in Nepal therefore SLTHP targets to increase in the percentage of pregnant women attending a minimum of four ANC visit to 80%. This study aimed to assess the antenatal care utilization and client satisfaction in rural and urban areas of Kathmandu district of Nepal.

Methods: A Cross-sectional study was carried out in two randomly selected urban (Dhapasi VDC) and rural (Jhormahankal VDC) areas of Kathmandu district of Nepal. All delivered women (urban = 188 and rural = 104) with child less than 12 months of age was interviewed with pretested questionnaire to assess the ANC utilization and client satisfaction in both areas.

Results: Overall ANC utilization was 84.6% (urban 83% and rural 87.5%) and Complete ANC utilization was 58% (urban 59.6% and rural 56%) and overall satisfaction was 43.7 % (urban 44.2% and rural 42.9%). Education, occupation, food security, income, facilitation, perception, information, distance (time factor), gender, availability of medicine had significant association with ANC utilization and client satisfaction ($P < 0.05$). Age, ethnicity, parity and family type, Social support, social barriers, household barriers had significant association with ANC utilization and place of ANC visit also had significant association with client satisfaction ($P < 0.05$).

Conclusions: The study shows that socio-demographic characteristics, social support, family support, household barriers, gender, availability of medicine are the major influencing factors for ANC utilization and client satisfaction in urban and rural areas of Kathmandu district of Nepal. Therefore, improvement of socioeconomic status, education and awareness about pregnancy are required to increase antenatal care utilization and client satisfaction. The information regarding to the association with Antenatal care Utilization and Client Satisfaction are useful for further studies especially about the different aspects of social support and barriers of ANC utilization.

Field of Study: Public Health ..... Student's Signature: …….

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LIST OF ABBREVIATION

1.	ANC	Antenatal care
2.	AHW	Auxiliary health worker
3.	CDR	Central development region
4.	DPHO	District public health office
5.	DOHS	Department of Health services
6.	EDR	Eastern development region
7.	FCHV	Female community health volunteer
8.	FWDR	Far-western development region
9.	HMIS	Health management information system
10.	MMR	Maternal mortality ratio
11.	MD	Management division
12.	MDG	Millennium development goal
13.	MCHW	Maternal and child health worker
14.	MWDR	Mid-western development region
15.	NGO	Non government office
16.	NHRC	Nepal health research council
17.	NDHS	Nepal demographic health survey
18.	PNC	Post natal care
19.	SLC	School leaving certificate
20.	SBA	Skilled birth attendant
21.	SHP	Sub health post
22.	TT	Tetanus toxoid
23.	VHW	Village health worker
24.	VDC	Village development committee
25.	WDR	Western development region

CHAPTER I

INTRODUCTION

1.1 Background and Rationale

WHO 2006, "Reproductive health has been defined as a state of complete physical, mental and social well being and not merely an absence of disease or infirmity in all matters relating to the reproductive system and to its functions and processes" and Women of reproductive age refer to all women aged 15 to 49 years.

Lindsay Cristina 2012, Antenatal care is an important determinant of high maternal mortality rate and one of the basic components of maternal health care on which the life of mothers and babies depend Antenatal care can be defined in various ways. WHO defines antenatal care as dichotomous variable, having had one or more visits to a trained person during the pregnancy and it includes routine follow up provided to all pregnant women at primary care level from screening to intensive life support during pregnancy and up to the delivery of baby. Antenatal care is the care received during pregnancy from skilled health personnel such as the goal oriented model recommended by the WHO which include 4-5 visits for pregnant women who are not having medical problems.

According to the UNICEF global database 2011, Worldwide 53 percentage of pregnant women were attended the recommended ANC visits i.e. minimum of four times antenatal care visits during the period of 2005 to 2010, but in low income countries only 36 percentage of pregnant women attended four or more than four times antenatal care visits during 2005 to 2010. In developing countries, the proportion of pregnant women who attended at least one ANC visit has been increased from approximately 64 percentages in 1990 to almost 81 percentages in 2009. According to the UNICEF 2003, UNICEF/WHO 2008, WHO Geneva 2009 and Bennett et al. 2008, Antenatal care (ANC) has been established in high income countries for a long time and has brought about remarkable achievements in reducing maternal and neonatal mortality. Most low and middle income countries have applied the same ANC programmes used in high income

countries with some adjustments for local contexts. Antenatal care (ANC) offers important safe motherhood intervention that may reduce maternal and prenatal morbidity and mortality significantly. In the developing world almost 80 percentage (according to the latest estimates) of the pregnant women receiving antenatal care (ANC) from a skilled health care provider at least one time during their pregnancy. Regional averages of antenatal care visits range from 70 percentages in South Asia and West and Central Africa to more than 90 percentage in Latin America and the Caribbean, Central and Eastern Europe/Commonwealth of Independent States (CEE/CIS), and East Asia and the Pacific (UNICEF 2012). In Latin America there is 96 % of women attended antenatal visit, whereas only 70 % of South Asian women attended antenatal care visit. Although the coverage of antenatal care is high, in the developing world, just half of pregnant women receives the recommended minimum of four antenatal care visits, and there are also some variation in antenatal care visits like, 87 percentage of Latin American women receives four antenatal care visits and only 46 percentage of South Asian women receives four antenatal care visits

Zanconato G, et al. 2006, The use of ANC varies between countries with a great underutilization among pregnant women in low income countries in Africa and Asia. Celik Y, et al. 2000, Adamu YM et al. 2002, Kabir M. et al. 2005, and Navaneetham K. et al. 2002, they found that within a country, ANC utilization also differs according to the mother's age, education, occupation, household income, parity, place of residence, cost and availability of services.

Fawole AO et al. 2008, describes that the antenatal period presents opportunities to reach out to pregnant women with interventions that may be vital to them and their infants. A better understanding of user' experiences, including their perceptions, preferences and satisfaction levels, can accept such intervention and continue to use the services provided. Sustained utilization and increased compliance can ultimately lead to better outcomes.

According to the Maternal Mortality in 2005: Estimates: World Health Organization 2007, Antenatal care utilization in the developing countries is 65 % and in

the developed countries is 97 %. Skilled birth attendance assisted delivery is only 53% in developing countries while it is 99 % in the developed countries and postpartum care utilization is only 30 % in the developing countries as compared to the developed countries is 90 %.

According to the National Demographic Health Survey 2011, among the pregnant women about 58 percentage of them received antenatal care from skilled health care providers(a doctor, nurse or midwife), in addition, 26 percentage of pregnant women received antenatal care from trained health workers (Health Assistants(HA), Auxiliary Health Workers(AHW), Maternal and Child Health Workers(MCHW), Village Health Workers(VHW)) and less than 1 percentage of pregnant women received antenatal care from Female Community Health Volunteers(FCHV) and still 15 percentage of pregnant women received no antenatal care. Younger pregnant women (less than 20 years of age) are more likely to receive antenatal care from a skilled health care provider (63 percentages) than older pregnant women (35-49 years of age) i.e. 31 percentage. Pregnant women are also much more likely to receive care from a skill provider for their first birth (73 %) than for the birth order six and higher (20 %). In addition, there is also difference in the use of antenatal care services among urban and rural pregnant women, in urban area 88 percentages of pregnant women receives antenatal care services from skill health care providers and in rural area only 55 percentages of pregnant women receives antenatal care services from skill healthcare providers. The uses of antenatal care services from a skilled health care provider is strongly related to the mother's educational level, mothers with a School Leaving Certificate (SLC) or higher education are more than twice as likely to receive antenatal care from a skilled health care provider (89 %), than women with no education (42 %). In Nepal only half of the pregnant women make four or more ANC visits.

National Demographic Health Survey 2011 has also shown that more than one-fourth (26.1 percentages) of pregnant women visit their first ANC between 4^{th} -5^{th} month of their pregnancy, where as 1.7 % of pregnant women receive their first antenatal visit on eight or after eighth month. Almost 80 percentages of pregnant women took Iron tablet

among them only about 70 percentages received two or more TT injection and 55 percentages took drug against intestinal parasite. There are substantial variations by background characteristics such as women's age at delivery, parity, place of delivery (urban, rural, ecological belts etc.) and women's education. A similar pattern by background characteristics is seen in the use of drugs for intestinal parasites. More than three fourth (76 percentages) of mothers who received antenatal care services reported that they were informed about complications of the pregnancy during antenatal care visit. Still one quarter (24.4 percentages) of mothers who received antenatal care reported they were not informed about complication during pregnancy at the time of their antenatal care visit. NDHS 2011 also shows that more than one in three (36 percentages) saved money for delivery and only 2 percentages contact a health worker. Nearly one- third of women had not made any preparation for delivery.

According to DoHS, Annual health report, MOHP 2009/2010, Government of Nepal has given priority to safe motherhood programme for reducing maternal and neonatal mortality and morbidity. According to annual report 2067/2068 of DoHS, 87 percentages women of Central Development Region visit antenatal care among whom only 58 percentages make four or more ANC visit as percentage of first visits. Also there is 37 percentage delivery were conducted by SBA and institutional delivery was 38 percentage in Central Development Region. In Kathmandu district there is high coverage of first ANC visit (95 percentages) and only about 70 percentages make four ANC visit of them. Almost 70 percentages delivery were conducted by SBA and institutional delivery is 76 percentages in Kathmandu district. Maternal health services of Nepal, is one of the basic functions of health services delivery of government sector. Basically maternal health services comprises of three major components: Antenatal care, Delivery and Postnatal care. Care during these periods is most important for well being and survival of both mother and child. Antenatal care is considered as a simple but the best method to identify early signs of risk in pregnancy and to prevent them and it promotes health status of mothers and also the fetus, newborn and children. Every visit in routine ANC helps to reduce maternal morbidity and mortality and also supports to gain the knowledge and to

develop skills on safe delivery. It is obvious that the minimum level of ANC use can prevent a large number of mothers from having complications and other hazards during pregnancy, during delivery and even during the postpartum period. Despite Government of Nepal has given high attention to maternal health care programmes still there is more than three fifth of delivery take place at home (63.1 %): among them 40 % were assisted by relatives or friends and only 36 % receive delivery care by skilled birth attendant. Nepal committed to the MDGs (Millennium Development Goals) and has already developed different types of policies and strategies to this end. There are two indicators that proposed by the MDGs framework for monitoring progress towards MDG is: (1) a reduction in MMR by $3/4^{th}$ (three-quarters) between 1990-2015, and (2) an increase in the proportion of assisted birth delivery by skilled birth attendant(SBA) to 60% and the SLTHP- Second Long Term Health Plan also targets to increase the percentage of delivery by trained personnel up to 95%, and increase in the percentage of pregnant women attending a minimum of four ANC visit to 80% and increase the coverage of TT2 injection up to 95% among women of child bearing age (15-49 years).

According to data provided by Jhor Sub-Health Post there is only 72 percentages of women receive antenatal care as percentage of expected pregnancy among which 51 percentages make four or more ANC visit. There is also low SBA and institutional delivery (49 percentages and 48 percentages respectively) in Jhor Mahankal VDC. The need for reducing maternal mortality has become a paramount concern in developing countries including Nepal. Jhor VDC is one of the nearest VDC of Kathmandu districts which are under the shadow of urban setting. The ANC coverage and other maternal health indicators are very low comparing with national and Kathmandu district. Also there were no any studies conducted about antenatal care utilization and factors influencing the utilization of antenatal care and satisfaction of the antenatal care user in women living in Jhor VDC.

In Nepal inequities between poor and better-off persist in health care utilization. In recent years, health equity has gained the attention of high level policy makers, programme managers and civil society, becoming an important goal in Nepal’s health

sector. However concrete information on antenatal care utilization and client satisfaction is lacking. More critical assessment is essential as within ethnicity groups, educational status, distance factor and behavioral factor and behavior of health workers contribute to inequities in antenatal care utilization in rural community. This study will help to assess the antenatal care utilization and antenatal care coverage of study area. The outcome of this study will be useful for formulating strategies to strengthen and improve antenatal care utilization and antenatal care coverage of mothers of Jhor Mahankal VDC and Dhapasi VDC of Kathmandu district.

According to the Ama Surkashya Programme, MOHP, Nepal 2065, Ama Surakshya Programme (maternity security programme) focuses on both building and strengthening the concept of health as human right by saving the lives of mothers and placing the women's health as a priority agenda of nation. The programme was implemented by Government of Nepal since 1st Magh, 2065 BS (Jan, 2009 AD). The aim of this programme is to increase in the access and utilization of safe maternal and newborn health (SMNH) services especially by the poor and socially excluded groups of the community

1.2 Aim

To assess the utilization of antenatal care service and client satisfaction in rural and urban areas of Kathmandu district.

1.3 Research Question

What are the influencing factors of utilization of antenatal care and client satisfaction in rural and urban areas of Kathmandu district?

1.4 Research Objectives

(1) To assess the utilization of antenatal care service in rural and urban areas of Kathmandu district.

(2) To determine the relationship of antenatal care utilization and client satisfaction with various independent variables.

1.5 Operational Definitions of the Terms

1.5.1 Antenatal Care:

Antenatal care is a health promotional program and the care that is provided to women during her pregnancy. Antenatal care includes: ANC visit, TT immunization, Iron and intestinal parasite drug supplementation and Routine investigation and four or more ANC visits considered as a complete ANC visit.

1.5.2 Antenatal care utilization

Antenatal care utilization is divided into utilization and complete utilization. The pregnant women who didn't visit at least once to the antenatal care clinic considered as a non-utilization of antenatal care. The women who had at least one antenatal care visit considered as antenatal care utilization. The women who had four or more ANC visit defined as complete utilization of ANC.

1.5.3 Client

Client defined as a pregnant women and mother with child less than 12 months of age.

1.5.4 Client Satisfaction

Client satisfaction refers to the perception of respondent's toward the antenatal clinic during pregnancy period (responses of health workers, time availability, provided services). Degree of feeling of satisfaction by service user from the service providers during ANC visits i.e. satisfied and unsatisfied.

1.5.5 Urban area

Urban area characterized by higher population density and vast human features in comparison to area surrounding it. Dhapasi VDC considered as an urban area.

1.5.6 Rural area

Rural area is geographic area that is located outside the cities and towns, so in Jhor mahankal VDC considered as a Rural area.

1.5.7 Social support

Social support means aid/or assistance received by the pregnant women during her antenatal visit. The support received by respondents from husband, mother in law, friends or other people.

1.5.8 Accessibility of Health Service

Meaning of accessibility is the degree to which product, service or environment is available to as many people as possible. Accessibility of health service is define as the ability of the pregnant women to gain entry into the health care system and receive care and services from health care system and the factors influencing this ability include geographic, transportation and financial considerations.

1.5.9 Availability of Standard Equipments

Standard equipment includes physical examination with complete general and obstetrical examination with weighing blood pressure, weight and height of the pregnant women. It also includes routine screening test like blood for haemoglobin, laboratory test for syphilis, HIV, proteinuria, blood RH group.

1.6 Conceptual framework

Independent variable

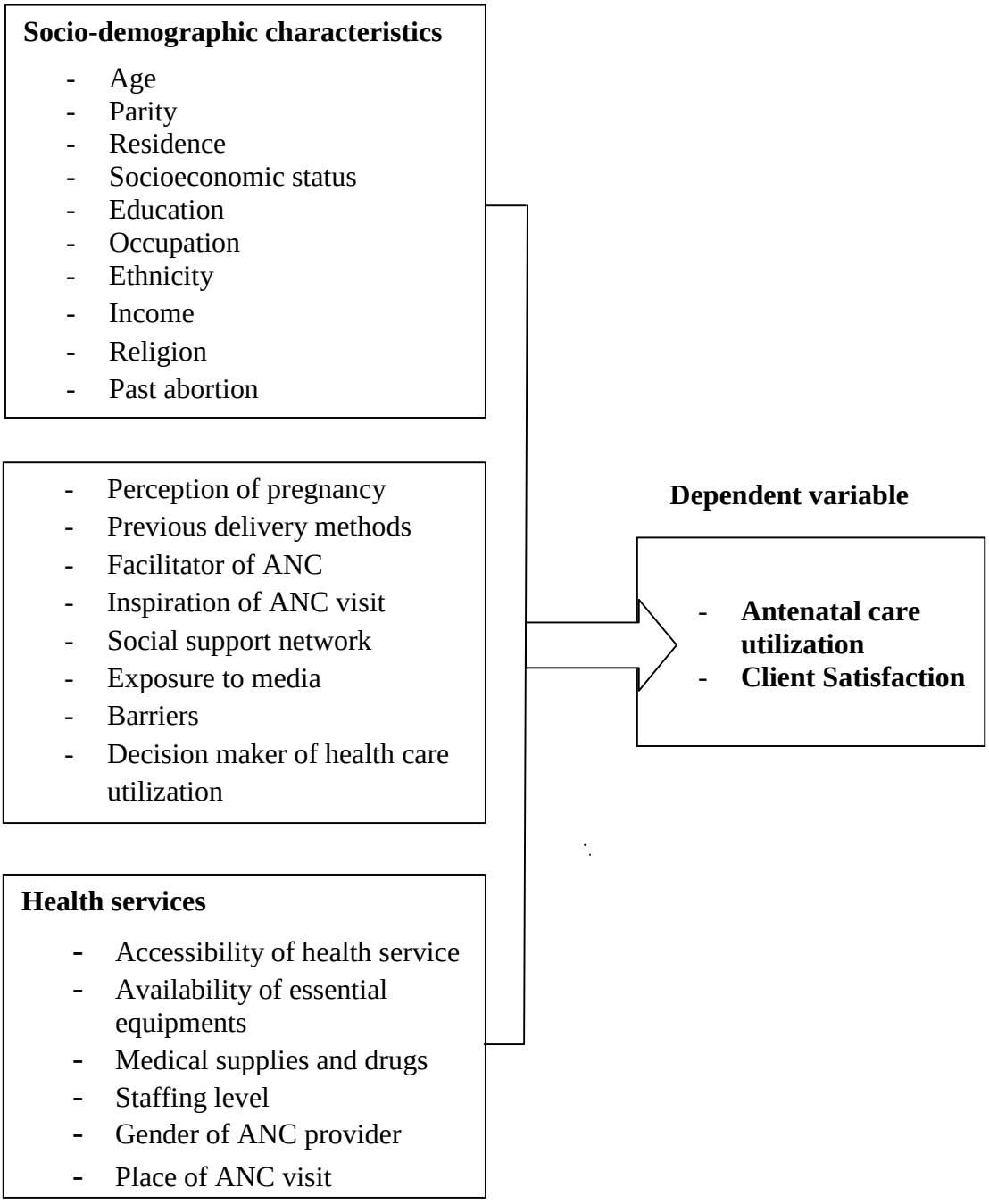

Figure 1: Conceptual Framework

CHAPTER II

LITERATURE REVIEW

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2.1 Antenatal Care

Antenatal care is a health promotional program and the care that is provided to women during her pregnancy. According to the definition given by WHO, Antenatal care includes the recording the medical history of the pregnant women, assessment of individual needs, advice and guidance on pregnancy and delivery, screening tests, education on self care during pregnancy, early detection and first-line management of complication of pregnancy, treatment and referral as required. Antenatal care is the care received during pregnancy from skilled health personnel such as the goal oriented model recommended by the WHO which include 4-5 visits for pregnant women who are not having medical problems.

According to the V. Ruth Benneth, Linda K. Brown. Myles textbook of Midwives 1999, most of the maternal deaths are preventable and the most important preventive approach is provision of well antenatal care during pregnancy. Antenatal care means the care given to an expectant mother from the time of conception to beginning of the labor

and antenatal care helps to monitor the progress of the pregnancy in order to ensure good maternal health and normal fetal development, recognition of any deviation from the normal maternal health and fetal development and provision of treatment and management as required and ensure that the women reaches with normal health and fetal development to the end of her pregnancy and also prepared physically and emotionally for the birth of her baby.

2.2 Components of Antenatal Care

According to the Sultana A., et al. 2002, Antenatal care is a branch of preventive medicine that deals with prevention and early detection of pregnancy disorders. Antenatal care has three main categories:

a. Assessment: history taking, physical examination and laboratory tests to identify problems or risk factors.
b. Care provision: iron and folate supplementation, TT immunization, deworming, psychological support and record keeping.
c. Health promotion: advice on nutrition, birth planning, information about danger signs, subsequent contraception and breast feeding.

Ornella Linceto et al describe the elements of focused approach to antenatal care that consists of:

a. Identification and surveillance of the pregnant women and her expected child.
b. Early identification and treatment of underlying concurrent illness of pregnant women.
c. Early diagnosis and management of pregnancy related complications such as pregnancy induced hypertension (Pre-eclampsia).
d. Screening for conditions and diseases such as anaemia, STIs (especially syphilis), HIV infection, mental health problems and symptoms of stress.

e. Preventive measures like tetanus toxoid immunization, deworming against helminths, iron and folic acid supplementation etc.
f. Advice and support to the pregnant women and her family about how to develop healthy home behaviours and also about birth and emergency preparedness plan to
    - Increase awareness about needs of maternal and newborn health, self care during pregnancy, self care during postnatal period and need of social support during and after pregnancy.
    - Promote healthy behaviours in the home like healthy life style, healthy eating behaviours, safety and injury prevention in home, support and care in home and for preventive interventions.
    - Support to the care seeking behaviours like early recognition of danger signs of pregnancy and danger signs for newborn as well.
    - Help the pregnant women including her partner to prepare physically and emotionally for birth (newborn) and care of their baby especially preparation for early and exclusive breast feeding and essential newborn care.
    - Promote postnatal family planning and birth spacing.

2.3 Importance of Antenatal Care and Minimum Requirements of ANC visits

WHO Technical working group (1994) recommended a minimum of four antenatal visits required for normal pregnancy and the minimum requirements of antenatal care visit is for:

a. Health promotion: advice on nutrition and eating behaviours or healthy diets during pregnancy, counselling about danger signs of pregnancy and to help plan for the birth of baby.
b. Health assessment: history taking, physical examination of the pregnant women and screening tests.

c. Early detection of complications of pregnancy and management, prevention of malaria, prevention of worm infestations (particularly hookworm) and tetanus toxoid immunization and
d. Treatment of anaemia, STDs and other diseases.

WHO has recommended the basic components of the new WHO Antenatal care model which describes the time and the contents of each of four visits.

1. The 1st ANC visit: The first visit should be in the first trimester of pregnancy. It should be around 8-12 weeks of pregnancy. Goals of the first antenatal care visits are to confirm the pregnancy and calculate the Expected date of delivery and inform about that to the pregnant women. Classify the pregnant women for basic ANC visits (four visits) or more specialized care. Screening tests, treat and to give preventive measures. To develop emergency birth preparedness plan and counselling to pregnant women.

   Activities in first visit include:

   - History taking: personal history, medical history and obstetric history and psychosocial history. Confirmation about the pregnancy and calculation of EDD (expected date of delivery) and then classification the pregnant women whether she needs basic ANC (four visits) or more specialized care.
   - Physical examination: complete general and obstetrical examination and measures the blood pressure.
   - Screening and tests: haemoglobin test, laboratory test for syphilis, HIV, proteinuria, Blood/RH group and additional bacteriuria (in referral centre).
   - Treatments: treatment of the diseases if indicated e.g. syphilis, bacteriuria etc.
   - Preventive measures: provide intervention to anaemia (iron and folate), TT immunization.

- Health education, advice and counselling: about self-care, alcohol and tobacco use, about healthy diets and eating behaviours, safe sex, birth and emergency plan and about the next ANC visit and maintain complete records.

2. The 2nd ANC visit: The second ANC visit should be around 24-26 weeks of pregnancy. The Goals of the second ANC visit are: (a) assess maternal and foetal well being. (b) Exclude PIH (Pregnancy induced hypertension) and anaemia. (c) Give preventive measures. (d) Review and modify birth and emergency plan. (e) Advice and counsel.

   Activities in the second ANC visit include:

   - History taking: assess significant symptoms and obtain personal information as in the first visit, review of medical and obstetric history recorded in the first visit.
   - Examination: anaemia, blood pressure, foetal growth and movements.
   - Screening and test: repeat urine examination for proteinuria and blood for haemoglobin and if indicated test for bacteriuria.
   - Treatments: treatment of bacteriuria if indicated and treatment of other diseases if existed.
   - Preventive measures: continue supplement of iron and folate, TT immunization 2nd dose, ARV if indicated.
   - Health education, advice and counselling: birth and emergency preparedness plan and reinforcement of previous advice.
   - Maintain complete records.

3. The 3rd ANC visit: the third ANC should be take place in or around 32 weeks of pregnancy. The Goals of third antenatal care visits are: (a) Assess maternal and foetal well being. (b) Exclude PIH, anaemia and multiple

pregnancies. (c) Give preventive measures. (d) Review and modify the birth and emergency preparedness plan and (e) advice and counselling.

Activities in the third ANC visit include:

- History taking: Assess significant symptoms and obtain information about personal history like in first and second antenatal care visits. Review of medical and obstetric history as recorded in first and second antenatal care visits. Check and record for previous complications and treatment during the pregnancy and if needed then re-classify the pregnant women.
- Examination: perform examination about anaemia, blood pressure, foetal growth and multiple pregnancies, foetal heart sounds and movements.
- Screening and tests: repeat urine examination for proteinuria and blood for haemoglobin level. If indicated then examination for bacteriuria.
- Treatments: treatment of bacteriuria if indicated and treatment of other diseases if existed.
- Preventive measures: continue supplement of iron and folate and TT immunization if 2nd dose had not taken and ARV if indicated.
- Health education, advice and counselling: about birth and emergency preparedness plan, about infant feeding after delivery and breast care, postpartum and postnatal care, birth spacing and reinforcement of previous advice.
- Maintain complete records.

4. The 4th ANC visit: the fourth antenatal care visit is the final visit and should take place between 36-38 weeks of pregnancy. The Goals of the fourth antenatal care are: (a) Assess maternal and foetal well being. (b) Exclusion of pregnancy induced hypertension, multiple pregnancies, malpresentation

and anaemia. (c) Give preventive measures. (d) Review and modify the birth and emergency preparedness plan and (e) advice and counselling.

Activities in the fourth ANC visit include:

- History taking: Assess significant symptoms and obtain information about personal history like in first and second antenatal care visits. Review of medical and obstetrical history as recorded in previous visits. Check and record about previous complications during pregnancy and if needed the re-classify the pregnancy.
- Examination: perform examination about anaemia, blood pressure, foetal heart sounds, foetal growth and movements, multiple pregnancies and about malpresentation.
- Screening and tests: repeat urine examination for proteinuria and blood for haemoglobin level. Examination for bacteriuria if indicated.
- Treatments: treatment of bacteriuria if indicated. If there is breech presentation then ECP (external cephalic version) or referral. Treatment of others diseases if existed.
- Preventive measures: continue iron and folate supplement. ARV if indicated.
- Health education, advice and counselling: about birth and emergency preparedness plan, infant feeding, postpartum/postnatal care and birth spacing and reinforcement about previous advice.

2.4 Antenatal Care Visit Worldwide

Barnett's et al. 2006, A Cross-sectional survey was done in three rural districts of Bangladesh to assess the maternal and newborn care practices during pregnancy and post natal period (during January-March 2003), the study showed that ANC practices was

satisfactory. 47 % of the study women received at least 1 ANC check-up during their pregnancy, 19 % received nationally recommended ANC check-up (at least three times) and 11 % received WHO recommended ANC check-up (four or more times). Only 18% took iron tablets and 69% of women were fully protected against TT. The study revealed that further emphasis should be given to promote maternal health status.

Lindsay Cristina 2012, had done a cross-sectional household survey in four municipalities in the state of Ceara state of northeast Brazil to assess the utilization and satisfaction of maternal health care services among 207 pregnant women, the study showed that, 92% of women received antenatal care. Almost all women were weighed and measured and had their blood pressure taken, most of the births took place at public health hospital and maternity centers and most births attended by trained health personnel (e.g. Physicians and nurses). The study showed that very low percentage of women received postnatal care. Author of this research gave suggestion to the family health program, need of improvements in the quality of care provided to women during pregnancy, delivery and postpartum based on WHO recommendations and also suggest about the health education interventions about the postpartum care of women.

According to the UNICEF/WHO 2008, WHO Geneva 2009 and Bennett L.,et al, and NDHS 2011, during the period of 2005 to 2010, only 53 % of pregnant women were attended the recommended ANC visits worldwide but in low income countries only 36 % of pregnant women attended four or more ANC visits. In developing countries, the proportion of pregnant women who attended at least one ANC visit has been increased from approximately 64 % in 1990 to almost 81% in 2009. Regional averages of antenatal care visits range from 70 % in South Asia and West and Central Africa to more than 90 % in Latin America and the Caribbean, Central and Eastern Europe/Commonwealth of Independent States (CEE/CIS), and East Asia and the Pacific. In Latin America there is 96 % of women attended antenatal visit, whereas only 70 % of South Asian women attended Antenatal care visit. Although the coverage of antenatal care is high, in the developing world, just half of pregnant women receives the recommended minimum of four antenatal care visits, and there are also some variation in antenatal care visits like, 87 percentage of

Latin American women receives four antenatal care visits and only 46 percentage of South Asian women receives four antenatal care visits. In Nepal overall average of 1st ANC visit is almost 85 % as percentage of expected pregnancies while in central development region 1st ANC visit is almost 87 % and in Kathmandu district 1st ANC visit is 95 % (highest coverage) among them 4th ANC visits in central region is 57 % and 70 % in Kathmandu district while overall coverage of Nepal is 58 %. Fig-1 shows the trends of ANC visit worldwide, in different region and situation of Nepal.

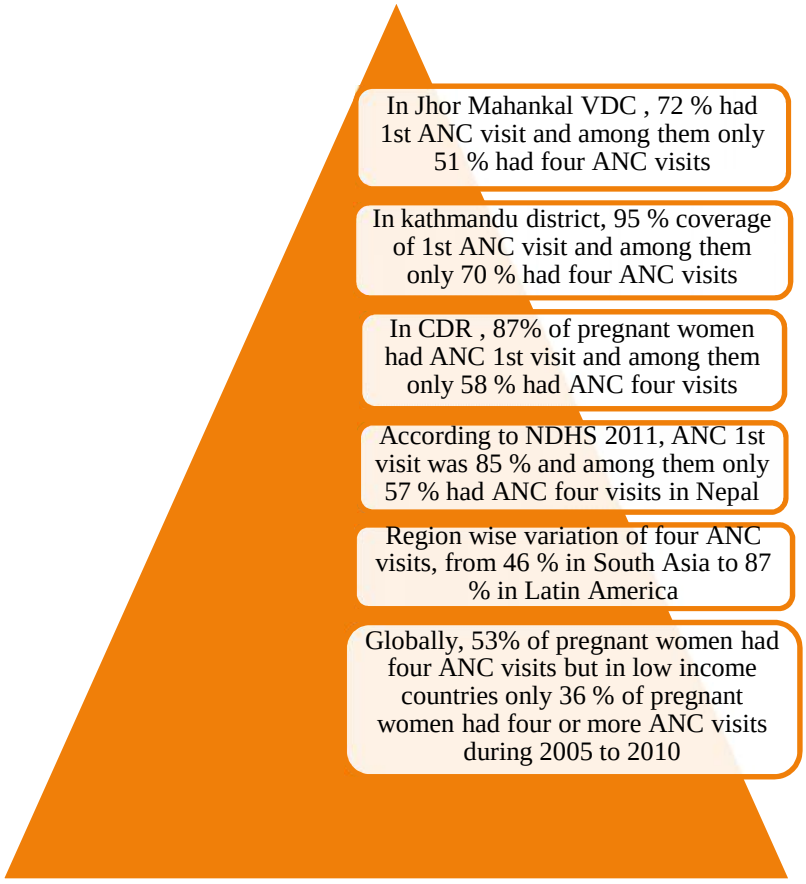

Figure 2

Diagram showing antenatal care visits worldwide and in Nepal

Metfud. C.S, et al. 2009, Assess the utilization patterns of antenatal services among pregnant women in rural areas of India, A longitudinal study was done among 700 pregnant women in rural areas of North Karnataka. Study revealed that out of total respondents 73.9% had visited for antenatal services. Women with increasing age, parity and number of children were less likely to visit for ANC. Among those who visit for ANC 91.3% and 79.7% expressed the need for TT injection and IFA tablets.

Sanjel S., et al. 2011, studied the antenatal care practices of Tamang community of hilly area of central Nepal, A descriptive cross sectional study was done and they found that antenatal visits were made by 78.9% of women but only 46.4% completed four antenatal visits. Mean visit was of 3.5 times. 61.4% of first antenatal visits attainders completed the fourth visit. Age of women and antenatal visits, taking tetanus toxoid injection and knowledge on work of iron tablets exhibited significant association at 95% level of confidence ($p < 0.05$). There was also significant association between numbers of childbirth and antenatal visits at 95% level of confidence ($p < 0.05$).

A.H.M. Kishowar Hossain 2010, analyzed the levels, patterns and trends of utilization of antenatal care services in Bangladesh, A descriptive study was done, based on national surveys of Bangladesh Demographic Health Survey (BDHS) 20007, 2004, 1999-2000, 1996-1997 and 1993-1994. The results showed that approximately 52 % of women received antenatal care from medically trained health personnel in 2007 and the median number antenatal care visits was 3.1. About 63 % of women were not informed about the signs of complications of pregnancy. There is increasing trend of receiving antenatal care from 28 % in 1993-1994 to 60 % in 2007; proportion of women who received antenatal care in urban areas is also in increasing trends (56.1 % to 75.7 %). Results also showed that uneducated women are less likely to receive antenatal care services than educated women. Women younger than 20 years, women of lower birth order, women in urban areas, women with secondary or higher education level are more likely to received more antenatal care services from a medically trained health provider than women aged 35 years and older, women of higher birth order, women in rural areas, and women with no education.

Agarwal P., et al. 2007, studied maternal health care utilization among women in an urban in Delhi, India; study was done among 100 women who delivered during last year to find out the maternal health care utilization pattern. Study showed that 76% of women received antenatal care from Government HF and from peripheral health facilities was 16%. Only 83% of women took two doses of T.T vaccination. Barriers for utilization of services were thinking that health checkup is not necessary, lack of knowledge about available services, long waiting time, financial constrains, fear of hospital care and objection from family.

Pradhan A., et al. 2005, Descriptive cross sectional study was done in Mahankal VDC of ward no 9 of Kathmandu district to assess the situation of antenatal care and delivery practices. They studied among 50 women of reproductive age and found that ANC and delivery was success story. Among all respondents 62% made 4 or more antenatal visit, 72% received TT immunization.

2.5 Antenatal Care Service of Nepal

According to the Mother baby package, FHD 1996, and NHTC DoHS 2006, Antenatal care is one of the four pillars of the Safe Motherhood and Newborn Health (SMNH) initiatives. The one of the goal of the Safe Motherhood and Newborn Health programme (2006-2017) is to improve maternal and neonatal health and survival especially of the poor and socially excluded people with the purpose of equitable service utilization of maternal health and delivery conducted by well managed health sector. A minimum of four ANC visit is recommended for pregnant women without any complications. Any deviation from normal maternal health and fetal development or any complications, then more frequent visits are advised and consultation with specialists may required and admission to a health facilities may be necessary

ANC care service of Nepal consists of:

a. History taking: personal history, medical history, obstetric history and psychosocial history. Classification of pregnancy.

b. Physical examination: complete general and obstetrical examination and measures the blood pressure, also includes weight and height of the pregnant women.
c. Screening and tests: haemoglobin test, laboratory test for syphilis, HIV, proteinuria, Blood/RH group and additional bacteriuria (in referral centre). Pregnancy test to confirm the pregnancy. Screening for malpresentation and multiple pregnancies.
d. Treatments: treatment of any diseases that existed during pregnancy and referral system to the higher centre.
e. Preventive measures: provide iron tablets for the prevention of anaemia, TT immunization for prevention of Tetanus, ARV (anti-retroviral therapy) if indicated, deworming for the prevention of worm infestation (particularly hookworm).
f. Health education, advice and counselling: about self-care, alcohol and tobacco use, about healthy diets and eating behaviours, safe sex, birth and emergency preparedness plan, information about danger signs, infant feeding practice, postpartum/postnatal care.
g. Maintain complete records. Provide ANC card to the pregnant women.

2.6 Safe Motherhood Program and Situation of Antenatal Care in Nepal

Safe motherhood program was started in 1997; main goal of the National safe motherhood program is to reduce the maternal mortality ratio and neonatal mortality by focusing on the related to the various morbidities, disabilities and death caused by complications of pregnancy and childbirth. Global evidence shows that all pregnancies are at risk and it's difficult to predict about the complication during pregnancy, delivery and the postnatal period. For the outcome of obstetric emergency there are three key delays are critically important. These delays are (a) delay in seeking care (b) delay in reaching care, and (c) delay in receiving care. To reduce the risks associated with pregnancy and

childbirth, National safe Motherhood program adopted three major strategies to address these delays

- Promoting birth preparedness package and complication readiness including awareness raising program and improvement in the funds availability, transportation and blood supplies.
- Encouraging for institutional delivery.
- Expansion of 24 hour basic and comprehensive emergency obstetric care services at selected public health facilities in every district.

After the establishment of the National Safe Motherhood program, it has made significant progress in the development of policies and protocols and service provider's role extension such as staff nurses and ANM in life saving skills. They develop the policy on skilled birth attendants in 2006, also revised National Blood Transfusion policy in 2006 that contributes significant step towards ensuring the availability of safe blood supplies in the obstetric emergency. The revised Safe Motherhood and Neonatal Health Long Term Plan (SMNHLTP 2006-20170 includes neonatal health as an integral part of safe motherhood program; skill birth attendants policy; health sector reform initiatives; abortion legislation; and integration of safe abortion services under the safe motherhood umbrella; it also addressing the problem regarding the transmission of HIV/AIDS from mother to child.

Major activities of the Safe Motherhood program include:

- Birth preparedness package and MNH activities at community level: Jeevan Suraksha flip chart and Jeevan Suraksha card and Matri Surakasha Chakki (Misoprostol – distribution for prevention of post partum haemorrhage at home delivery). Community level activities promotes the strengthening of birth preparedness and complication readiness (preparedness of money, SBA/health facilities, transportation and about the blood donors), promotion of key ANC/PNC services (Iron tablet, TT immunization and Albendazole), self care in antenatal and postnatal period (healthy diet, no smoking, no drinking alcohol),

identification and prompt care seeking for danger signs in antennal, delivery and post-partum period and education and distribution of Matri Suraksha Chakki for the prevention of post partum haemorrhage at home delivery.

- Rural Ultra sound Program
- Uterine Prolapse: Uterine prolapsed treatment and surgical camp.
- Human Resource: Recruitment of staff like ANMs, Staff nurses, MDGP/Gyanecologists on local contact to support 24-hour delivery services in PHCCs and HPs.
- Equity and Access Program (Samata Ra Pahnunch Karyakaram)
- Emergency Referral Fund
- Maternal and Neonatal Health Update (clinical update for ANMs and staff nurse)
- Safe Abortion Services (CAC- Comprehensive abortion care, MA- Medical abortion)
- Aama Surakchhya Program and Antenatal Incentive Program includes: Incentive to mothers (cash payment after delivery-NRs1,500 in mountain areas, NRs 1,000 in hill areas and NRs 500 in the terai areas);
- Incentive to health facilities (normal delivery with less than 25 beds HF NRs 1,000 and more than 25 beds HF NRs 1,500; for the complication NRs 3,000 and caesarean section NRs 7,000; and small incentive to health worker as well i.e. NRs 300.
- Antenatal Incentive Program (A mother gets NRs 400 if she completes four Antenatal care visits as per the ANC protocol, institutional delivery and 1st PNC.

(Source: annual health report 2067/2068, Safe Motherhood program and Aama Surkachhya Program. Birth Preparedness Package, Mother Baby package, Department of Health Services of Nepal.)

According to the annual report 2067/68 (July 2010/June 2011) by department of health services of Nepal, ANC 1st visit as percentage of expected pregnancies is 85 % and in the central development region the percentage of ANC 1st visit is about 87 % (Fig-2). Fig-2 shows that the National average of antenatal first visit as percentage of expected pregnancies has decreased from 87 % in 2066/67 to 85 % in the 2067/68. At the regional level, there is decline by 1% in central development region and by 9 % in the mid western region while some progress in western region increased by 4 %.

ANC 1st visit as % of Expected pregnancies FY 2065/66 to 2067/68 (2008/09 to 2010/11)-----NEPAL

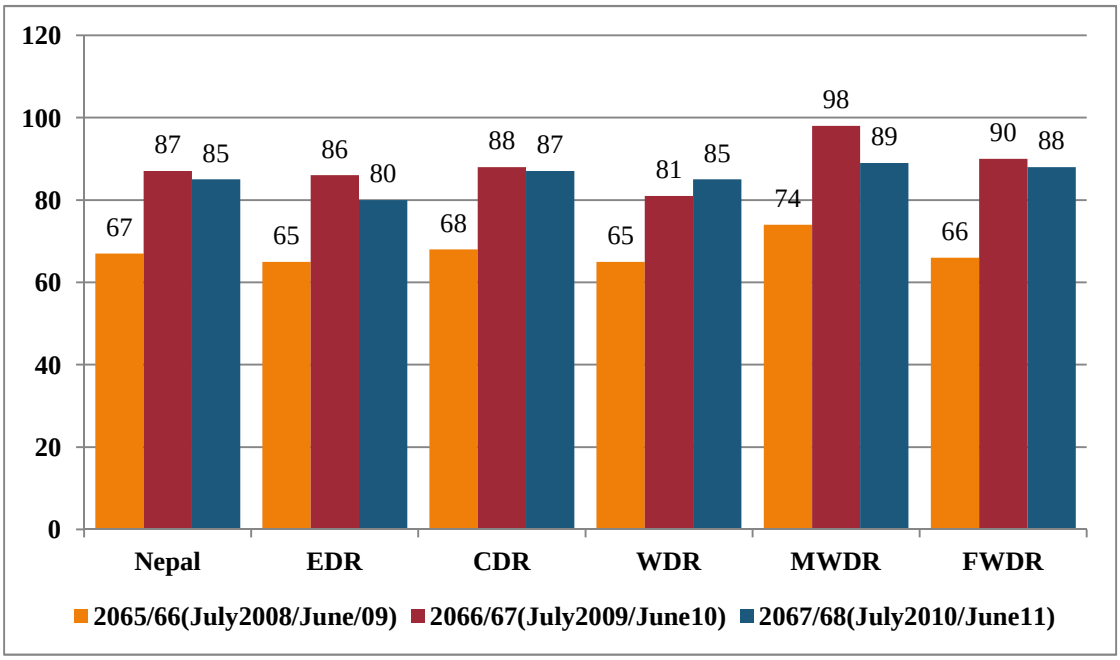

Figure 3

Trends of ANC 1st visit in different region of Nepal since last three years

(Source – HMIS/MD, DoHS , *Annual report 2067/68(2010/2011))*

At least four ANC visits within the specified time interval considered as standard for complete antenatal care. According to the annual report 2067/68 (July 2010/June 2011) by department of health services of Nepal, four time antenatal visits as percentage of ANC 1st is only 57 % and in the central development region the percentage of ANC 4th visit as percentage of ANC 1st visit is about 88 % (Fig-3). Fig-3 shows the four ANC visits attended by the pregnant women as percentage of the first ANC visit. National average for 4th ANC visit as a percentage of 1st ANC visit is not changed since last year but at regional level, there is decline by 3 % in the central region and in the western region while there is some progress in eastern region, mid west region and in the far west region.

Four time Antenatal visits as % of 1st ANC visit FY 2065/66 to 2067/68 (2008/09 to 2010/11) --- NEPAL

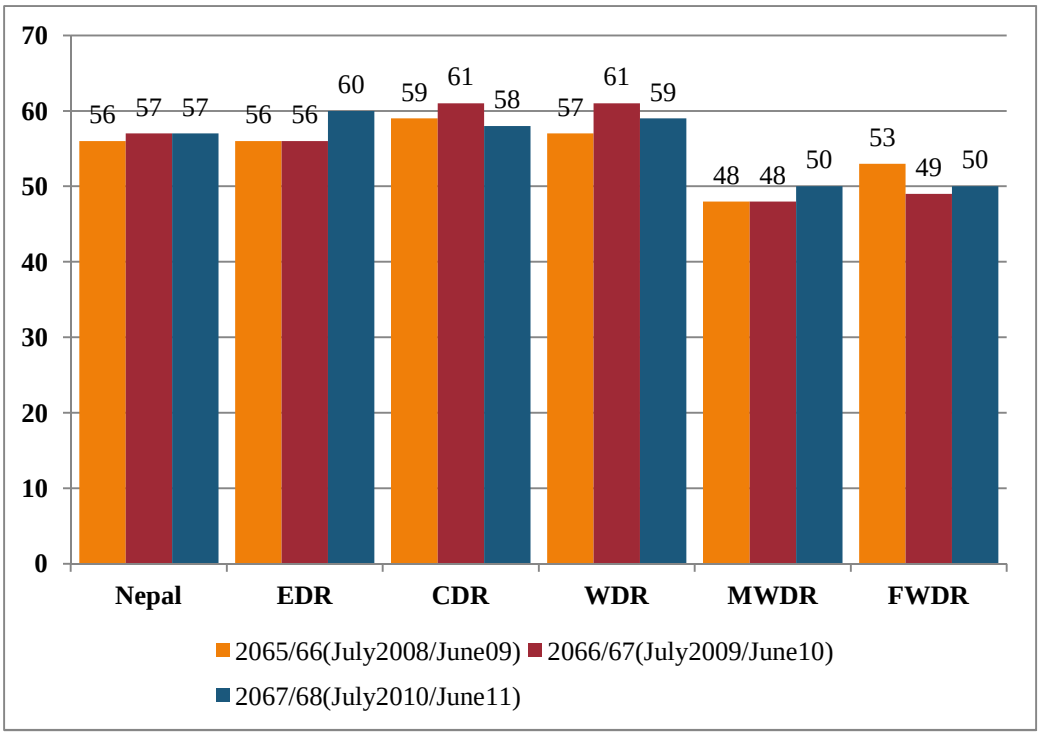

Figure 4

Trends of 4th ANC visits in different regions of Nepal since last 3 years

(Source – HMIS/MD, DoHS ,*Annual report 2067/68(2010/2011))*

Delivery care services of Nepal include assisted delivery by skilled birth attendants, early detection and management of complications of pregnancy and referral system to the health facility where 24-hours emergency obstetric services are available, Obstetric first aid using Emergency Obstetric Care Kit (EOC kit) for complication, identification and management of complications during delivery and referral and registration of births, maternal and neonatal deaths. According to the annual report 2067/68 (2010/11) by Department of Health services of Nepal, delivery conducted by skill birth attendant as percentage of expected live birth for Nepal is 36 % in 2067/68 (July 2010/June2011) while in the central development region it is 37 %. In the fig – 3, it shows delivery conducted by skill birth attendant has increasing in trends in each region of Nepal and overall average of delivery conducted by skill birth attendant in Nepal has increased from 21 % in 2065/66 to 32 % in 2066/67 and 36 % in 2067/68. SBA includes doctors, staff nurses and ANMs while other than SBA include HA, AHW, MCHW and VHW.

SBA delivery as % of expected live birth FY 2065/66 to 2067/68

(2008/09 to 2010/2011)

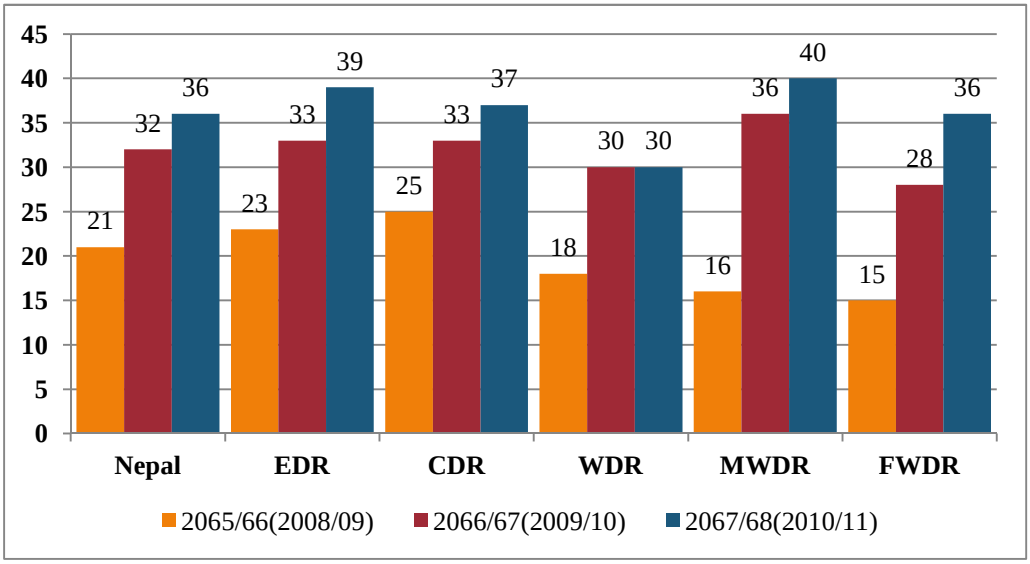

Figure 5

SBA delivery as % of expected live birth in Nepal since last three years

(Source – HMIS/MD, DoHS , *Annual report 2067/68(2010/2011)*)

According to the annual report 2067/68 (2010/11) by Department of Health services of Nepal, institutional delivery is also increasing in trends, the data shows that overall average institutional delivery as percentage of expected live birth for Nepal has increased from 19 % in 2065/66 to 37 % in 2067/68 (July 2010/June2011) while in the central development region it is also increased from 22 % in 2065/66 to 38 % in 2067/68. In the fig – 5, it shows the increasing trends of institutional delivery in every region of Nepal since last three years.

Institutional delivery as % of expected live birth FY 2065/66 to 2067/68 (2008/09 to 2010/11)

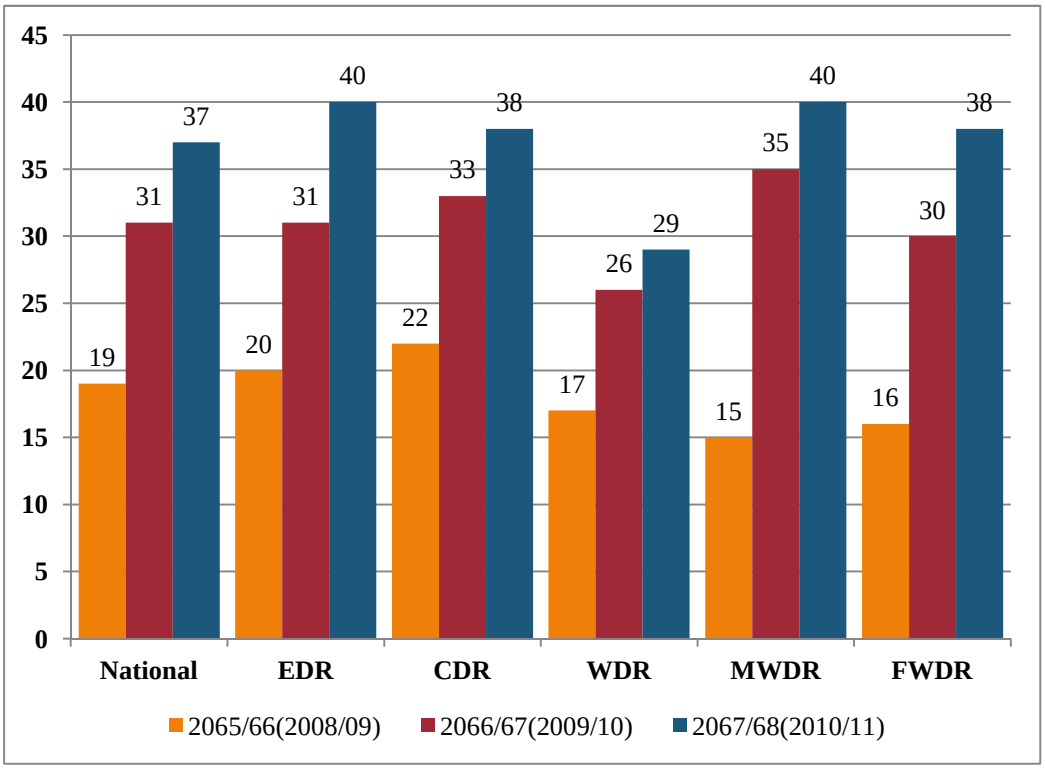

Figure 6

Institutional delivery as % of expected live birth in Nepal since last 3years

(Source – HMIS/MD, DoHS , *Annual report 2067/68(2010/2011)*)

2.7 Theories and Models Related to the Health Service Utilization

There are various theories and models which are related to the utilization of health services. Social theories are the frameworks of empirical evidence which are used to study and interpret the social phenomena. Most of these models and theories describes about the different factors which have positive or negative impacts on the individual's utilization of health services.

2.7.1 Health Belief Model

The health belief model describes about the people's beliefs towards the disease risk or health problems and their perceptions of the benefits of taking action to avoid it or influence their readiness to take action. Health Belief Model attempts to explain health-behaviour in terms of individual decision-making, and proposes that the likelihood of a person adopting a given health-related behaviour is a function of that individual perception of a threat to their personal health, and their belief that the recommended behaviour will reduce their threat. Individual's reactions toward the symptom of disease are modifying by several factors. There are some motivational factors like experienced threats of illness, coping factors and cue to action which influence the individual to use the health services. The "cue to action" concept means that different cues, information and/or recommendation act as final stimulus to behaviour carried out. Core constituents of Health Belief Model are: (e-source, Behavioural and Social Science Research)

- Perceived susceptibility (An individual's assessment of his/her chances of getting the disease) and perceived severity (An individual's judgement as to the severity of the disease)
- Perceived barriers (individual's opinion as to what will stop him/her from adopting the new behaviour) and perceived benefits (An individual's conclusion as to whether the new behaviour is better than what he/she is already doing)
- Cue to action (those factors that will start a person on the way to changing behaviour)
- Self – efficacy (Personal belief in one's own ability to do something)

2.7.2 Andersen and Newman framework for health service utilization

Andersen has developed a conceptual model that is called "The Andersen Behavioural Model" for the individual's determinants to the use of health services. The purpose of this framework is to find out the conditions that facilitate the use of service utilization or to find out the conditions that impede the service utilization. The goal to develop this model is to provide measures of access to medical care. The framework was first developed in 1960s and in the 1990s it represents the fourth phase. In this model, Andersen describes an individual's access to and utilization of health services is a function of three sets of characteristics:

a. Predisposing factors:

Social structure – Education, Occupation, Ethnicity, Social networks, Social interactions, and culture.

Health Beliefs – Attitudes, Values and knowledge towards the health care system.

Demographic – Age and Gender.

b. Enabling factors:

Genetic factors and psychological characteristics.

Income, health insurance, resources, distance of health services, availability of health personnel, availability of health facilities and waiting time, accessibility of health facilities etc.

c. Need factors:

The most immediate cause of health service utilization. Presence of symptoms or disease, chronic illness and disability etc.

"Perceived need"(related to care seeking and adherence to medical regimen) and "Evaluated need"(related to the kind and amount of treatment that will be provided by the care provider).

In this model, utilization of health care services is a conditional and sequential function of an individual's predisposition towards health service utilization.

(Source: *Andersen* and Newman Framework of Health Services Utilization. *www.umanitoba.ca/.../Andersen_and_Newman_Framework.pdf*)

2.8 Study related to Research Article (Factors Related to Antenatal care Utilization)

Simkhada B., et al. 2006, reviewed the key literatures from across the glove and discussed in a Nepalese context to assess the problems and key issues in maternal health in Nepal. After the study they reported that maternal mortality is one of the biggest public health problems in Nepal. Lack of access to basic maternal healthcare, difficult geographical terrain, poorly developed transportation and communication systems, poverty, illiteracy, women low status in the society, political conflict, and shortage of health care professional and under utilization of currently available services are major challenge to improving maternal health in Nepal.

Babalola S., et al. 2012, assess the determinants of maternal health services utilization in Nigeria with a focus on individual, community and state level factors. They found that approximately three-fifth (60.3%) of the mothers used antenatal services at least once during their most recent pregnancy, while 43.5 % had skilled birth attendants at delivery and 41.2 % received postnatal care. At the individual level, they found that education is consistent significant predictor of maternal health service utilization. At the community level, they found that urban residence and community media saturation are consistently strong predictors for maternal health service utilization. At the state level, availability of PHC is the predictor for maternal health service utilization.

Fatami Z., et al. 2002, conducted a cross-sectional study in rural setting of Pakistan to assess the effects of demographic, socioeconomic and environmental factors on the utilization of antenatal care; they studied 222 married women who had delivered at least one child. By the study they found that, almost 30 % of the women utilized antenatal care service during the last pregnancy among them almost 72 % of women received antenatal care services from government health service. They found that presence of electricity in the house and husband's occupation had significantly associated with antenatal care utilization. By this study the author concluded that social status and economic condition of women is important factor for utilization of antenatal care services therefore improvement of socioeconomic status required to increase antenatal care utilization.

Rahman KM., et al. 2009, studied the secondary data from the Bangladesh Maternal Mortality Survey, 2001 to assess the determinants of maternal health care utilization in Bangladesh. Study revealed that maternal education, mothers age at birth, present place of residence , access to mass media and NGO and wealth quintile significantly increase the utilization of antenatal care.

Alam Ali 2004, studied about the factors affecting antenatal care utilization among women in urban slum areas of Islamabad. A cross sectional survey was done in two urban squatter settlements of Islamabad on factors affecting utilization of antenatal care and they found that 75.5% of pregnant women received ANC services, where among non users, ignorance, far health facility, and permission from home where the main cause for not taking the services. It shows that education of mother and husband was significantly associated with utilization of ANC services.

M.D. Dairo, et al. 2010, study was done to assess the factors affecting the utilization of antenatal care services in Nigeria. A cross-sectional study was done in two randomly selected local government council areas in lbadan, Nigeria to assess the factors affecting the utilization of antenatal care services. They interviewed 400 women with pretested questionnaire. By this study they found that almost 77 % respondents attended the antenatal care clinic and women of urban areas were more than two times likely to attend the antenatal care clinic than women in rural areas. Women who were Muslims or other religious were more than two times likely to attend antenatal care clinic than who were Christians. They also found that women who were 25 years of age or older than 25 years attend antenatal care clinic more than two times than women who were less than 25 years of age. By this study they found that age of women, Tribe, marital status, educational status, husband's education, husband's occupational status are the determinants of modern ANC care utilization and those determinants had significant association with antenatal care utilization.

Nisar N., et al. 2003, assess the factors affecting utilization of antenatal care among reproductive age group (15-49 years) in urban squatter settlement of Karachi, Pakistan. A community based cross sectional survey was done to identify the factors

affecting utilization of antenatal care among women of reproductive age (15-49 years), they interviewed about the demographic, socioeconomic characteristics, pattern of health care utilization and knowledge about antenatal care. They found that 51% of the women received antenatal care in their most recent pregnancy while 49 % did not receive antenatal care. Among those who did not receive the antenatal care, 28 % reported that they did know that it was required, 10 % were not advised by anyone, 8 % did not have permission from home, 10 % found that health facility to be far away, 7 % reported that transportation was not available and 37 % did not have any reason. So lack of knowledge about the ANC check-up, advice from anyone, permission from home, availability of health facility and transportation were main reasons for not having ANC check up. In this study, income of households was found to have statistically significant association with utilization of antenatal care (higher income women were twice likely to use antenatal care services) while educational status of either parents were found to have no statistically significant association with utilization of antenatal care.

Neupane S., et al. 2011, studied to assess the determinants of timing of first antenatal care visit and the number of ANC visits among a national representative sample of Nepali women. They drawn the data from Nepal Demographic and Health Survey 2006, 4136 women of age between 15 to 49 years and who had delivery within three years were selected. By this study they found that almost 45 % of women started antenatal care after 12 weeks of pregnancy and 28 % had no antenatal care. About 43 % of women had one to three antenatal care visits while 29 % of women had more than three antenatal care visits. Age of women, education level of women, parity and wealth were significantly associated with timing of antenatal care and number of antenatal visits. They found that older women and the women who were socio-economically disadvantaged had late antenatal care visit and also the fewer antenatal care visits as compare to the younger women and socio-economically advantage women. They also found that women with higher parity and those live in rural areas were more likely to have late antenatal care visits and also have fewer antenatal care visits as compare to women with less parity and

women of urban areas. In the conclusion, majority of Nepali women do not attend antenatal care visit during the first trimester of pregnancy.[39]

Manithip C., et al. 2011, assess the factors associated with antenatal care utilization among rural women in the Lao People's Democratic Republic, quantitative cross-sectional study was done; they studied 460 pregnant women of 15- 45 years of age with a gestational period beyond 32 weeks and all women who had given birth during last 12 months. The study showed that 51 % of respondents had at least one antenatal care visit and among them 63 % had visited antenatal care clinic three or more times but only 28 % during the first trimester. They found significant association between husband's employments (husband's income) to ANC visit and also significant association between ages of pregnant women to the ANC visit. They also found positive relationship between women's educational level and antenatal care use. The author concluded that awareness of available antenatal care services at the health centre and the perception of the pregnant women's about the usefulness of antenatal care contributed to the utilization of antenatal care among pregnant women.

Simkhada B., et al. 2008, A systematic review of the literature was done to assess the factors affecting the utilization of antenatal care in the developing countries, they studied twenty-eight papers for both quantitative and qualitative studies to identify and analized the main factors affecting the utilization of antenatal care in developing countries. They studied databases published between 1990 and 2006 from the studies that conducted in developing countries. By the study they found that maternal education level, husband's education level, marital status, availability of the service, cost, household income, women's employment, media exposure and having history of obstetric complications are most commonly identified factors affecting the antenatal care uptake. Cultural beliefs and knowledge about pregnancy also had an influence on antenatal care use. Women of higher parity tend to use less antenatal care visits and there is also interaction between women's age and religion. Author concluded that more qualitative research is required to explore the effect of women's satisfaction, autonomy and gender role in decision making process.

Toan K Tran., et al 2011, studied urban and rural disparities in antenatal care utilization of pregnant women in Vietnam, a cohort study. They studied 2132 pregnant women from urban and rural areas. By this study they found that the average number of antenatal care visits was much lower in rural area than urban area. In the rural area, almost 69 % of pregnant women attended ANC clinic during the first trimester and almost 77 % of pregnant women had at least three ANC visits while in the urban area, almost 97 % of pregnant women attended ANC clinic during the first trimester and almost 97 % of pregnant women had at least three ANC visits. In the urban area, 81 % of the pregnant women received all core ANC services and only 20 % of the pregnant women received all core ANC services in rural areas. From this study they found that adequate use of ANC was 5.2 times higher in the urban area than in rural area.

Neelu Puri, et al. 2012, studied Outpatient Satisfaction and Quality of health care in North Indian medical institute, a cross sectional study, showed that 86.6 percent patients were satisfied with the OPD care. The mean total quality score was 80.9 percent of total score. It was above 90 percent of the total score for patient convenience facilities and for doctor- patient interaction, 76 percent for the prescription quality of the doctors and 43.3 percent for signage display.

Isatou K. Jallow et al. 2012, studied Women's perception of antenatal care services in public and private clinics in the Gambia, a descriptive cross-sectional studies. Showed that patient perception of antenatal services received was main outcome variables and measured in three aspects: willingness to come back, willingness to recommend to others and level of satisfaction. In which the satisfaction rate with antenatal services was 79.9% for public facilities and 97.9% for private facilities. Pregnant women's poor perception with public facilities included their unhappiness, with the following dimensions of antenatal care (ANC): inadequate privacy, inadequate space and neatness and inadequate communication with care providers.

Zeidan. ZA., et al, 2011, had done a cross sectional study conducted in Khartoum State, Sudan to assess the prevalence of satisfaction and associated factors among pregnant women attending at public and private clinics. Prevalence of full satisfaction was

(22%) among pregnant women who visited public antenatal care clinics, compared to (54%) among those who attended private antenatal care clinics. Odds ratio of satisfaction among private clinics attendees was estimated to be approximately four times that in public ANC.

Pitaloka DS., et al, 2012, A cross sectional study was conducted to assess the satisfaction among pregnant women towards antenatal care in public and private care clinics.400 pregnant woman were selected randomly, from10 public health centres and 10 private clinics. Structured and pretested questionnaire used to measure the client's satisfaction. Satisfaction of pregnant mothers attending the ANC in private clinics (54%) was four times more than satisfaction achieved ANC in public (22%) clinics. Negative attitude of the care providers and long waiting time prevented the utilization.

Das P., et al, 2010, A descriptive study to assess client satisfaction with maternal and child health services was carried out in rural Bengal. Sample size of 1600 from different health facilities (one health centre and four sub centres) was selected. Data collection was done using interview method. Most of them i.e. around 70% were satisfactory with the services. Suggestions of clients for improving the level of satisfaction were sought, and in respect, response was little.

In the conclusion, there are several factors which influence the service utilization of antenatal care. Lack of knowledge, lack of decision making power, inability to pay, low value given to the women's lives, age of women, education level, family income, family size, family factors, parity, social support, religion, ethnicity, service related factors like distance of health facility, satisfaction or dissatisfaction with service providers, availability of service providers, service and medicine, gender of health service providers, exposure to media, etc are the major factors which influence the service utilization of antenatal care of women. There is also large disparity in antenatal care utilization in rural and urban settings. ANC service utilization is much higher in urban areas than rural areas. History of obstetric complications is also one of the influencing factors of ANC utilization. Cultural beliefs and knowledge about pregnancy also had an influence on antenatal care use. Women of higher parity tend to use less antenatal care.

CHAPTER III

RESEARCH METHODOLOGY

3.1 Research Design

Cross-sectional study design. The study was mainly quantitative in nature to assess the socio-demographic characteristics, and various factors influencing antenatal care service utilization of women living in rural (Jhor Mahankal VDC) and urban (Dhapasi VDC) of Kathmandu District.

3.2 Study Area

Kathmandu is the one of a district among 75 districts of Nepal and this is the capital of Nepal with more than one million inhabitants, the largest metropolitan city of Nepal. Kathmandu district consists of one metropolitan city, one municipality and 57 village development committee (VDC). The metropolitan city, municipality and 17 VDCs are urban area and 40 VDCs are rural area. Among 17 urban VDCs of the Kathmandu district, one VDC (Dhapasi VDC) was selected by simple random sampling. The VDC which lies outside the city considered as a rural area and among 40 VDCs, one VDC (Jhor Mahankal VDC) was selected as a study area by simple random.

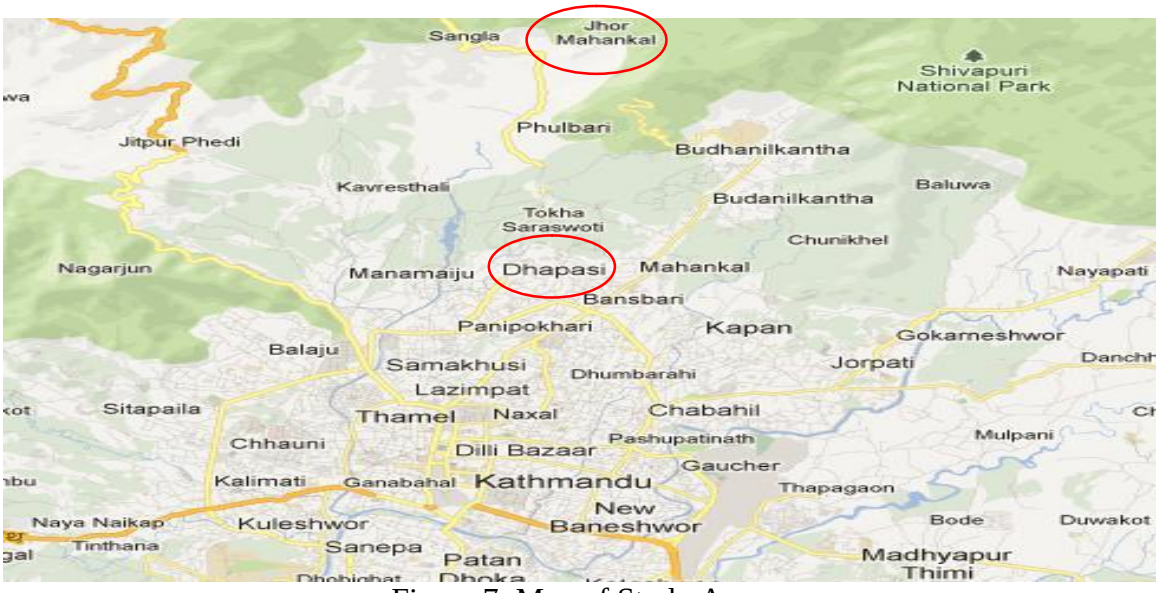

Figure 7: Map of Study Area

3.3 Study Population

According to the annual performance report 2068/69 (July 2011/June 2012), district public health office (DPHO) Kathmandu, total 33,646 delivery conducted last year in Kathmandu district so all delivered women considered as a study population.

3.3.1 Inclusion criteria

The women between 15-49 years of age who delivered within last 12 months living in Jhormahankal and Dhapasi VDC since last 6 months in Kathmandu district were included for the sampling.

3.3.2 Exclusion criteria

The delivered women with mental health problems having child less than 12 months, and whose was not residence of study area at least for six months were excluded from the study.

3.4 Sampling technique

The women of reproductive age group of 15-49 years with less than one year's old child living in family in the proposed VDC interviewed with the questionnaire within the data collection period. Among the 17 urban VDCs and 40 rural VDCs of the Kathmandu district, Dhapasi VDC and Jhor Mahankal VDC selected by simple random sampling. According to the data provided by the DPHO Kathmandu, there were 114 expected pregnancies in Jhor Mahankal VDC and 199 expected pregnancies in Dhapasi VDC (2068/69—July 2011/June 2012). All delivered women with less than 12 months of child of both VDCs were listed with the help of FCHV and structured questionnaire interview done with all delivered women with less than 12 month of child of both VDCs.

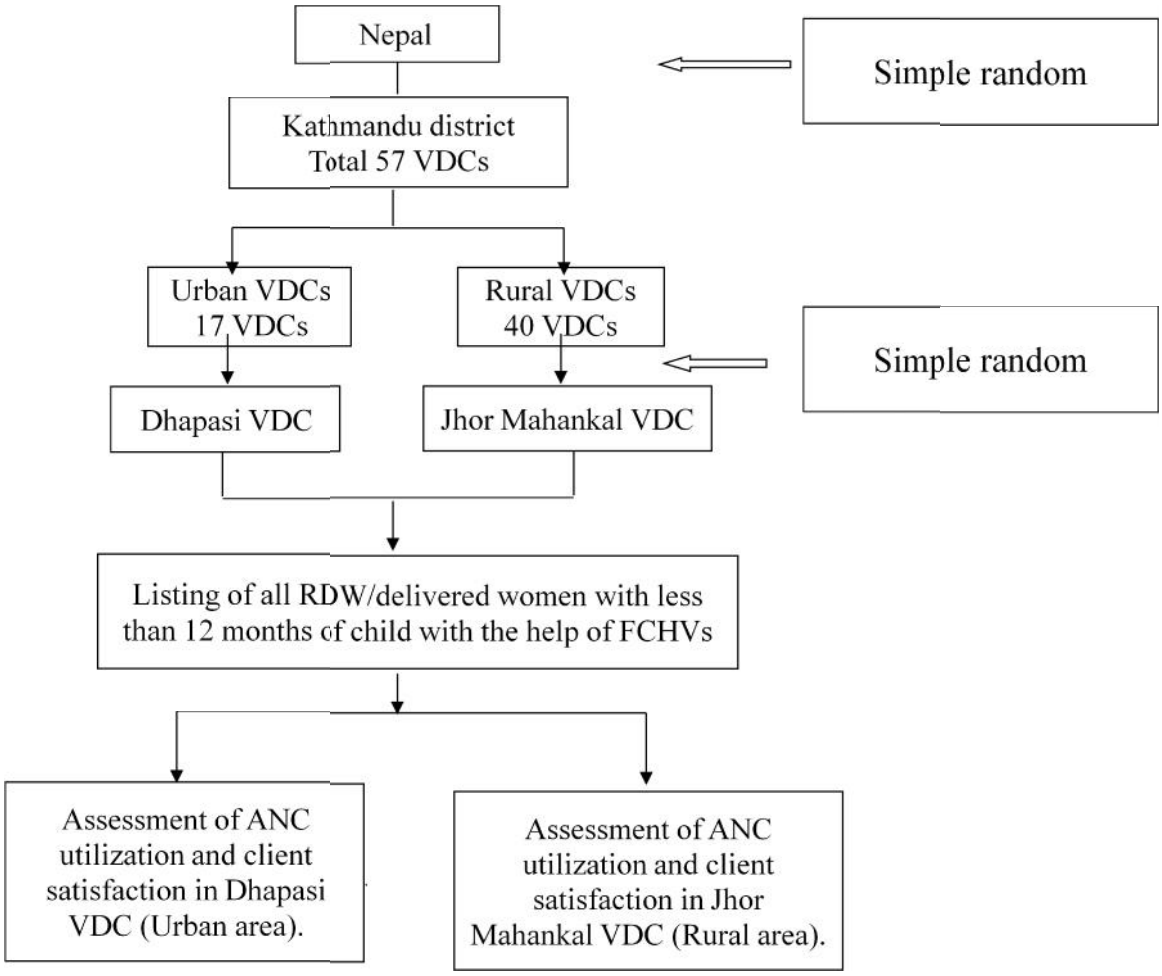

Fig-7: Sampling Technique

3.5 Sample Size

G* Power (Erdfelder, Faul, & Buchner, Behavior Research Methods, Instruments, & Computers, 1996) is a software use for the different statistical test commonly used in social and behavioural research (variety of frequently used t tests, F tests, z tests, X^2 tests, and exact tests) and also used to calculate the minimum sample size required so that one can be reasonably likely to detect an effect of a given size. Power analysis can also be used to calculate the minimum effect size that is likely to be detected in a study using a given sample size. Elise Whitley et. al, 2002, There are three main influencing factors for calculation of an appropriate sample size and the choice of each of these factors has

impacts on the final sample size. and the skill is in combining realistic values for each of these in order to achieve an attainable sample size. These are p-value, power and effect; for the magnitude of small p-value large sample size will required and for the large magnitude of p-value small sample size will required, and for the power; low magnitude needs small sample size and high magnitude needs large sample size and for the effect; (an effect size is a measure of the strength of a phenomenon and standard effect size described as small, medium and large) small magnitude needs large sample size and large magnitude needs small sample size. Sharma & Petosa, (2012) describes that for the calculation of sample size, most common alpha chosen is 0.05 and the power is usually 0.80 and the effect size depends upon the previous study and usually medium effect size is chosen.

In this study Sample size was calculated by using G* power 3 software for windows, following a pre test on 30 mothers where 27 mothers were visited at least one antenatal visit. Under the assumption of 90 percent mothers visited at least one ANC, absolute precision of 10 percent, 95 percent confidence level, 5 percent alpha risk and design effect 0.2 (medium effect size chosen for sample size calculation) at one degree of freedom. Sample size became 263 by using G* power and adding 10% of the 263 sample, it became total 290 sample size. In study area total 292 delivered women were interviewed.

3.6 Data Collection

3.6.1 Data collection procedure:

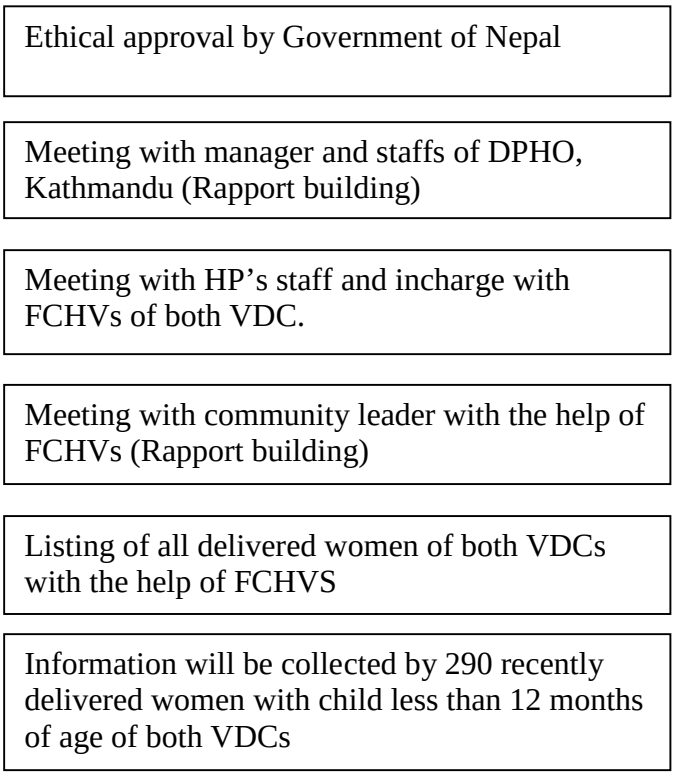

Fig-8: Data collection procedure

At first approach to the health facilities such as DPHO, Kathmandu, Health Post and the female community health volunteers and community leaders of both VDCs. The FCHVs and the community people will be contacted and necessary information about the women who had delivered within 12 months will be collected to trace the women who had delivered within last 12 months in the community. Information will be collected from all sample women who had delivered within 12 months. Information will be collected from using structured questionnaire. Primary data will be collected both from pregnant women and mothers who had delivered within 12 months. While secondary data will be taken from health facility records, information about the FCHVs/ and other service related information will be collected from health facility.

3.6.2 Data collection tools:

Structured Interview Questionnaires according to the conceptual framework which consists of 3 parts and the questionnaire will be pre-tested before actual interview.

a. Socio-demographic Characteristics: in this category there are 19 questions which are related to the ethnicity, religion, age of pregnant women, age of marriage, age at 1st pregnancy, occupation, family income, education, family number, and source of income, type of house, head of family, parity and adverse outcome of previous pregnancy.
b. ANC service (Social support, Satisfaction with ANC, perception of ANC and pregnancy: this part consisting of 16 questions which are related to information about ANC/PNC/Delivery, media, decision maker of family, perception of pregnancy, barriers and facilitator of ANC, ANC visits, method of delivery of last child and traditional beliefs.
c. Health services: this part consisting of 11 questions which are related to the distance of health facility, type of health facility for ANC check up, cause of no ANC visit, type of services, satisfaction with services and the cause of no satisfaction with services.
d. Client satisfaction: for client satisfaction questionnaire are adopted from (Mildred A. et. al. 2001) there are total of 29 questions for the measure of client satisfaction in four sub-sections- information, provider care, staff interest, system characteristics. Information sub-section consists of seven questions, others sub-sections consist of six, six and ten questions consequently. The overall satisfaction level was calculated by Median ± S.D. of the total score, by calculation the score less than 83 is considered as unsatisfied and score 83 or more considered as satisfied.

3.7 Data Management and Analysis

Data analysis was by SPSS Version 17 and descriptive statistics of the study respondents were done and Chi square test was applied to categorical data to find out the association between socio-demographic characteristics, social support, information, perception and health service with ANC utilization and Client Satisfaction.

3.8 Validity and Reliability

To determine the validity of the questionnaire, questionnaire regarding social support, information, perception of pregnancy, health service and client satisfaction were send to the three professionals. Results of the validity test was as follows; social support 0.83, information 0.78, perception of pregnancy 0.67 and health services 0.76 and tools of client satisfaction was divided into four different parts such as information 0.76, provider care 0.72, staff interest 0.72 and system characteristics 0.8. For the reliability test, the questionnaire was pre-tested in 30 subjects for two times, 1 – week apart. The reliability of the questionnaire was determined by Intraclass correlation coefficient for continuous data and Kappa coefficient for categorical data (Landis and Koch, 1977; Bowling 2002).

3.9 Ethical consideration

Approval letter was taken from Nepal Health Research Council, Government of Nepal and Permission from DPHO, SHP and village development committee. Data was collected only after the consent of the respondent. The interview was completely confidential; and the name of respondent didn't associate with answers and private questions were not asked to the respondent. Issues, which would provoke racial, sex or ethnic discriminations, were not raised.

CHAPTER IV

RESULT

A cross-sectional study was conducted to assess the various factors influencing antenatal care utilization and client satisfaction and to determine the relationship between ANC utilization and different independent variables of recently delivered women (within 12 months) living in rural (Jhor Mahankal VDC) and urban (Dhapasi VDC) of Kathmandu District of Nepal in the month of February and March of 2013. Total 292 recently delivered mothers (within 12 months) of Rural VDC (Jhor Mahankal, n=104)) and Urban VDC (Dhapasi, n=188) were interviewed by using structured questionnaire and following result was found.

4.1 Demographic Characteristics

In this study, most of the demographic characteristics findings were same in both urban and rural areas except for major source of income and control of economic activities, table 4.1 showed that almost half of the respondents were between the age of 20-24 years and more than half of the respondents were from upper caste group (Brahmin, Chhetri) and most of the respondents were Hindus by religion in both settings. By the occupation, more than half of the respondents were involved in household work and more than 85% of the respondents were literate and more than 40% of the respondents were secondary level educated in both settings. There was difference in major source of income; business (37.8%) was major source of income in urban areas whereas agriculture (57.7%) was a major source of income in rural areas. Monthly income of the respondent's household was range from 4000 NPR to 35000 NPR with average income was 13100 ± 5829 SD (NPR), most of the household had monthly income of 10000 – 20000 NPR in both areas. Likewise, almost 70% of the respondents were lived in joint family and most of the house was headed by father in law in both areas and only few houses were headed by respondent herself. Similarly, almost 50% of the respondents had two children and around 11% of the respondents had abortion in the past and there was difference in

economic controls in urban and rural areas, in urban areas economic activities were controlled by husband and wife (45.7%) while in rural areas economic activities were controlled by husband (46.2%).

Table: 4.1 Demographic Characteristics

Variables Demographic Characteristics	Urban (n=188) n (%)	Rural (n=104) n (%)	Total (n=292) n (%)
Age of the respondents			
Less than 20 years	14 (7.4)	9 (8.7)	23 (7.9)
20-24 years	93 (49.5)	49 (47.1)	142 (48.6)
25-29 years	62 (33.0)	39 (37.5)	101 (34.6)
More than 29 years	19 (10.1)	7 (6.7)	26 (8.9)
Ethnicity of the respondents			
Dalit	5 (2.7)	5 (4.8)	10 (3.4)
Disadvantaged Janajati	46 (24.5)	23 (22.1)	69 (23.6)
Disadvantaged non Dalit Terai caste group	2 (1.1)	-	2 (0.7)
Relatively advantaged Janajati	31 (16.5)	19 (18.3)	50 (17.1)
Upper caste group	104 (55.3)	57 (54.8)	161 (55.1)
Religion of respondents			
Hindu	151 (80.3)	84 (80.8)	235 (80.5)
Buddhist	22 (11.7)	11 (10.6)	33 (11.3)
Christian	15 (8.0)	9 (8.7)	24 (8.2)
Occupation of respondents			
Agriculture	21 (11.2)	36 (34.6)	57 (19.5)
Business	40 (21.3)	4 (3.8)	44 (15.1)
Service	24 (12.8)	5 (4.8)	29 (9.9)
Wage labor	6 (3.2)	3 (2.9)	9 (3.1)
House wife	96 (51.1)	55 (52.9)	151 (51.7)
Others	1 (0.5)	1 (1)	2 (0.7)
Major source of income			
Agriculture	25 (13.3)	60 (57.7)	85 (29.1)
Business	71 (37.8)	11 (10.6)	82 (28.1)
Service	67 (35.6)	19 (18.3)	86 (29.5)
Wage labor	11 (5.9)	10 (9.6)	21 (7.2)
Other	14 (7.4)	4 (3.8)	18 (6.2)
Educational Status			
Illiterate	27 (14.4)	15 (14.4)	42 (14.4)
Primary	34 (18.1)	18 (17.3)	52 (17.8)
Secondary	75 (39.9)	48 (46.2)	123 (42.1)
Higher Secondary	40 (21.3)	21 (20.2)	61 (20.9)

Table 4.1 continued…….

Monthly income			
Less than 10000 NPR	62 (33)	45 (43.3)	107 (36.6)
10000 – 20000 NPR	104 (55.3)	48 (46.2)	152 (52.1)
20000 – 30000 NPR	19 (10.1)	10 (9.6)	29 (9.9)
30000 – 40000 NPR	3 (1.6)	1 (1.0)	4 (1.4)
Type of family			
Nuclear	60 (31.9)	29 (27.9)	89 (30.5)
Joint	128 (68.1)	75 (72.1)	203 (69.5)
Head of house			
Father in Law	75 (39.9)	49 (47.1)	124 (42.5)
Mother in Law	34 (18.1)	16 (15.4)	50 (17.1)
Husband	71 (37.8)	35 (33.7)	106 (36.3)
Control of economic activities			
Husband	77 (41.0)	48 (46.2)	125 (42.8)
Self	24 (12.8)	13 (12.5)	37 (12.7)
Both	86 (45.7)	42 (40.4)	128 (43.8)
Parity			
One	52 (27.7)	33 (31.7)	85 (29.1)
Two	88 (46.8)	49 (47.1)	137 (46.9)
Three	37 (19.7)	17 (16.3)	54 (18.5)
Four	5 (2.7)	3 (2.9)	8 (2.7)
Five	6 (3.2)	2 (1.9)	8 (2.7)
Experienced Past Abortion			
Yes	23 (12.2)	10 (9.6)	33 (11.3)
No	165 (87.8)	94 (90.4)	259 (88.7)

4.2 Social Support, Information and Perception of Pregnancy

In both settings, almost 90% of the respondents were involved in social activities but only few of them involved in mother group. Both (husband and wife) were responsible for decision making of health care utilization in urban and rural areas. Among the all ANC users, it was found that most of the ANC visit was facilitated by mother in law in urban areas whereas in rural areas most of the ANC visit was facilitated by relatives and 20% of the respondents were also facilitated by husband as well. Similarly, among all ANC users, more than 75% of the respondents were inspired by her for ANC visit followed by inspiration by husband, mother in law and FCHV. In this study, we found there were various types of barriers for ANC visit among them time factor, household

factor, economic barrier and social barriers were common in both areas. Likewise, almost all of the respondents were heard or seen message about health in last month in both areas and there were various media and source of health information in both areas, among them Female Community Health Volunteer (FCHV), TV, radio and health workers were major source and media of health information in both areas. Likewise about the perception of pregnancy, more than half of the respondents were perceived that pregnancy period is risky period for women and almost 80% of the respondents had normal delivery in their last child birth in both areas.

Table: 4.2 Description of Social support, information and perception of pregnancy

Variables	Urban (n=188)	Rural (n=104)	Total (n=292)
	n (%)	n (%)	n (%)
Social Support			
Involvement in Social Activities			
Yes	164 (87.2)	94 (90.4)	258 (88.4)
No	24 (12.8)	10 (9.6)	34 (11.6)
Involvement in Mother Group			
Yes	32 (17.0)	11 (10.6)	43 (14.7)
No	156 (83.0)	93 (89.4)	249 (85.3)
Decision Maker of Health Care Utilization			
Husband	50 (26.6)	35 (33.7)	85 (29.1)
Self	58 (30.9)	29 (27.9)	87 (29.8)
Both	80 (42.6)	40 (38.5)	120 (41.1)
Facilitation during ANC visit (n=247)			
Husband	31 (19.9)	18 (19.8)	49 (19.8)
Relatives	52 (33.3)	39 (42.9)	91 (36.8)
Mother in Law	58 (37.2)	28 (30.8)	86 (34.8)
Friends	11 (7.1)	5 (5.5)	16 (6.5)
Others	4 (2.6)	1 (1.1)	5 (2.0)
No ANC visit (n=45)	32 (17.0)	13 (12.5)	45 (14.4)
Inspiration of ANC visit (n=247) (multiple answers)			
Husband	104 (42.1)	50 (20.2)	154 (62.3)
Mother in Law	64 (25.9)	32 (13.0)	96 (38.9)

Table 4.2 continued……

Father in Law	37 (15.0)	22 (8.9)	59 (23.9)
FCHV	42 (17.0)	28 (11.3)	70 (28.3)
Health worker	17 (6.9)	14 (5.7)	21 (12.6)
Relatives	43 (17.4)	21 (8.5)	64 (25.9)
Self	120 (48.6)	66 (26.7)	186 (75.3)
Other (e.g. neighbor)	1 (0.4)	2 (0.8)	3 (1.2)
No ANC visit (n=45)	32 (17.0)	13 (12.5)	45 (15.4)
Type of Barriers (multiple answers)			
Social barrier	50 (26.2)	31 (16.2)	81 (42.4)
Time factor	93 (48.7)	45 (23.6)	136 (72.3)
Economic factor	56 (29.3)	25 (13.1)	81 (42.4)
Culture factor	7 (3.7)	5 (2.6)	12 (6.3)
Household factor	75 (39.3)	39 (20.4)	114 (59.7)
Health service related factor	21 (11.0)	15 (7.9)	36 (18.9)
Shyness	12 (6.3)	14 (7.3)	36 (13.6)
Information			
Heard/seen any message about health in last month			
Yes	185 (98.4)	104 (100)	289 (99)
No	3 (1.6)	0	3 (1)
Media of Health Information (multiple answers)			
Radio	119 (64.3)	68 (65.4)	187 (64.7)
TV	142 (76.8)	81 (77.9)	223 (77.3)
Newspaper	117 (63.2)	66 (63.5)	183 (63.3)
Poster	29 (15.7)	9 (8.7)	38 (13.1)
Health Workers	138 (74.6)	71 (68.3)	209 (72.3)
FCHV	180 (97.3)	104 (100)	284 (98.3)
Street Dramas	75 (40.5)	49 (47.1)	124 (42.9)
Source of Health Information (multiple answers)			
Leaders	74 (39.4)	45 (43.3)	119 (40.8)
Radio	149 (79.3)	83 (79.8)	232 (79.5)
TV	187 (99.5)	102 (98.1)	289 (99.0)
FCHV	146 (77.7)	78 (75.0)	224 (76.7)
HW	136 (72.3)	70 (67.3)	206 (70.5)

Table 4.2 continued…….

Perception about pregnancy			
Method of child birth in last delivery (n=247)			
Normal delivery	127 (81.4)	71 (78.0)	198 (80.2)
Instrumental delivery	25 (16.0)	16 (17.6)	41 (16.6)
C/S	4 (2.6)	4 (4.4)	8 (3.2)
No ANC visit (n=45)	32 (17.0)	13 (12.5)	45 (15.4)
Perception of Pregnancy			
This is normal physiological process no need to alert	59 (31.4)	30 (28.8)	89 (30.5)
This is physiological process but we have to be alert coz this time is danger for women	104 (55.3)	61 (58.7)	165 (56.5)
Don't know	25 (13.3)	13 (12.5)	38 (13)

4.3 Health Service

In this study, more than 80 percentages of the respondents had ANC visits at Government health facilities and most of the respondents had health facilities nearby their home i.e. walking distance of less than 30 minutes and more than of the respondent's choose Government health facilities for ANC check up due to good service and health facilities were nearby their home. Among the total 292 respondents, 148 respondents had less than 4 ANC or No ANC visits, among them most of the respondents felt that they had better care at home and more than half of them had no ANC or less than 4 ANC due to tradition and almost 30% of them also reported that due to health facilities was far away and transportation was not easy. Almost 90% of the ANC provider was female in both areas and they were available more than 80% of the time during ANC visit by the respondents in both areas and most of the time medicine was available for the respondents during ANC visit. Almost all of the respondents received essential service during ANC visit in health facilities in both areas and among them more than 75 % of the respondents received TT injection two doses or more than two doses.

Table 4.3 Health Service

Variables **Health Service**	**Urban (n=156)** **n (%)**	**Rural (n=91)** **n (%)**	**Total (n=247)** **n (%)**
Distance to reach health facility			
Less than 30 minutes	132 (84.6)	81 (89.0)	213 (86.2)
30 minutes or more	24 (15.4)	10 (11.0)	34 (13.8)
Place for ANC visit			
Gov. health facilities	128 (82.1)	79 (86.8)	207 (83.8)
Private health facilities	28 (17.9)	12 (13.2)	40 (16.2)
Why Gov HF (n=207) (Multiple answers) (private HF n=40)			
HF is nearby	78 (60.9)	47 (59.5)	125 (60.4)
Get cash incentive	5 (3.9)	8 (10.1)	13 (6.3)
Behavior of staff was good	26 (20.3)	19 (24.1)	45 (21.7)
Service was good	83 (64.8)	45 (57.0)	128 (61.8)
Others (e.g. free health service)	0	1 (1.3)	1 (0.5)
No ANC or less than 4 ANC visit (n=148) (≥ 4 ANC visit (n=144)) **Multiple answers**			
Due to tradition	57 (60.0)	28 (52.8)	85 (57.4)
HF far away/transportation	30 (31.6)	14 (26.4)	44 (29.7)
Expensive service	2 (2.1)	0	2 (1.4)
Behavior of HWs was not good	25 (26.3)	8 (15.1)	33 (22.3)
Due to male health worker	11 (11.6)	6 (11.3)	17 (11.5)
Better care at home	70 (73.7)	34 (64.2)	104 (70.3)
Need to pay money	12 (12.6)	4 (7.5)	16 (10.8)
Lack of money	20 (21.1)	9 (17.0)	29 (19.6)
Lack of family support	19 (20.0)	15 (28.3)	34 (23.0)
Others	22 (23.2)	12 (22.6)	34 (23.0)
Gender of ANC provider			
Male	17 (10.9)	10 (11.0)	21 (10.9)
Female	139 (89.1)	81 (89.0)	220 (89.1)
Availability of HW during ANC visit			
Available	123 (78.8)	78 (85.7)	201 (80.4
Unavailable	33 (21.2)	13 (14.3)	46 (18.6)
Availability of medicine during ANC visit			
Available	123 (78.8)	77 (84.6)	200 (81.0)
Unavailable	33 (21.2)	14 (15.4)	47 (19.0)

Table 4.3 continued…….

Receive necessary medicine during ANC visit			
Yes	138 (88.5)	79 (86.8)	217 (87.9)
No	18 (11.5)	12 (13.2)	30 (12.1)
Services received during ANC visit (multiple answers)			
Medical check up	132 (84.6)	80 (87.9)	212 (85.8)
Received Iron tablet	144 (92.3)	91 (100)	235 (95.1)
TT injection	139 (89.1)	76 (83.5)	215 (87.0)
BP measurement	155 (99.4)	87 (95.6)	242 (98.0)
Deworming tablet	121 (77.6)	72 (79.1)	193 (78.1)
Health education on nutrition	118 (75.6)	67 (73.6)	185 (74.9)
Counseling on danger sign	116 (74.4)	64 (70.3)	180 (72.9)
Others	18 (11.5)	9 (9.9)	27 (10.9)
TT injection (times)			
No TT injection	17 (10.9)	15 (16.5)	32 (13.0)
One dose	12 (7.7)	9 (9.9)	21 (8.5)
Two dose	97 (62.2)	52 (57.1)	149 (60.3)
More than two dose	30 (19.2)	15 (16.5)	45 (18.2)

4.4 utilization of antenatal care service and client satisfaction

Overall utilization of ANC was 84.6% and ANC utilization was almost same in both areas and Non-utilization was 15.4% and among all of the ANC users, most of them complete four ANC visits and around 60% of them had complete utilization of ANC. More than half of the respondents were unsatisfied with antenatal care they received in both areas and Overall satisfaction level was less than 45% in both areas.

Table 4.4 Utilization of antenatal care service and client satisfaction

Variables	**Urban (n=188)**	**Rural (n=104)**	**Total (n=292)**
	n (%)	**n (%)**	**n (%)**
Utilization of ANC			
No visit	32 (17.0)	13 (12.5)	45 (15.4)
One ANC visit	3 (1.6)	4 (3.8)	7 (2.4)
Two ANC visit	27 (14.4)	15 (14.4)	42 (14.4)
Three ANC visit	33 (17.6)	21 (20.2)	54 (18.5)
Four ANC visit	76 (40.4)	37 (35.6)	113 (38.7)
More than four ANC visit	17 (9.0)	14 (13.5)	31 (10.6)
Overall utilization of ANC			
Yes	156 (83.0)	91 (87.5)	247 (84.6)
No	32 (17.0)	13 (12.5)	45 (15.4)
Complete utilization of ANC			
Less than four ANC visit	63 (40.4)	40 (44.0)	103 (41.7)
Four or more ANC visit	93 (59.6)	51 (56.0)	144 (58.3)
Overall satisfaction			
Satisfied >83*	69 (44.2)	39 (42.9)	108 (43.7)
Unsatisfied ≤83*	87 (55.8)	52 (57.1)	139 (56.3)

4.5 Non Utilization, Utilization and Complete Utilization of ANC

The respondents with no ANC visit was defined as Non utilization of ANC and 45 respondents from both areas had Non utilization of ANC, respondents with one or more ANC visits reported as ANC utilization (247 among 292 had ANC utilization) and the respondents with four or more ANC visits was reported as Complete utilization of ANC (144 among 247 had Complete utilization of ANC). According to the table 4.5, almost half of the respondents were 20-24 years of age group and most of them were upper caste group from Hindus. More than 80% of the respondents were literate and most of them were secondary level educated. Housewife was the dominant occupation of the respondents in both areas whereas agriculture was second most common occupation in rural areas as well. Major source of income was agriculture, business and service in both areas but agriculture was the main source of income in rural areas whereas business was the major source of income in urban areas. More than half of the respondents were belonged to middle class family as they had monthly income of 10000-20000 NPR and had food security up to six months to 12 months. More than 80% of the families of the respondents were joint family in both areas which were headed by father in law and husband respectively in both areas bur economic activities was controlled by both (husband and wife) in most of the household followed y husband. Nearly half of the respondents had two children in both areas and more than 10% of the respondents experienced abortion in the past, more in urban than rural areas.

Table 4.5 Non utilization, Utilization and Complete Utilization of ANC with demographic factors

Demographic characteristics	Urban (n=188)			Rural (n=104)			Total (n=292) n (%)
	No utilization (n=32) n (%)	Utilization (n=156)		No Utilization (n=13) n (%)	Utilization (n=91)		
		<4 ANC (n=63) n (%)	>4 ANC (n=93) n (%)		<4 ANC (n=40) n (%)	>4 ANC (n=51) n (%)	
Age of Respondent							
less than 20 years	0 (0.0)	6 (9.5)	8 (8.6)	0 (0.0)	4 (10.0)	5 (9.8)	23 (7.9)
20-24 years	7 (21.9)	26 (41.3)	60 (64.5)	3 (23.1)	16 (40.0)	30 (58.8)	142 (48.6)
25-29 years	20 (62.5)	17 (27.0)	25 (26.9)	7 (53.8)	16 (40.0)	16 (31.4)	101 (34.6)
more than 29 years	5 (15.6)	14 (22.2)	0 (0.0)	3 (23.1)	4 (10.0)	0 (0.0)	26 (8.9)
Ethnicity group							
Disadvantage group	18 (56.2)	10 (15.9)	25 (26.9)	9 (69.2)	7 (17.5)	12 (23.5)	81 (27.7)
Upper Caste group	14 (43.8)	53 (84.1)	68 (73.1)	4 (30.8)	33 (82.5)	39 (76.5)	211 (72.3)
Religion							
Hindu	20 (62.5)	58 (92.1)	73 (78.5)	9 (69.2)	35 (87.5)	40 (78.40	235 (80.5)
Buddhist	7 (21.9)	5 (7.9)	10 (10.8)	2 (15.4)	4 (10.0)	5 (9.8)	33 (11.3)
Christian	5 (15.6)	0 (0.0)	10 (10.8)	2 (15.4)	1 (2.5)	6 (11.8)	24 (8.2)
Ever attain school							
No	11 (34.4)	9 (14.3)	7 (7.5)	7 (53.8)	3 (7.5)	5 (9.8)	42 (14.4)
Yes	21 (65.6)	54 (85.7)	86 (92.5)	6 (46.2)	37 (92.5)	46 (90.2)	250 (85.6)
Educational status							
Illiterate	11 (34.4)	9 (14.3)	7 (7.5)	7 (53.8)	3 (7.5)	5 (9.8)	42 (14.4)
Primary	8 (25.0)	12 (19.0)	14 (15.1)	3 (23.1)	8 (20.0)	7 (13.7)	52 (18.0)
Secondary	8 (25.0)	28 (44.4)	39 (41.9)	2 (15.4)	19 (47.5)	27 (52.9)	123 (42.0)
Higher secondary	4 (12.5)	7 (11.1)	29 (31.2)	1 (7.7)	8 (20.0)	12 (23.5)	61 (20.9)
Graduate	1 (3.1)	7 (11.1)	4 (4.3)	0 (0.0)	2 (5.0)	0 (0.0)	14 (4.7)

Table 4.5 continued…….

Occupation							
Agriculture	2 (6.2)	7 (11.1)	12 (12.9)	2 (15.4)	10 (25.0)	24 (47.1)	57 (19.5)
Business	3 (9.4)	22 (34.9)	15 (16.1)	0 (0.0)	4 (10.0)	0 (0.0)	44 (15.1)
Service	2 (6.2)	3 (4.8)	19 (20.4)	0 (0.0)	4 (10.0)	1 (2.0)	29 (9.9)
Housewife	25 (78.1)	31 (49.2)	47 (50.5)	11 (84.6)	22 (55.0)	26 (51.0)	162 (55.5)
Major source of income							
Agriculture	1 (3.1)	11 (17.5)	13 (14.0)	5 (38.5)	22 (55.0)	33 (64.7)	85 (29.1)
Business	7 (21.9)	29 (46.0)	35 (37.6)	1 (7.7)	7 (17.5)	3 (5.9)	82 (28.1)
Service	15 (46.9)	14 (22.2)	38 (40.9)	1 (7.7)	6 (15.0)	12 (23.5)	86 (29.4)
Labor	8 (25.0)	1 (1.6)	2 (2.2)	6 (46.2)	3 (7.5)	1 (2.0)	21 (7.1)
Other	1 (3.1)	8 (12.7)	5 (5.4)	0 (0.0)	2 (5.0)	2 (3.9)	18 (6.2)
Monthly income							
Less than 10000	20 (62.5)	11 (17.5)	31 (33.3)	11 (84.6)	12 (30.0)	22 (43.1)	107 (36.6)
10000-20000 NPR	9 (28.1)	44 (69.8)	51 (54.8)	2 (15.4)	22 (55.0)	24 (47.1)	152 (52.1)
20001-30000 NPR	3 (9.4)	5 (7.9)	11 (11.8)	0	5 (12.5)	5 (9.8)	29 (9.9)
30001-40000 NPR	0	3 (4.8)	0	0	1 (2.5)	0	4 (1.4)
Food security for family							
Less than 3 months	15 (46.9)	7 (11.1)	9 (9.7)	8 (61.5)	10 (25.0)	9 (17.6)	58 (19.8)
3 months	8 (25.0)	21 (33.3)	32 (34.4)	4 (30.8)	8 (20.0)	12 (23.5)	85 (29.1)
6 months	6 (18.8)	25 (39.7)	39 (41.9)	1 (7.7)	14 (35.0)	22 (43.1)	107 (36.6)
12 months	3 (9.4)	10 (15.9)	13 (14.0)	0 (0.0)	8 (20.0)	8 (15.7)	42 (14.4)
Types of family							
Nuclear	22 (68.8)	14 (22.2)	24 (25.8)	7 (53.8)	8 (20.0)	14 (27.5)	89 (30.5)
Joint	10 (31.2)	49 (77.8)	69 (74.2)	6 (46.2)	32 (80.0)	37 (72.5)	203 (69.5)

Table 4.5 continued……..

Head of house							
Father in law	5 (15.6)	23 (36.5)	47 (50.5)	5 (38.5)	18 (45.0)	26 (51.0)	124 (42.5)
Mother in law	1 (3.1)	18 (28.6)	15 (16.1)	1 (7.7)	8 (20.0)	7 (13.7)	50 (17.1)
Husband	26 (81.2)	22 (34.9)	23 (24.7)	6 (46.2)	13 (32.5)	16 (31.4)	106 (36.3)
Self	0 (0.0)	0 (0.0)	8 (8.6)	1 (7.7)	1 (2.5)	2 (3.9)	12 (4.1)
Control of economic activities							
Husband	4 (12.5)	21 (33.3)	52 (55.9)	3 (23.1)	18 (45.0)	27 (52.9)	125 (42.8)
Self	1 (3.1)	14 (22.2)	9 (9.7)	1 (7.7)	8 (20.0)	4 (7.8)	37 (12.7)
Both	26 (81.2)	28 (44.4)	32 (34.4)	8 (61.5)	14 (35.0)	20 (39.2)	128(43.8)
Other	1 (3.1)	0 (0.0)	0 (0.0)	1 (7.7)	0 (0.0)	0 (0.0)	2 (0.6)
Parity							
One	0 (0.0)	18 (28.6)	34 (36.6)	0 (0.0)	12 (30.0)	21 (41.2)	85 (29.1)
Two	17 (53.1)	23 (36.5)	48 (51.6)	5 (38.5)	18 (45.0)	26 (51.0)	137 (46.9)
Three	9 (28.1)	17 (27.0)	11 (11.8)	5 (38.5)	9 (22.5)	3 (5.9)	54 (18.5)
Four	0 (0.0)	5 (7.9)	0 (0.0)	1 (7.7)	1 (2.5)	1 (2.0)	8 (2.7)
Five	6 (18.8)	0 (0.0)	0 (0.0)	2 (15.4)	0 (0.0)	0 (0.0)	8 (2.7)
Experienced past abortion							
No	30 (93.8)	62 (98.4)	73 (78.5)	12 (92.3)	37 (92.5)	45 (88.2)	259 (88.7)
Yes	2 (6.2)	1 (1.6)	20 (21.5)	1 (7.7)	3 (7.5)	6 (11.8)	33 (11.3)

4.6 Social Support, Information, Perception of pregnancy and ANC utilization and Non utilization of ANC

Pregnant women of both urban and rural areas had good family and social support. Almost all of the respondents were involved in social activities in both areas but they were not interested to mother group. Both husband and wife taken health care decision jointly in both areas followed by husband and self in both areas. Most of the respondents were facilitated by relatives for ANC visit in both areas but more than 40% of the respondents were facilitated by mother in law as well in urban areas. In both areas, respondents were inspired by self for ANC visit followed by husband. There were several barriers for no ANC visit, among them time factor was leading barrier for no ANC visit followed by social barrier in both areas. Among the non ANC users, social and household barriers were the main barriers for no ANC visit in both areas whereas time factor as a barrier was predominant in both areas among the respondents who had ANC visit but didn't complete ANC visit. Regarding the information, almost all of the respondents were heard or seen the message about health information in last month in both areas and there were several media and source of health information available in both areas. Among all of the media and source of health information, FCHV, TV, radio and health worker were most important media and source of health information in both areas among all of the respondents (ANC user and ANC not user). Regarding the perception about pregnancy, more than half of the respondents were perceived that pregnancy was a risky period and more than 60% of the respondents were started ANC first visit before four months of pregnancy and more than 80% of the respondents had normal delivery in last child birth in both areas.

Table 4.6 Social supports, Information and Perception with ANC utilization and Non utilization.

Variables	Urban (n=188)			Rural (n=104)			Total (n=292) n (%)
	No Utilization	Utilization (n=156)		No Utilization	Utilization (n=91)		
Social support	(n=32) n (%)	<4 ANC (n=63) n (%)	≥4 ANC (n=93) n (%)	(n=13) n (%)	<4 ANC (n=40) n (%)	≥4 ANC (n=51) n (%)	
Involvement in Social activities							
No	5 (15.6)	9 (14.3)	10 (10.8)	2 (15.4)	5 (12.5)	3 (5.9)	34 (11.6)
Yes	27 (84.4)	54 (85.7)	83 (89.2)	11 (84.6)	35 (87.5)	48 (94.1)	258 (88.4)
Involvement in Mothers group							
No	32 (100.0)	51 (81.0)	73 (78.5)	13 (100.0)	36 (90.0)	44 (86.3)	249 (85.3)
Yes	0 (0.00	12 (19.0)	20 (21.5)	0 (0.0)	4 (10.0)	7 (13.7)	43 (14.7)
Decision maker in health care							
Husband	7 (21.9)	12 (19.0)	31 (33.3)	3 (23.1)	17 (42.5)	15 (29.4)	85 (29.1)
Self	10 (31.2)	23 (36.5)	25 (26.9)	4 (30.8)	10 (25.0)	15 (29.4)	87 (29.8)
Both	15 (46.9)	28 (44.4)	37 (39.8)	6 (46.2)	13 (32.5)	21 (41.2)	120 (41.1)
Facilitation of ANC visits (n=247)							
Husband	-	14 (22.2)	17 (18.3)	-	7 (17.5)	11 (21.6)	49 (19.8)
Relatives	-	15 (23.8)	37 (39.8)	-	18 (45.0)	21 (41.2)	91 (36.8)
Mother in law	-	28 (44.4)	30 (32.3)	-	13 (32.5)	15 (29.4)	86 (34.8)
Friends	-	6 (9.5)	5 (5.4)	-	2 (5.0)	3 (5.9)	16 (6.5)
Others	-	0 (0.0)	4 (4.3)	-	0 (0.0)	1 (2.0)	5 (2.0)

Table 4.6 continued……..

Inspiration of ANC visits (multiple answers)							
Husband	-	45 (71.4)	59 (63.4)	-	24 (60.0)	26 (51.0)	154 (62.3)
Mother in law	-	21 (33.3)	43 (46.2)	-	9 (22.5)	23 (45.1)	96 (38.9)
Father in law	-	11 (17.5)	26 (28.0)	-	6 (15.0)	16 (31.4)	59 (23.9)
FCHV	-	17 (27.0)	25 (26.9)	-	12 (30.0)	16 (31.4)	70 (28.3)
HW	-	5 (7.9)	12 (12.9)	-	4 (10.0)	10 (19.6)	31 (12.6)
Relative	-	16 (25.4)	27 (29.0)	-	12 (30.0)	9 (17.6)	64 (25.9)
Self	-	44 (69.8)	76 (81.7)	-	27 (67.5)	39 (76.5)	186 (75.3)
Other	-	0	1 (1.1)	-	0 (0.0)	2 (3.9)	3 (1.2)
Barrier for ANC (multiple answers)							
Social barrier	23 (71.9)	14 (22.2)	13 (52.0)	9 (69.2)	11 (27.5)	11 (61.1)	81 (27.7)
Time factor	19 (59.4)	56 (88.9)	18 (72.0)	6 (46.2)	30 (75.0)	9 (50.0)	138 (47.2)
Economic barrier	13 (40.6)	33 (53.4)	10 (40.0)	7 (53.8)	13 (32.5)	5 (27.8)	81 (27.7)
Cultural barrier	2 (6.2)	2 (3.2)	3 (12.0)	0 (0.0)	2 (5.0)	3 (16.7)	12 (4.1)
Household barrier	23 (71.9)	36 (57.1)	16 (64.0)	7 (53.8)	24 (60.0)	8 (44.4)	114 (39.0)
Health service barrier	10 (31.2)	4 (6.3)	7 (28.0)	4 (30.8)	3 (7.5)	8 (44.4)	36 (12.3)
Due to shyness	3 (9.4)	4 (6.3)	5 (20.0)	1 (7.7)	5 (12.5)	8 (44.4)	26 (8.9)
Information							
Message heard/seen of health in last month							
No	0 (0.0)	1 (1.6)	2 (2.2)	0 (0.0)	0 (0.0)	0 (0.0)	3 (1.0)
Yes	32 (100.0)	62 (98.4)	91 (97.8)	13 (100.0)	40 (100.0)	51 (100.0)	289 (99.0)
Media of health information (Multiple answers)							
Radio media	14 (43.8)	40 (64.5)	65 (71.4)	5 (38.5)	24 (60.0)	39 (76.5)	187 (64.0)
TV media	25 (78.1)	50 (80.6)	67 (73.6)	11 (84.6)	29 (72.5)	41 (80.4)	223 (76.4)

Table 4.6 continued…….

Poster media	4 (12.5)	10 (16.1)	15 (16.5)	1 (7.7)	3 (7.5)	5 (9.8)	38 (13.0)
Newspaper media	18 (56.2)	36 (58.1)	63 (69.2)	7 (53.8)	24 (60.0)	35 (68.6)	183 (62.7)
Health worker	26 (81.2)	52 (83.9)	60 (65.9)	10 (76.9)	30 (75.0)	31 (60.8)	209 (71.6)
FCHV	32 (100.0)	60 (96.8)	88 (96.7)	13 (100.0)	40 (100.0)	51 (100.0)	284 (97.3)
Street dramas	11 (34.4)	25 (40.3)	39 (42.9)	6 (46.2)	19 (47.5)	24 (47.1)	124 (42.5)
Source of health information							
Leaders	11 (34.4)	37 (58.7)	26 (28.0)	6 (46.2)	20 (50.0)	19 (37.3)	119 (40.8)
Radio	23 (71.9)	45 (71.4)	81 (87.1)	9 (69.2)	30 (75.0)	44 (86.3)	232 (79.5)
TV	31 (96.9)	63 (100.0)	93 (100.0)	13 (100.0)	39 (97.5)	50 (98.0)	289 (99.0)
FCHV	24 (75.0)	46 (73.0)	76 (81.7)	10 (76.9)	29 (72.5)	39 (76.5)	224 (76.7)
Health worker	25 (78.1)	51 (81.0)	60 (64.5)	10 (76.9)	29 (72.5)	31 (60.8)	206 (70.5)
Perception							
Own perception							
It is normal , no need to alert	5 (15.6)	19 (30.2)	35 (37.6)	3 (23.1)	12 (30.0)	15 (29.4)	89 (30.5)
It is a risky period and needs alert	24 (75.0)	33 (52.4)	47 (50.5)	9 (69.2)	22 (55.0)	30 (58.8)	165 (56.5)
I don’t know	3 (9.4)	11 (17.5)	11 (11.8)	1 (7.7)	6 (15.0)	6 (11.8)	38 (13.0)
Time of ANC visit							
Before 4 months	-	32 (50.8)	68 (73.1)	-	25 (62.5)	33 (64.7)	158 (64.0)
4-5 months	-	20 (31.7)	24 (25.8)	-	10 (25.0)	15 (29.4)	69 (28.0)
5-7 months	-	11 (17.5)	1 (1.1)	-	5 (12.5)	3 (5.9)	20 (8.0)
Method of Child birth							
Normal delivery	-	50 (79.4)	77 (82.8)	-	34 (85.0)	37 (72.5)	198 (80.2)
Instrumental delivery	-	13 (20.6)	12 (12.9)	-	6 (15.0)	10 (19.6)	41 (16.6)
C/S		0 (0.0)	4 (4.3)	-	0 (0.0)	4 (7.8)	8 (3.2)

4.7 Health Service and Non utilization of ANC and Utilization of ANC

In this study, we found that more than 85% of the respondents had less than 30 minutes of distance to reach the health facilities in both areas and more than 80% of them preferred to go Government health facilities for ANC visits because the health facilities were near to their home and they received good service as well. In this study, total 45 respondents didn't have ANC visit (urban=32 and rural=13), among them more than 70% of the respondents felt that they have better care at home and more than 50% of the respondents had no ANC visit due to tradition in both areas. Likewise, around 90% of the respondents had female as a ANC provider during their ANC visit in both areas and availability of health worker and medicine during ANC visit were more than 80% in both areas and most of the time they received necessary medicine during their ANC visit in both areas. During their ANC visits, almost all of the respondents received blood pressure measurement and iron tablets, more than 80% of the respondents received medical check-up and TT injection and more than 70% of the respondents received deworming tablet, health education on nutrition and health education on danger signs as well in both areas.

Table 4.7 Health Service and Non utilization of ANC and Utilization of ANC

Health Service	Urban (n=188)			Rural (n=104)			Total n (%)
	No Utilization	Utilization (n=156)		No Utilization	Utilization (n=91)		
	(n = 32) n (%)	<4 ANC (n=63) n (%)	≥4 ANC (n=93) n (%)	(n=13) n (%)	<4 ANC (n=40) n (%)	≥4 ANC (n=51) n (%)	
Distance to reach HF (n=247)							
Less than 30 min	-	43 (68.3)	89 (95.7)	-	32 (80.0)	49 (96.1)	213 (86.2)
More than 30 min	-	20 (31.7)	4 (4.3)	-	8 (20.0)	2 (3.9)	34 (13.8)
Place of ANC visit (n=247)							
Government	-	53 (84.1)	75 (80.6)	-	32 (80.0)	47 (92.2)	207 (83.8)
Private	-	10 (15.9)	18 (19.4)	-	8 (20.0)	4 (7.8)	40 (16.2)
Why Government HF (n=247)							
HF nearby	-	30 (56.6)	48 (64.0)	-	20 (62.5)	27 (57.4)	125 (50.6)
Get cash	-	3 (5.7)	2 (2.7)	-	5 (15.6)	3 (6.4)	13 (5.3)
HWs behavior	-	5 (9.4)	21 (28.0)	-	4 (12.5)	15 (31.9)	45 (18.2)
Service good	-	29 (54.7)	54 (72.0)	-	14 (43.8)	31 (66.0)	128 (51.8)
No ANC or less than 4 ANC visit(n=144) (multiple answers)							
Tradition	23 (71.9)	34 (54.0)	-	8 (61.5)	20 (50.0)	-	85 (59.0)
Far HF	0 (0.0)	30 (47.6)	-	0 (0.0)	14 (35.0)	-	44 (30.6)
Expensive service	0 (0.0)	2 (3.2)	-	0 (0.0)	0 (0.0)	-	2 (1.4)
Behavior HW	10 (31.2)	15 (23.8)	-	4 (30.8)	4 (10.0)	-	33 (22.9)
Male HW	1 (3.1)	10 (15.9)	-	2 (15.4)	4 (10.0)	-	17 (11.8)

Table 4.7 continued…….

Better care at home	28 (87.5)	42 (66.7)	-	9 (69.2)	25 (62.5)	-	104 (72.2)
Pay money	7 (21.9)	5 (7.9)	-	3 (23.1)	1 (2.5)	-	16 (11.1)
Lack of money	8 (25.0)	12 (19.0)	-	3 (23.1)	6 (15.0)	-	29 (20.1)
Lack of support	7 (21.9)	12 (19.0)	-	5 (38.5)	10 (25.0)	-	34 (23.6)
Other cause	10 (31.2)	12 (19.0)	-	5 (38.5)	7 (17.5)	-	34 (23.6)
Gender of ANC provider (n=247)							
Male	-	12 (19.0)	5 (5.4)	-	7 (17.5)	3 (5.9)	27 (10.9)
Female	-	51 (81.0)	88 (94.6)	-	33 (82.5)	48 (94.1)	220 (89.1)
Availability of HW during ANC visit (n=247)							
Unavailable	-	12 (19.0)	21 (22.6)	-	6 (15.0)	7 (13.7)	46 (18.6)
Available	-	51 (81.0)	72 (77.4)	-	34 (85.0)	44 (86.3)	201 (81.4)
Availability of medicine during ANC visit (n=247)							
Unavailability	-	17 (27.0)	16 (17.2)	-	8 (20.0)	6 (11.8)	47 (19.0)
Availability	-	46 (73.0)	77 (82.8)	-	32 (80.0)	45 (88.2)	200 (81.0)
Received necessary Medicine during ANC visit (n=247)							
Yes	-	50 (79.4)	88 (94.6)	-	33 (82.5)	46 (90.2)	217 (87.9)
No	-	13 (20.6)	5 (5.4)	-	7 (17.5)	5 (9.8)	30 (12.1)

Table 4.7 Continued…….

Service received during ANC visit (multiple answers)							
Medical check-up	-	53 (84.1)	79 (84.9)	-	35 (87.5)	45 (88.2)	212 (85.8)
Received iron tablet	-	55 (87.3)	89 (95.7)	-	40 (100.0)	51 (100.0)	235 (95.1)
Received TT inj.	-	56 (88.9)	83 (89.2)	-	33 (82.5)	43 (84.3)	215 (87.0)
Blood pressure check	-	63 (100.0)	92 (98.9)	-	39 (97.5)	48 (94.1)	242 (98.0)
Received deworming tablet	-	37 (58.7)	84 (90.3)	-	29 (72.5)	43 (84.3)	193 (78.1)
Health education on nutrition	-	46 (73.0)	72 (77.4)	-	32 (80.0)	35 (68.6)	185 (74.9)
Counseling on danger sign	-	47 (74.6)	69 (74.2)	-	30 (75.0)	34 (66.7)	180 (72.9)
Others	-	8 (12.7)	10 (10.8)	-	4 (10.0)	5 (9.8)	27 (11.0)

4.8 Client Satisfaction with demographic characteristics

More than half of the respondents were unsatisfied with antenatal service they received and satisfaction level was also low in most of the demographic characteristics. By the age, 20-24 years age group were more satisfied in both areas, advantaged ethnic group were more satisfied than disadvantaged ethic group in both urban and rural areas and most of the respondents were Hindus by religion and among them unsatisfied were more than satisfied. Literate respondents were more satisfied than illiterate and. By the occupation, housewives were more satisfied than others in both areas but the household who's had business as a major source of income were more satisfied than others in urban areas whereas the household those had agriculture as a major source of income were more satisfied than others in rural areas. Satisfaction level was similar in both areas for monthly income and type of family, most of the respondents were from joint family and they were more satisfied than those respondents were from nuclear family and similarly most of the respondents had 10000-20000 NPR as a monthly income and satisfaction level was more in same group in both areas. In urban areas, satisfaction level was high in those family headed by father in law but in rural areas most of the respondents were more unsatisfied in those headed by father in law. There was almost similar satisfaction level was found in those household in which economic activities were controlled by husband in both areas and satisfaction level was higher in those respondents who didn't had abortion in the past in both areas.

Table 4.8 Client satisfaction with demographic characteristics

Demographic characteristics	Urban (n=156)		Rural (n=91)		Total (n=247)
	Client satisfaction (n %)		Client satisfaction (n %)		
	Satisfied	Unsatisfied	Satisfied	Unsatisfied	
Age					
Less than 20 years	7 (10.1)	7 (8.0)	7 (17.9)	2 (3.8)	23 (9.3)
20-24 years	38 (55.1)	48 (55.2)	16 (41.0)	30 (57.7)	132 (53.4)
25-29 years	21 (30.4)	21 (24.1)	14 (35.9)	18 (34.6)	74 (30.0)
More than 29 years	3 (4.3)	11 (12.6)	2 (5.1)	2 (3.8)	18 (7.3)
Ethnicity					
Disadvantaged group	25 (36.2)	37 (42.5)	13 (33.3)	23 (44.2)	98 (39.7)
Advantaged group	44 (63.8)	50 (57.5)	26 (66.7)	29 (55.8)	149 (60.3)
Religion					
Hindu	56 (81.2)	75 (86.2)	31 (79.5)	44 (84.6)	206 (83.4)
Buddhist	5 (7.2)	10 (11.5)	4 (10.3)	5 (9.6)	24 (9.7)
Christian	8 (11.6)	2 (2.3)	4 (10.3)	3 (5.8)	17 (6.9)
Ever attain school					
Yes	66 (95.7)	74 (85.1)	38 (97.4)	1 (2.6)	179 (72.5)
No	3 (4.3)	13 (14.9)	45 (86.5)	7 (13.5)	68 (27.5)
Education level					
No schooling	3 (4.3)	13 (14.9)	1 (2.6)	7 (13.5)	24 (9.7)
Primary	19 (27.5)	7 (8.0)	6 (15.4)	9 (17.3)	41 (16.6)
Secondary	26 (37.7)	41 (47.1)	26 (66.7)	20 (38.5)	113 (45.7)
Higher secondary	14 (20.3)	22 (25.3)	6 (15.4)	14 (26.9)	56 22.7)
Graduate	7 (10.1)	4 (4.6)	0	2 (3.8)	13 (5.2)
Occupation					
Agriculture	7 (10.1)	12 (13.8)	16 (41.0)	18 (34.6)	53 (21.5)
Business	13 (18.8)	24 (27.6)	2 (5.1)	2 (5.1)	41 (16.6)
Service	4 (5.8)	18 (20.7)	0	5 (9.6)	27 (10.9)
Housewife, labor and others	45 (65.2)	33 (37.9)	21 (53.8)	27 (51.9)	126 (51.0)
Major source of income					
Agriculture	4 (5.8)	20 (23.0)	22 (56.4)	33 (63.5)	79 (32.0)
Business	30 (43.5)	34 (39.1)	4 (10.3)	6 (11.5)	74 (30.0)
Service	25 (36.2)	27 (31.0)	10 (25.6)	8 (15.4)	70 (28.3)
Labor and Others	10 (14.5)	6 (6.9)	3 (7.7)	5 (9.6)	24 (9.7)

Table 4.8 continued…….

Monthly Income					
< 10000 NPR	15 (21.7)	27 (31.0)	12 (30.8)	19 (36.5)	73 (29.6)
10000-20000 NPR	42 (60.9)	53 (60.9)	23 (59.0)	26 (50.0)	144 (58.3)
> 20000 NPR	12 (17.4)	7 (8.0)	4 (10.3)	7 (13.5)	30 (12.1)
Type of family					
Nuclear	18 (26.1)	20 (23.0)	11 (28.2)	11 (21.2)	60 (24.3)
Joint	51 (73.9)	67 (77.0)	28 (71.8)	41 (78.8)	187 (75.7)
Head of house					
Father in law	31 (44.9)	39 (44.8)	17 (43.6)	27 (51.9)	114 (46.1)
Mother in law	16 (23.2)	17 (19.5)	7 (17.9)	8 (15.4)	48 (19.4)
Husband	19 (27.5)	26 (29.9)	14 (35.9)	15 (28.8)	74 (30.0)
Self	3 (4.3)	5 (5.7)	1 (2.6)	2 (3.8)	11 (4.5)
Control of economic activities					
Husband	37 (53.6)	36 (41.4)	19 (48.7)	26 (50.0)	118 (47.8)
Self	9 (13.0)	14 (16.1)	5 (12.8)	7 (13.5)	35 (14.2)
Both	23 (33.3)	37 (42.5)	15 (38.5)	19 (36.5)	94 (38.0)
Parity					
One	26 (37.7)	26 (29.9)	16 (41.0)	17 (32.7)	85 (34.4)
Two	31(44.9)	40 (46.0)	16 (41.0)	28 (53.8)	115 (46.6)
Three	12 (17.4)	16 (18.4)	6 (15.4)	6 (11.5)	40 (16.2)
Four	0	5 (5.7)	1 (2.6)	1 (1.9)	7 (2.8)
Experienced past abortion					
No	59 (85.5)	76 (87.4)	35 (89.7)	47 (90.4)	217 (87.9)
Yes	10 (14.5)	11 (12.6)	4 (10.3)	5 (9.6)	30 (12.1)

4.9 Social support, Information, Perception of pregnancy and Client Satisfaction

The satisfaction level was high in those respondents who were involved in any social activities in both areas but who were involved in mother group, most of them were unsatisfied. Respondents were more satisfied if they were involved with husband in decision making for health care utilization than decision taken by husband or respondents herself. Satisfaction level was very low for facilitation of ANC visit in both areas but in rural areas, respondents were satisfied more if they were facilitated by relatives than others. Similarly, most of the respondents were inspired for ANC visits and those respondents were satisfied more if they were inspired by herself and there were several barriers for ANC visit as well and among them they were satisfied with time factor than others in both areas. Likewise, almost all of the respondents were heard or seen message about health in last month and they were satisfied and there

were various source and media of health information in both areas but more than half of the respondents were unsatisfied with media and source of health information in both areas except they were more satisfied with the poster than others. Most of the respondents had normal delivery in their last child birth and they were satisfied with normal delivery in urban areas and rural areas as well and almost half of the respondents who perceived pregnancy was a risky period were satisfied with antenatal care service they received during ANC visits.

Table 4.9 Social Supports, Information, Perception of Pregnancy and Client Satisfaction

Demographic characteristics	**Urban (n=156)**		**Rural (n=91)**		**Total (n=247)**
	Client satisfaction (n %)		**Client satisfaction (n %)**		
Social support	**Satisfied**	**Unsatisfied**	**Satisfied**	**Unsatisfied**	
Involvement in social activities					
Yes	63 (91.3)	74 (85.1)	37 (94.9)	46 (88.5)	220 (89.1)
No	6 (8.7)	13 (14.9)	2 (5.1)	6 (11.5)	27 (10.9)
Involvement in mother group					
Yes	15 (21.7)	17 (19.5)	5 (12.8)	6 (11.5)	43 (17.4)
No	54 (78.3)	70 (80.5)	34 (87.2)	46 (88.5)	204 (82.6)
Decision maker in H. care utilization					
Husband	22 (31.9)	21 (24.1)	13 (33.3)	19 (36.5)	75 (30.4)
Self	17 (24.6)	31 (35.6)	9 (23.1)	16 (30.8)	73 (29.6)
Both	30 (43.5)	35 (40.2)	17 (43.6)	17 (32.7)	99 (40.0)
Facilitation during ANC visit					
Husband	15 (21.7)	16 (18.4)	7 (17.9)	11 (21.2)	49 (19.8)
Relatives	17 (24.6)	35 (40.2)	16 (41.0)	23 (44.2)	91 (36.8)
Mother in law	23 (33.3)	35 (40.2)	11 (28.2)	17 (32.7)	86 (34.8)
Friends	10 (14.5)	1 (1.1)	4 (10.3)	1 (1.9)	16 (6.5)
Others	4 (5.8)	0	1 (2.6)	0	5 (2.0)

Table 4.9 continued……

Inspiration of ANC visits (multiple answers)					
Husband	45 (43.3)	59 (56.7)	21 (42.0)	29 (58.0)	154 (62.3)
Mother in law	29 (45.3)	35 (54.7)	15 (46.9)	17 (53.1)	96 (38.9)
Father in law	17 (45.9)	20 (54.1)	12 (54.5)	10 (45.5)	59 (23.9)
FCHV	13 (31.0)	29 (69.0)	13 (46.4)	15 (53.6)	70 (28.3)
Health worker	7 (41.2)	10 (58.8)	7 (50.0)	7 (50.0)	31 (12.6)
Relatives	18 (41.9)	25 (58.1)	9 (42.9)	12 (57.1)	64 (25.9)
Self	55 (45.8)	65 (54.2)	29 (43.9)	37 (56.1)	186 (75.3)
Other	0	1 (100)	1 (50.0)	1 (50.0)	3 (1.2)
Type of barriers					
Social barrier	14 (51.9)	13 (48.1)	9 (40.9)	13 (59.1)	49 (19.8)
Time factor	44 (59.5)	30 (40.5)	20 (51.3)	19 (48.3)	113 (45.7)
Economic factor	23 (53.5)	20 (46.5)	10 (55.6)	8 (44.4)	61 (24.7)
Cultural barrier	3 (60.0)	2 (40.0)	1 (20.0)	4 (80.0)	10 (4.0)
Household barrier	30 (57.7)	22 (42.3)	13 (40.6)	19 (59.4)	84 (34.0)
Health service	6 (54.5)	5 (45.5)	3 (27.3)	8 (72.7)	22 (8.9)
Shyness	5 (55.6)	4 (44.4)	7 (53.8)	6 (46.2)	22 (8.9)
Information					
Heard msg about health in last month					
Yes	68 (98.6)	85 (97.7)	39 (100)	52 (100.0)	244 (98.8)
No	1 (1.4)	2 (2.3)	0	0	3 (1.2)
Media of health information (multiple answers)					
Radio	51 (48.6)	54 (51.4)	30 (47.6)	33 (52.4)	168 (68.0)
TV	54 (46.2)	63 (53.8)	30 (42.9)	40 (57.1)	187 (75.7)
Newspaper	43 (43.4)	56 (56.6)	24 (40.7)	35 (59.3)	158 (64.0)
Poster	16 (64.0)	9 (36.0)	5 (62.5)	3 (37.5)	33 (13.4)
Health worker	54 (48.2)	58 (51.8)	30 (49.2)	31 (50.8)	147 (70.0)
FCHV	63 (42.6)	85 (57.4)	39 (42.9)	52 (57.1)	239 (96.8)
Street drama	28 (41.2)	36 (56.2)	19 (48.7)	24 (55.8)	107 (43.3)
Source of health information (multiple answers)					
Leader	21 (33.30	42 (66.7)	17 (43.6)	22 (56.4)	102 (41.3)
Radio	59 (46.8)	67 (53.2)	32 (43.2)	42 (56.8)	200 (81.0)
TV	69 (44.2)	87 (55.8)	37 (41.6)	52 (58.4)	245 (99.2)
FCHV	51 (41.8)	71 (58.2)	29 (42.6)	39 (57.4)	190 (76.9)
Health worker	52 (46.8)	59 (53.2)	29 (48.3)	31 (51.7)	171 (69.2)

Table 4.9 continued……

Perception					
Method of child birth in last delivery					
Normal delivery	57 (82.6)	70 (80.5)	29 (74.4)	42 (80.8)	198 (80.2)
Instrumental delivery	12 (17.4)	13 (14.9)	10 (25.6)	6 (11.5)	41 (16.6)
C/S	0	4 (4.6)	0	4 (7.7)	8 (3.2)
Perception about pregnancy					
Normal physiological process no need to alert	22 (31.9)	32 (36.8)	11 (28.2)	16 (30.8)	81 (32.8)
It is a risky period and needs alert for mother and child	31 (44.9)	49 (56.3)	20 (51.3)	32 (61.5)	132 (53.4)
Don't know	16 (23.2)	6 (6.9)	8 (20.5)	4 (7.7)	34 (13.8)

4.10 Health Service and Client Satisfaction

In this study, location of HF was nearby the respondent's home, most of the respondents had less than 30 minutes of distance to reach the health facilities and more than 90% of the respondents were satisfied with the distance to reach the HF and the more than 70% of the respondents were satisfied with Gov HF for ANC check up in both areas and they were satisfied to visit Gov HF for ANC check up due to health facilities was near to their home and behavior of staff was good and in urban areas, more than 80% of the respondents were satisfied with female ANC provider whereas in rural areas, less than 80% of the respondents were satisfied with female ANC provider. Among the non ANC users, more than 60% of the respondents were satisfied with tradition and due to have better care at home. Most of the respondents were satisfied with availability of health worker and medicine and service during ANC visit, in urban areas less than 75% of the respondents were satisfied with availability of medicine where as in rural areas more than 80% of the respondents were satisfied with availability of medicine during ANC visit. Less than half of the respondents were satisfied with the service they received during ANC visit in both areas.

Table 4.10 Health Service and Client Satisfaction

Health service	Urban (n=156)		Rural (n=91)		Total (n=247)
	Client satisfaction (n %)		Client satisfaction (n %)		
	Satisfied	Unsatisfied	Satisfied	Unsatisfied	
Distance to health facility					
<30 minutes	65 (94.2)	67 (77.0)	38 (97.4)	43 (82.7)	213 (86.2)
>30 minutes	4 (5.8)	20 (23.0)	1 (2.6)	9 (17.3)	34 (13.8)
Place for ANC visit					
Gov. HF	51 (73.9)	77 (88.5)	31 (79.5)	48 (92.3)	207 (83.8)
Private HF	18 (26.1)	10 (11.5)	8 (20.5)	4 (7.7)	40 (16.2)
Why Gov HF (multiple answers)					
HF is nearby	34 (43.6)	44 (56.4)	19 (40.4)	28 (59.6)	125 (50.6)
Get cash incentive	0	5 (100)	3 (37.5)	5 (62.5)	13 (5.3)
Behavior of staff was good	11 (42.3)	15 (57.7)	7 (36.8)	12 (63.2)	45 (18.2)
Service was good	24 (28.9)	59 (71.1)	16 (35.6)	29 (64.4)	128 (51.8)
No ANC or less than 4 ANC visit (n=148) (multiple answers)					
Due to tradition	21 (61.8)	13 (38.2)	11 (55.0)	9 (45.0)	54 (21.9)
HF far away	13 (43.3)	17(56.7)	4 (28.6)	10 (71.4)	44 (17.8)
Expensive service	0	2 (100.0)	0	0	2 (0.08)
Behavior of HWs was not good	7 (46.7)	8 (53.3)	1 (25.0)	3 (75.0)	19 (7.7)
Due to male HW	3 (30.0)	7 (70.0)	1 (25.0)	3 (75.0)	14 (5.7)
Better care at home	26 (61.9)	16 (38.1)	12 (48.0)	13 (52.0)	67 (27.1)
Need to pay money	2 (40.0)	3 (60.0)	0	1 (100)	6 (2.4)
Lack of money	2 (16.7)	10 (83.3)	2 (33.30	4 (66.7))	18 (7.3)
Lack of family support	6 (50.0)	6 (50.0)	3 (30.0)	7 (70.0)	22 (8.9)
Others (e.g. no time)	3 (25.0)	9 (75.0)	1 (14.3)	6 (85.7)	19 (7.7)
Gender of ANC provider					
Male	12 (17.4)	5 (5.7)	8 (20.5)	2 (3.8)	27 (10.9)
Female	57 (82.6)	82 (94.3)	31 (79.5)	50 (96.2)	220 (89.1)
Availability of HW during ANC visit					
Available	53 (76.8)	70 (80.5)	33 (84.6)	45 (86.5)	201 (81.4)
Unavailable	16 (23.2)	17 (19.5)	6 (15.4)	7 (13.5)	46 (18.6)

Table 4.10 Continued……

Availability of medicine					
Available	50 (72.5)	73 (83.9)	32 (82.1)	45 (86.5)	200 (81.0)
Unavailable	19 (27.5)	14 (16.1)	7 (17.9)	7 (13.5)	47 (19.0)
Receive necessary medicine					
Yes	56 (81.2)	82 (94.3)	32 (82.1)	47 (90.4)	217 (87.9)
No	13 (18.8)	5 (5.7)	7 (17.9)	5 (9.6)	30 (12.1)
Services received during ANC visit (multiple answers)					
Medical check up	58 (43.9)	74 (56.1)	35 (43.8)	45 (56.2)	212 (85.9)
Received Iron tablet	64 (44.4)	80 (55.6)	39 (42.9)	52 (57.1)	235 (95.1)
TT injection	61 (43.9)	78 (56.1)	33 (43.4)	43 (56.6)	215 (87.0)
BP measurement	68 (43.9)	87 (56.1)	37 (42.5)	50 (57.5)	242 (98.0)
Deworming tablet	52 (43.0)	69 (57.0)	30 (41.7)	42 (58.3)	193 (78.1)
Health education on nutrition	50 (42.4)	68 (57.6)	26 (38.8)	42 (61.2)	186 (75.3)
Counseling on danger sign	53 (45.7)	63 (54.3)	27 (42.2)	37 (57.8)	180 (72.9)
Others	17 (94.4)	1 (5.6)	7 (77.8)	2 (22.2)	27 (11.0)

4.11 Association of Antenatal Care Utilization with Demographic Characteristics

Association of antenatal care utilization and various demographic characteristics were established by chi-square test and p-value of selected variables was also calculated. According to table 4.5, age of the respondents, ethnicity, religion, educational status, occupation of the respondent, type of family and parity were statistically significant ($p < 0.05$). Ages between 20-24 years were more likely to utilize the antenatal care in compared to other age group. By ethnicity, advantaged group was more likely to utilize the antenatal care than disadvantaged group. Mothers of Hindu religion, secondary level educated, mothers who involved in housewife, lived in joint family and whose house was headed by father in law were more likely to utilize antenatal care in their last pregnancy. Similarly, control of economic activities also has significant association with ANC utilization ($p < 0.001$), among the all ANC user most of the household's economic activities were controlled by husband and followed by both (husband and wife). Most of the respondents had 10000-20000 NPR as a monthly income and among the non user of ANC; more than 65% of the respondents had monthly income less than 10000 NPR and the association between

monthly income and ANC utilization was statistically significant (p<0.001). Among the ANC users, more than half of them had food security up to six months but more than half of Non ANC users had food security for less than 3 months and the association between food security and ANC utilization was significant (p<0.001) and most of them had agriculture as a major source of income and association between source of income and ANC utilization was also statistically significant and mothers who had two children were also more likely utilize antenatal care which was also statistically significant.

Table 4.11 Association of antenatal care utilization with demographic characteristics

Variables	**ANC utilization n (%)**		¡ **2 (df)**	**p- value**
	Non-Utilization (n=45)	**ANC utilization (n=247)**		
Age of respondents			26.455 (3)	**<0.001***
Less than 20 years	0	23 (9.3)		
20-24 years	10 (22.2)	132 (53.4)		
25-29 years	27 (60.0)	74 (30.0)		
More than 29 years	8 (17.8)	18 (7.3)		
Ethnicity			27.621 (1)	**<0.001***
Disadvantaged group	27 (60.0)	54 (21.9)		
Advantaged Group	18 (40.0)	193 (78.1)		
Religion			8.745 (2)	**0.013***
Hindu	29 (64.4)	206 (83.4)		
Buddhist	9 (20.0)	24 (9.7)		
Christian	7 (15.6)	17 (6.9)		
Educational Status			33.757 (4)	**<0.001***
No schooling	18 (40.0)	24 (9.7)		
Primary	11 (24.4)	41 (16.6)		
Secondary	10 (22.2)	113 (45.7)		
Higher Secondary	5 (11.1)	56 (22.7)		
Graduate/ University level	1 (2.2)	13 (5.3)		
Occupation of Respondents			12.951 (3)	**0.005***
Agriculture	4 (8.9)	53 (21.5)		
Business	3 (6.7)	41 (16.6)		
Service	2 (4.4)	27 (10.9)		

Table 4.11 Continued……

House wife & Others	36 (80.0)	126 (51.0)		
Major source of income			50.895 (4)	**<0.001***
Agriculture	6 (13.3)	79 (32.0)		
Business	8 (17.8)	74 (30.0)		
Service	16 (35.6)	70 (28.3)		
Labor	14 (31.1)	7 (2.8)		
Others	1 (2.2)	17 (6.9)		
Income of Family			24.185 (3)	**<0.001***
Less than 10000 NPR	31 (68.9)	76 (30.8)		
10000 – 20000 NPR	11 (24.4)	141 (57.1)		
20001 – 30000 NPR	3 (6.7)	26 (10.5)		
30001 – 40000 NPR	0	4 (1.6)		
Food security			34.920 (3)	**<0.001***
<3 months	23 (51.1)	35 (14.2)		
Up to 3 months	12 (26.7)	73 (29.6)		
Up to 6 months	7 (15.6)	100 (40.5)		
Up to 12 months or more	3 (6.7)	39 (15.8)		
Type of Family			28.963 (1)	**<0.001***
Nuclear	29 (64.4)	60 (24.3)		
Joint	16 (35.6)	187 (75.7)		
Head of House			28.346 (3)	**<0.001***
Father in law	10 (22.2)	114 (46.2)		
Mother in law	2 (4.4)	48 (19.4)		
Husband	32 (71.1)	74 (30.0)		
Self	1 (2.2)	11 (4.5)		
Control of economic activities			35.260 (3)	**<0.001***
Husband	7 (15.6)	118 (47.8)		
Self	2 (4.4)	35 (14.2)		
Both	34 (75.6)	94 (38)		
Others	2 (4.4)	0		
Parity			31.874 (2)	**<0.001***
One	0	85 (34.4)		
Two	22 (48.9)	115 (46.6)		
More than Two	23 (51.1)	47 (19.0)		

*p-value less than 0.05 indicate significance

4.12 Association between Social support, Information, Perception of Pregnancy and ANC utilization

Most of the respondents were involved in social activities but there was no association between social activities and ANC utilization but involvement in mother group was negatively associated with ANC utilization because most of the respondents were not involved with mother group. There were several barriers for no ANC visit and among them social barrier, time factor and health service related factors had statistically significant association with ANC utilization. Similarly, there were various media and source of health information available in both areas but among them only radio as a media of health information had significant association with ANC utilization. Likewise, perception about pregnancy also had significant association with ANC utilization.

Table 4.12 Association between Social Support, Information, Perception of Pregnancy and ANC utilization

Variables	**ANC utilization (n %)**		**¡ ^{2} (df)**	**p- value**
Social support	**Non utilization (n=45)**	**ANC utilization (n=247)**		
Involvement in Social Activities			0.791 (1)	0.446
Yes	38 (84.4)	220 (89.1)		
No	7 (15.6)	27 (10.9)		
Involvement in Mother Group			9.187 (1)	**0.001***
Yes	0	43 (17.4)		
No	45 (100)	204 (82.6)		
Decision maker of health care utilization			1.3 (2)	0.522
Husband	10 (22.2)	75 (30.4)		
Self	14 (31.1)	73 (29.6)		
Both	21 (46.7)	99 (40.1)		
Barrier for ANC (multiple answers)				
Social barrier	32 (71.1)	49 (33.6)	19.858 (1)	**<0.001***
Time factor	25 (55.6)	113 (77.4)	8.185 (1)	**0.004***
Economic barrier	20 (44.4)	61 (41.8)	0.100 (1)	0.752
Cultural barrier	2 (4.4)	10 (6.8)	0.338 (1)	0.735

Table 4.12 continued…….

Household barrier	30 (66.7)	84 (57.5)	1.192 (1)	0.275
Health service barrier	14 (31.1)	22 (15.1)	5.788 (1)	**0.016***
Due to shyness	4 (8.9)	22 (15.1)	1.117 (1)	0.291
Information				
Heard/seen message about health in last month			0.552 (1)	1.000
No	0 (0.0)	3 (1.2)		
Yes	45 (100.0)	244 (98.8)		
Media of health information (multiple answers)				
Radio media	19 (42.2)	168 (68.9)	11.789 (1)	**0.001***
TV media	36 (80.0)	187 (76.6)	0.244 (1)	0.622
Newspaper media	25 (55.6)	158 (64.8)	1.384 (1)	0.239
Poster media	5 (11.1)	33 (13.5)	0.194 (1)	0.660
Health worker	36 (80.0)	173 (70.9)	1.571 (1)	0.210
FCHV	45 (100.0)	239 (98.0)	0.938 (1)	1.000
Street dramas	17 (37.8)	107 (43.9)	0.572 (1)	0.514
Source of health information (multiple answers)				
Leaders	17 (37.8)	102 (41.3)	0.195 (1)	0.659
Radio	32 (71.1)	200 (81.0)	2.267 (1)	0.132
TV	44 (97.8)	245 (99.2)	0.747 (1)	0.396
FCHV	34 (75.6)	190 (76.9)	0.040 (1)	0.842
Health worker	35 (77.8)	171 (69.2)	1.338 (1)	0.247
Perception about pregnancy			6.177 (2)	**0.046***
It is normal physiological process	8 (17.8)	81 (32.8)		
It is risky period for women one needs to alert	33 (73.3)	132 (53.4)		
Don’t know	4 (8.9)	34 (13.8)		

*p-value less than 0.05 indicate significance

4.13 Association of ANC utilization with Health Services

In this study, there were various reasons for no ANC visit, more than 80% of the respondents among ANC non users, had no ANC visit due to feeling of they had better care at home and among those women who had ANC visit but didn't complete ANC visit, better care at home, tradition and faraway health facilities were major barriers. Among all of the reasons, better care at home, health facilities far away and need to pay money had statistically significant association with ANC utilization. The respondents those had health facilities far from their home were less likely to utilize ANC visit than those respondents had distance of less than 30 minutes to reach the health facilities.

Table 4.13 Association of ANC utilization with Health Services

Variables	**ANC utilization (n %)**		¡ ^{2} **(df)**	**p- value**
	Non utilization (n=45)	**ANC utilization (n=247)**		
No ANC or <4 ANC visit (multiple answers)				
Tradition	31 (68.9)	54 (21.9)	3.471(1)	0.062
HF far away	0	44 (17.8)	27.356(1)	**<0.001***
Service was expensive	0	2 (0.8)	0.886(1)	0.347
Behavior of HW was not good	14 (31.1)	19 (7.7)	2.899(1)	0.089
Male health worker	3 (6.7)	14 (5.7)	1.477(1)	0.224
Better care at home	37 (82.2)	67 (27.1)	4.421(1)	**0.035***
Need to pay money	10 (22.2)	6 (2.4)	8.773(1)	**0.003***
Lack of money	11 (24.4)	18 (7.3)	0.965(1)	0.326
Lack of support from family	12 (26.7)	22 (8.9)	0.499(1)	0.480

*p-value less than 0.05 indicate significance

4.14 Association of Complete ANC utilization with Demographic Characteristics

In this study, most of the demographic characteristics had significant association with complete ANC utilization except ethnicity, type of family, source of income and food security of family. Age of the respondents, religion, educational status, occupation of the respondents, income of family, head of house, and control of economic activities, parity and past abortion all had significant association with complete ANC utilization.

4.14 Association of Complete ANC utilization with Demographic Characteristics

Variables	**ANC utilization (n=247)**		¡ ^{2} **(df)**	**p- value**
	ANC utilization	**Complete utilization**		
Demographic characteristics	**<4 ANC (n=103)**	**≥4 ANC (n=144)**		
Age of respondents			30.752 (3)	**<0.001***
Less than 20 years	10 (9.7)	13 (9.0)		
20-24 years	42 (40.8)	90 (62.5)		
25-29 years	33 (32)	41 (28.5)		
More than 29 years	18 (17.5)	0		
Ethnicity			2.969 (1)	0.085
Disadvantaged group	17 (16.5)	37 (25.7)		
Advantaged Group	86 (83.5)	107 (74.3)		
Religion			10.151 (2)	**0.006***
Hindu	93 (90.3)	113 (78.5)		
Buddhist	9 (8.7)	15 (10.4)		
Christian	1 (1.0)	16 (11.1)		
Educational Status			10.703 (4)	**0.030***
No schooling	12 (11.7)	12 (8.3)		
Primary	20 (19.4)	21 (14.6)		
Secondary	47 (45.6)	66 (45.8)		
Higher Secondary	15 (14.6)	41 (28.5)		
Graduate/ University level	9 (8.7)	4 (2.8)		
Occupation of Respondents			12.742 (3)	**0.005***
Agriculture	17 (16.5)	36 (25.0)		
Business	26 (25.2)	15 (10.4)		

Table 4.14 continued…….

Service	7 (6.8)	20 (13.9)		
House wife & others	53 (51.5)	73 (50.7)		
Income of family			11.307 (3)	**0.010***
Less than 10000 NPR	23 (22.3)	53 (36.8)		
10000 – 20000 NPR	66 (64.1)	75 (52.1)		
20001 – 30000 NPR	10 (9.7)	16 (11.1)		
30001 – 40000 NPR	4 (3.9)	0		
Major source of income			9.170(4)	0.057
Agriculture	33 (32.0)	46 (31.9)		
Business	36 (35.0)	38 (26.4)		
Service	20 (19.4)	50 (34.7)		
Labor	4 (3.9)	3 (2.1)		
Others	10 (9.7)	7 (4.9)		
Food security			1.415 (3)	0.702
Less than 3 months	17 (16.5)	18 (12.5)		
Up to 3 months	29 (28.2)	44 (30.6)		
Up to 6 months	39 (37.9)	61 (42.4)		
Up to 12 months or more	18 (17.5)	21 (14.6)		
Type of Family			0.826 (1)	0.363
Nuclear	22 (21.4)	38 (26.4)		
Joint	81 (78.6)	106 (73.6)		
Head of House			10.376 (3)	**0.016***
Father in law	41 (39.8)	73 (50.7)		
Mother in law	26 (25.2)	22 (15.3)		
Husband	35 (34.0)	39 (27.1)		
Self	1 (1.0)	10 (6.9)		
Control of economic activities			10.419 (2)	**0.005***
Husband	39 (37.9)	79 (54.9)		
Self	22 (21.4)	13 (9.0)		
Both	42 (40.8)	52 (36.1)		
Parity			16.624 (2)	**<0.001***
One	30 (29.1)	55 (38.2)		
Two	41 (39.8)	74 (51.4)		
More than Two	32 (31.1)	15 (10.4)		
Experienced past abortion				
No	99 (96.1)	118 (81.9)	11.303(1)	**0.001***
Yes	4 (3.9)	26 (18.1)		

*p-value less than 0.05 indicate significance

4.15 Association of Complete ANC utilization with Social support, Information and Perception of Pregnancy

This table also shows that mothers' involvement of social activities, decision for health care utilization taken jointly by husband and wife, perceived that pregnancy period is risky period for every woman were more likely utilize four or more antenatal care which were not statistically significant. Among the all complete ANC user, most of the respondents were involved in social activities and decision taken by both on health care utilization. Similarly, ANC visits were facilitated by relatives followed by mother in law and husband respectively. Most of the ANC visit was inspired by respondents herself and among all of the inspiration, inspired by self, inspired by mother in law and inspired by father in law were significantly associated with complete ANC utilization. Among the several barriers, social barriers, time factor (distance), health service related barriers and shyness were significantly associated with complete ANC utilization. Mothers who had social and time factors as barrier were more likely to visit less than four time antenatal visits. ANC utilization was high in those women who perceived that pregnancy is a risky period and those women completed the ANC visits as well. Likewise, television, radio, FCHV and health workers were main media for health information in both settings and television, radio, health workers, FCHV and leader were the good source of health information in both settings. Among all of the media and source of health information, health worker as a media and source of health information had statistically significant association with ANC utilization and radio and leader as a source of health information also had significant association with ANC utilization and rest of them were not significantly associated with ANC utilization. Likewise, more than 80% of the respondents had normal delivery in last child birth in both settings and method of child birth in last child was significantly associated with ANC utilization ($p = 0.047$). Most of the respondents started ANC first visit before four months of pregnancy and time of ANC visit had statistically significant association with complete ANC utilization ($p = 0.001$).

Table 4.15 Association complete ANC utilization with Social support and Information and Perception of Pregnancy

Variables	ANC utilization (n=247)		¡ ^{2} (df)	p-value
	ANC utilization	Complete utilization		
Social support	<4 ANC (n=103)	ñ4 ANC (n=144)		
Involvement in Social Activities			1.285 (1)	0.257
Yes	89 (86.4)	131 (91.0)		
No	14 (13.6)	13 (9.0)		
Involvement in Mother Group			0.432 (1)	0.511
Yes	16 (15.5)	27 (18.8)		
No	87 (84.5)	117 (81.3)		
Decision maker of health care utilization			0.656 (2)	0.720
Husband	29 (28.2)	46 (31.9)		
Self	33 (32.0)	40 (27.8)		
Both	41 (39.8)	58 (40.3)		
Facilitation during ANC visits			6.426 (1)	0.170
Husband	21 (20.4)	28 (19.4)		
Relatives	33 (32.0)	58 (40.3)		
Mother in Law	41 (39.8)	45 (31.2)		
Friends	8 (7.8)	8 (5.6)		
Others	0	5 (3.5)		
Inspiration of ANC visits (multiple answers)				
Husband	69 (67.0)	85 (59.0)	1.622 (1)	0.203
Mother in Law	30 (29.1)	66 (45.8)	7.054 (1)	**0.008***
Father in Law	17 (16.5)	42 (29.2)	5.295 (1)	**0.024***
FCHV	29 (28.2)	41 (28.5)	0.003 (1)	1.000
Health Workers	9 (8.7)	22 (15.3)	2.340 (1)	0.172
Relatives	28 (27.2)	36 (25)	0.149 (1)	0.699
Self	71 (68.9)	115 (79.9)	3.857 (1)	**0.05***
Others	0	3 (2.1)	2.172 (1)	0.141
Type of barriers (multiple answers)				
Social barriers	25 (51.0)	24 (49.0)	13.535 (1)	< **0.001***
Time factor	86 (76.1)	27 (23.9)	7.434 (1)	**0.006***
Economic factor	46 (75.4)	15 (24.6)	1.192 (1)	0.275

Table 4.15 Continued……..

Culture barrier	4 (40.0)	6 (60.0)	4.821 (1)	0.064
Household factors	60 (71.4)	24 (28.6)	0.074 (1)	0.0786
Health service related factors	7 (31.8)	15 (68.2)	18.7 (1)	**< 0.001***
Shyness	9 (40.9)	13 (59.1)	10.952 (1)	**0.001***
Information				
Heard/seen message of health in last month			0.087 (1)	0.767
No	1 (1.0)	2 (1.4)		
Yes	102 (99.0)	142 (98.6)		
Media of health information (multiple answers)				
Radio	64 (62.7)	104 (73.2)	3.048 (1)	0.081
TV	79 (77.5)	108 (76.1)	0.064 (1)	0.800
Newspaper	60 (59.8)	98 (69.0)	2.761 (1)	0.100
Poster	13 (12.7)	20 (14.1)	0.091 (1)	0.713
Health Worker	82 (80.4)	91 (64.1)	7.652 (1)	**0.006***
FCHV	100 (98)	139 (97.9)	0.007 (1)	0.934
Street Drama	44 (43.1)	63 (44.4)	0.036 (1)	0.849
Source of health information (multiple answers)				
Leader	57 (55.3)	45 (31.2)	14.375 (1)	**<0.001***
Radio	75 (72.8)	125 (86.8)	7.628 (1)	**0.006***
TV	102 (99)	143 (99.3)	0.057 (1)	0.811
FCHV	75 (72.8)	115 (79.9)	1.679 (1)	0.195
Health Worker	80 (77.7)	91 (63.2)	5.907 (1)	**0.015***
Perception about pregnancy			1.355 (2)	0.508
It is normal physiological process	31 (30.1)	50 (34.7)		
It is risky period for women one needs to alert	55 (53.4)	77 (53.5)		
Don't know	17 (16.5)	17 (11.8)		
Method of child birth in last delivery			6.128 (2)	**0.047***
Normal delivery	84 (81.6)	114 (79.2)		
Instrumental delivery	19 (18.4)	22 (15.3)		
C/S	0	8 (5.6)		
Time of ANC visit			14.213 (2)	**0.001***
Before 4 months	57(55.3)	101 (70.1)		
4-5 months	30 (29.1)	39 (27.1)		
5-7 months	16 (15.5)	4 (2.8)		

*p-value less than 0.05 indicate significance

4.16 Association of Complete ANC Utilization with Health Service

Distance to reach health facility had statistically significant association with complete ANC utilization. Mothers who were nearer to health facility were more likely to visit four or more times antenatal care than mothers who were far to health facility. Gender of service provider and received all necessary medicine during antenatal care visit were also statistically significant mothers who received antenatal care from female health worker, mothers who received all necessary medicine during their antenatal care visit were also more likely to visit four or more antenatal care . Most of the respondents used Government health facilities for ANC check-up and among various reasons for preferring government health facilities, good service and good behavior of health worker had statistically significant association with complete ANC utilization. Similarly, most of the respondents received necessary service during ANC visit, among them received deworming tablet had significant association with complete ANC utilization.

Table 4.16 Association Complete ANC utilization with Health Service

Variables	**ANC utilization (n=247)**		¡ ^{2} **(df)**	**p-value**
	ANC utilization	**Complete utilization**		
Health service	**<4 ANC (n=103)**	**ñ4 ANC (n=144)**		
Distance to health facility			26.802 (1)	
Less than 30 minutes	75 (35.2)	138 (64.8)		**< 0.001***
30 minutes or more	28 (82.4)	6 (17.6)		
Place of ANC visits			0.214 (1)	0.727
Gov HF	85 (41.1)	122 (58.9)		
Private HF	18 (45)	22 (55)		
Why Gov. HF (multiple answers)				
HF near by	50 (58.8))	75 (61.5)	0.147(1)	0.701
Get cash	8 (9.4)	5 (4.1)	2.403(1)	0.149
Good behavior of HW	9 (10.6)	36 (29.5)	10.541(1)	**0.001***
Health service was good	43 (50.6)	85 (69.7)	7.731(1)	**0.006***
Due to other cause	0	1 (0.8)	0.700(1)	1.000

Table 4.16 continued……

Gender of health service provider			10.249 (1)	**0.001***
Male	19 (70.4)	8 (29.6)		
Female	84 (38.2)	136 (61.8)		
Availability of service provider during ANC visit			0.154 (1)	0.413
Yes	85 (42.3)	116 (57.7)		
No	18 (39.1)	28 (60.9)		
Availability of medicine during ANC visit			3.153 (1)	0.076
Yes	78 (39.0)	122 (61.0)		
No	25 (53.2)	22 (46.8)		
Received necessary medicine during ANC			8.755 (1)	**0.003***
Yes	83 (38.2)	134 (61.8)		
No	20 (66.7)	10 (33.3)		
Received service during ANC visits (multiple answers)				
Medical check-up	88 (85.4)	124 (86.1)	0.022(1)	0.881
Iron tablet	95 (92.2)	140 (97.2)	3.234(1)	0.72
TT injection	89 (86.4)	126 (87.5)	0.064 (1)	0.801
BP measurement	102 (99.0)	140 (97.2)	0.989(1)	0.320
Deworming tablet	66 (64.1)	127 (88.2)	20.445	<**0.001***
Education on nutrition	78 (75.7)	107 (74.3)	0.065(1)	0.799
Counseling on danger sign	77 (74.8)	103 (71.5)	0.317(1)	0.574

*p-value less than 0.05 indicate significance

4.17 Association between Demographic Characteristics and client satisfaction

Association of client satisfaction was also calculated with various demographic characteristics. Table 4.17 represents that highest satisfaction (50.0%) was found in age group of 20-24 years similarly highest un-satisfaction was also found in same age group (56.1%). Among the satisfied mothers almost 80% of the respondents were from advantaged ethnic group and more than 80% of the respondents from Hindu by religion. Age of the respondents, ethnicity and religion of respondents were not statistically significant with client satisfaction ($p>0.05$). Attainment of school, educational status and occupation of respondents was found statistically significant ($p<0.05$). Mothers who attained school were more likely to satisfy in comparison to mothers who were not attained school. Similarly, secondary level educated mothers, mothers involved in housewife and other work were more likely to satisfy than others group. Similarly, monthly income of family, major source of income, type of family and control over economic activities were not statistically significant with client satisfaction. The satisfaction level was found high in mothers whose monthly family income was 10,000 to 20,000. High Satisfaction was also seen on mothers who were involved in service. Likewise, by the type of family more than 70% of satisfied mothers were lived in joint family and more than half of satisfied mothers live in those houses which were headed by their husband. Client satisfaction was statistically significant with food security of family. Mothers who were from those families, food securities up to six months were more likely to satisfy than other group.

Table: 4.17 Association between Demographic characteristics and client satisfaction

Socio-demographic variables	Client satisfaction (n=247)		χ^2 (df)	p-value
	Satisfied (>83)	Unsatisfied (≤83)		
Age of respondents			5.417 (3)	0.144
Less than 20 years	14 (13.0)	9 (6.5)		
20-24 years	54 (50.0)	78 (56.1)		
25-29 years	35 (32.4)	39 (28.1)		
More than 29 years	5 (4.6)	13 (9.4)		
Ethnicity			0.25 (1)	0.645
Disadvantaged Ethnic Group	22 (20.4)	32 (23.0)		
Advantaged Ethnic Group	86 (79.1)	107 (77.0)		
Religion				0.062
Hindu	87 (80.6)	119 (85.6)		
Buddhist	9 (8.3)	15 (10.8)		
Christian	12 (11.1)	5 (3.6)		
Ever school attained			7.910 (1)	**0.005***
Yes	104 (96.3)	119 (85.6)		
No	4 (3.7)	20 (14.4)		
Education level			14.343 (4)	**0.006***
No schooling	4 (3.7)	20 (14.4)		
Primary	25(23.1)	16 (11.5)		
Secondary	52 (48.1)	61 (43.9)		
Higher secondary	20 (18.5)	36 (25.9)		
Graduate	7 (6.5)	6 (4.3)		
Occupation			13.86 (3)	**0.003***
Agriculture	23 (21.3)	30 (21.6)		
Business	15 (13.9)	26 (18.7)		
Service	4 (3.7)	23 (16.5)		
Housewife, labor and others	66 (61.1)	60 (43.2)		
Monthly Income (Rs)			2.590(2)	0.274
<10,000	27(25.0)	46(33.1)		
10,000-20,000	65(60.2)	79(56.9)		
>20,000	16 (14.8)	14 (10.1)		
Major source of income			6.086 (3)	0.107
Agriculture	26 (24.1)	53 (38.1)		
Business	34 (31.5)	40 (28.8)		
Service	35 (32.4)	35 (25.2)		
Labor and others	13 (12.0)	11 (7.9)		
Type of family			0.684 (1)	0.456
Nuclear	29 (26.9)	31 (22.3)		
Joint	79 (73.1)	108 (77.7)		

Table 4.17 Continued……

Control of economic activities			1.282 (2)	0.527
Husband	56 (51.9)	62 (44.6)		
Self	14 (13)	21 (15.1)		
Both	38 (35.2)	56 (40.3)		
Food security of family			15.962 (3)	**0.001***
< 3 months	16 (14.8)	19 (13.7)		
Up to 3 months	18 (16.7)	55 (39.6)		
Up to 6 months	53 (49.1)	47 (33.8)		
Up to 12 months or more	21 (19.4)	18 (12.9)		
Head of house			0.729(3)	0.866
Father in law	48 (44.4)	66 (47.5)		
Mother in law	23 (21.3)	25(18.0)		
Husband	33 (30.6)	41 (29.5)		
Self	4 (3.7)	7 (5.0)		
Parity			3.99(3)	0.263
One	42 (38.9)	43 (30.9)		
Two	47 (43.5)	68 (48.9)		
Three	18 (16.7)	22 (15.8)		
Four	1 (0.9)	6 (4.3)		
Experienced past abortion			0.120(1)	0.729
No	94 (87.0)	123 (88.5)		
Yes	14 (13.0)	16 (11.5)		

*p-value less than 0.05 indicate significance

4.18 Association between Social support, Information, Perception of Pregnancy and client satisfaction

According to the table 4.18, client satisfaction was not statistically significant with involvement in social activities or involvement in mother group by the respondents but satisfaction level was found high in those respondents who were involved in social activities. Likewise, decision maker on health care utilization was also not statistically significant but satisfaction level was high in those household where decision taken by both (husband and wife) for health care utilization. In urban areas, most of the respondents were facilitated by mother in law whereas in rural areas, most of the respondents were facilitated by relatives and there was significant association between facilitation of ANC visit and client satisfaction ($p < 0.001$). In this study, most of the respondents were inspired by self for ANC visit but statistically not significant. Among the several barriers, only time factor as a barrier for not visiting

ANC had statistically significant association with client satisfaction. (Although satisfaction level was found high in those respondents who were informed about ANC, PNC and delivery in last month but statistically not significant. None of the source of health information was statistically significant but among the various media radio, poster, health worker and FCHV as a media of health information had significant association with client satisfaction. Perception about pregnancy and method of child birth in last delivery also had statistically significant association with client satisfaction.

Table: 4.18 Association between Social support, Information, Perception of Pregnancy and client satisfaction

Social support	**Client satisfaction (n=247)**		**χ^2 (df)**	**p-value**
	Satisfied (>83)	**Unsatisfied (≤83)**		
Involvement in social activities			2.44 (1)	0.151
Yes	100 (92.6)	120 (86.3)		
No	8 (7.4)	19 (13.7)		
Involvement in mothers group			0.164 (1)	0.736
Yes	20 (18.5)	116 (83.5)		
No	88 (81.5)	23 (16.5)		
Decision maker in health care utilization			2.78 (2)	0.249
Husband	35 (32.4)	40 (28.8)		
Self	26 (24.1)	47 (33.8)		
Both	47 (43.5)	52 (37.4)		
Facilitation of ANC visit			21.595(4)	**p<0.001***
Husband	22 (20.4)	27 (19.4)		
Relatives	33 (30.6)	58 (41.7)		
Mother in law	34 (31.5)	52 (37.4)		
Friends	14 (13.0)	2 (1.4)		
Others	5 (4.6)	0		
Inspiration of ANC visit (multiple answers)				
Husband	66 (61.1)	88 (63.3)	0.125(1)	0.724
Mother in law	44 (40.7)	52 (37.4)	0.284(1)	0.594
Father in law	29 (26.9)	30 (21.6)	0.928(1)	0.335
FCHV	26 (24.1)	44 (31.7)	1.720(1)	0.190
Health worker	14 (13.0)	17 (12.20	0.030(1)	0.863
Relatives	27 (25.0)	37 (26.6)	0.083(1)	0.773

Table 4.18 continued……

Self	84 (77.8)	102 (73.4)	0.632(1)	0.427
Others	1 (0.9)	2 (1.4)	0.133(1)	0.715
Type of barriers (multiple answers)				
Social barriers	23 (31.9)	26 (35.1)	0.167(1)	0.728
Time factors	64 (88.9)	49 (66.2)	10.273(1)	**0.001***
Economic barrier	33 (45.8)	28 (37.8)	0.959(1)	0.402
Cultural barrier	4 (5.6)	6 (8.1)	0.373(1)	0.745
Household factors	43 (59.7)	41 (55.4)	0.278(1)	0.619
Health service related	9 (12.5)	13 (17.6)	0.732(1)	0.489
shyness	12 (16.7)	10 (13.5)	0.284(1)	0.648
Informed about ANC, PNC and Delivery in last one month			0.133 (1)	1.0
Yes	107 (98.6)	137 (98.6)		
No	1 (0.9)	2 (1.4)		
Source of health information (multiple answers)				
Leaders	38 (35.2)	64 (46.0)	2.956(1)	0.092
Radio	91 (84.3)	109 (78.4)	1.346 (1)	0.258
TV	106 (98.1)	139 (100)	2.595 (1)	0.19
Health workers	81 (75)	90 (64.7)	2.999 (1)	0.096
FCHVs	80 (74.1)	110 (79.1)	0.878 (1)	0.365
Media of health information (multiple answers)				
Radio	81 (75.7)	87 (63.5)	4.168(1)	**0.051***
TV	84 (78.5)	103 (75.2)	0.370(1)	0.648
Newspaper	67 (62.6)	91 (66.4)	0.381(1)	0.590
Poster	21 (19.6)	12 (8.8)	6.066(1)	**0.022***
Health worker	84 (78.5)	89 (65.0)	5.340(1)	**0.023***
FCHV	102 (95.3)	137 (100)	6.536(1)	**0.015***
Street drama	47 (43.9)	60 (43.8)	0.000(1)	1.000
Knowledge about pregnancy			11.654 (2)	**0.003***
Normal physiological process no need to alert	33 (30.6)	48 (34.5)		
It is a risky period and needs to alert	51 (47.2)	81 (58.3)		
Don't know	24 (22.2)	10 (7.2)		
Method of child birth			7.867	**0.020***
Normal delivery	86 (79.6)	112 (80.6)		
Instrumental delivery	22 (20.4)	19 (13.7)		
C/S	0	8 (5.8)		

*p-value less than 0.05 indicates significance

4.19 Association between Client Satisfaction and Health Services

In this study, more than 80% of the respondents had distance less than 30 minutes to reach health facilities and visited Government health facilities for ANC check-up and female as an ANC provider. Similarly, availability of service provider and medicine during ANC visit was also more than 80% and more than 80% of the respondents get necessary medicine and service during ANC visit. Distance to health facility, place of ANC visit, gender of ANC provider and received necessary medicine during ANC visit all had statistically significant association with client satisfaction. Mothers who had less distance to reach health facilities and ANC check up with female provider were more likely to satisfy than far distance of health facilities and with male ANC provider. Most of the respondents preferred government health facilities for ANC checkup due to service was good and had significant association with client satisfaction. There was also statistically significant association between gender of ANC provider and client satisfaction ($p = 0.001$). Satisfaction was found more in female provider as compared to male service provider. Among the all ANC non users, due to tradition and lack of money as a cause of no ANC visit had statistically significant association with client satisfaction. Similarly satisfaction was found higher in those mothers who get necessary medicine during antenatal care visit in compared to mothers who didn't get necessary medicine at the time of antenatal care visit. Association between client satisfaction and received necessary medicine during antenatal care was statistically significant ($p = 0.01$) but none of the service that the respondents received during ANC visit had significant association with client satisfaction except most of the respondents received 2+ doses of TT injection and the dose of TT injection had significant association with client satisfaction.

Table: 4.19 Association between barriers for health service utilization and client satisfaction

Health services	**Client satisfaction (n=247)**		χ^2 **(df)**	**p-value**
	Satisfied (>83)	**Unsatisfied (≤83)**		
Distance to health facility			13.493 (1)	**<0.001***
Less than 30 minutes	103 (95.4)	110 (79.1)		
30 minutes or more	5 (4.6)	29 (20.9)		
Place of ANC Visit			8.78 (1)	**0.003***
Governmental HF	82 (75.0)	125 (89.9)		
Private HF	26 (24.1)	14 (10.1)		
Gender of health service provider			11.347 (1)	**0.001***
Male	20 (18.5)	7 (5.0)		
Female	88 (81.5)	132 (95.0)		
Why Gov. HF (multiple answers)				
HF is nearby	53 (64.6)	72 (57.6)	1.024(1)	0.383
Get cash	3 (3.7)	10 (8.0)	1.586(1)	0.253
Staff behavior was good	18 (22.0)	27 (21.6)	0.004(1)	1.000
Service was good	40 (48.8)	88 (70.4)	9.807(1)	**0.002***
No ANC or <4 ANC visit (multiple answers)				
Tradition	32 (62.7)	22 (42.3)	4.312(1)	**0.049***
HF far away	17 (33.3)	27 (51.9)	3.636(1)	0.074
Service was expensive	0	2 (3.8)	2.000(10	0.495
Behavior of HW was not good	11 (21.2)	8 (15.7)	0.512(1)	0.613
Male health worker	4 (7.8)	10 (19.2)	2.843(1)	0.149
Better care at home	29 (55.8)	38 (74.5)	3.977(1)	0.063
Need to pay money	2 (3.9)	4 (7.7)	0.667(1)	0.678
Lack of money	4 (7.8)	14 (26.9)	6.499(1)	**0.018***
Lack of support from family	9 (17.6)	13 (25.0)	0.829(1)	0.472
Availability of service provider			0.386 (1)	0.622
Yes	86 (79.6)	115 (82.7)		
No	22 (20.4)	24 (17.3)		
Availability of medicine during ANC visit			3.171 (1)	0.102
Yes	82 (75.9)	118 (84.9)		
No	26 (24.1)	21 (15.1)		

Table 4.19 Continued……

Received necessary medicine during ANC visit			7.304 (1)	**0.01***
Yes	88 (81.5)	129 (92.8)		
No	20 (18.5)	10 (7.2)		
Received service during ANC visit (multiple answers)				
Medical check up	93 (86.1)	119 (85.6)	0.012(1)	1.000
Iron tablet	103 (95.4)	132 (95.0)	0.022(1)	1.000
TT injection	94 (87.0)	121 (87.1)	0.000(1)	1.000
BP measurement	105 (97.2)	137 (98.6)	0.549 (1)	0.656
Deworming tablet	82 (75.9)	111 (79.9)	0.550(1)	0.535
Health education on nutrition	76 (70.4)	109 (78.4)	2.093(1)	0.183
Counseling on danger sign	80 (74.1)	100 (71.9)	0.140(1)	0.774
Times of TT injection			16.885(3)	**0.001***
No inj.	12 (11.1)	0		
One dose	1 (0.9)	20 (14.4)		
Two doses	78 (72.2)	75 (54.0)		
Two + doses	17 (15.7)	28 (20.1)		

*p-value less than 0.05 indicates significance

CHAPTER V

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

The main objective of the thesis was to assess the antenatal care utilization and client satisfaction and to identify the influencing factors of antenatal care utilization and client satisfaction and to determine the relationship of antenatal care utilization and client satisfaction with different independent variables in women of rural and urban areas of Kathmandu district of Nepal. In this study total 292 delivered women (with child less than 12 months of age), 188 from urban area and 104 from rural area of Kathmandu district of Nepal, was interviewed after the tryout of the questionnaire for two times after one week apart during the February 2013 to March 2013. This chapter composed of the discussion, conclusions and recommendations regarding the research findings.

5.1 Antenatal Care Utilization

In this study, overall ANC utilization was 84.6% and in urban areas 83% and in rural areas 87.5%. ANC utilization was similar to the previous report by NDHS 2011 and DoHS 2011 of Nepal but we found slight higher utilization in rural areas than urban areas. According to the UNICEF global database 2011, Worldwide 53 percentage of pregnant women were attended the recommended ANC visits i.e. minimum of four times antenatal care visits during the period of 2005 to 2010, but in low income countries only 36 percentage of pregnant women attended four or more than four times antenatal care visits and in developing countries, the proportion of pregnant women who attended at least one ANC visit has been increased from approximately 64 percentages in 1990 to almost 81 percentages in 2009. Most of the previous studies found that ANC utilization was more in urban areas than in rural areas. Babalola S., et al. 2012, in Nigeria; found 60% of overall ANC utilization and utilization was more in urban areas than rural areas. Manithip C., et al. 2010, in Laos PDR; found 51% of overall ANC utilization with more utilization in urban than in rural areas. Neupane S., et al. 2011, in Nepal; also found that ANC utilization was more in urban areas than in rural areas. A study by Lindsay Cristina 2012, in Brazil

found 92% of ANC utilization. Overall ANC utilization in study area shows improving in trends. All of previous studies shown that urban women were more likely to visit ANC clinic than rural women, this is probably due to fact that women in urban areas are better informed and have several access for the health facilities and rural women have limited access to ANC services as they have to depend upon Government health facilities. Availability of Government health facilities and health care provider, availability of medicine and good access to health facilities, active role plays by the Female Community Health Volunteer (FCHV) in each ward level of every VDC, good access to information and awareness programme conducted by the Government, and several other programme related to safe motherhood supported by Government and NGO/INGO may all contribute to improving trends of ANC utilization in rural areas.

5.2 Complete Utilization of ANC

WHO recommended a minimum of four antenatal visits required for normal pregnancy. Antenatal care is one of the four pillars of the Safe Motherhood and Newborn Health (SMNH). The one of the goal of the SMNH Programme (2006 – 2017) in Nepal is to improve maternal and neonatal health and survival especially of the poor and socially excluded with the purpose of equitable service utilization of maternal health and delivery conducted by well managed health sector. A minimum of four ANC visits recommended for pregnant women without any complications. In this study, four or more than four ANC visits known as complete use of ANC, among the total 247 ANC users in both settings, only 144 (58.3%) of the respondents had four or more ANC visits in their last pregnancy [urban = 93 (59.7%) and rural = 51 (56%)]. Although ANC utilization was slight higher in rural area but complete utilization of ANC was slight higher in urban area. The findings of this study are very much similar to annual report of DoHS 2011 and NDHS 2011 of Nepal but one of the study in same rural area (Jhor Mahankal VDC) in 2005 by Pradhan A., et al. 2005, found 62% of four ANC visits (study done only on 50 women) and the data provided by Jhor Mahankal VDC shown that 50 % of four ANC visits in 2011 and study by Sanjel S., et al 2011, in Tamang community of Nepal found 46.4% among the total ANC users had four ANC visits.

In contrast, Study by Barnett S., et al. 2006, in Bangladesh also found low coverage of 4th ANC visit (only 19%) among the 1st ANC visit (47%). In Laos PDR only 51% had one ANC visit and among them 63% had visited ANC 3 or more times, study by Manithip C., et al. 2010. A study by Toan K Tran., et al. 2011, in Vietnam also found almost 100% ANC utilization in both settings but among them only 77.2% had 3 or more ANC visit in rural areas whereas 97.2% had 3 or more ANC visits in urban areas. Worldwide 53% had complete ANC visits and only 36% had complete ANC visits in low income countries during the period of 2005-2010, although the coverage of antenatal care is high, in the developing world, just half of pregnant women receive the recommended minimum of four antenatal care visits (UNICEF 2011, UNICEF/WHO 2008, Bennet et al).

In this study, complete ANC utilization seems to be increasing in trends it may be due to the Government of Nepal has given priority to safe motherhood program for reducing maternal and neonatal mortality and morbidity and Maternal health services of Nepal, is one of the basic functions of health services delivery of government sector. Government of Nepal initiated Ama Surakshya Program (maternity security program) focuses on both building and strengthening the concept of health as human right by saving the lives of mothers and placing the women's health as a priority agenda of nation. The program was implemented by Government of Nepal since 1st Magh, 2065 BS (Jan, 2009 AD). The aim of this program is to increase in the access and utilization of safe maternal and newborn health (SMNH) services especially by the poor and socially excluded groups of the community (Ama Surkashya Program, MOHP, Nepal 2065) and free health service at government health facilities.

5.3 Antenatal Care utilization with demographic characteristics

By the extensive literature review, general characteristics like socio-demographic, socio-economic, and other characteristics of women are always considered as an influencing factor for antenatal care utilization by women. This study has also focused on women's characteristics like age, occupation, educational status, ethnicity, parity, perception of pregnancy, information exposure etc.

ANC utilization had statistically significant association with Age ($p<0.001$), Ethnicity ($p<0.001$), Religion ($p=0.013$), Educational status ($p<0.001$), Occupation of

the respondents (p=0.005), Source of Income (p<0.001), Income of the family (p<0.001), Food Security (p<0.001), Type of family (p<0.001), Head of house (p<0.001), Economic control (p<0.001) and Parity (p<0.001). ANC utilization was high in 20-24 years of age group from upper caste group and Hindu by religion. Similarly, ANC utilization was high in literate women than illiterate and most of the respondents were secondary level educated and most of them were housewife by the occupation Likewise, most of the respondents were from joint family in both settings and had two children. The women who are lived within joint family and the household which are headed by father in law were more likely to visit ANC clinic than those women who were live in nuclear family and those household were headed by other than father in law i.e. husband or mother in law. Although, decision maker on health care utilization found high on both (husband and wife) followed by husband alone and respondents herself but association between decision maker on health care utilization and ANC utilization is statistically not significant. Complete ANC utilization had significant association with age of the respondents, ethnicity, educational status, occupation, family income, head of house and control of economic activities and with parity.

The results of this study are supported by several previous studies in different countries in the past; according to the NDHS 2011 and Annual report of DoHS 2011 in Nepal, 85% of the pregnant women had ANC utilization and 72% in Jhor Mahankal VDC and Younger pregnant women were more likely to receive antenatal care from a skilled health care provider than older pregnant women and pregnant women were much more likely to receive care from a skill provider for their first birth than for the birth order six and higher. NDHS 2011, also reported that women's educational status has positive association with ANC visits; women with secondary level or higher education are more than twice as likely to receive antenatal care from skilled health care provider (89%) than women with no education (42%).

This result also support by the study done in Ethiopia, Fekede B et al. 2007, also shown that religion, occupation, income, age were statistically significant association with ANC utilization but **in contrast**, they found that housewives were less likely to attend ANC than others (students and farmers) and the study also shown that women in the age group 15-24 were more likely to attend ANC 2.75 times more

than that of women in the age group 25-34 years. Celik Y et. al 2000 and Adamu and Salihu et al. 2002, also found significant association of ANC utilization with ethnicity and religion. This result also supported by Neupane S., et al. 2011, they found majority of respondents were 21-25 years of age and statistically significant association between ANC visit and timing of ANC visit with age of the respondents. Older and socioeconomically disadvantaged women had late ANC and few ANC compare to younger and advantaged group, they also found significantly association between income and ANC visit and they also described that women with no education had higher probability of late antenatal care visits and had almost seven-fold the risk of no care than those who had at least some education and they also found that higher the parity fewer ANC or late ANC.

A study in Nepal by Matsumura M., et al. 2001, also found that women from nuclear families were considerably less likely to use ANC than women from joint family and **in contrast**, they found no effect of occupation on utilization of health care services and women from male headed households were significantly less likely to use ANC. A study in Nigeria by Dairo M.D., et al. 2010, in urban and rural areas, shown that the women who were 25 years or more were more likely to attend ANC visit than women who were less than 25 years of age and they also found that the participation of women in taking decisions for health care utilization had not significant association with use of antenatal care service. Manithip C., et al. 2010, in Laos PDR also found significant association of ANC utilization with age of the respondents and income of the family and they also found positive association between education and ANC use. A study in Bangladesh by A.H.M. Kishowar Hossain 2010, also shown ANC utilization was high in urban areas and younger women were more likely to receive ANC service than older women and they also found that women of low birth order were more likely to receive more ANC services than women of higher birth order. Parity is statistically significant factors for ANC utilization, this also supported by the Simkhada B., et al. 2007. A study by Nisar N., et al. 2003, in Pakistan found that income of households had statistically significant association with utilization of antenatal care (higher income women were twice likely to use antenatal care services). A study by Sanjel S. et al. 2011, in Tamang community of Nepal, also found significant association between numbers of child birth and ANC visits. Study in rural

areas of India by Metgud. C.S., et al. 2009, also supports the results, they also found women with increasing age, parity and number of children were less likely to visit for ANC.

In this study, educational status shown positive association with antenatal care utilization and this supported by several previous studies, this implies that educated pregnant women are more aware about the problems that might occur during pregnancy and education is likely to enhance female autonomy thereby women develop greater confidence and capabilities to make decisions regarding their own health, as well as their children's health.

5.4 Association of ANC Utilization with Social Supports

Most of the respondents were involved in social activities in both areas but there was no significant association with ANC utilization and very few of them involved in mother group but ANC utilization had negative association with mother group, in Nepal, mother group is formed by the community that take care of pregnant women and informed them for regular and timely ANC visit in the community. Among all of the inspiration of ANC visit, ANC utilization and complete ANC utilization had significant association with inspired by self, inspired by mother in law, inspired by father in law. Similarly, most of the ANC visits were facilitated by mother in law, relatives and husband in both settings, in urban area facilitated by mother in law more than others and in rural area facilitated by relatives more than others but the association between facilitation of ANC visit and ANC utilization was not significant. Most of the respondents felt that ANC visit was for better health of both mother and child and some of the respondents also suggested by family for ANC visits. ANC utilization and complete ANC utilization had significant association with social barrier for no ANC visit, similarly, complete ANC utilization also had significant association with time factor, and health service related factors and shyness for less than four ANC visits. Among non ANC users, social barrier and household barrier and time factor were predominant barriers in both areas for no ANC visit. These results shown that the mothers of both settings of Katmandu district who had family support for their ANC visits, inspired by family members for ANC visit were more likely to use ANC clinic and complete ANC visit than those mothers who didn't had inspiration and facilitation

for ANC visit and had social, household and time factor as a barrier for ANC visit even almost all of them heard message about ANC in last month and also had good source and media of health information and positive perception about pregnancy in both areas. Family support, inspiration, social barrier, household barrier and time factor all may influence the ANC utilization.

This result supported by Zeine A. et al 2010, a study in Ethiopia, they found ANC utilization had positive association with husband's attitude and family matters, lack of awareness, too far facility, no husband support all contributed for no ANC visit and study by Adamu YM., et al. 2002, in Nigeria also found that husband's refusal was one of the major reasons for non utilization of ANC and study by Simkhada B., et al. 2007, also found that social support by family members and relatives significantly affects the ANC utilization. A study by Dairo M.D., et al, 2010, found that the family where health care decision taken by both were more likely to have ANC visit and religious and distance were one of the reasons for no obtaining ANC visit. A study by Nisar N., et. al, 2003 in Pakistan, they found 49% of non ANC users and among them, didn't know ANC was required, no inspiration or advised by anyone, no permission from home, health facilities was far away and transportation not available was main reason for no ANC visit and they also described that women's lack of autonomy was a serious constraint to receive antenatal care and cultural restrictions on mobility were significant barrier to women's access to maternal health services. Simkhada et. al, 2010, an qualitative study in Nepal, found that mothers in law have a strong influence on ANC utilization as the mothers in law have positive influence when they encourage for ANC check up and also have negative influence and they didn't support and encourage for ANC check up as they expect that daughter in law should fulfill their household duties and they also perceived that ANC check up was not beneficial based on her own past experiences. Leal Mdo et al. 2011, Antenatal care was associated with high social capital, socioeconomic status and working during pregnancy and contextual social capital and social support were found to be social determinants for the appropriate use of antenatal care and they also found that lower social capital, socioeconomic status and low social support were associated with inadequate ANC utilization. Study in Indonesia, by Agus and Horiuchi 2012, found 77.9% of four ANC visit among pregnant women and women encouraged by their family member had

higher traditional beliefs and the traditional beliefs followed by family income had influence on choice of care giver. Aikawa R. et.al, 2006, in Vietnam, found majority of the pregnant women were encouraged and supported by their husband and family members during pregnancy.

In this study women had various inspiration, supports and facilitation for ANC visit those who had ANC utilization and availability of time factor is another important factor for women in developing countries because they spend more time in their multiple responsibilities such as take care of their children, collecting water or fuel, cleaning and cooking etc in their so they have less time for their own work.

5.5 Association of ANC Utilization with Information and Perception of Pregnancy

Information exposure is also an important factor for a person to be convinced and feel the importance of essential services. Almost all of the respondents (99%) heard the message about health (ANC/PNC/Delivery) in last month and FCHV, Television, Health Workers and Radio were the main source and media of health information in both settings that may also influences the ANC utilization by the respondents in urban and rural areas and among all of them health worker as a source and media for health information has significant association with ANC utilization. Similarly, leader and radio also has significant association with ANC utilization as a source of health information and rest of them has no association with ANC utilization. In this study, more than half of the respondents were perceived that pregnancy was a risky period for women and needs to alert among all ANC users and association between perception about pregnancy and ANC utilization was statistically significant but association of perception of pregnancy with complete use of ANC was not significant. Although, all of the non ANC users heard message about ANC in last month in both settings, also had good source and media of health information but only 30% of them had leaders as a source of health information in both areas, and almost 70% of them had positive perception about pregnancy but they had no ANC visit and among them social barrier and household barrier and time factor all contributed for no ANC visit. More than 60% of the respondents had first ANC visit before four months and 80% of the respondents had normal delivery in their last child birth and there was

significant association of complete ANC utilization with method of child birth and time of ANC visit.

In Nepal, Safe motherhood program initiated Birth Preparedness Package to each and every health facilities and Ama Surakshya program in all birthing centre in which FCHV plays a vital role in the community level so FCHV became a vital source and media for ANC utilization in the community that may also influences the ANC utilization. Information about ANC and perception of pregnancy influence the ANC utilization, this also supported by the study in Pakistan by Fatami Z., et al. 2002, they found that women living in houses with electricity utilized ANC more than those living without electricity and they also describes that presence of electricity is an indirect measure of accessibility to services and is also a sign of social class that create availability of other media for ANC and that influence the ANC utilization. Navaneetham K., et al. 2002, in India also found that exposure to mass media has significant association with ANC utilization. This result also supported by a previous study in Nepal by Sharma k., et al. 2004, they also found that exposure to mass media influences the ANC utilization but they also described that radio programmes and other mass media information were only partially successful in increasing use of maternal health services. A study by Manithip C., et al. 2011, in Laos PDR also shown that women who perceived ANC as somewhat useful or very useful were more likely to use ANC service and knowledge about pregnancy influences the ANC utilization. This also supported by the study in Ethiopia by Zeine A., et al. 2010, that revealed that the women who perceived pregnancy is a risky period were more likely to use ANC service than those considering it risk free. Similarly, Simkhada B., et al. 2006, also described that ideas about pregnancy had an influence on ANC.

5.6 Association of ANC utilization with Health Service

Complete ANC utilization had significant association with distance to health facility and Gender of health service provider and received necessary medicine. More than 80% of the ANC users had distance less than 30 minutes to reach the health facility and visit Government health facilities for ANC check up and received necessary medicine during ANC visit and had female ANC provider during ANC visit. Among the several health service related barrier for no ANC visit or less than four

ANC visit, ANC utilization had significant association with health facilities was far away, had better care at home and need to pay money whereas complete ANC utilization had significant association with good health service and good behavior of health worker. These results shown that distance, cost influences the overall ANC utilization and once the pregnant women had ANC visit then they complete the ANC visit due to good health service and good behavior of health worker. Overall distance, gender, availability of medicine, cost, good health service and good behavior of health worker were the most important influencing factors for ANC utilization. The findings of this study supported by Dairo M.D., et al. 2010, in Nigeria, also found cost, long time, and religious reasons are the barriers for no obtaining ANC. Fatami Z., et al. 1997, also found that most of the women received antenatal care from health provider in the government health facilities. Similar studies by Manithip C., et al. 2010, and Simkhada B., et al. 2008, displays those women who had to use public transportation to reach ANC clinic less likely to use the services than those living within walking distance. It was also associated with the availability of service or a health care provider and waiting time for services. Accessibility of services and distance was also significantly associated with ANC use, an increase in distance or travel time to reach the nearest health facilities was associated with fewer antenatal visits. Zeine A., et al. 2010, in Ethiopia; found that the women who residing nearer the walking distance for health facilities were 4 times more likely to utilize ANC than those who residing farther and lack of awareness, too far facility, long waiting time were the main reasons for not having ANC.

5.7 Overall satisfaction

This study describes the satisfaction among antenatal care users in rural and urban area of Kathmandu district Nepal. In this study all together 292 mothers were participated who were recently delivered (who had child less than one years of age). Satisfaction was measured in three different steps first of all overall satisfaction, satisfaction on different aspect such as information, providers care, staff interest and system characteristics and association of satisfaction among different variables. Overall satisfaction level was lower than unsatisfaction, more than half of the respondents were unsatisfied with antenatal care service they received in both settings.

Satisfaction level was also measured in subtopics like information, provider care, staff interest and system characteristics but none of them has significant association with ANC services and satisfaction level was similar in urban and rural areas. Among the all ANC users, only 40% of the respondents were satisfied who had four or more ANC visits. Although, most of the respondents were unsatisfied but they were more likely to have four or more ANC visits, may be the incentive program under Ama Surkshya Program by Government of Nepal is responsible for more ANC visit by unsatisfied respondents. Government provides 400 NPR to those women who completed four ANC visit as an incentive and mass media information and awareness of mothers towards antenatal care, may all contribute for four or more ANC visit.

There was very low level of satisfaction that we found in this study as compare to several previous studies in different countries where satisfaction level was quite high. A study by, Fawole OA., et al. 2008, they found almost 80.3% of the respondents were satisfied about the ANC they received and 95.2% satisfaction level found about the information that provided by provider care and 94.4% of the respondents were satisfied with attitude of the provider care and they also explain that overall satisfaction level was quite satisfactory and women were satisfied with clinic amenities, service and procedures. Another study in India by Puri N., et al. 2012, also found almost 86% of the respondents were satisfied, they studied in clinic (OPD care) and they measure the satisfaction level on prescription quality, availability of facilities, signage display facility and doctor-patient interaction. In contrast, Zeidan. ZA., et al. 2011, in Khartoum, found only 38% of the respondents were fully satisfied with the service they received in both private and public antenatal care clinics but satisfaction was quite high 54% in private clinics than 22% in public clinics .

5.8 Client satisfaction and socio-demographic characteristics

Client satisfaction had significant association with educational status, occupation and food security of family. Age, ethnicity, religion, monthly income, source of income, family type, head of house, parity had no significant association with client satisfaction. Advantaged ethnic group was more satisfied than disadvantaged ethnic group and by the religion Hindus were more satisfied than other religious group. It was found that, purchasing capacity, family support and education

status and awareness level was quite high in advantaged ethnic group. Cultural practices, time for antenatal care visit and behavior of service providers towards disadvantaged ethnic group may reduce the satisfaction level among the disadvantaged ethnic group. In this study, ANC utilization and client satisfaction level were quite high in those respondents who were attended school and secondary level educated, the association between school attainment and client satisfaction was statistically significant ($p = 0.005$) and the association between education level and client satisfaction was also statistically significant ($p = 0.006$). Educated mothers may aware about her health and child health during pregnancy and those mothers perceived that pregnancy is a risky period may use ANC utilization more and more satisfied with outcomes. Occupation of the respondents also had statistically significant association with client satisfaction ($p = 0.003$) and most of the respondents were housewife by her occupation. In this study, women who didn't have enough time for ANC check up as they were busy with their work (service, business) had low level of satisfaction even they were highly educated. Ignorance, busy schedule, higher expectation and decreasing belief on health care services might be the causes for unsatisfied mothers who had higher education.

This result supported by some previous studies and some results are contrast to the previous studies; a study by, Oladapo, O. T., et al. 2008, found parity, number of living children > 2, employment status, religion had significant association with client satisfaction whereas there was no significant association of client satisfaction with age, monthly income, ethnicity, educational level and duration of pregnancy and frequency of antenatal visits. Zeidan. ZA., et al. 2011, also found no association between age and client satisfaction (similar to this study) but they also found no association of women's education and women' occupation with client satisfaction but in our study we found significant association of women's education and occupation with client satisfaction. A study in India by Puri N., et al. 2012, also found there was no significant association between age, education, occupation and client satisfaction.

Likewise, high satisfaction level was found in middle income family (monthly income 10000 – 20000 NPR) and lowest level of satisfaction was found in high income family (monthly income more than 20000 NPR) but there was no significant

association between income and client satisfaction. The expectation level about the ANC service may be high in high income family, so may be the cause for low satisfaction among high income mothers. The family who had service and business as a major source of income satisfied more than those families who have to work as labor for income because these families spent a lot of time for their work and get little money and didn't have enough time for ANC check up. Similarly, joint family had higher satisfaction than nuclear family and the household headed by husband or both (husband and wife) had higher satisfaction level but none of them have statistically significant association with client satisfaction. Among the socio-economic variables, food security for family has significant association with client satisfaction. The family whose food security was sufficient for six months had higher satisfaction. The respondents from joint family had family support, they also provide emotional support and availability of the food may all influences the satisfaction level, family with less food security may spent time for fulfillment of daily requirement and women may have torture as well from family members and in South East Asia Region, mothers of low income family have to do a lot of work in home as for example cooking, washing clothes, take care of her child, collecting water from the source etc. that all may responsible for low satisfaction level.

This result also supported by Das P., et al. 2010, they also found that satisfaction level was high in housewives than working women, graduate mothers had low level of satisfaction than illiterate mothers. With the increasing level of education, one's expectation also increases, which may lead to less satisfaction among highly educated women and housewife were inclined to use the services and were more satisfied with service they received than working woman. Fawole OA., et al. 2008, Nigeria, also found that the women's perception of duration of the ANC clinic visit was significantly influenced by her educational level and socio-economic status and women with higher level of education would be conscious of time as a consequence of job demands.

5.9 Social support, Information, Perception and Client satisfaction

More than 90% of satisfied mothers were involved in any social activities such as local clubs, political parties, as a local leader and member of school and college

committee. Involvement of any social activities provides general awareness about various subjects. There were various factors that we found in this study among the pregnant women which prevent mothers to visit antenatal care appropriately, among them time factor had statistically significant association with client satisfaction. Similarly, satisfaction level was found high among those household in which decision for health care utilization taken by both (husband and wife) and satisfaction level was quite low (24.1%) in those household in which decision taken by respondents herself for health care utilization. In this study, we found that pregnant women in both settings had a lot of support for family members, relatives and husband as well and they also had facilitator and inspiration for ANC visit and joint decision provides easy to tackle other circumstances within family and support from family which may results in high satisfaction to mothers form joint family, decision taken by both etc. In this study, almost all of the women had information about ANC/PNC/Delivery in last month and they had good source and media of health information as well, ANC utilization was also high among those mothers who had information about pregnancy and informed mothers were more satisfied than who were not informed. Information provides basic knowledge about ANC for those who were pregnant for first time and they were informed all of the basic activities regarding ANC visits and in this study ANC utilization was high in those women who perceived that pregnancy was a risky period, so may all these affects the attitude of the pregnant women and resulting high satisfaction level in those women who perceived pregnancy was a risky period and who were informed about ANC and those who had good source of health information like TV, radio, health workers, newspaper, FCHV. So, information plays a vital role for both ANC utilization and client satisfaction. Several previous studies shows that women who had better information about ANC and those who had social support, family support were more likely to have more ANC utilization with high satisfaction as for example Puri N., et al. 2012; Isatou K. Jallow et al. 2012; Zeidan ZA., et al. 2011; and Das P., et al. 2010.

5.10 Client Satisfaction and Health Service

Most of the respondents had less than 30 minutes distance to reach the health facility and distance to health facility also had statistically significant association with client satisfaction, satisfaction level was quite high in those respondents who had less than 30 minutes distance to reach the health facilities or mothers who lived nearer to health facilities (walking distance less than 30 minutes) were more likely to satisfy then those who lived in distance of more than 30 minutes from health facilities. Similarly, most of the respondents were satisfied with female as a health service provider and gender of health service provider also had significant association with client satisfaction. Mothers who received antenatal care from female care provider were more likely satisfied than who received antenatal care from male care provider. Most of the respondents visited government health facilities for ANC check-up and place of ANC visit had significant association with client satisfaction and good service of government health facilities also had significant association with client satisfaction. Among the various health service related barriers for no ANC or less than four ANC visit, client satisfaction had significant association with tradition and lack of money. Mothers who received necessary medicines were more likely to satisfy than mothers who didn't receive medicine during antenatal care visit and most of the respondents were satisfied with received necessary medicine during ANC visit and had significant association with client satisfaction. Health services factors like suitable health facility, neatness, suitable opening and closing time, health system characteristics all those factors also affect the satisfaction level of antenatal care users. Among the service received by pregnant women during ANC visit, none of them had significant association with client satisfaction except TT vaccination.

Some of the results of this study supported by previous studies and some results are contrast to the previous studies, as for example; Zeidan ZA., et al. 2011, found no significant association between satisfactions of women in public or private clinics. They also found no significant association with type of care provider and parity with client satisfaction and health service related like tetanus vaccination, iron supplementation, measuring blood pressure, health education on nutrition and health education on danger also had no significant association with client satisfaction but they found significant association of client satisfaction with type of services, attitude

of care providers, and waiting time. Isatou K. Jallow et al. 2012 in Gambia, found 97.9% satisfaction in private facilities compare to 79.9% in public facilities and they also found women's poor perception with public facilities included their unhappiness with the dimension of inadequate privacy, inadequate space and neatness and inadequate communication with care providers.

5.11 Conclusions

The main objective of this cross-sectional study was to assess the antenatal care utilization and client satisfaction and to determine the influencing factors of ANC utilization and client satisfaction and to determine the relationship of antenatal care utilization and client satisfaction with different independent variables in urban and rural areas of Kathmandu district of Nepal. The total of 292 recently delivered mothers (Rural = 104, Urban = 188) were interviewed about their recent pregnancy by using a structured questionnaire. According to the findings and discussion, here are some conclusions made:

Major findings of the study; Overall ANC utilization was 84.6% (urban 83% and rural 87.5%) and ANC utilization was higher in rural areas than in urban areas. Complete ANC utilization was 58.3% (urban 59.6% and rural 56.0%) and complete ANC utilization was higher in urban areas than in rural areas. Overall satisfaction level was 43.7% (urban 44.2% and rural 42.9%).

Most of the demographic characteristics, social support, family support, inspiration of ANC visit, perception of pregnancy , media and source of health information and most of the health service related factors were similar in both rural and urban area. Facilitation, inspiration, family support plays important role in ANC utilization and Social barrier and household barrier was the major barrier that we found among non ANC users in both areas.

Among socio-demographic characteristics, age, ethnicity, religion, educational status, occupation, income, food security, type of family, parity, control of economic activities were found statistically significant (p-value < 0.05) association with ANC utilization. ANC utilization also had significant (p-value < 0.05) association with Social barrier, time factor, facilitation, inspiration of ANC visit by mother in law, father in law and inspired by self, radio as a media and leader and health worker as a

source of health information and with perception of pregnancy. ANC utilization also had significant (p-value < 0.05) association with health service related factors like distance to health facility, gender of ANC provider, availability of medicine and place of ANC visit. Client satisfaction had significant (p-value < 0.05) association with education, occupation, food security, information, and perception of pregnancy, distance of health facility, place of ANC visit, gender of ANC provider and availability of medicine.

Educational status, occupation, income and food security, facilitation, inspiration of ANC visit, information and perception of pregnancy, distance, gender of ANC provider, availability of medicine are the major influencing factors for ANC utilization and client satisfaction in urban and rural areas of Kathmandu district of Nepal. Additionally, age, ethnicity, parity, family type, social barrier and household barriers are also the major influencing factors for ANC utilization in urban and rural areas of Kathmandu district of Nepal.

5.12 Benefits of the Study

The result of this study would be helpful for public health authorities, health personnel to understand the factors influencing the utilization of antenatal care and client satisfaction in Kathmandu district.

The outcome of this study will be useful for formulating strategies to strengthen and improve antenatal care utilization and client satisfaction in pregnant mothers.

5.13 Recommendations

5.13.1 Recommendation for policy makers

Based on the study findings and discussions, the following recommendations have been made in order to further enhance antenatal care utilization at rural and urban health centers and similar places in Nepal.

1. Health education and communication underlies the all public health program and the ultimate outcome of health education and communication is to promote desired behavior change among the people. Health education and behavior change communication (BCC) are key components of health promotion that may increase in knowledge and improve behaviors regarding key health issues of all castes, ethnic

group and disadvantaged group that creates demand for quality health services and improving access and trust in health services and ultimately encouraging people to utilize health service thereby improve antenatal care utilization and client satisfaction. Health education and awareness programme is necessary in each section of antenatal clinics. The education programme should include message to prevent some traditional misunderstandings. Promotion of maternal education is the must before thinking of a better utilization of antenatal care. The policy regarding maternal health should always be focused on rising awareness and improving general literacy among women. Sri Lanka could be a better example of women literacy and better maternal health indicators, where the drastic decrease of MMR is considered as the result of women education.

2. As the study had revealed, despite higher percentage of antenatal care utilization there were also notable percentages of non- utilization of antenatal care and higher percentage of dissatisfaction on antenatal care services. The women receive a number of ANC check up does not endure that they receive quality service as well. So, to make the service more effective and more acceptable among the clients, it would be important to increase work efficiency in the clinics. Midwives and nurses are the main ANC providers and they should aware of potential barriers for ANC utilization and should be trained to sensitive about the women's socio-economic situation and their cultural and traditional beliefs and their communication skills. Increasing the accessibility, availability and utilization of maternal health care and strengthening technical capacity of service providers at all levels. Assigning additional examiner, assigning female health provider, or train and manage the existing human resource for health, routinely conduction of orientation programme, given training on communication skills etc. women's waiting time for the service can be utilized in health education, entertainment and awareness creating programme. It can help them thinking that their time has been utilized in a purposeful way.

3. Role of other family members and social supports are seemed to be crucial in many aspects of women's pregnancy related matters and they inspire and influence the pregnant women for ANC visit so awareness regarding antenatal care towards the family members will be very useful, that inspire the pregnant women for ANC visit and also facilitates them for ANC visit and it will support for the health of mother and

better pregnancy outcome. So, the awareness rising program should be always focused on them.

4. Programmes aimed at improving maternal health care in general and participation in antenatal care and client satisfaction in particular should target all Nepali women, especially those in rural areas with no education, with low socio-economic status, disadvantaged group, who have high parity and older women and those from minority group. The health facilities in the rural areas need to be fulfilled with necessary instruments and medicines (materials) related to antenatal care. The finding of the present study has shown that women always use all available services once they attend in the antenatal clinic. If service is available in the site, it results in higher utilization and higher satisfaction to mothers.

5. Strengthening of FCHV in the community and additional training and orientation programme for FCHVs is recommended as the FCHVs have already made a major contribution for reducing under five and maternal mortality and increasing use of family planning in Nepal, as a major role of FCHV is to promote health and healthy behavior for the promotion of safe motherhood, child health, family planning and other basic health services with the help of health personnel from health post, sub health post and primary care health centre.

6. Last but not least, as Nepal is vastly diversified in terms of its geographic structure and cultural variation, situation and determinant of antenatal care utilization might be vary across the places and people. An existing study concerning mainly on the assessment of antenatal care utilization and client satisfaction among rural and urban areas of Kathmandu.

5.13.2 Recommendations for future research

1. A large population based research can be fruitful for determining the influencing factors of antenatal care utilization and client satisfaction in rural and urban areas.

2. There are several barriers for ANC visit that we found in this study like social barriers, household barriers etc, and a qualitative research recommended for elaboration of such barriers in the community.

3. Due to time constrains, study design only two VDC were included in this study and for the various characteristics of ANC utilization and Client satisfaction in urban and rural areas, an qualitative research is recommended and most recent delivered women and pregnant women should included in study population is also recommended.

5.14 Limitations

The study was conduct in only two VDC of the Kathmandu district and sample size only 292 (urban=188 and rural 104) so it may not present all delivered women of the Nepal. As the study areas are from Kathmandu district where almost all of the health facilities are available, the context of two VDC of the Kathmandu district may not represent the whole country and result of this study may not be generalizables. Due time limitation, study design was quantitative study, and designed to take only two VDCs (one from urban area and one from rural area), for the elaboration of various characteristics of ANC utilization and client satisfaction more qualitative study is required. The information regarding pregnancy was collected retrospectively from those women who have already delivered and in order to minimize the recall bias, the information was obtained from delivered women with child less than 12 months of age and in inclusion criteria, only delivered women were included and pregnant women were not included so this is one of the limitation of our study. There are many other variables, but the variables taken for this study are mostly stated in various literatures. Therefore, the result of this study may not be complete in relation to the all influencing factors for antenatal care utilization.

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APPENDICES

Appendix – A

English questionnaire

Respondent ID No._____

Questionnaire

Assessment of antenatal care utilization and client satisfaction of women in rural and urban areas of Kathmandu district of Nepal

Name of interviewer: _____ Date:_____

Setting: ☐ Urban ☐ Rural

Specific place (tole name):_____

Ward no: ☐

Section 1: Socio-demographic characteristics

1. How old are you? (Age in complete years)_____
2. Ethnicity (on the basis of HMIS section of DoHS)
   - ☐ Dalit ☐ Disadvantaged Janajati
   - ☐ Disadvantaged non-Dalit Terai caste groups ☐ Religious minorities
   - ☐ Relatively advantaged Janajati ☐ Upper caste group
3. What is your religion?
   - ☐ Hindu ☐ Buddhist ☐ Muslim ☐ Christian
4. Are you living with your family?
   - ☐ Yes ☐ No
5. Have you ever attended school?
   - ☐ Yes ☐ No
6. What is the highest class you completed?
   - ☐ Primary ☐ Secondary ☐ Higher secondary ☐ Graduate
   - ☐ Others (specify)_____
7. What is your main occupation?
   - ☐ Agriculture ☐ Business ☐ Service ☐ Wage labour
   - ☐ House wife ☐ Others (please specify).....

8. What is your major source of income?

   ☐ Agriculture ☐ Business ☐ Service ☐ Labour

   ☐ Other Specify.....

9. How many amounts do you have your income? ……..... (Please specify in NRS).

10. Annually how long do you sustain from your major source of income?

    ☐ Less than 3 months ☐ Three months

    ☐ Six months ☐ Twelve months or more

11. How much Land does u have? Write in Kattha.....

12. Type of House??

    ☐ Pucca ☐ Semi-Pucca ☐ Kachha

13. Including you, how many people live in this household?

    Number of persons…….(relationship with you).

14. Please classify the type of family.

    ☐ Nuclear Family ☐ Joint family

15. Who is the head of your house?

    ☐ Father in law ☐ Mother in law ☐ Husband ☐ Self

16. Who controls the financial activities of household?

    ☐ Husband ☐ Self ☐ Both ☐ Other

17. Till date, how many times have you got pregnant? .....

18. Have you experienced abortion in past pregnancy?

    ☐ Yes ☐ No

19. What was the birth date of your last child? .....

Section 2: Social support, information, barriers and Perception of ANC and pregnancy.

20. Did you involved in any community or social activities?

    ☐ Yes ☐ No

21. Did you involved in Mothers group?

    ☐ Yes ☐ No

22. In last months, have you heard or see any message about maternal health? (ANC, PNC, Delivery)?

☐ Yes ☐ No

23. If yes, what was the media? (Multiple choice question).

☐ Radio ☐ TV ☐ Newspaper ☐ Poster/hording boards

☐ HWs ☐ FCHV ☐ Street dramas ☐ Others (specify)_____

24. From where do you get health related messages or information? (Multiple choice question)

☐ Leaders ☐ Radio ☐ TV ☐ FCHVs

☐ Health persons ☐ Others (Specify)_____

25. Who is the decision maker in your family for seeking health services for you?

☐ Husband ☐ Self ☐ Both ☐ Others (specify)_____

26. What do you think about pregnancy?

☐ It is normal physiological process no need to alert

☐ It is physiological process we needs to be focus because it is risky Period for mother

☐ Don't know

27. Have you visited for ANC in last pregnancy?

☐ Yes ☐ No

(If NO then skip to question no. 33)

28. If yes, how many times did you visit?

☐ One ☐ Two ☐ Three ☐ Four ☐ More than 4 times

29. When did you visited first time?

☐ Before 4 months ☐ 4-5 months

☐ 5 – 7 months ☐ More than 7 months

30. Why did you visit ANC?

☐ For good mother and child health

☐ Suggest by family members

☐ HWs or FCHVs suggest

☐ Don't know

31. Who inspire you to visit ANC?

☐ Husband ☐ Father in Law ☐ Mother in law ☐ FCHVs

☐ HWs ☐ Relatives ☐ Self ☐ Others (Specify)_____

32. Who did facilitate you during ANC visit?

☐ Husband ☐ Relatives ☐ Mother in law

☐ Friends ☐ Others (Specify)_____

33. What are the barriers for **not visiting ANC visit** or **not visiting appropriately for ANC?**

☐ Social barriers ☐ Time factor ☐ Economic factor

☐ Cultural barrier ☐ Household factors

☐ Health service related factors ☐ Due to shyness

34. By which method did you gave birth to your last child?

☐ Normal delivery ☐ Instrumental delivery

☐ C/S ☐ Others (Specify)_____

35. Did you go to in traditional healing practitioners for health problems?

☐ Yes ☐ No

Section: 3 Health service

36. How far yours near health institution (Time for walking distance)?

☐ Less than 30 minutes ☐ More than 30 minutes

37. Where did you go for ANC check up?

☐ Government HF ☐ Private HF

(If Private HF then skips to question no. 38)

38. If Government HF, why?

☐ HF nearby ☐ Get cash incentive ☐ HWs behaviours

☐ Quality of service is better ☐ Others (Specify)_____

39. If Private HF, why?

☐ Can afford cost ☐ Quality of services ☐ HWs behaviours

☐ Service is available any time ☐ Others (Specify)_____

40. If no ANC, or less than 4 times, WHY?

☐ Tradition of no mother going to ANC check-up

☐ HF is far away/transportation is not easy

☐ Service expensive ☐ HWs behaviour not good

☐ Male health worker at HF ☐ Get good care at home

☐ Need to pay cash for check up ☐ Lack of money

☐ No one in family for accompany to go to HF ☐ others.....

41. Which Gender provides you ANC during your last ANC visit??

☐ Male ☐ Female

42. Was there any incidence during your ANC visit time where there were **no service provider in HF** and you return back without getting service?

☐ Yes ☐ No

43. Was there any incidence during your ANC visit time where there were **no adequate equipments in HF** and you return back without getting service?

☐ Yes ☐ No

44. Did you get necessary medicine during ANC visit?

☐ Yes ☐ No

45. What services did you receive when you went for ANC during last pregnancy? (Multiple choice questions).

☐ Medical check-up ☐ Received iron tablets ☐ Received TT

☐ Had blood pressure check-up ☐ Received Deworming Tablet

☐ Received health education on nutrition

☐ Received counseling on danger sign of pregnancy, delivery and postpartum with neonatal danger sign.

☐ Others (Specify)_____

46. How many times did you get TT injection?

☐ 1 dose ☐ 2 dose ☐ 2+ dose

Section 4: Client satisfaction

(I am satisfied with)

S.N.	Questions	6 (Strongly agree)	5 (Moderately agree)	4 (Agree)	3 (Disagree)	2 (Moderately disagree)	1 (Strongly disagree)
Information							
1.	The services of a public health nurse as part of prenatal care.						
2.	The explanation my provider gave to me of what was going to happen during my prenatal visits.						
3.	The explanation my provider gave to me about medical procedures						
4.	The information my provider gave to me about how things are going with my pregnancy						
5.	The kinds of thing my provider discussed during my parental visits						
6.	The explanation my provider gave to me about what I can expect about parenting a newborn						
7.	The way my provider has prepared me for labor and delivery						
Provider Care							
8.	The way my provider treats me						
9.	The respect that I am shown by my provider						
10.	The quality of care that I receive from my provider						

11.	The way I am made to feel that I am not wasting my provider's time						
12.	Being able to ask questions without embarrassment						
13.	Not having to repeat my story every time I come in for a visit						
Staff Interest							
14.	The way the staff expresses concern about my overall personal situation						
15.	The time the staff spends talking about things of interest to me						
16.	The way the staff treats me						
17.	The time the staff takes with me even though I do not have problems with this pregnancy						
18.	The interest and concern the staff have shown me						
19.	The way the staff deals with all my medical problems						
System Characteristics							
20.	The amount of time I wait to be seen by my provider						
21.	The total amount of time I spend at the office/clinic						
22.	The parking facilities of the office/clinic						
23.	The waiting room facilities of the office/clinic						
24.	The examination room of the						

	office/clinic						
25.	My ability to schedule prenatal visits at a time convenient for me						
26.	How easy it is to reschedule my prenatal visits						
27.	How easy it was to get prenatal care early in my pregnancy (that is before the fourth month)						
28.	Have all the recommended tests						
29.	The number of prenatal visits I made during the first six to seven months						

Appendix – B

Informed consent form

Namaste, my name is Dr. Prakash Prasad shah; I am currently doing this research as a part of my study at College of public health sciences, Chulalongkorn University, Bangkok, Thailand. I am conducting this survey with mothers who have child less than 12 months. This information gathered from this survey will be used for study purpose and also for informing health stakeholders at VDC, district and Central level. In this context, I would like to ask you some questions and it will take about 20-30 minutes. Any information that you give during this interview will be kept confidential and not disclosed to any outside the survey team. Your name and identity will not appear anywhere.

Your participation in this survey is voluntary. I would appreciate if you answer all the questions but remember that you are free to withdraw from the interview from the interview at any time or to refuse to answer any particular question that you feel uncomfortable with. However, we hope you will participate in the survey since your views are important.

At this time, do you want to ask me anything about the survey?

So, do I have your consent to proceed with the interview?

YES..... ☐

NO..... ☐

1. Signature of interviewer.....
2. Date.....
3. Respondent agrees to be interviewed.....1
4. Respondent does not agree to be interviewed.....2

Appendix – C

Budget

S.N.	Activities	Expected expenses	Remarks
1	Proposal development final and printing	5500 baht	
2	Travel cost Bangkok to Kathmandu And Kathmandu to Bangkok	22000 baht	(one way fair *2)
3	Travel cost Kathmandu to Jhor Mahankal & Dhaasi VDC and Jhor & Dhapasi VDC to KTM	4800 baht	(30 baht / person *10 persons*8 days)* 2 way
4	Data collection	32000 baht	400 baht/ person*10 persons*8 days
5	Breakfast/lunch	8000 baht	100 baht/ person*10 persons*8 days
6	Stationary Questionnaire printing, Expendable materials for field work	5500 baht	
7	Report printing and photocopy	7000 baht	
8	Miscellaneous	2500 baht	
Total expenditure		87300 baht	

Appendix – D

Time Schedule

S.N.	Activities	Months of Year							
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
1	Topic Selection								
2.	Literature Review								
3.	Thesis Proposal Examination								
4.	Development of tools and content validity								
5.	Try Out								
6.	Data collection								
7.	Data analysis and Interpretation								
8.	Result presentation								
9.	Finalization of Report								
10.	Submission of Thesis								

Appendix –E

Caste/Ethnic Grouping

Dalit

Hill: Kami, damai, Sarki, Gaine, Badi

Terai: Chamar, Mushar, Dhusan/Paswan, Tatma, Khatway, Bantar, Dom, Chidimar, Dhobi, Halkhor

Disadvantaged Janajati

Hill: Magar, Tamang, Rai, Limbu, Sherpa, Bhote, Walung, Byansi, Hyolomo, Garrti/bhujel, Kumal, Sunar, Baramu, Pahari, Yakkah, Chhantal, Jirel, Darai, Dura majhi, Danuwar, Thami, Lepcha Chepang, Bhote, Raji, Hayu, Raute, Kusunda

Terai: tharu, Dhanuk, Rajbansi, Tajpuriya, Gangai, Dhimarl, Meche, Kisan, Munda, Santhal/Satar, Dhangad/Jhangad, Koche, Pattarkatta/Kusbadiay

Disadvantaged non-dalit Terai Caste groups:

Yadav, Teli, Kalwar, Sudhi, Sonar, Lohar, Koiri, Kurmi, Kanu, Haluwai, Hajam/ Thakur, Badhe, Rajba Kewat, Mallah, Nuniya, Kumhar, Kahar, Lodhar, Bing/Banda, Bhediyar, Mali, Kumar, Dhunia

Religious Minorities

Muslims, Churoute

Relatively advantaged Janajati

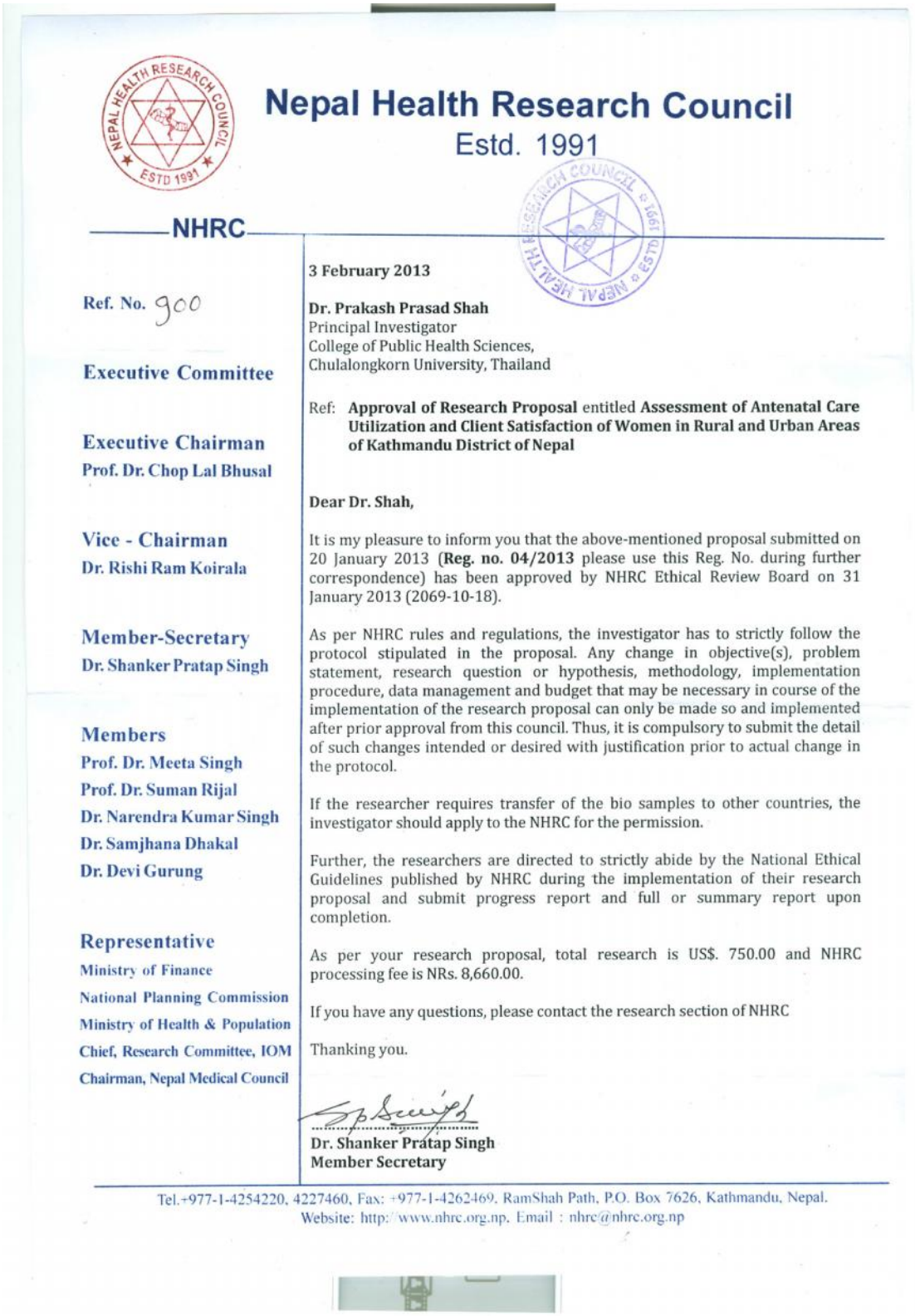
Newar, Thakali, Gurung

Upper Caste groups

Hill: Brahman, Chhetri, Thakuri, Sanyasi,

Terai: Brahman, Rajput, Kayastha, baniya, Marwadi, Jaine, Nuraang, bengali

Appendix - F



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National Planning Commission
Ministry of Health & Population
Chief, Research Committee, IOM
Chairman, Nepal Medical Council

3 February 2013

Dr. Prakash Prasad Shah
Principal Investigator
College of Public Health Sciences,
Chulalongkorn University, Thailand

Ref: **Approval of Research Proposal** entitled **Assessment of Antenatal Care Utilization and Client Satisfaction of Women in Rural and Urban Areas of Kathmandu District of Nepal**

Dear Dr. Shah,

It is my pleasure to inform you that the above-mentioned proposal submitted on 20 January 2013 (**Reg. no. 04/2013** please use this Reg. No. during further correspondence) has been approved by NHRC Ethical Review Board on 31 January 2013 (2069-10-18).

As per NHRC rules and regulations, the investigator has to strictly follow the protocol stipulated in the proposal. Any change in objective(s), problem statement, research question or hypothesis, methodology, implementation procedure, data management and budget that may be necessary in course of the implementation of the research proposal can only be made so and implemented after prior approval from this council. Thus, it is compulsory to submit the detail of such changes intended or desired with justification prior to actual change in the protocol.

If the researcher requires transfer of the bio samples to other countries, the investigator should apply to the NHRC for the permission.

Further, the researchers are directed to strictly abide by the National Ethical Guidelines published by NHRC during the implementation of their research proposal and submit progress report and full or summary report upon completion.

As per your research proposal, total research is US$. 750.00 and NHRC processing fee is NRs. 8,660.00.

If you have any questions, please contact the research section of NHRC

Thanking you.

Dr. Shanker Pratap Singh
Member Secretary

Tel.+977-1-4254220, 4227460, Fax: +977-1-4262469, RamShah Path, P.O. Box 7626, Kathmandu, Nepal.
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BIOGRAPHY

A. Personal Details

Full Name: Dr. Prakash Prasad Shah

Address: Kanchanpur-1, Saptary, Nepal

Phone: 9851135243, 9751035243, 016219711

Email: Prakash_dshah@yahoo.com, prakas35243@gmail.com

Date of birth: 12th January 1972

Nationality: Nepali

Sex: Male

B. Education/Qualifications

Course completed	Institution	Date of Completion
Bachelor of Medicine and Bachelor of Surgery (MBBS)	Institute of Medicine, Tribhuwan University, Kathmandu, Nepal	2006
Health Assistant in General Medicine	Institute of Medicine, Tribhuwan University, Kathmandu, Nepal	1992
Class 10 (SLC)	SLC Board, Nepal	1988

C. Professional Work Experiences

1. **District Health Officer:** District Health office, Humla, Department of Health Services, MOHP Nepal since 29th Dec 2008 to 19th April 2012.
2. **Medical officer:** Prithvi Chandra Hospital, Nawalparasi, Department of Health Services, MOHP Nepal since 7th Nov 2007 to 28th Dec 2008.
3. **Program Co-ordinator for H.A.:** Unique Educational Academy, Rajbiraj Saptary, Nepal since 30th Dec 2006 to 6th Nov 2007.

D. Training

1. Community Based Newborn Care Program (CB-NCP) TOT: MOHP, Nepal
2. National AIDS Prog. Monitoring & National AIDS Database Prog. AND AIDS programme Management Training: UNDP/HAD/MOHP (NCASC).
3. Management of Severe Malnutrition and TOT: CHD (MOHP)/WHO.
4. Health Research Proposal Development: NHRC
5. NSV (Non Scalpel Vasectomy)/CAC (Comprehensive Abortion Care): NHTC